Infectious Diseases of Israel - 2011 edition
Stephen Berger, MD
Copyright © 2011 by GIDEON Informatics, Inc. All rights reserved.

Published by GIDEON Informatics, Inc, Los Angeles, California, USA. www.gideononline.com

Cover design by GIDEON Informatics, Inc

No part of this book may be reproduced or transmitted in any form or by any means without written permission from the publisher. Contact GIDEON Informatics at ebook@gideononline.com.

ISBN-10: 1-61755-100-7

Visit http://www.gideononline.com/ebooks/ for the up to date list of GIDEON ebooks.

DISCLAIMER: Publisher assumes no liability to patients with respect to the actions of physicians, health care facilities and other users, and is not responsible for any injury, death or damage resulting from the use, misuse or interpretation of information obtained through this book. Therapeutic options listed are limited to published studies and reviews. Therapy should not be undertaken without a thorough assessment of the indications, contraindications and side effects of any prospective drug or intervention. Furthermore, the data for the book are largely derived from incidence and prevalence statistics whose accuracy will vary widely for individual diseases and countries. Changes in endemicity, incidence, and drugs of choice may occur. The list of drugs, infectious diseases and even country names will vary with time.

Scope of Content:
Disease designations may reflect a specific pathogen (ie, Adenovirus infection), generic pathology (Pneumonia – bacterial) or etiologic grouping(Coltiviruses – Old world). Such classification reflects the clinical approach to disease allocation in the Infectious Diseases Module of the GIDEON web application. Similarly, a number of diseases which are generally diagnosed and treated outside of the field of Infectious Diseases are not included, despite the fact that a clear infectious etiology exists. Examples include Peptic ulcer, Tropical spastic paraparesis, Hairy-cell leukemia, Creutzfeldt–Jakob disease, Human papilloma virus infections, etc. In contrast, a number of other entities of unknown etiology which do present to Infectious Diseases specialists have been included: Kawasaki’s disease, Chronic fatigue syndrome, Kikuchi and Kimura diseases. Several minor infections having minimal relevance to the field of Geographic Medicine are not covered: Paronychia, Otitis externa, Molluscum contagiosum, etc.
Introduction: The GIDEON e-book series

Infectious Diseases of Israel is one in a series of GIDEON ebooks which summarize the status of individual infectious diseases, in every country of the world. Data are based on the GIDEON web application (www.gideononline.com) which relies on standard text books, peer-review journals, Health Ministry reports and ProMED, supplemented by an ongoing search of the medical literature.

Chapters are arranged alphabetically, by disease name. Each section is divided into four sub-sections:
1. Descriptive epidemiology
2. Summary of clinical features
3. Status of the disease in Israel
4. References

The initial items in the first section, Descriptive epidemiology, are defined as follows:

**Agent** Classification (e.g., virus, parasite) and taxonomic designation.

**Reservoir** Any animal, arthropod, plant, soil or substance in which an infectious agent normally lives and multiplies, on which it depends primarily for survival, and where it reproduces itself in such a manner that it can be transmitted to a susceptible host.

**Vector** An arthropod or other living carrier which transports an infectious agent from an infected organism or reservoir to a susceptible individual or immediate surroundings.

**Vehicle** The mode of transmission for an infectious agent. This generally implies a passive and inanimate (i.e., non-vector) mode.

There are 347 generic infectious diseases in the world today. 200 of these are endemic, or potentially endemic, to Israel. A number of other diseases are not relevant to Israel and have not been included in this book.

In addition to endemic diseases, we have included all published data regarding imported diseases and infection among expatriates from Israel.

The availability and quality of literature regarding specific infectious diseases vary from country to country. As such, you may find that many of the sections in this book are limited to a general discussion of the disease itself - with no data regarding Israel.

This is a book about the geography and epidemiology of Infection. Comprehensive and up-to-date information regarding the causes, diagnosis and treatment of each disease is available in the GIDEON web application. Many of the diseases are generic. For example, such designations as Pneumonia bacterial and Urinary tract infection include a number of individual diseases. These appear under the subheading, Synonyms, listed under each disease.

We welcome feedback, and will be pleased to add any relevant, sourced material. Email us at ebook@gideononline.com

For more information about GIDEON see the section About GIDEON and visit www.gideononline.com

Last updated: January 10, 2011
<table>
<thead>
<tr>
<th>Table of Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction: The GIDEON e-book series</td>
</tr>
<tr>
<td>Actinomycosis</td>
</tr>
<tr>
<td>Adenovirus infection</td>
</tr>
<tr>
<td>Aeromonas &amp; marine Vibrio infx</td>
</tr>
<tr>
<td>African tick bite fever</td>
</tr>
<tr>
<td>AIDS</td>
</tr>
<tr>
<td>Amoeba - free living</td>
</tr>
<tr>
<td>Amoebic abscess</td>
</tr>
<tr>
<td>Amoebic colitis</td>
</tr>
<tr>
<td>Anaplasmosis</td>
</tr>
<tr>
<td>Animal bite-associated infection</td>
</tr>
<tr>
<td>Anisakiasis</td>
</tr>
<tr>
<td>Anthrax</td>
</tr>
<tr>
<td>Ascariasis</td>
</tr>
<tr>
<td>Aspergillosis</td>
</tr>
<tr>
<td>Bacillary angiomatosis</td>
</tr>
<tr>
<td>Bacillus cereus food poisoning</td>
</tr>
<tr>
<td>Bacterial vaginosis</td>
</tr>
<tr>
<td>Balantidiasis</td>
</tr>
<tr>
<td>Bartonellosis - cat borne</td>
</tr>
<tr>
<td>Bartonellosis - other systemic</td>
</tr>
<tr>
<td>Blastocystis hominis infection</td>
</tr>
<tr>
<td>Blastomycosis</td>
</tr>
<tr>
<td>Botulism</td>
</tr>
<tr>
<td>Brain abscess</td>
</tr>
<tr>
<td>Brucellosis</td>
</tr>
<tr>
<td>Campylobacteriosis</td>
</tr>
<tr>
<td>Candidiasis</td>
</tr>
<tr>
<td>Chancroid</td>
</tr>
<tr>
<td>Chikungunya</td>
</tr>
<tr>
<td>Chlamydia infections, misc.</td>
</tr>
<tr>
<td>Chlamydia pneumoniae infection</td>
</tr>
<tr>
<td>Cholecystitis &amp; cholangitis</td>
</tr>
<tr>
<td>Cholera</td>
</tr>
<tr>
<td>Chromomycosis</td>
</tr>
<tr>
<td>Chronic fatigue syndrome</td>
</tr>
<tr>
<td>Chronic meningococemia</td>
</tr>
<tr>
<td>Clostridial food poisoning</td>
</tr>
<tr>
<td>Clostridial myonecrosis</td>
</tr>
<tr>
<td>Clostridium difficile colitis</td>
</tr>
<tr>
<td>Coccidioidomycosis</td>
</tr>
<tr>
<td>Coenurus</td>
</tr>
<tr>
<td>Common cold</td>
</tr>
<tr>
<td>Conjunctivitis - inclusion</td>
</tr>
<tr>
<td>Conjunctivitis - viral</td>
</tr>
<tr>
<td>Cryptococcosis</td>
</tr>
<tr>
<td>Cryptosporidiosis</td>
</tr>
<tr>
<td>Cutaneous larva migrans</td>
</tr>
<tr>
<td>Cyclosporiasis</td>
</tr>
<tr>
<td>Cysticercosis</td>
</tr>
<tr>
<td>Cytomegalovirus infection</td>
</tr>
<tr>
<td>Dengue</td>
</tr>
<tr>
<td>Dermatophytosis</td>
</tr>
<tr>
<td>Dientamoeba fragilis infection</td>
</tr>
<tr>
<td>Diptheria</td>
</tr>
<tr>
<td>Diphyllobothriasis</td>
</tr>
<tr>
<td>Diphylidiasis</td>
</tr>
<tr>
<td>Dirofilariasis</td>
</tr>
<tr>
<td>Dracunculiasis</td>
</tr>
<tr>
<td>Echinococcosis - unilocular</td>
</tr>
<tr>
<td>Ehrlichiosis - human monocytic</td>
</tr>
<tr>
<td>Endemic syphilis (bejel)</td>
</tr>
<tr>
<td>Endocarditis - infectious</td>
</tr>
<tr>
<td>Enterobiasis</td>
</tr>
<tr>
<td>Enterovirus infection</td>
</tr>
<tr>
<td>Epidural abscess</td>
</tr>
<tr>
<td>Erysipelas or cellulitis</td>
</tr>
<tr>
<td>Erysipeloid</td>
</tr>
<tr>
<td>Erythrasma</td>
</tr>
<tr>
<td>Escherichia coli diarrhoea</td>
</tr>
<tr>
<td>Fascioliasis</td>
</tr>
<tr>
<td>Filaria - Bancroftian</td>
</tr>
<tr>
<td>Fungal infection - invasive</td>
</tr>
<tr>
<td>Gastroenteritis - viral</td>
</tr>
<tr>
<td>Gianotti-Crosti syndrome</td>
</tr>
<tr>
<td>Giardiasis</td>
</tr>
<tr>
<td>Glanders</td>
</tr>
<tr>
<td>Gonococcal infection</td>
</tr>
<tr>
<td>Granuloma inguinale</td>
</tr>
<tr>
<td>Hantavirus infection - Old World</td>
</tr>
<tr>
<td>Hepatitis A</td>
</tr>
<tr>
<td>Hepatitis B</td>
</tr>
<tr>
<td>Hepatitis C</td>
</tr>
<tr>
<td>Hepatitis D</td>
</tr>
<tr>
<td>Hepatitis E</td>
</tr>
<tr>
<td>Hepatitis G</td>
</tr>
<tr>
<td>Herpes B infection</td>
</tr>
<tr>
<td>Herpes simplex encephalitis</td>
</tr>
<tr>
<td>Herpes simplex infection</td>
</tr>
<tr>
<td>Herpes zoster</td>
</tr>
<tr>
<td>Heterophyid infections</td>
</tr>
<tr>
<td>Histoplasmosis</td>
</tr>
<tr>
<td>HIV infection - initial illness</td>
</tr>
<tr>
<td>Hookworm</td>
</tr>
<tr>
<td>Hymenolepis diminuta infection</td>
</tr>
<tr>
<td>Hymenolepis nana infection</td>
</tr>
<tr>
<td>Infection of wound, puncture, IV line, etc</td>
</tr>
<tr>
<td>Infectious mononucleosis or EBV infection</td>
</tr>
<tr>
<td>Influenza</td>
</tr>
<tr>
<td>Intestinal spirochetosis</td>
</tr>
</tbody>
</table>
Intra-abdominal abscess  .................................................. 205
Intracranial venous thrombosis  ........................................ 206
Isosporiasis  ................................................................. 207
Israeli spotted fever* ....................................................... 208
Japanese encephalitis* .................................................... 209
Kawasaki disease  ........................................................... 211
Kikuchi's disease and Kimura disease* ......................... 213
Kingella infection* .......................................................... 215
Laryngotracheobronchitis  ............................................... 216
Lassa fever* ................................................................. 217
Legionellosis* ............................................................... 219
Leishmaniasis - cutaneous* ............................................. 222
Leishmaniasis - visceral* .................................................. 227
Leprosy* ...................................................................... 231
Leptospirosis* ............................................................... 234
Listeriosis* ................................................................. 237
Liver abscess - bacterial  ................................................. 239
Liver disease* .............................................................. 240
Lymphocytic choriomeningitis  ....................................... 243
Lymphogranuloma venereum* ........................................ 244
Malaria* .................................................................... 246
Malignant otitis externa  .................................................. 251
Measles* ........................................................ .......... 252
Melioidosis* .............................................................. 258
Meningitis - aseptic (viral)* ............................................ 260
Meningitis - bacterial* ................................................... 263
Microsporidiosis* .......................................................... 272
Moniliformis and Macracanthorhynchus* ..................... 273
Mumps* ....................................................................... 274
Mycoplasma ................................................................. 278
Mycobacteriosis - M. marinum  ....................................... 280
Mycobacteriosis - M. scrofulaceum  ................................. 281
Mycobacteriosis - miscellaneous nontuberculous* .......... 282
Mycoplasma (miscellaneous) infections* .................... 284
Mycoplasma pneumoniae infection* ................................. 286
Myiasis* ........................................................ ............... 288
Necrotizing skin/soft tissue infx.* .................................... 289
Neutropenic typhilitis* .................................................... 291
Nocardiosis* ............................................................... 292
Old World phleboviruses* .............................................. 293
Onchocerciasis* .......................................................... 294
Opisthorchiasis* ........................................................... 296
Orbital and eye infections  .............................................. 297
Orf* ............................................................. .................. 298
Ornithosis* ............................................................... 299
Osteomyelitis* ............................................................. 300
Otitis media* .............................................................. 301
Paragonimiasis* .......................................................... 302
Parainfluenza virus infection* .......................................... 303
Parvovirus B19 infection* ............................................... 304
Pediculosis* ............................................................... 306
Pentastomiasis - Linguatula* ........................................... 307
Pericarditis - bacterial ..................................................... 308
Perinephric abscess ....................................................... 309
Perirectal abscess .......................................................... 310
Peritonitis - bacterial ...................................................... 311
Pertussis* ................................................................. 312
Pharyngeal & cervical space infx. ................................. 318
Pharyngitis - bacterial* ................................................ 319
Pityriasis rosea ............................................................. 320
Plague* ................................................................. 321
Plesiomonas infection* .................................................. 323
Pneumocystis pneumonia ............................................. 324
Pneumonia - bacterial* ............................................... 326
Poliomyelitis* ............................................................. 328
Protothecosis and chlorellosis ....................................... 337
Pseudocowpox* ............................................................ 338
Pyoderma (impetigo, abscess, etc)* ................................. 339
Pyomyositis ................................................................. 341
Q-fever* .................................................................... 342
Rabies* ..................................................................... 345
Rat bite fever - spirillary ................................................. 351
Rat bite fever - streptobacillary ...................................... 352
Relapsing fever* ............................................................ 353
Respiratory syncytial virus infection* ......................... 355
Respiratory viruses - miscellaneous* ......................... 357
Reye's syndrome ............................................................ 360
Rheumatic fever* .......................................................... 361
Rhinoscleroma and ozena* ............................................. 364
Rhodococcus equi infection ........................................... 365
Rickettsia felis infection* ................................................. 366
Rickettsia sibirica mongolotimonae infection* ............. 367
Rift Valley fever* ........................................................... 368
Roseola or human herpesvirus 6 .................................... 369
Rotavirus infection* ....................................................... 370
Rubella* .................................................................... 372
Salmonellosis* ............................................................. 377
Sarcocystosis ................................................................. 383
Scabies* ..................................................................... 384
Scarlet fever* .............................................................. 386
Schistosomiasis - haematobium* .................................... 388
Schistosomiasis - mansoni* ............................................ 391
Schistosomiasis - mekongi* .......................................... 394
Septic arthritis ................................................................. 396
Septicemia - bacterial* ................................................. 397
Shigellosis* ................................................................. 400
Sindbis .......................................................... ..................... 406
Sinusitis* ..................................................................... 407
Smallpox* .................................................................... 408
Sporotrichosis* ............................................................. 410
Spotted fevers - Old World* ......................................... 412
Staphylococcal food poisoning* ........................................... 416
Staphylococcal scalded skin syndrome ........................................ 418
Streptococcus suis infection .................................................. 419
Strongyloidiasis+ .................................................................. 420
Subdural empyema ................................................................. 422
Suppurative parotitis .............................................................. 423
Syphilis* .............................................................................. 424
Taeniasis+ ............................................................................. 430
Tetanus+ ................................................................................. 432
Thelaziasis .............................................................................. 441
Toxic shock syndrome+ ............................................................ 442
Toxocariasis+ .......................................................................... 444
Toxoplasmosis+ ....................................................................... 446
Trachoma+ ................................................................................ 449
Trichinosis* .............................................................................. 451
Trichomoniasis+ ....................................................................... 453
Trichostrongyliasis+ ................................................................ 455
Trichuriasis+ ............................................................................. 456
Trichuriasis+ ............................................................................. 456
Trypanosomiasis - African* ..................................................... 457
Tuberculosis+ ............................................................................ 459
Tularemia* ................................................................................ 467
Tungiasis* ............................................................................... 469
Typhoid and enteric fever+ ....................................................... 470
Typhus - endemic+ ................................................................... 476
Typhus - epidemic* .................................................................. 479
Urinary tract infection ............................................................... 481
Varicella+ .................................................................................. 483
Vibrio parahaemolyticus infection+ ............................................ 487
West Nile fever+ ....................................................................... 488
Whipple's disease .................................................................... 492
Yellow fever* ............................................................................ 494
Yersiniosis* .............................................................................. 496
Zygomycosis ............................................................................. 498
About GIDEON ........................................................................ 500

* Not endemic. Imported, expatriate or other context reported.
+ Country specific note exists for disease
Clinical

Anatomic variants of Actinomycosis

Oral-cervical actinomycosis accounts for 55% of actinomycosis, and may be manifested as soft tissue swelling, an abscess, or a mass lesion. 1
- Lesions may be multiple, and relapse following short courses of therapy.
- The disease often spreads to adjacent structures (masseter muscle, carotid artery, cranium, cervical spine, trachea, or thorax) without regard for normal tissue planes.
- Lymphatic spread and lymphadenopathy are rare.
- Infection is associated with pain, fever, and leukocytosis.

Periapical actinomycosis 2 is common and responds to dental care and antibiotics.
- The most common location for actinomycosis is the perimandibular region.
- Periapical infection often precedes infection, which is usually seen at the angle of the jaw; however, the cheek, submental space, retromandibular space, and temporomandibular joint may be affected.
- The overlying skin is often blue to red-purple in color, and sinuses may appear.
- An abscess may ensue, with trismus.
- Mandibular periostitis and osteomyelitis are rarely encountered.
- Maxillary or ethmoid disease, with or without osteomyelitis, is uncommon; but maxillary sinusitis and associated cutaneous fistulas can occur.
- Masses of the hard palate, tongue, nasal septum, head and neck, salivary glands, thyroglossal ducts, thyroid, branchial cleft cysts, lacrimal ducts, orbital structures and larynx have also been reported.
- The tonsils are rarely, if ever, involved; however, infection of the external or middle ear, temporal bone and mastoid may occur following spread of facial disease.

Thoracic actinomycosis 3 accounts for 15% of actinomycosis cases, and represents aspiration of organisms from the pharynx (rarely direct extension from the head and neck or abdominal cavity).
- Most cases present as an indolent, slowly progressive process involving the lung parenchyma and pleura.
- Chest pain, fever, and weight loss are common; occasionally with hemoptyisis and a productive cough.
- X-ray findings are non-specific.
- The usual appearance is either a mass lesion or pneumonitis with or without pleural involvement.
- An air bronchogram within a mass lesion is suggestive when present, pleural thickening, effusion, or empyema is seen in more than 50% of cases.
- An isolated pleural effusion may drain spontaneously through the chest wall or produce a soft tissue or breast mass; or posteriorly, to involve the vertebrae or paraspinal structures or spinal cord
- Pulmonary disease may extend across fissures or pleura, and involve the mediastinum, pericardium (rarely endocardium)
or contiguous bone.

**Abdominal actinomycosis** accounts for 20% of actinomycosis and represents ingestion of bacteria, hematogenous infection or extension from the female pelvis.
- Associated fever, weight loss, abdominal pain or fullness and changing bowel habits may be present for months before the diagnosis is suspected.
- Physical findings include mass lesions and sinus tracts of the abdominal wall.
- Lymphadenopathy is uncommon.
- 65% of cases are associated with appendicitis, and 65% of lesions present in the right iliac fossa.
- Associated tuboovarian infection, diverticulitis or foreign body perforation in the transverse or sigmoid colon may also be encountered.
- Other associated factors include previous gastric or bowel surgery, typhoid fever, amebic dysentery, trauma, and pancreatitis.
- Abdominal infection may extend to the liver hematogenously; and perirectal or perianal infection is occasionally encountered, resulting in chronic fistulae, sinuses and strictures.

**Pelvic actinomycosis** may represent spread from intra-abdominal infection; but is most often a complication of intra-uterine device (IUD) placement.
- Any type of IUD can cause infection; and on average, the device has been in place for eight years prior to the appearance of actinomycosis.
- Infection may even occur months following removal of the device.
- Infection is manifest as endometritis or a mass/abscess of the tubes or ovaries.
- Presenting features consist of chronic fever, weight loss, abdominal pain, and vaginal bleeding.
- A "frozen pelvis" suggestive of malignancy or endometriosis is often encountered; and the infection may involve the ureters, bladder, rectum, small or large bowel or peritoneum.
- The diagnostic value of smears and cultures for Actinomyces among asymptomatic women with IUD’s is controversial.

**Other forms of actinomycosis include:**
- brain abscess
- chronic meningitis
- urogenital infection
- musculoskeletal infection
- isolated skin and muscle disease (including mycetoma)
- infected orthopedic prostheses
- thyroiditis
- disseminated hematogenous infection of multiple organs

**This disease is endemic or potentially endemic to all countries.**

**References**

# Adenovirus infection

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - DNA. Adenoviridae, Adenovirus Enteric strains classified in genus Mastadenovirus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human Non-human primates</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Droplet Water</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>4d - 12d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Viral culture/serology or antigen assay. Direct fluorescence of secretions. Nucleic acid amplification.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Enteric/secretion precautions. Cidofovir has been used in some cases. Symptomatic therapy</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Vaccine</td>
<td>Adenovirus</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Atypical pneumonia, upper respiratory infection, tracheitis, bronchiolitis or keratoconjunctivitis with preauricular adenopathy; uncomplicated illness usually lasts 3 to 5 days; this agent may also cause hemorrhagic cystitis.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Adenovirus gastroenteritis, Epidemic keratoconjunctivitis, Pharyngoconjunctival fever.</td>
</tr>
<tr>
<td></td>
<td>ICD9: 047.9,077.1,077.2,008.62,480.0</td>
</tr>
<tr>
<td></td>
<td>ICD10: A08.2,B30.1,B34.0,J12.0</td>
</tr>
</tbody>
</table>

## Clinical

Only 50% of Adenovirus infections are clinically apparent.
- Infection in children usually presents as mild pharyngitis or tracheitis.
- Adenovirus type 7 can cause fulminant bronchiolitis and pneumonia in infants.
- Severe respiratory infection is associated with serotype 14.
- Adenoviruses have been isolated more often than any other nonbacterial pathogen from patients with the whooping cough syndrome; however, a causal relation has not been established.

Cough, fever, sore throat, tonsillitis and rhinorrhea are the most common findings, and usually last 3 to 5 days.
- Rales and rhonchi may be present.
- X-ray studies in patients with pneumonias reveal patchy ground-glass infiltrates primarily in the lower lung fields.
- Outbreaks among military personnel are characterized by tracheobronchitis, with 20% requiring hospitalization.
- The disease is usually self-limited, superinfection and death are rare.
- Severe infections are increasingly reported among immunocompromized patients.
- There are also case reports of severe Adenovirus pneumonia in immunocompetent adults.
- Rare instances of fatal Adenovirus myocarditis have been reported.
- Adenoviral pneumonia is often followed by bronchiolitis obliterans in children.

**Pharyngoconjunctival fever:**
Pharyngoconjunctival fever often occurs in the setting of small outbreaks.
- Illness is characterized by conjunctivitis, pharyngitis, rhinitis, cervical lymphadenitis, and fever to 38 C.
- The onset is acute, and symptoms last 3 to 5 days.
- Bulbar and palpebral conjunctivitis, usually bilateral, may be the only finding.
- The palpebral conjunctivae have a granular appearance.
- Bacterial superinfection and permanent residua are unusual.
- Respiratory involvement usually does not progress to the bronchi or lungs.
- Contaminated swimming pools and ponds have been implicated as sources of spread.

**Epidemic keratoconjunctivitis:**
Epidemic keratoconjunctivitis has an incubation period of 4 to 24 days, and lasts for 1 to 4 weeks.
- The conjunctivitis is often bilateral, and preauricular adenopathy is common.
- Visual disturbance may persist for several months.
- Secondary spread to household contacts occurs in 10% of the cases.

**Hemorrhagic cystitis:**
Hemorrhagic cystitis is two to three times more common in boys than girls (unlike bacterial cystitis which is predominantly...
seen in girls).  

- Hematuria usually persists for approximately three days.
- There was no seasonal preponderance.
- Adenoviral urethritis is also reported.

**Infantile adenoviral enteritis:**
Infantile adenoviral enteritis is characterized by watery diarrhea is watery with fever, and may last for 1 to 2 weeks.
- Adenoviruses have also been implicated in the etiology of intussusception, encephalitis and meningoencephalitis.
- Rare instances of intestinal intussception have been associated with adenoviral gastroenteritis.

**Other forms of infection:**
Adenoviruses have emerged as important pathogens in immunosuppressed patients, particularly those undergoing bone marrow or solid organ transplantation.
- Syndromes include infection of the transplanted organ, or disseminated infection involving the lung, colon (ie, chronic diarrhea), and central nervous system.
- Infection, notably of the urinary and gastrointestinal tracts, is also a common complication of AIDS.
- Adenoviral parotitis and encephalitis are also reported in AIDS patients.

This disease is endemic or potentially endemic to all countries.

**Adenovirus infection in Israel**

**Prevalence surveys:**
- 32.9% of children below age 10 hospitalized for respiratory infection; and 62.9% of those infected by human bocavirus (HBoV) (2006)
- 3.4% of children below age 5 years with community-acquired alveolar pneumonia (Beer Sheva, 2009 publication)
- 5% of winter respiratory tract infections in an outpatient setting (1998 publication)
- 0.7% of patients hospitalized with lower respiratory tract infections (Beer Sheva, winter seasons, 2004 to 2006)
- 0.2% of children ages <= 2 years hospitalized with acute bronchiolitis (as sole pathogen, 2005 to 2006)

**Notable outbreaks:**
- 1974 (publication year) - Outbreaks of febrile pharyngitis and pharyngoconjunctival fever on a kibbutz were associated with Adenovirus types 2 and 7.
- 1993 (publication year) - An outbreak (28 cases) of Adenovirus type 8 conjunctivitis was associated with a neonatal intensive care unit.

**References**

**Aeromonas & marine Vibrio infx.**

| Agent | BACTERIUM. *Aeromonas hydrophila* & *Vibrio vulnificus*, et al Facultative gram-negative bacilli |
| Reservoir | Salt or brackish water  Fish |
| Vector | None |
| Vehicle | Water/shellfish - contact or ingestion |
| Incubation Period | Range 2d - 7d |
| Diagnostic Tests | Culture. Notify laboratory if these organisms are suspected in stool. |
| Typical Adult Therapy | Fluoroquinolone or Sulfamethoxazole/trimethoprim. Other antimicrobial agent as determined by susceptibility testing |
| Typical Pediatric Therapy | Sulfamethoxazole/trimethoprim. Or other antimicrobial agent as determined by susceptibility testing |
| Clinical Hints | Diarrhea, fever, vomiting or sepsis after marine injury or ingestion of raw oysters/contaminated fresh or brackish water; fecal leukocytes present; severe or fatal in immunosuppressed or alcoholic patients. |
| Synonyms | Aeromonas, Aeromonas hydrophila, Vibrio mimicus, Vibrio vulnificus.  ICD9: 005.81,027.9  ICD10: A48.8 |

**Clinical**

*Aeromonas hydrophila gastroenteritis:*
There is controversy as to whether *Aeromonas hydrophila* can cause gastroenteritis.  
• Volunteer feeding studies using as many as 1 billion cells have failed to elicit illness.  
• The presence of this species in the stools of individuals with diarrhea, in the absence of other known enteric pathogens, suggests that it has some role in disease.  
• *Aeromonas* species are often implicated in traumatic and surgical wound infections.  
• *Aeromonas caviae* and *A. sobria* are considered by many as "putative pathogens," in diarrheal disease.  

Two types of gastroenteritis have been associated with *A. hydrophila*:
• a cholera-like illness with a watery diarrhea  
• a dysenteric illness characterized by loose stools containing blood and mucus.  
• cases of hemolytic uremic syndrome have followed *Aeromonas* infection  

Generalized systemic infection has been observed in individuals with underlying illness.

*Vibrio vulnificus:*
*Vibrio vulnificus* causes septicemia in persons with chronic liver disease, alcoholism or hemochromatosis, and immunosuppressed patients.  
• The disease appears 12 hours to 3 days after eating raw or undercooked seafood, especially oysters.  
• One third of the patients are in shock within 12 hours after hospital admission.  
• Three quarters have distinctive, bullous skin lesions which may be mistaken for pemphigus or pemphigoid.  
• Thrombocytopenia is common and there is often evidence of disseminated intravascular coagulation.  
• Over 50 percent of patients with septicemia die; and the mortality rate exceeds 90 percent among those with hypotension.

Relatively high mortality rates are associated with necrotizing fasciitis caused by *Aeromonas* or *Vibrio* species.  

*V. vulnificus* can also infect wounds sustained in coastal or estuarine waters.  
• Infections range from mild self limited lesions to rapidly progressive cellulitis or myositis that can mimic clostridial myonecrosis clinically.  

Additional species of *Aeromonas* and *Vibrio* are described in the Microbiology module.

**This disease is endemic or potentially endemic to 204 countries.**
**Aeromonas & marine Vibrio infx. in Israel**

*Vibrio vulnificus* was first isolated in 1996, and was implicated in 62 cases (0 fatal) of wound infection during May 1996 to December 1997, acquired from handling commercially-raised fresh water fish (St. Peter’s fish = *Tilapia zillii*). A heretofore undescribed strain (*V. vulnificus* biotype III) was isolated from these patients. - 106 cases (66 laboratory-confirmed) of *V. vulnificus* biotype III infection were reported during 1996 to 1997; 132 during 1998 through 2006 - 83% related to exposure to tilapia and 13% to common carp. - A fatal case of *V. vulnificus* infection acquired from handling fish was reported in Ashkelon in 2003.

**Prevalence surveys:**

*Vibrio vulnificus* was found in 6.9% of sea water (Mediterranean) and 1.4% of beach sand samples during 1993 to 1994; 32.8% of sea water and 2.9% of beach sand during 1996 to 1998.

*Aeromonas hydrophila* is found in 0.4% of stool specimens from children with gastroenteritis in Israel

*Aeromonas* was found in 4.7% of childhood diarrhea in Gaza (2006 to 2007).

---

**References**

12. ProMED <promedmail.org> archive: 20031229.3159
13. *Indian J Pediatr* 2010 Oct 6;
African tick bite fever

Agent | BACTERIUM. Rickettsia africae
Reservoir | Sheep  Goat  Cattle  Tick
Vector | Tick (Rhipicephalus, Haemaphysalis, Amblyomma)
Vehicle | None
Incubation Period | 6d - 7d (range 3d - 18d)
Diagnostic Tests | Serology. Demonstration of rickettsiae by immunofluorescence or culture. Nucleic acid amplification
Typical Adult Therapy | Doxycycline 100 mg PO BID X 3 to 5d. OR Chloramphenicol 500 mg PO QID X 3 to 5d
Typical Pediatric Therapy | Doxycycline 2 mg/kg PO BID X 3 to 5d (maximum 200 mg/day). OR Chloramphenicol 10 mg/kg PO QID X 3 to 5d
Clinical Hints | Fever and rash following a tick bite. Unlike Mediterranean spotted fever: 1) multiple eschars may be present; and 2) the rash is vesicular, and present in only 30% of patients.
Synonyms | Rickettsia africae, South African spotted fever.
ICD9: 082.1
ICD10: A77.1

Clinical

As in other rickettsial spotted fevers, African tick bite fever is an acute illness associated with fever, lethargy, headache and myalgia. 1

• Unlike *Rickettsia conorii*, *R. africae* infection is characterized by a low incidence of rash (usually vesicular) and the common finding of regional lymphadenopathy and multiple eschars. 2

• The most common presentation is a flu-like illness. 3

• An inoculation eschar is present in up to 50% of cases, with 20% to 45% having multiple eschars -they may be overlooked in dark skin, in the hair, or in the anogenital region. 4-6

• Among elderly patients, rash is present in 87.5% (vesicular in 100%), enanthem in 50%, prolonged fever in 75%, chills 87.5%, asthenia 50%, anorexia 50% and weight loss (12.5%) 7

• Reactive arthritis occurs occasionally. 8

• Fever usually defervesces within 48 hours of anti-rickettsial therapy. 9

• There are case reports of prolonged fever up to 3 weeks • consider in returned travelers from endemic areas with prolonged fever.

• Aphthous ulceration and lymphangitis have also been reported rarely. 10 11

Laboratory studies:

• Moderate lymphopenia, elevated CRP are seen at presentation in most cases. 40% have elevated liver enzymes, and 20% have thrombocytopenia. 12

• Median time to development of IgM and IgG antibodies are 25 and 28 days respectively.

• Seroconversion may not occur in mild cases, or if treated early with doxycycline. 13

• Complications are rare, and there have been no known fatal cases. 14

This disease is endemic or potentially endemic to 30 countries. Although African tick bite fever is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

African tick bite fever in Israel


Notable outbreaks:

2008 - An outbreak (8 cases) was reported among Israeli women participating in a jeep expedition in South Africa.
References

Clinical

CDC case surveillance definition:
As of 1993, the CDC (The United States Centers for Disease Control) surveillance case definition for AIDS includes all HIV-infected persons age 13 or over who have either. 1
  • a) a <200 CD4+ T-lymphocytes
  • b) a CD4+ T-lymphocyte percentage of total lymphocytes of <14%
  • or c) any of the following: pulmonary tuberculosis, recurrent pneumonia, or invasive cervical cancer; or any of the 23 clinical conditions defined in the case definition published in 1987. 2
  • For WHO case definition (1994) see reference 3

The clinical features of AIDS are protean and often characterized by multisystem illness, evidence of immune suppression and the presence of one or more superinfections (tuberculosis 4, Cytomegalovirus infection, cerebral toxoplasmosis 5, pneumocystosis 6, 7, penicilliosis 8, 9, severe or recalcitrant candidiasis, disseminated Acanthamoeba infection 10, etc).

HIV infection and opportunistic pathogens:
HIV infection increases the incidence and severity of a wide variety of infectious diseases 11 caused by viruses, mycobacteria, actinomycetes, treponemes, fungi 12-16, protozoa and helminths.
  • HIV infection increases the incidence of clinical malaria; however, in severe malaria the level of parasitemia is similar in HIV-positive and HIV-negative patients. 17-20
  • During pregnancy, HIV infection increases the incidence of clinical malaria, maternal morbidity, and fetal and neonatal morbi-mortality.
  • HIV infection increases the risk of malaria treatment failure.
  • Some antimalarial drugs may inhibit HIV, while certain anti-retroviral drugs are effective against Plasmodium species. 21
  • Reactivation of Chagas disease encephalopathy has been reported among infected HIV-positive patients. 22
  • Acquired syphilis in patients with HIV infection is characterized by severe and accelerated infection, often with overt meningitis, hepatitis and other forms of systemic involvement. 23-29 The presence of concurrent syphilis does not affect the progression of AIDS. 30
  • Haemophilus ducreyi has been associated with esophageal ulceration in HIV-positive patients. 31
  • Hepatitis G infection appears to improve survival among persons with concurrent HIV infection. 32 41% of infants born to mothers with HIV-HGB-C coinfection acquired HGB-C infection (Thailand, 2009 publication) 33
  • Concurrent HIV infection increases the incidence of cirrhosis and HCC among Hepatitis B carriers 34; and shortens the time to development of chronic liver disease in patients with Hepatitis C. 35
  • Concurrent HIV infection may prolong the duration of viremia in patients with hepatitis A. 36
This disease is endemic or potentially endemic to all countries.

AIDS in Israel

The first cases of AIDS were diagnosed in 1981.

Notes:
1. 31 cases were reported during 1981 to January 1988.  

Graph: Israel. AIDS, cases
Cases to March 1997: 83% ages 15 to 49; m/f = 2.57/1.

25 cases of AIDS and 51 HIV-positives were reported among Israeli Arabs during 1985 to 2002 - 10.1 per 100,000 (vs. 37.8 per 100,000 among Israeli Jews). 38

Demography and risk factors:
- Cases reported to December 1997: 31%; 36% men who have sex with men; 17% IDU; 13% transfusion-related; 2% mother to infant. 14.1% of patients were immigrants from countries with a predominance of heterosexual AIDS. Approximately 19% of patients are non-citizens at the time of diagnosis.
- Cases during 1996 to 1998: 83% ages 15 to 49; 74% males; 60% heterosexual; 21% men who have sex with men; 12% IDU; 5% transfusion-related; 3% mother to infant.
- Cases during 1997 to 1999: 84% ages 15 to 49; 69% males; 71% heterosexual; 15% men who have sex with men; 9% IDU; 2% transfusion/hemophilia; 4% mother to infant.
- Cases during 1997 to 2001: 81% ages 15 to 49; 69% males; 60% heterosexual; 17% men who have sex with men; 14% IDU; 5% transfusion/hemophilia; 5% mother to infant.

Notes:
1. 15 AIDS-related deaths were reported during 1981 to 1985.
2. 526 AIDS-related deaths were reported to December 2002; 569 to December 2003; 607 to December 2004; 696 to December 2007.
Graph: Israel. AIDS, seropositivity rates among blood donors (per 100,000)

Graph: Israel. HIV infection, cases

Notes:
Individual years:
2004 - 0.7 per 100,000 in Haifa District
Notes:
1. 37.2% of seropositives identified to November 1996 were heterosexuals, and 12.7% men who have sex with men.
2. m/g ratio to 1997 was 2.80/1
3. 1,814 seropositives were living in Israel as of 1998.
4. 47% of seropositives reported during 1990 to 1999 were immigrants from Ethiopia.

The mother-to-child transmission rate among HIV-positive mothers is 3.6% (2000 to 2005).

Seroprevalence surveys:
1. 10% of immigrants from Ethiopia (approximate) (1998 publication)
2. 3.8% of CSW in the Tel Aviv region (1992 publication)
3. 0.3% of brothel-based CSW in Tel Aviv (1 of 300 tested, 2008 publication)
4. 0.9% of IDU (2003 to 2005)
Notes:
1. Figure for 1997 represented 0.07% of adults ages 15 to 49; 0.09% in 2001; 0.1% in 2003.

**Associated infections:**
- 15 cases of AIDS-tuberculosis coinfection were reported during 1990 to 1993.
  8.8% of patients hospitalized for tuberculosis during 2000 to 2006 were HIV-positive - 61.2% of the latter immigrants from Ethiopia and 20.4% from the former Soviet Union.
- Intestinal leishmaniasis has been reported in an Ethiopian immigrant with AIDS.
- Declining gonorrhea incidence during the 1980’s was ascribed to the global AIDS epidemic.
- A positive syphilis serology was found in 14.2% of HIV-positive patients (2000 to 2005)

**West Bank and Gaza:**
Notes:
1. 33 cases of AIDS were officially reported in the West Bank and Gaza Strip as of August 1999 [note above reporting for 'UNRWA']; 41 to December 2004.

During 1997 to 1999: 83% of cases reported to UNRWA are in the age group 15 to 49; 92% males; 87% heterosexual; 3% men who have sex with men; 4% IDU; 4% transfusion/hemophilia; 3% mother to infant.
- During 1988 to 2004: 56.1% of HIV/AIDS in the West Bank and Gaza were acquired through heterosexual sex, 17.5% blood and blood products, 5.3% homosexual/bisexual, 5.3% IDU.
- 24 AIDS-related deaths were reported to December 2004.
1. 16 cases of asymptomatic HIV infection were reported to December 2004.

References

5. CNS Drugs 2003 ;17(12):869-87.
Amoeba - free living

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Protozoa. Centramoebida, Acanthamoebidae: Acanthamoeba and Balamuthia Schizopyrenida, Vahkampfidae: Naegleria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Water  Soil</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Water (diving, swimming)</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>5d - 6d (range 2d - 14d)</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>CNS Naegleria: Amphotericin B to 1 mg/kg/d IV + 1.5 mg intrathecal qd X 8 days; plus Miconazole 350 mg/sq m/d IV + 10 mg intrathecal qd X 8d Acanthamoeba: Sulfonamides + Flucytosine</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>CNS Naegleria: Amphotericin B to 1 mg/kg/d IV + 1.5 mg intrathecal qd X 8 days; plus Miconazole 350 mg/sq m/d IV + 10 mg intrathecal qd X 8d Acanthamoeba: Sulfonamides + Flucytosine</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Severe, rapidly-progressing meningoencephalitis (Naegleria, Acanthamoeba or Balamuthia) following swimming or diving in fresh water; or keratitis (Acanthamoeba), often following use of contaminated solutions to clean contact lenses.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Acanthamoben, Acanthamoeba, Amebic keratitis, Balamuthia, Balmuthia, Dictyostelium, Free-living ameba, Leptomycid ameba, Naegleria, Paravahlkampfia, Primary amebic meningoencephalitis, Sappinia, Vahlkampfia. ICD9: 136.2 ICD10: B60.1,B60.2</td>
</tr>
</tbody>
</table>

Clinical

Primary amebic meningoencephalitis usually occurs in children and young adults who have been swimming in warm fresh water. ¹

Infection is heralded by abnormal sensations of taste or smell followed by abrupt onset of fever, nausea, and vomiting.
• The majority of patients have headache, meningitis and disorders of mental status changes.
• Coma and death may ensue within one week
• Only three nonfatal infections had been reported to 2003.

Acanthamoeba encephalitis:
Granulomatous amebic encephalitis due to Acanthamoeba occurs in immunocompromised and debilitated patients.
• Infection has a gradual onset characterized focal neurological deficits, mental status abnormalities, seizures, fever, headache, hemiparesis and meningismus.
• Visual disturbances and ataxia are often encountered.
• Death may ensue within 7 to as long as 120 days.
• Secondary infection of a cerebral ependymal cyst has been reported. ²
• Disseminated Acanthamoeba infection has been reported in an HIV-positive patient. ³

Balamuthia encephalitis:
Balamuthia mandrillaris encephalitis may be associated with headache, low-grade fever, vomiting, ataxia, photophobia, cranial nerve palsy, speech disturbances, cerebellar nystagmus, seizures, and altered mental status. ⁴ ⁵
• The case-fatality rate for Balamuthia encephalitis is over 90%.

Acanthamoeba keratitis:
Acanthamoeba keratitis is clinically similar to herpetic infection, and presents with a foreign-body sensation followed by severe pain, photophobia, tearing, blepharospasm, conjunctivitis, iritis, anterior uveitis, dendriform keratitis, ptosis and blurred vision. ⁶-⁹
• In rare instances, the infection is painless. ¹⁰
• Rupture of Descemet's membrane may occur. ¹¹
• Bilateral infection is common. ¹²
• In rare cases, the infection may be painless. ¹³
• Dacryoadenitis may be present in some cases. ¹⁴
• Ocular discharge and endophthalmitis are very rare. ¹⁵
Amoeba - free living

• Atypical presentations have been described in patients with keratoconus. 16

*Acanthamoeba* infection has also been associated with skin ulcers 17, pneumonia, adrenalitis, vasculitis, osteomyelitis, and sinusitis.

• Cutaneous acanthamebiasis has been associated with ulceronecrotic lesions, an infiltrative bluish plaque, or periorbital tumor. 18

• Fatal disseminated *Acanthamoeba lenticulata* infection has been reported in a heart transplant patient.

• Four cases of disseminated *Acanthamoeba* infection in stem-cell transplant recipients had been reported as of 2008. 19

**This disease is endemic or potentially endemic to all countries.**

Amoeba - free living in Israel

Cases of amebic keratitis have been reported. 20

Free-living amoebae, including *Acanthamoeba* species, are found in the Negev region. 21

**References**

2. Surg Neurol 2008 Jul 8;
Amoebic abscess

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Protoza. Sarcomastigota, Entamoebida: Entamoeba histolytica (must be distinguished from non-invasive, Entamoeba dispar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>Fly (Musca) - occasionally</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Food, Water, Sexual contact, Fly</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>2w - 6m (rarely years; 95% within 6m)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Imaging, Serology, Nucleic acid amplification. Note: Amoebae are usually not present in stool at this stage.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Metronidazole 750 mg TID X 10d OR Tinidazole 800 mg TID X 5d</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Metronidazole 15 mg/kg TID X 10d OR Tinidazole 15 to 20 mg/kg TID X 5d</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Fever, local pain, weight loss. Remember that liver abscess may be bacterial or amoebic - latter most often single and in right hepatic lobe.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Absceso amebiano, Amebic liver abscess. ICD9: 006.3,006.4,006.5,006.6,006.8 ICD10: A06.4,106.5,A06.7,106.8</td>
</tr>
</tbody>
</table>

Clinical

The clinical presentation may be acute or subacute in onset.
- Fever than 50% of patients have fever, hepatomegaly or abdominal pain.
- 30% to 40% have concurrent diarrhea.
- Other findings may include shoulder pain, cough, chest pain, pleural or pericardial effusion. 1, 2
- The findings of ameboma may mimic those of malignancy. 3
- A case of Budd-Chiari syndrome complicating amebic abscess has been reported. 4

Laboratory findings include leukocytosis without eosinophilia in 80%, anemia in over 50%, elevated serum alkaline phosphatase levels in 80%.

Pleuropulmonary amebiasis is the most common complication of amebic liver abscess, usually representing rupture of a superior right lobe abscess through the diaphragm.
- Symptoms include cough, pleuritic pain, and dyspnea.
- Empyema, hepatobronchial fistula or pericarditis (from left lobe abscesses) may follow.
- Although most cases involve the liver, abscesses may occur in virtually any organ. 5
- *Entamoeba histolytica* encephalitis has been reported. 6

This disease is endemic or potentially endemic to all countries.

Amoebic abscess in Israel

Data regarding Amebic abscess are included in the note for Amebic colitis

References

**Amoebic colitis**

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Protoza. Sarcomastigota, Entamoebidea: Entamoeba histolytica (must be distinguished from non-invasive, Entamoeba dispar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>Fly (Musca) - occasionally</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Food       Water       Sexual contact       Fly</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>1w - 3w (range 3d - 90d)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Fresh stool/aspirate for microscopy. Stool antigen assay. Stool PCR. Note: serological tests usually negative.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td><strong>Metronidazole</strong> 750 mg TID X 10d OR <strong>Tinidazole</strong> 2 g as single dose daily X 5d</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td><strong>Metronidazole</strong> 15 mg/kg TID X 10d OR <strong>Tinidazole</strong> 50 mg/kg as single dose daily X 5d</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Dysentery, abdominal pain, tenesmus - without hyperemia of rectal mucosa or fecal pus (i.e., unlike shigellosis); liver abscess and dysentery rarely coexist in a given patient.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Amebiasis, Amebiasis intestinal, Amebic dysentery, Amoebenruhr, Entamoeba moshkovskii. ICD9: 006.0,006.1,006.2 ICD10: A06.0,A06.1,A06.2</td>
</tr>
</tbody>
</table>

**Clinical**

Patients with noninvasive infection may present with nonspecific gastrointestinal complaints such as chronic intermittent diarrhea, mucus, abdominal pain, flatulence and weight loss.

Infection has been documented in children as young as two weeks of age.

**Invasive amebiasis:**
The onset of invasive infection is usually gradual (over 1 to 3 weeks) and characterized by abdominal pain, tenderness, and bloody stools.

- Fever is present in one third of cases, and the may be enlarged and tender.
- Signs of fluid loss and electrolyte loss may be seen in severe infections.
- In children, colitis can present as rectal bleeding alone without diarrhea.
- Fecal leukocytes may not be present, and are not as numerous as in shigellosis.
- Charcot-Leyden crystals are often seen in the stool.

**Fulminant colitis:**
Fulminant colitis is rare and carries a very high mortality.

- Predisposing factors include malnourishment, pregnancy and corticosteroid treatment.
- Such patients are severely ill with fever, leukocytosis, profuse bloody and mucoid diarrhea, generalized abdominal pain.
- Hypotension and peritonitis may be evident.
- Intestinal perforation and necrosis, or hepatic abscess may ensue.
- The clinical features of Cytomegalovirus colitis in AIDS patients may mimic those of amebic colitis.

**Additional complications:**
Additional complications include toxic megacolon (complicates 0.5% of amebic colitis cases); annular ameboma of the colon, which may mimic carcinoma.

- Chronic, irritative bowel syndromes, ulcerative post-dysenteric colitis or perianal amebiasis may also follow acute amebic colitis.
- Extraintestinal amebiasis may involve a wide variety of organs.
- Other forms of amebiasis include amebiasis cutis, brain abscess, rectovaginal fistulae and penile infection

Liver abscess is discussed separately in this module.

**This disease is endemic or potentially endemic to all countries.**
Amoebic colitis in Israel

Time and Place:
- During 1950 to 1952, 400 to 500 Israelis were hospitalized for amebiasis each year - with a mortality rate of 0.8 per 100,000 population.
- During 1950 to 1958, 97 fatal cases were reported
- By 1958 to 1961, hospitalization had fallen to 150 per year and mortality to 0.2 per 100,000 per year.
- During 1952 to 1953, 966 patients were hospitalized for amebiasis; 427 (4 fatal) in 1955.

Prevalence surveys:
- 4.8% of Ethiopian immigrants during the 1980’s
- 13.5% of stool samples in the Petah Tikva area during the 1960’s and 1970’s.
- 3% of children in the West Bank and Gaza (1992 publication) 6

42% of hepatic abscesses in Jerusalem during 1979 to 1982 were found to be amebic.

Notable outbreaks:
- 1984 (publication year) - An outbreak of amebiasis on a kibbutz in the western Negev affected 25% of the population. 7

West Bank and Gaza:

Prevalence surveys:
- 7.0% of children in Khan Younis (Gaza, 2004 publication) 8
- 22.9% of stool specimens submitted in Nablus (1981 to 1986) 9
- 15% of diarrhea among children below age 5 in Gaza (2008 publication) 10
- 9.7% of school children in the northern West Bank (2010 publication) 11

E. histolytica accounts for 69.6% of pediatric fecal isolates in Gaza, and E. dispar for 22.8%. 12

No cases of amebic abscess were reported during 2002 to 2003.

References
11. Trop Med Int Health 2010 Nov 14;
Anaplasmosis

**Agent**
BACTERIUM. Anaplasmataceae Anaplasma phagocytophilum. (E. phagocytophila, E. equi "HE agent" have merged into this species) Intracellular Rickettsia-like

**Reservoir**
Rodent Rabbit Deer Tick

**Vector**
Ixodes dammini (scapularis); I. pacificus and I. ricinus also implicated

**Vehicle**
Blood or secretions (rare)

**Incubation Period**
Unknown; mean 8d

**Diagnostic Tests**
Intraleucocytic inclusions ('morulae') seen in blood smear. Serology. Nucleic acid amplification/

**Typical Adult Therapy**
Doxycycline 100 mg PO BID X 7 to 14 days OR Tetracycline 500 mg PO QID X 7 to 14 days

**Typical Pediatric Therapy**
Above age 8 years: Doxycycline 2 mg/kg PO BID X 7 to 14 days OR Tetracycline 500 mg PO QID X 7 to 14 days OR Rifampin 10 mg/kg/day PO

**Clinical Hints**
Fever, headache and myalgia following tick bite or exposure; arthralgia or macular rash may be present; leukopenia, thrombocytopenia or hepatic dysfunction common; inclusions in granulocytes; case-fatality rate 5%.

**Synonyms**

ICD9: 082.4
ICD10: B28.8

Clinical

Human Monocytic Ehrlichiosis (HME) and Human Granulocytic Ehrlichiosis (HE) are characterized by fever, headache, myalgia, thrombocytopenia, leukopenia, and elevated liver enzyme levels. 1-3

- A rash occurs in approximately one third of patients with HME but is less common in patients with HE.
- Rare instances of pneumonia have been reported in granulocytic ehrlichiosis.
- Most cases of ehrlichiosis are mild; however, complications such as adult respiratory distress syndrome, renal failure, neurological disorders, and disseminated intravascular coagulation can occur. 4-7
- Co-infection by *Borrelia burgdorferi* is common. 8
- Case-fatality ratios in severe cases are as high as 5% for HME and 10% for HGE.

This disease is endemic or potentially endemic to 38 countries.

Anaplasmosis in Israel

One case of human granulocytic ehrlichiosis was confirmed among 1,000 patients with fever of unknown origin (1994 to 1997). 9 10

*Anaplasma phagocytophilum* has been detected in ticks (*Hyalomma marginatum, Rhipicephalus turanicus,* and *Boophilus kohlsi*) collected from roe deer (*Capreolus capreolus*) in Mount Carmel. 11

- Antibody to *Anaplasma phagocytophilum* has been found among free-ranging jackals and dogs. 12

Seroprevalence surveys:

- 26% of jackals (*Canis aureus syriacus*, 1999 publication) 13
- 9% of domestic dogs and 0% of horses (2006 publication) 14

References

8. Vector Borne Zoonotic Dis 2008 Sep 15;
Animal bite-associated infection

| Agent | BACTERIUM. Pasteurella multocida, and other zoonotic bite pathogens |
| Reservoir | Cat, Dog, Marsupial (Tasmanian devil), Other mammal, Rarely bird |
| Vector | None |
| Vehicle | Cat (60%), dog (30%) or other bite. No obvious source in 10% |
| Incubation Period | 3h - 3d |
| Diagnostic Tests | Gram stain/culture. Hold specimen for 2 weeks to discount Capnocytophaga & other genera. |
| Typical Adult Therapy | Penicillin, a Tetracycline or Cefuroxime. Dosage and duration appropriate for nature and severity of infection |
| Typical Pediatric Therapy | Penicillin or Cefuroxime. Dosage and duration appropriate for nature and severity of infection |
| Clinical Hints | Infection of cat, dog or other bite wound - acquired during the preceding 3 to 72 hours (no history of bite in 10%); systemic infection (meninges, bone, lungs, joints, etc) may occur. |
| Synonyms | Bacteroides tectus, Bergeyella zoohelcum, Bisgaard's taxon 16, Capnocytophaga canimorsus, Capnocytophaga cynodegmi, CDC EF-4, CDC NO-1, Corynebacterium kutscheri, Corynebacterium canis, Corynebacterium freiburgense, Fusobacterium caninum, Halomonas venusta, Kingella potus, Moraxella canis, Neisseria animaloris, Neisseria canis, Neisseria weaveri, Neisseria zoodegmatis, Pasteurella canis, Pasteurella dagmatis, Pasteurella multocida, Pasteurella stomatis, Psychrobacter immobilis, Staphylococcus intermedius. |
| ICD9: | 027.2 |
| ICD10: | A28.0 |

Clinical

These are typically skin and soft infections which follow the bites of cats, dogs or other animals • usually during the preceding 3 to 72 hours. ¹
• There is no history of bite in ten percent of cases.
• Systemic infection (meninges ², bone, lungs ³, joints, etc) may occur, with rare instance of severe septicemia. ⁴ ⁵

See the Microbiology module (Bacteria • Characterize) for a comprehensive discussion of bacterial species associated with bite wound infection in humans.

This disease is endemic or potentially endemic to all countries.

References

# Anisakiasis

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Nematoda. Phasmidea: Anisakis simplex and Pseudoterranova decipiens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Marine mammals Fish</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Undercooked fish</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Hours - 14d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Endoscopic identification of larvae.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Endoscopic removal of larvae; surgery for complications</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Allergic reactions; or acute and chronic abdominal pain, often with 'peritoneal signs' or hematemesis; follows ingestion of undercooked fish (e.g., sushi), squid or octopus.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Anasakis, Bolbosoma, Cod worm disease, Contracaecum, Eustrongylides, Herring worm disease, Pseudoterranova, Whaleworm. ICD9: 127.1 ICD10: B81.0</td>
</tr>
</tbody>
</table>

## Clinical

The location of the worms and presenting features depend somewhat on the genus.
- **Phocanema** more commonly associated with infection of the stomach.
- **Anisakis** is usually associated with intestinal disease.  

**Invasive anisakiasis:**
Symptoms occur within 48 hours after ingestion.
- Gastric anisakiasis is characterized by intense abdominal pain, nausea, and vomiting.  
- Small intestinal involvement results in lower abdominal pain and signs of obstruction, and may mimic appendicitis.  
- Symptoms may last for months, rarely for years.  
- The disease may also suggest tumor, regional enteritis or diverticulitis.  
- Rare instances of intussusception reported.  
- Patients may also experience a pharyngeal "tickling sensation", cough or a foreign body in the mouth or throat.  

**Allergic anisakiasis:**
Ingestion of *Anisakis* larvae with seafood is often responsible for acute allergic manifestations such as urticaria and anaphylaxis, with or without accompanying gastrointestinal symptomatology.
- Eosinophilia is usually not present in either gastric or intestinal anisakiasis; however, leukocytosis is noted in two thirds of patients with intestinal involvement.  
- Urticaria is present in 20% of cases.  

**This disease is endemic or potentially endemic to all countries.**

## Anisakiasis in Israel

A case of anisakiasis was reported in 2003 - possibly due to food eaten in Belgium.

### References
**Anthrax**

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. <em>Bacillus anthracis</em> An aerobic gram positive bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Soil  Goat  Cattle  Sheep  Water  Horse</td>
</tr>
<tr>
<td>Vector</td>
<td>Fly (rare)</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Hair  Wool  Hides  Bone products  Air  Meat</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>1d-7d; 1-12 cutaneous, 1-7 GI; 1-43 pulmonary</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Bacteriological culture. Alert laboratory that organism may be present. Serology and rapid tests by Ref. Centers.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Isolation (secretions). Ciprofloxacin; alt. Doxycycline, Penicillin G. Add Clindamycin + Rifampin for pulmonary infection. Dosage/route/duration as per severity</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Isolation (secretions). Ciprofloxacin (Doxycycline if age &gt;= 8y). Add Clindamycin + Rifampin for pulmonary infection. Dosage/route/duration as per severity</td>
</tr>
<tr>
<td>Vaccine</td>
<td>Anthrax</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Edematous skin ulcer covered by black eschar - satellite vesicles may be present; fulminant gastroenteritis or pneumonia; necrotizing stomatitis; hemorrhagic meningitis. Acquired from contact with large mammals or their products (meat, wool, hides, bone).</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Antrace, Antrax, Antraz, Carbunco, Carbunculo, Malcharbon, Malignant pustule, Miltbrann, Miltvuur, Milzbrand, Mjaltbrand, Siberian plague, Siberian ulcer, Splenic fever, Wool-sorter's disease.</td>
</tr>
</tbody>
</table>

**Clinical**

Most cases of anthrax occur in one of four forms: cutaneous, gastrointestinal, oropharyngeal and inhalational. ¹

**CDC case definition for reporting:**
As of 1996, the CDC (The United States Centers for Disease Control) case definition for reporting purposes consists of any illness with acute onset characterized by one or more of the following:
- cutaneous (a skin lesion evolving during a period of 2-6 days from a papule, through a vesicle to a depressed black eschar)
- pulmonary (hypoxia, dyspnea and mediastinal widening following a brief ‘viral-type’ prodrome)
- intestinal (severe abdominal distress followed by fever or signs of sepsis)
- oropharyngeal (mucosal lesion, cervical adenopathy and edema, and fever)
- demonstration of *Bacillus anthracis* by culture, immunofluorescence or serological response.

**WHO case definition for surveillance:**
The WHO Case definition for surveillance is as follows:

**Clinical description:**
An illness with acute onset characterized by several clinical forms. These are:

(a) localized form:
- cutaneous: skin lesion evolving over 1 to 6 days from a papular through a vesicular stage, to a depressed black eschar invariably accompanied by edema that may be mild to extensive
- gastro-intestinal: abdominal distress characterized by nausea, vomiting, anorexia and followed by fever
- pulmonary (inhalation): brief prodrome resembling acute viral respiratory illness, followed by rapid onset of hypoxia, dyspnea and high temperature, with X-ray evidence of mediastinal widening
- meningial: acute onset of high fever possibly with convulsions, loss of consciousness, meningeal signs and symptoms; commonly noted in all systemic infections

**Laboratory criteria for diagnosis**
- isolation of *Bacillus anthracis* from a clinical specimen (e.g., blood, lesions, discharges)
- demonstration of *B. anthracis* in a clinical specimen by microscopic examination of stained smears (vesicular fluid, blood, cerebrospinal fluid, pleural fluid, stools)
- positive serology (ELISA, Western blot, toxin detection, chromatographic assay, fluorescent antibody test (FAT))

**Note:** It may not be possible to demonstrate *B. anthracis* in clinical specimens if the patient has been treated with antimicrobial agents.

**Case classification**
- Suspected: A case that is compatible with the clinical description and has an epidemiological link to confirmed or suspected
animal cases or contaminated animal products.

- Probable: A suspected case that has a positive reaction to allergic skin test (in non-vaccinated individuals).
- Confirmed: A suspected case that is laboratory-confirmed.

**Cutaneous anthrax:**
- 95% of anthrax cases (worldwide) are cutaneous.
- The incubation period for cutaneous anthrax ranges from 12 hours to 12 days.
- Cutaneous anthrax begins with pruritus at the affected site, typically followed by a small, painless papule that progresses to a vesicle in 1 to 2 days. 2
- The lesion erodes, leaving a necrotic ulcer with a characteristic black center.
- Secondary vesicles are sometimes observed.
- Lymphadenopathy may occur, and local edema may be extensive.
- Patients may have fever, malaise, and headache.
- The most common sites of cutaneous anthrax are the hands, forearms, and head.
- Rarely infection may involve the genital area 3, eyelid 4-6 or other areas.
- Cutaneous anthrax is fatal in approximately 20% of cases if left untreated.

**Inhalational anthrax:**
- Infection may progress to respiratory failure and shock within 1 to 2 days following onset of symptoms.
- The case-fatality rate exceeds 80%, even with appropriate antibiotic therapy. 9
- Symptoms include pharyngeal pain, cough, fever and myalgia followed by respiratory distress, cervical edema and venous engorgement suggestive of mediastinitis. 10 11

**Gastrointestinal anthrax:**
- Infection is characterized by pharyngeal pain, nausea, vomiting, and bloody diarrhea.
- Intestinal gangrene, obstruction and perforation may ensue. 13
- The case-fatality rate for intestinal infection ranges from 25% to 60%.
- Ulcerative lesions, usually multiple and superficial, may occur in the stomach, sometimes in association with similar lesions of the esophagus and jejunum.
- Ulcers may bleed, and in severe cases the hemorrhage may be massive and fatal.
- Ascites may be present.
- Lesions in the mid-jejunum, terminal ileum, or cecum tend to develop around a single site or a few sites of ulceration and edema, similar to cutaneous anthrax.

**Oropharyngeal anthrax:**
- Infection is characterized by painful neck swelling and fever.
- The other common symptoms are sore throat, dysphagia, and hoarseness, enlargement of cervical lymph nodes and soft tissue edema.
- Oral lesions are located on the tonsils, posterior pharyngeal wall, or the hard palate. 14
- In severe cases, the tonsillar lesions extended to involve the anterior and posterior pillars of fauces, as well as the soft palate and uvula.
- Early lesions are edematous and congested.
- By the end of the first week, central necrosis and ulceration produce a whitish patch, which evolves to a pseudomembrane which covers the ulcer after an additional week.

**Meningeal anthrax:**
- Infection is characterized by fever, malaise, meningeal signs, hyperreflexia, and delirium, stupor, or coma. 16
- CSF analyses demonstrated hemorrhagic meningitis, with positive Gram's stains and CSF cultures.
- 75% of patients die within 24 hours of presentation; mortality rates of 100% are reported in some series. 17 18
- Pathologic findings include hemorrhagic meningitis, multifocal subarachnoid and intraparenchymal hemorrhages, vasculitis, and cerebral edema. 19

This disease is endemic or potentially endemic to 147 countries.

**Anthrax in Israel**
25 infected animals were identified during 1971 to 1973, and 1 to 2 yearly during more recent years.
Notes:
1. Two cases of bovine anthrax were confirmed in Lachish in 2004, with an additional case in the same herd in 2005. Two subsequent cases of bovine anthrax were reported in the area in 2007.
2. An infected cow was identified in the Megido region in 2009.
West Bank and Gaza:

No cases were reported between 2003 and 2004

Individual years:
2009 - See reference 23
References

14. Emerg Radiol 2009 Jun 5;
20. ProMED <promedmail.org> archive: 20040714.1893
21. ProMED <promedmail.org> archive: 20071125.3817
22. ProMED <promedmail.org> archive: 20090706.2423
23. ProMED <promedmail.org> archive: 20091120.3992
Clinical

The pulmonary manifestations of ascariasis occur during the stage of larval migration through the lungs and resemble Loffler's syndrome: cough, wheezing, pulmonary infiltration and eosinophilia.  

- Children with heavy Ascaris infection experience impaired digestion and absorption of proteins, often with moderate steatorrhea.
- A mass of worms may block the lumen of the small bowel, resulting in acute intestinal obstruction, with vomiting, abdominal distention, cramps and occasionally gangrene or perforation.

Worms may also invade and obstruct the biliary duct (pancreatic-biliary ascariasis), producing abdominal pain, which may be associated with ascending cholangitis, acute or recurrent pancreatitis, and obstructive jaundice. The majority of patients with hepatobiliary and pancreatic ascariasis present with biliary colic. Cholelithiasis, hepatolithiasis, liver abscess and cirrhosis are associated with the presence of dead, rather than viable worms.

Aberrant worms may appear at umbilical and hernial fistulas, the fallopian tubes, urinary bladder, pleural space, lungs, nose and other sites.

Ascaris suum has been reported to cause rare cases of myelitis, eosinophilic pneumonia and focal liver lesions in humans, and is discussed under 'Toxocariasis.'

This disease is endemic or potentially endemic to all countries.

Ascariasis in Israel

Prevalence surveys:

- 51% of the population of Jerusalem in 1921 (62.7% of children); 3% in 1949; 1% during the 1950's. 0.36% of the population of Tel Aviv during 1969 to 1975.
- 20.3% of Ethiopian immigrants (1991 publication)
- 1% of Thai workers in Israel (1994 publication)
Notes:
Individual years:
1999 - Included 1,595 cases in Gaza.

Prevalence surveys:

12.8% of secondary school children in Gaza

5.7% of stool specimens submitted in Nablus (1981 to 1986)

1% of children in the West Bank and Gaza (1992 publication)

3.8% of school children in the northern West Bank (2010 publication)

References

25. Harefuah 1994 May 1;126(9):507-9, 563.
29. Trop Med Int Health 2010 Nov 14;
Aspergillosis

Agent | FUNGUS. Ascomycota, Eurotiales: Aspergillus. A hyaline hyphomycete
Reservoir | Compost Hay Cereal Soil
Vector | None
Vehicle | Air
Incubation Period | 3d - 21d
Diagnostic Tests | Fungal culture. Biopsy. Nasal culture or serologic testing may be useful in select cases.

Typical Adult Therapy | Voriconazole 6 mg/kg IV Q12h, day 1; follow with 4 mg/kg IV OR Amphotericin B - if invasive, rapidly increase to max dose 0.6 mg/kg/d and to total 2.5g. OR Itraconazole
Typical Pediatric Therapy | Voriconazole 3 to 9 mg/kg IV Q12h OR Amphotericin B - if invasive, rapidly increase to max dose 0.6 mg/kg/d X 6w. OR Itraconazole

Clinical Hints | Pulmonary "fungus ball"; adult-onset asthma; consolidation or infected "pulmonary infarct" in setting of immune suppression (e.g., AIDS, leukemia, etc) leads to widespread hematogenous dissemination if not treated promptly.

Synonyms | Aspergillose, Aspergillus.
ICD9: 117.3
ICD10: B44

Clinical

Clinical forms of aspergillosis include:

1. allergy (allergic bronchopulmonary aspergillosis)
2. colonization of air spaces (otomycosis, fungus ball or mycetoma of the paranasal sinuses or lungs)
3. non-pulmonary invasive (eye, sinuses, cardiac valve, skin, gastrointestinal tract)
4. pulmonary-invasive

Invasion of the ears and sinuses can cause extensive necrosis in immunocompromised hosts.

- The most common central nervous system manifestations include brain abscess or cerebral infarction
- Meningitis is rare
- Endophthalmitis and keratitis usually occur following injury
- Wound infections and infection of vascular access sites has also been reported.
- Sporadic instances of Isolated invasive Aspergillus tracheobronchitis and chronic necrotizing pulmonary aspergillosis are encountered.

Case-fatality rates range from 10% to 90%.

- One series of 289 cases cited a mortality rate of 40.2% (2008 publication)

This disease is endemic or potentially endemic to all countries.

Aspergillosis in Israel

Notable outbreaks:
1. 1993 - An outbreak of invasive pulmonary aspergillosis among leukemia patients was related to ongoing construction adjacent to the hospital.
2. 2005 to 2005 - An outbreak (8 cases) of aspergillosis among lung transplant recipients was related to ongoing construction work adjacent to a hospital.

References

### Bacillary angiomatosis

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM. Bartonella henselae or Bartonella quintana. Rickettsia-like bacteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human ? Tick ? Cat</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>Cat flea Tick (ixodid) - rare</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>Unknown</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Histology with special stains. Specialized culture techniques. Serology. Nucleic acid amplification.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Clarithromycin 500 mg BID X 8 weeks Alternatives Azithromycin 250 mg QD or Ciprofloxacin 500 mg BID</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>Clarithromycin 7.5 mg/kg PO BID X 8 months. OR Gentamicin 2 mg/kg IMq12h</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Hemangiomatous papules and nodules of skin, spleen, liver (peliosis hepatis), bone or other tissues; virtually all in the setting of AIDS or other immune deficiency; rare instances following tick bite in immune-competent individuals.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Bacillary peliosis, Peliosis hepatis. ICD9: 757.32,083.8 ICD10: K76.4,A44.0</td>
</tr>
</tbody>
</table>

### Clinical

Bacillary angiomatosis was originally described as involving skin and regional lymph nodes of HIV-infected persons. ¹

- Subsequent infections have involved patients with other forms of immune suppression, and presented in a variety of organs including liver, spleen, bone, brain, lung, bowel, and uterine cervix.

Cutaneous lesions often arise in crops and resemble the lesions of verruga peruana.

- Lesions may present as fixed or mobile subcutaneous or dermal nodules.
- Single or multiple dome-shaped, skin-colored, red or purple papules are also described, which may ulcerate and discharge serosanguinous fluid. ² ³
  
- Lesions can range in diameter from millimeters to centimeters.
- Regional lymph nodes are frequently enlarged in a variety of distributions.
- Involved organs contain multiple blood-filled cystic structures that range from microscopic to several millimeters in size.
- Bone disease may present as multiple osteolytic lesions.

This disease is endemic or potentially endemic to all countries.

### References

2. Dermatology 2000 ;201(4):326-31
Bacillus cereus food poisoning

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Bacillus cereus (toxin). An aerobic gram-positive bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Soil Processed &amp; dried foods</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Food</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>2h - 9h (range 1h - 24h)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>No practical test available. Isolation of organism from suspect food.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Usually follows ingestion of rice or other vegetables; vomiting within 1 to 6 hours and/or diarrhea within 6 to 24 hours; no fecal leucocytes.</td>
</tr>
</tbody>
</table>

Clinical

Two types of illness are caused by two distinct metabolites. 1
- Diarrhea is caused by a large molecular weight protein.
- Vomiting is caused by a low molecular weight, heat-stable peptide. 2

Symptoms of B. cereus diarrheal food poisoning mimic those of Clostridium perfringens food poisoning.
- Symptoms of the emetic form mimic S. aureus food poisoning. 3

Diarrheal form:
The onset of watery diarrhea, abdominal cramps, and pain occurs 6 to 15 hours after consumption of contaminated food. 4
- Nausea may accompany diarrhea, but vomiting (emesis) rarely occurs.
- Symptoms persist for 24 hours in most instances.

Emetic form:
The emetic type of food poisoning is characterized by nausea and vomiting within 0.5 to 6 h after consumption of contaminated foods.
- Occasionally, abdominal cramps and/or diarrhea may also occur.
- Duration of symptoms is generally less than 24 h.

Only two fatal cases had been reported to 2005. 5 6 Illness was characterized by rhabdomyolysis and renal failure.
- A case of encephalopathy and hepatic failure • similar to Reye’s syndrome • was related to Bacillus cereus food poisoning. 7

This disease is endemic or potentially endemic to all countries.

References

4. ProMED <promedmail.org> archive: 20071207.3948
7. Brain Dev 2009 Sep 29;
Bacterial vaginosis

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Gardnerella vaginalis (facultative gram-negative bacillus), Mobiluncus curtisi, Mobiluncus mulieris, Prevotella, et al</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Sexual contact - normal flora in 14% (girls) to 70% (women)</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Identification of &quot;clue cells&quot; or positive KOH test in vaginal discharge. Culture.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Metronidazole 500 mg BID X 7d (? Also treat sexual partner) + intravaginal Clindamycin or Metronidazole</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Metronidazole 7.5 mg/kg BID X 7d</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Thin vaginal discharge - &quot;fishy&quot; odor when mixed with KOH; mild to moderate pruritus; occasionally urethritis in sexual partner.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Gardnerella, Gardnerella vaginalis, Mobiluncus. ICD9: 041.89,616,10,099.8 ICD10: N76.1</td>
</tr>
</tbody>
</table>

Clinical

The diagnosis of bacterial vaginosis required three of the following: 1-3
1. A white, noninflammatory vaginal discharge or coating
2. The presence of clue cells 4
3. A vaginal pH above 4.5
4. A fishy odor following addition of 10% KOH to the vaginal discharge (presumably due to liberated trimethylamine).

Note that routine culture is unnecessary.

Associated conditions:
Sequelae of bacterial vaginosis include preterm birth 5, low birth weight 6, chorioamnionitis, cervicitis 7, scalp abscess of the newborn, an increased risk of late miscarriage 8 and maternal infection. 9
• Some studies have suggested a correlation between bacterial vaginosis and infertility. 10
• Bacterial vaginosis may increase the risk for acquisition of HIV infection.
• Bacterial vaginosis may predispose to urinary tract infection 11 and endometritis. 12

Gardnerella vaginalis has rarely been associated with balanitis, urethritis, urinary tract infections, asymptomatic bacteremia and infectious endocarditis in adult males. 13

This disease is endemic or potentially endemic to all countries.

Bacterial vaginosis in Israel

Prevalence surveys:
23.5% of vaginitis (2003 publication) 14

References

Balantidiasis

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Protozoa. Ciliate (Ciliophora), Litostomatea: Balantidium coli</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Pig  Non-human primate  Rodent</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Water  Food</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>1d - 7d (range 1d - 60d)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Microscopy of stool or colonic aspirates.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Tetracycline 500 mg QID X 10d. OR Metronidazole 750 mg TID X 5d. OR Iodoquinol 650 mg TID X 20d</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Age &gt;= 8 years: Tetracycline 10 mg/kg QID (max 2g/d) X 10d. Age &lt;8 yrs, Metronidazole 15 mg/kg TID X 5d; or Iodoquinol 13 mg/kg TID X 20d</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Dysentery, often with vomiting; mimics intestinal amebiasis. The disease is most common in pig-raising areas. Symptoms last for one to four weeks, and may recur.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Balantidiose, Balantidiosis, Balantidium coli, Balantidosis, Balindosis, Ciliary dysentery. ICD9: 007.0  ICD10: A07.0</td>
</tr>
</tbody>
</table>

Clinical

Most cases are asymptomatic.
- Clinical manifestations, when present, include persistent diarrhea, occasionally dysentery, abdominal pain, and weight loss. 

Symptoms can be severe in debilitated individuals.
- *Balantidium* pneumonia has been reported in immune-compromised patients\(^2\) and persons with occupational exposure.\(^3\)

Diagnosis is based on detection of trophozoites in stool specimens or in tissue collected during endoscopy.
- Cysts are less frequently encountered.
- *Balantidium coli* is passed intermittently and once outside the colon is rapidly destroyed. Thus stool specimens should be collected repeatedly, and immediately examined or preserved.
- Rare cases of pulmonary infection have been reported\(^4\).
- *Balantidium coli* has been identified in the urine.\(^5\)

**This disease is endemic or potentially endemic to 109 countries.** Although Balantidiasis is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

Balantidiasis in Israel

In 1943, balantidiasis was diagnosed in a man who had emigrated from Iraq 9 years previously.

References

5. J Nephrol 2010 Mar 26;
Bartonellosis - cat borne

**Agent**
BACTERIUM. *Afipia felis*, *Bartonella henselae*, *Bartonella clarridgeiae*, et al. A facultative gram-negative coccobacillus

**Reservoir**
Cat  Possibly tick

**Vector**
Flea (cat flea = Ctenocephalides)

**Vehicle**
Cat scratch  Plant matter (thorn, etc)

**Incubation Period**
3d - 14d

**Diagnostic Tests**

**Typical Adult Therapy**
Aspiration of nodes as necessary. **Azithromycin** 500 mg day 1, then 250 daily X 4 days Alternatives: **Clarithromycin**, **Ciprofloxacin**, **Sulfamethoxazole/trimethoprim**

**Typical Pediatric Therapy**
Aspiration of nodes as necessary. **Azithromycin** 10 mg/kg day 1, then 5 mg/kg daily X 4 days

**Clinical Hints**
Tender suppurative regional adenopathy following cat scratch (usually kitten); fever present in 25%. Systemic infection (liver, brain, endocardium, bone, etc) occasionally encountered; most cases resolve within 6 weeks.

**Synonyms**
*Afipia felis*, *Bartonella clarridgeiae*, *Bartonella henselae*, *Bartonella koehlerae*, Cat scratch disease, Debre's syndrome, Foshay-Mollaret cat-scratch fever, Katszenkratz-Krankheit, Petzetakis' syndrome, SENLAT.

ICD9: 078.3
ICD10: A28.1

---

**Clinical**

**Clinical history:**
Approximately 90% of patients have a history of exposure to a cat.
- The disease has also been reported after exposure to squirrels, dogs, goats, thorns and barbed wire. 1
- 75% of patients report a bite or scratch to the head, neck or upper limbs.
- Subclinical bacteremia is common among immuno-competent persons with animal and arthropod contact.

**Symptoms:**
Following an incubation period of 3 to 10 days, a small skin lesion appears consisting of a macule, papule, pustule or vesicle.
- Within 1 to 2 weeks, edema and tenderness of the regional lymph nodes appear.
- In some cases, the patient may present with Parinaud oculoglandular syndrome (conjunctival granuloma with suppurative preauricular adenitis), encephalopathy, erythema nodosum, thrombocytopenic purpura, arthritis, synovitis or pneumonia.

**Signs:**
Physical examination reveals involvement of a single node in 50% of cases.
- 30% have involvement of multiple sites, and 20% involvement of several nodes in the same region.
- Lymph nodes typically measure 1 to 5 cm.
- The majority of lesions regress over 2 to 6 months, but may last for as long as 2 years.
- Suppuration occurs in 10% of cases, and cellulitis is rare.
- Inguinal lymphadenopathy in cat-scratch disease may suggest a diagnosis of lymphogranuloma venereum. 2

**Additional findings:**
One third of patients manifest fever, lasting 1 to 7 days.
- Malaise, fatigue, anorexia, vomiting, weight loss, headache, splenomegaly and pharyngitis are occasionally observed.
- 10.5% of patients have musculoskeletal manifestations 3, including osteitis 4 and osteomyelitis 5.
- Rare features include a transient truncal maculopapular rash, encephalopathy 6 or encephalitis with seizures, lethargy, coma, parotitis 7, cranial or peripheral nerve involvement, facial nerve paresis, myelitis 8, uveitis or neuroretinitis 9-18, optic neuritis 19 with transient blindness, polyneuritis, radiculitis, Guillain-Barre syndrome 20, disseminated visceral infection 21-22, osteomyelitis 23, endocarditis 24, hepatosplenomegaly with hepatic granulomata 25, renal microabscesses 26, erythema marginatum, erythema multiforme, erythema nodosum 27 and thrombocytopenic purpura. 28
- Scalp eschar with neck lymphadenopathy (SENLAT) has been reported in some cases. 29
- *B. henselae* accounts for 6.1% of bacterial species causing uveitis (2001 to 2007) 30
This disease is endemic or potentially endemic to all countries.

**Bartonellosis - cat borne in Israel**

Approximately 100 laboratory-confirmed cases are registered annually.

913 cases were reported by a reference laboratory during an 11-year period (2007 publication) 31

*Bartonella henselae* has been identified in fleas from rodents in the Negev Desert 32

A case of *Afipia felis* infection has been reported. 33

A case of endocarditis due to *Bartonella koehlerae* has been reported. 34

**Seroprevalence surveys:**

59.7% of cats (1996 publication) 35

**References**

15. Rev Med Interne 2010 Jun 18;.
17. Cornea 2010 Nov 17;.
24. Pediatr Infect Dis J 2009 Sep 4;.
27. Rev Med Interne 2010 Jun 18;.
30. Medicine (Baltimore) 2008 May ;87(3):167-76.
**Bartonellosis - other systemic**

| Agent | BACTERIUM. *Bartonella quintana*, B. koehlerae, B. elizabethae, B. tammiae, B. washoensis, etc A fastidious gram-negative coccobacillus |
| Reservoir | Human Louse Rat Cat Dog Sheep |
| Vector | Louse (Pediculus) Flea - rare (Ctenocephalides, Pulex) |
| Vehicle | Wound or eye contact with secretions/louse feces |
| Incubation Period | 9d - 25d (range 4d - 35d) |
| Typical Adult Therapy | Doxycycline 100 mg PO BID X 3 to 5 days (if endocarditis, add Gentamicin 3 mg/kg daily X 28 days) Alternatives: Clarithromycin, Azithromycin, Gentamicin, Fluoroquinolone (Levofloxacin, Trovafloxacin, Pefloxacin, Sparfloxacin or Moxifloxacin) |
| Typical Pediatric Therapy | Erythromycin 10 mg/kg PO QID X 3 to 5 days. OR Gentamicin 2 mg/kg IM q12h. Alternatives: Clarithromycin, Azithromycin |
| Clinical Hints | Headache, myalgias, shin pain, macular rash, splenomegaly; endocarditis & bacteremia seen; relapse common; often associated with poor hygiene & crowding. |
| Synonyms | *Bartonella alsalatica*, Bartonella elizabethae, Bartonella grahamii, Bartonella quintana, Bartonella rochalimae, Bartonella tammiae, Bartonella washoensis, Candidatus Bartonella mayotimonensis, Candidatus Bartonella melophagi, Candidatus Bartonella rochalimae, Five day fever, His-Werner disease, Meuse fever, Quintan fever, Quintana fever, Shank fever, Shin fever, Shinbone fever, Trench fever, Volhynian fever. ICD9: 083.1 ICD10: A44.0,A44.8,A79.0 |

**Clinical**

Infection is characterized by abrupt onset of headache, postorbital pain, conjunctivitis, leg and back pain, relapsing fevers, splenomegaly and an erythematous maculopapular rash on the chest, back and abdomen.  

- In 50% of cases, as many as 3 to 8 relapses occur. 

Subclinical bacteremia is common among immuno-competent persons with animal and arthropod contact. 

No fatalities have been reported in classic trench fever. 

*Bartonella quintana* (formerly *Rochalimaea quintana*) and related bacteria may also produce bacillary angiomatosis (discussed separately in this module), bacteremia, endocarditis 2-4, myocarditis 5, uveitis 6 or chronic lymphadenopathy. 

- *Bartonella* species other than *B. henselae* account for 8.1% of bacterial uveitis (France, 2008 publication) 7 
- A single reported case of *Bartonella rochalimae* infection was characterized by fever, myalgia, headache and splenomegaly. 8 
- *Bartonella vinsonii subsp berkholffii* genotype has been implicated in a case of epithelioid hemangioendothelioma. 9 

**This disease is endemic or potentially endemic to all countries.**

**Bartonellosis - other systemic in Israel**

**Seroprevalence surveys:**

- 59.7% of cats (*Bartonella quintana*) (1996 publication) 10 
- 10% of dogs with suspected tick-borne disease (*Bartonella vinsonii berkholffii*, 1998 publication) 11 

*Bartonella quintana* endocarditis has been reported in an Ethiopian immigrant in Israel. 12 

*Bartonella koehlerae* infection was first reported in Israel, in 2004. 13 

There is evidence for carriage of *Bartonella elizabethae* in wild rodents - Cairo spiny mouse (*Acomys cahirinus*) and Black rat (*Rattus rattus*) 14
References

7. Medicine (Baltimore) 2008 May;87(3):167-76.
# Blastocystis hominis infection

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Protozoa. Chromista, Bigyra, Blastocystea: Blastocystis hominis. [taxonomic status remains uncertain]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Fecal-oral Water</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Stool microscopy. Nucleic acid amplification.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Nitazoxanide 500 mg BID X 3 d. OR Metronidazole 750 mg TID X 10d. OR Iodoquinol 650 mg TID X 20 d. or Sulfamethoxazole/trimethoprim</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Nitazoxanide - Age 1 to 3 years: 5 ml (100 mg) PO Q12h X 3 days - Age 4 to 11 years: 10 mg (200 mg) PO Q12h X 3 days; OR Metronidazole 15 mg/kg/d X 10d. Sulfamethoxazole/trimethoprim</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Diarrhea and flatulence; usually no fever; illness similar to giardiasis; increased risk among immune-suppressed patients; the exact role of this organism in disease is controversial.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Apoi, Blastocystiose, Blastocystis hominis, Zierdt-Garavel disease. ICD9: 007.8 ICD10: A07.8</td>
</tr>
</tbody>
</table>

## Clinical

Symptoms ascribed to blastocystosis include leucocyte-negative diarrhea, nausea, pain, flatulence and abdominal distention associated with overgrowth of the protozoan.

- Symptoms usually last for 3 to 10 days, but may persist for weeks or months.
- *Blastocystis hominis* has also been implicated in the etiology of irritable bowel syndrome and urticaria.

A search for alternative etiologies (including other infectious agents) should always be made in such patients.

This disease is endemic or potentially endemic to all countries.

## References

5. Parasitol Res 2010 Oct 5;
**Blastomycosis**

<table>
<thead>
<tr>
<th>Agent</th>
<th>FUNGUS. Ascomycota, Euascomycetes, Onygenales. Blastomyces dermatitidis. A dimorphic fungus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Soil  Beaver  Dog  Rodent</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Air</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>14d - 44d (range 7d - 100d)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Microscopy and culture. Skin tests and serology not useful. Nucleic acid amplification.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td><strong>Itraconazole</strong> 200 to 400 mg PO daily X 6 months. OR  <strong>Ketoconazole</strong> 400 mg/d X 6 months. OR  <strong>Amphotericin B</strong> - total dose 2.0g. Excision as required</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td><strong>Ketoconazole</strong> (if age &gt;2) 5 mg/kg/d X 6 months. OR  <strong>Amphotericin B</strong> - total cumulative dose 30 mg/kg</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Acute or chronic lung infection, often complicated by hematogenous involvement of skin (verrucous or ulcerated skin/subcutaneous lesions), osteomyelitis of vertebrae or long bones, meningitis, prostatitis, etc.</td>
</tr>
</tbody>
</table>

**Clinical**

Blastomycosis typically presents as a flu-like illness and is often diagnosed as a pneumonia.
- Symptoms include sudden onset of fever, cough, chest pain, weight loss, hemoptysis, shortness of breath and fatigue.  
- Hematogenous, lymphatic, or macrophage-borne dissemination occur.
- Pulmonary involvement occurs in approximately 60%, and is manifest as airspace consolidation, focal masses, intermediate-sized nodules, interstitial disease, miliary disease, or cavitary lesions.  
- Cavities favor the upper lobes.
- 35% have involvement of both lung and skin; and 19% have infection of skin only.

Dissemination may involve the genitourinary tract, skin, liver, CNS, spleen, bone, lymph nodes, heart, adrenals, GI tract, skeletal muscles and pancreas.
- Central nervous system infection may present at epidural abscess, intracranial mass lesions or meningitis.

In chronic cutaneous blastomycosis the initial skin lesion presents as one or more verrucous or pustular nodules which eventually ulcerate.
- Lesions are most common on exposed skin such as the face, hands, wrists, and lower legs.
- If untreated, elevated granulomatous lesions with advancing borders develop.
- Skeletal involvement has been reported in 33% of patients therefore, an extensive radiographic examination is recommended for all patients with blastomycosis.

**This disease is endemic or potentially endemic to 28 countries.** Although Blastomycosis is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

**Blastomycosis in Israel**

In 1944, blastomycosis was diagnosed in two brothers who had emigrated from Syria.

A case reported of autochthonous blastomycotic arthritis was published in 1978.

**References**

6. Mycoses 2009 Jun 1;
## Botulism

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM. <em>Clostridium botulinum</em>. An anaerobic gram-positive bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Soil Animal Fish</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Food Occasionally soil (wound contamination)</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>1d - 2d</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Electrophysiologic (EMG) pattern. Isolation of organism from food (occ. from infant stomach). Mouse toxin assay</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Heptavalent (types A-G) or trivalent (types A, B, E) antitoxin [following test dose] 10 ml in 100 ml saline over 30 min Additional 10 ml at 2 and 4 hours if necessary. Respiratory support</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>As for adult</td>
</tr>
<tr>
<td><strong>Vaccine</strong></td>
<td>Botulism antitoxin</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Clinical manifestations similar to those of atropine poisoning: dysarthria, diplopia, dilated pupils, dry mouth, constipation, flaccid paralysis, etc); onset approximately 36 hrs after ingestion of poorly-preserved food.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Botulisme, Botulismo, Botulismus, Kerner's disease. ICD9: 005.1 ICD10: A05.1</td>
</tr>
</tbody>
</table>

### Clinical

For reporting purposes, the CDC (The United States Centers for Disease Control) case definitions for Foodborne, Infant and Wound Botulism are as follows:

1. Neurological syndrome (diplopia, blurred vision, bulbar weakness, symmetric paralysis); or
2. Infant exhibiting constipation, poor feeding and failure to thrive, followed by progressive weakness, impaired respiration and death. 1

Symptoms and signs of botulism reflect characteristic electrophysiological abnormalities 2 and include diplopia 3 4, blurred vision, ptosis, slurred speech, difficulty swallowing, dry mouth, and muscle weakness. Infants are lethargic, ‘floppy,’ constipated and feed poorly• exhibiting a weak cry and poor muscle tone. 5 6

- In foodborne botulism, symptoms generally begin 18 to 36 hours after ingestion (range 6 hours to 10 days). 7
- Type F botulism is characterized by the appearance of respiratory failure within 24 hours, quadriplegia by the fifth day and rapid recovery beginning on the eighth day. 8 9
- If untreated, these symptoms progress to paralysis of the arms, legs, trunk and respiratory muscles.
- Patients who experience nausea and vomiting, cranial neuropathy or urinary retention are most likely to develop respiratory failure. 10
- Botulinum toxin may persist in the serum of patients for as long as 12 days. 11

Infant botulism should be suspected if a previously healthy infant (age <12 months) develops constipation and weakness in sucking, swallowing, or crying; hypotonia; and progressive bulbar and extremity muscle weakness. 12

- Approximately 50% of patients require mechanical ventilation.
- Lumbar puncture and brain imaging studies are usually normal, in contrast to other causes of flaccid weakness.
- The findings of infant botulism may mimic those of Hirschprung's disease 13 or acute abdomen. 14

*This disease is endemic or potentially endemic to all countries.*

### Botulism in Israel
The first reported case of infant botulism was published in 1994.
Two subsequent cases (nonfatal, both type B) were reported in 2002 and 2007.

Animal botulism is primarily seen in sheep and cattle, and limited to Clostridium botulinum type D.

**Notable outbreaks:**
- 1987 - An outbreak (8 cases) of type E botulism was traced to imported fish - the index case had occurred in New York City, and was related to consumption of 'Kapchunka' = 'ribyetz' (an ungutted, dried, salted whitefish product that is not cooked before eating). 15-17

**References**

12. ProMED <promedmail.org> archive: 20070420.1295
Brain abscess

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM OR FUNGUS. Mixed oral anaerobes / streptococci, Staphylococcus aureus (from endocarditis), etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>None</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Variable</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Imaging techniques (CT, scan, etc.)</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Antibiotic(s) appropriate to likely pathogens + drainage</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Headache, vomiting and focal neurological signs; often associated with chronic sinusitis or otitis media, pleural or heart valve infection; patients are often afebrile.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Ascesso cerebrale, Cerebral abscess. ICD9: 324.0 ICD10: G06.0</td>
</tr>
</tbody>
</table>

Clinical

The clinical presentation of brain abscess may range from indolent to fulminant. 1
- Most manifestations are due to the size and location of this space-occupying lesion within the brain and the virulence of the infecting microorganism, and not to infection per se.
- Headache is observed in approximately 70% of patients and may be moderate to severe and unilateral or generalized.
- Sudden worsening of the headache, accompanied by meningismus, may herald rupture of the abscess into the ventricular space.
- Less than 50% of patients present with a classic triad of fever, headache, and focal neurological deficit.
- Mental status changes are seen in 70% of cases, fever in 45 to 50%, seizures in 25 to 35%, vomiting in 25 to 50%, nuchal rigidity in 25% and papilledema in 25%.

Metastatic infections are most often associated with endocarditis, and may present with multiple abscesses.
- Although the distribution of the middle cerebral artery is most often involved, any part of the brain may be infected.
- Common pathogens in this setting reflect the usual flora of endocarditis and bacteremia.

Etiological associations:
- Congenital heart disease: viridans streptococci, Haemophilus spp.
- Endocarditis: Staphylococcus aureus, streptococci
- Immunodeficiency: Toxoplasmosis, Nocardia, fungi
- Otitis: Peptostreptococci, streptococci, Enterobacteriaceae
- Pleurapulmonary infection: anaerobes, Nocardia
- Sinusitis: Streptococci, Enterobacteriaceae, Bacteroides, Haemophilus influenzae
- Traumatic or post-surgical: Staphylococcus aureus, streptococci, Enterobacteriaceae

This disease is endemic or potentially endemic to all countries.

References

### Brucellosis

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Brucella abortus, Brucella melitensis, Brucella suis, Brucella canis An aerobic gram-negative bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Pig Cattle Sheep Goat Dog Coyote Caribou</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Food Air Dairy products Animal excretions</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>10d - 14d (range 5d - 60d)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Culture of blood or bone marrow. Serology. Note: Alert laboratory to possibility of Brucella.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Doxycycline 100 mg BID + Rifampin 600 mg BID X 6 weeks. Alternatives Tetracycline + Gentamicin</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Rifampin 20 mg/kg/day (maximum 600 mg) plus: &gt;age 8 years: Doxycycline 2 mg/kg BID PO X 6w age &lt; 8 years Sulfamethoxazole/trimethoprim 4/20 mg/kg BID X 4 to 6w Add Gentamicin if severe</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Prolonged fever, hepatosplenomegaly, lymphadenopathy, arthritis, osteomyelitis or chronic multisystem infection following ingestion of unpasteurized dairy products, contact with farm animals or meat processing.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Bang’s disease, Bangsche Krankheit, Brucella, Brucellemia, Brucellosis, Brucellos, Brucellosen, Brucelosi, Brucelose, Brucelosin, Cyprus fever, Febris melitensis, Febris sudoralis, Febris undulans, Fievre caprine, Gibraltar fever, Goat fever, Malta fever, Maltafieber, Melitococcosis, Neapolitan fever, Rock fever, Typhomarial fever, Undulant fever.</td>
</tr>
<tr>
<td>ICD9:</td>
<td>023</td>
</tr>
<tr>
<td>ICD10:</td>
<td>A23</td>
</tr>
</tbody>
</table>

#### Clinical

For surveillance purposes the CDC (The United States Centers for Disease Control) case definition of brucellosis consists of "an illness characterized by acute or insidious onset of ever, night sweats, undue fatigue, weight loss, headache and arthralgia" associated with epidemiological or laboratory evidence for infection.

**WHO Case definition for surveillance:**

The WHO Case definition for surveillance is as follows:

**Clinical description**
- An illness characterized by acute or insidious onset, with continued, intermittent or irregular fever of variable duration, profuse sweating particularly at night, fatigue, anorexia, weight loss, headache, arthralgia and generalized aching. Local infection of various organs may occur.
- Isolation of *Brucella* spp. from clinical specimen or
- *Brucella* agglutination titer (e.g., standard tube agglutination tests: SAT>160) in one or more serum specimens obtained after onset of symptoms or
- ELISA (IgA, IgG, IgM), 2-mercaptoethanol test, complement fixation test, Coombs, fluorescent antibody test (FAT), and radioimmunoassay for detecting antilipopolysaccharide antibodies; and counterimmuneelectrophoresis (CIEP)

**Case classification**
- Suspected: A case that is compatible with the clinical description and is epidemiologically linked to suspected or confirmed animal cases or contaminated animal products.
- Probable: A suspected case that has a positive Rose Bengal test.
- Confirmed: A suspected or probable case that is laboratory-confirmed.

**Clinical manifestations:**

The clinical picture of brucellosis is nonspecific, and most often consists of fever, sweats, malaise, anorexia, headache, depression and back pain. 1 2

- The fever of brucellosis may mimic that of enteric fever 3 ; and an undulant fever pattern is seen in chronic infections.
- Fever may be absent among patients with end-stage renal disease who acquire brucellosis. 4
- Mild lymphadenopathy is seen in 10 to 20% of patients; and splenomegaly or hepatomegaly in 20 to 30%.
- Bone and joint infections are common 5 6 , including a high rate of vertebral osteomyelitis. 7-9 Rare instances of acute myositis, bursitis 10 and muscular abscesses have also been reported. 11 12
- Vertebral osteomyelitis is characterized by osteolysis, often associated with paravertebral masses, discitis 13, epidural masses 14, or psosas abscesses. 15-17
- Epididymoorchitis is found in 7.6% to 12.7% of male patients with brucellosis. 18-22 Prostatitis has also been reported. 23
Endocarditis is well documented, including isolated case reports of *Brucella* infection of prosthetic valves and devices such as implantable defibrillators. Rare instances of myocarditis are also reported. 

Pulmonary infiltrates, primary brucellar endocarditis, ileitis, cholestatic jaundice, acalculous cholecystitis and liver abscess have been reported.

Ocular manifestations include uveitis, visual loss due to suprasellar mass, keratitis, conjunctivitis, papillitis, retinal hemorrhages and third-nerve palsy.

Neurological manifestations may include encephalitis, meningitis, cranial or peripheral neuropathy, progressive paraparesis, cerebral vasculitis with infarct, and parenchymal granulomata or abscesses.

Persons working with animals may present with severe pharyngitis as an initial feature of brucellosis.

Abscesses involving a variety of body areas and solid organs may occur.

Various forms of rash occur in 6% to 13% of patients including generalized or localized papules or macules, ulcers, purpura, vasculitis, panniculitis and erythema nodosum.

Brucellosis has been implicated in cases of human abortion.

Virtually any organ or body system may be infected during the course of illness.

Chronic brucellosis generally represents persistence of local infection in bone, joints, liver, spleen or kidneys.

Infection of natural or prosthetic joints and soft tissue has been reported.

Relapses are common, especially following inadequate therapy.

Pancytopenia is reported in 15% of cases.

Brucellosis has been reported to cause myelofibrosis, and to trigger hemolytic anemia in patients with Glucose-6-Phosphate Dehydrogenase deficiency.

Isolated thrombocytopenia mimicking TTP is reported in 6% of cases; hepatic dysfunction, colitis, Coombs-positive hemolytic anemia, reactive hemophagocytic syndrome, disseminated intravascular coagulation, TTP, Guillain-Barre syndrome and syndrome of inappropriate secretion of antidiuretic hormone (SIADH) have also been documented.

This disease is endemic or potentially endemic to 177 countries.

**Brucellosis in Israel**

Human disease in Israel is caused by *Brucella melitensis*.

- The usual vehicles are unpasteurized dairy products from sheep and goats.

As of 1996, all dairy cattle are free of *B. abortus*.

87% of cases occur among non-Jews, most commonly in Jerusalem, Hadera, Acre, Ramle and Beer Sheva Districts.

- Three-fourths of patients are in the age group 5 to 44 years, and the male/female ratio is 1.0.

- Brucellosis is responsible for 8% of febrile illness among Bedouins, requiring hospitalization (1998).

- 88 children were treated for brucellosis at a single hospital during 1987 to 1992.

72% of cases are reported during April through August.

Brucellosis has been a reportable disease since 1951.

A report of two cases of sexually-transmitted brucellosis was published in 2010.
3.5% of 195,000 animals tested during 1995 to 1996 were seropositive.

**Notable outbreaks:**
- 1997 - An outbreak (7 cases) was reported among personnel in a hospital. ¹¹⁰
- 1999 (publication year) - An outbreak (9 cases, 0 fatal) was reported among workers at a meat packing plant. ¹¹¹
- 1999 (publication year) - An outbreak (16 cases) was reported on a kibbutz. ¹¹²
- 2007 (publication year) - An outbreak (5 cases) was reported among physicians treating an infected mother and newborn
West Bank and Gaza:

References

1. 1995 - Included 240 cases in Hebron
2. 1996 - the rate in Gaza was 8 per 100,000
3. 1999 - Included 451 cases in Hebron

Notes
1. 1995 - Included 240 cases in Hebron
2. 1996 - the rate in Gaza was 8 per 100,000
3. 1999 - Included 451 cases in Hebron

References

9. Radiol Med 2010 Feb 22;
23. Clin Cardiol 2009 Dec 30;
36. Rev Neurol (Paris) 2010 Oct 6;
37. Int J Infect Dis 2009 Nov 12;
42. Int J Infect Dis 2010 Jun 23;
44. Int J Infect Dis 2010 Jun 23;
47. Int J Infect Dis 2010 Jun 23;
52. Int J Infect Dis 2010 Jun 23;
60. Int J Infect Dis 2010 Jun 23;
64. Int J Infect Dis 2010 Jun 23;
70. Int J Infect Dis 2010 Jun 23;
73. Int J Infect Dis 2010 Jun 23;
75. Int J Infect Dis 2010 Jun 23;
76. Int J Infect Dis 2010 Jun 23;
### Clinical

Following an incubation period of 1 to 10 days, patients develop diarrhea (often bloody) and abdominal pain. 
- Initial symptoms of malaise, dizziness, fever, headache and myalgia are common.
- Vomiting is unusual.
- Leucocytes are usually seen on stool smears.

Infection may be complicated by cholecystitis, pseudoappendicitis, peritonitis (including peritonitis associated with dialysis), hemolytic-uremic syndrome, bacteremia, myocarditis, pericarditis, pleurisy, mycotic iliac and aortic aneurysms, meningitis, epidural abscess, septic arthritis, cellulitis, spontaneous abortion, reactive arthritis or Guillain-Barre syndrome.
- Reactive arthritis has been reported in 1% to 13% of cases.
- The risk for reactive arthritis following *Campylobacter* infection was 2.1/100,000 cases (United States, 2002 to 2004).
- Elderly patients are at risk for complicated or fatal infection.

**Guillain Barre syndrome** (GBS) has been estimated to complicate 0.1% of *Campylobacter* infections.
- *Campylobacter* infection is implicated in 15% to 40% of GBS episodes.
- Risk for GBS continues for up to 2 months following an episode of Campylobacteriosis.
- The rate of GBS is 19.2 per 100,000 episodes of Campylobacteriosis.
- There have been case reports of brain stem encephalitis, cranial neuropathy and demyelization of the central nervous system or spinal cord following *C. jejuni* infection.
- There is evidence that campylobacteriosis may increase the risk for later development of inflammatory bowel disease.

**This disease is endemic or potentially endemic to all countries.**

### Campylobacteriosis in Israel

Campylobacteriosis has been a reportable disease since 1982.
During 1990 to 2008, *Campylobacter* accounted for 18.2% of enteric infections in Jerusalem - with rates of 15.0 per 100,000 in 1990, and 110.8 per 100,000 in 2008.  

No deaths were ascribed to Campylobacteriosis during 1986 to 2000.

**Prevalence surveys:**

4.3% of diarrhea episodes - third most common cause of bacterial diarrhea in Israel (1977 to 1979)
18.2% of bacterial enteric infections in Jerusalem (1990 to 2008) 39
1% of diarrhea among children on a communal settlement (1998 to 1992) 40
5% of diarrhea among children below age 5 in Gaza (2008 publication) 41
8.4% of Ethiopian immigrants hospitalized in Israel (1986 publication) 42
The organism is found in as many as 35% of raw poultry samples

Notable outbreaks:
1982 - An outbreak (150 cases) was a kibbutz near Jerusalem was ascribed to contaminated water. 43
1982 - An outbreak (6 confirmed cases) was reported at a military base. 44
1987 (publication year) - An outbreak (7 cases) was reported in a neonatal intensive care unit. 45
2002 (publication year) - An outbreak was reported among children following a visit to a farm. 46

West Bank and Gaza:

Prevalence surveys:
4.7% of diarrhea in children less than 5 years of age (C. jejuni/coli). (Gaza, 2007 publication) 47
5% of childhood diarrhea in (Gaza, 2006 to 2007) 48

References

2. J Clin Microbiol 2009 Nov 4;.
10. Int J Cardiol 2009 Jan 23;.
47. Int J Infect Dis 2007 Mar 28;
## Candidiasis

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Contact Catheter</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Variable</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Culture. Serology and assays for cell-specific antigens are performed in some centers,</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Topical, oral, systemic antifungal agent depending on clinical presentation and species [in Therapy module, scroll through upper left box]</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Dermal erythema with satellite pustules; &quot;cheesy&quot; mucosal discharge; severe, widespread or intractable disease should suggest the possibility of underlying diabetes, AIDS or other form of immune suppression.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Candida, Candida-Mykosen, Candidiase, Candidiasi, Candidose, Monilia, Moniliasis, Salmonella, Thrush. ICD9: 112 ICD10: B37</td>
</tr>
</tbody>
</table>

### Clinical

The clinical features of candidiasis range from localized mucosal or skin inflammation to multi-organ candidal sepsis.

Often infection represents overgrowth of *Candida* species following use of antimicrobial agents, or in the presence of the high mucosal glucose concentrations found in diabetics.
- Other predisposing factors include chronic intertrigo, oral contraceptive use, and cellular immune deficiency.
- Candidiasis is a common initial event in HIV-infected individuals.
- White exudative plaques may occur on the tongue or buccal mucosa (thrush), vaginal or rectal mucosa.
- Fissured, macerated lesions at the corners of the mouth (perleche) are common among individuals with poorly-fitting dentures. In fact, candidal infections have a predilection for sites that are chronically wet and macerated.
- Intertriginous lesions are edematous, erythematous, and scaly; and associated with scattered "satellite pustules."  
  • The glans penis and scrotum as inner aspect of the thighs are often involved.

Systemic *Candida* infections may involve virtually any organ or organ system, and mimic bacterial sepsis.  
- Case fatality rates for infected vascular catheters range from 26% to 38%; 33% for infected prosthetic cardiac valves; 20% to 40% for urinary catheters.

**This disease is endemic or potentially endemic to all countries.**

### Candidiasis in Israel

The rate of nosocomial candidemia in general hospitals (1994) is 600 per 100,000 to 800 per 100,000 admissions.  

**Prevalence surveys:**
- 35.5% of vaginitis (2003 publication)  
- 5.2% of pregnant women aged 16 to 50 years attending child and mother health center (vaginal candidiasis) (Gaza, 2007 publication)

**Notable outbreaks:**
- 1993 (publication year) - An outbreak (6 cases) of *Candida tropicalis* fungemia was reported in a neonatal intensive care unit in Haifa.
References

Chancroid

**Agent**
BACTERIUM. *Haemophilus ducreyi*. A facultative gram-negative bacillus

**Reservoir**
Human

**Vector**
None

**Vehicle**
Sexual contact

**Incubation Period**
3d - 10d (2d - 21d)

**Diagnostic Tests**
Culture (inform laboratory when this diagnosis is suspected). Fluorescent staining under development

**Typical Adult Therapy**
- **Azithromycin** 1.0 g PO X 1 dose. OR **Ceftriaxone** 250 mg IM X 1 dose. OR **Ciprofloxacin** 500 mg PO BID X 3 days OR **Erythromycin** 500 mg PO TID X 7d.

**Typical Pediatric Therapy**
- **Azithromycin** 12 mg/kg PO X 1 dose OR **Erythromycin** 10 mg/kg PO TID X 7d. OR **Ceftriaxone** 10 mg/kg IM X 1

**Clinical Hints**
Soft, painful and tender chancre on erythematous base, with regional lymphadenopathy (generally unilateral and painful); onset 3 to 10 days following sexual exposure.

**Synonyms**
Blot sjanker, Chancre mou, Chancro blando, Haemophilus ducreyi, Nkumunye, Soft chancre, Ulcera mole, Ulcus molle, Weeke sjanker, Weicher Schanker.

ICD9: 099.0
ICD10: A57

**Clinical**

For surveillance the CDC (The United States Centers for Disease Control) case definition consist of a sexually-transmitted disease characterized by painful genital ulceration and inflammatory inguinal adenopathy; but without evidence for *Treponema pallidum* by dark field and serological examination (after at least 7 days) and without clinical or laboratory evidence for herpes simplex infection.

Infection begins with a papule or pustule which ulcerates and enlarges over a period of 1 to 2 days.  
- The lesion is soft, painful and bleeds easily; and the ulcer edges are undermined and irregular.  
- Two thirds of patients present with more than one ulcer  
- Painful unilateral or bilateral lymphadenopathy is present in 40% of cases.  
- Systemic signs are unusual.  
- Extragenital skin ulcers are occasionally encountered.  
- *Haemophilus ducreyi* has been associated with esophageal ulceration in HIV-positive patients.

**This disease is endemic or potentially endemic to all countries.**

**Chancroid in Israel**

Four cases were reported among Jews in Jerusalem during 1936 to 1937.

25 cases were reported for Tel Aviv during the years of World War II.

**References**

Chikungunya

VIRUS - RNA. Togaviridae, Alphavirus: Chikungunya virus. Related Semliki Forest and Me Tri viruses are found in Africa & Asia

Non-human primate

Mosquito (Aedes; Ae. furcifer-taylori group in Africa)

None

2d - 12d


Supportive

As for adult

Abrupt fever, leukopenia, myalgia and prominent bilateral joint pain; maculopapular rash appears on 2nd to 5th days in greater than 50% of cases; fever resolves within 7 days, but joint pain may persist for months.

Buggy Creek, Getah, Knuckle fever, Me Tri, Semliki Forest.

ICD9: 062.8,066.3
ICD10: A92.1

The fever of Chikungunya is characterized by a rapid rise in temperature to as high as 40°C, often accompanied by rigors, myalgia, headache, photophobia, retro-orbital pain, sore throat with objective signs of pharyngitis, nausea, and vomiting. 1

• Fever may abate after a few days, only to recrudesce ("saddle-back" fever curve").
• Polyarthralgia occurs in 70% of cases, favors small joints and sites of previous injury, and is most intense on arising.
• Joints may swell, but without significant fluid accumulation. 2 3
• Joint pain is most severe in adults.
• Symptoms may last for from 1 week to several months. 4
• Arthralgia may persist for as long as 18 months 5 6; and in one series, 57% of patients continued to experience rheumatological symptoms for 15 months or more. 7
• Imaging studies may reveal joint effusion, bony erosion, marrow edema, synovial thickening, tendonitis and tenosynovitis. 8
• In rare cases, joint involvement may progress to residual chronic pain 9 or destructive arthritis. 10
• In some cases Chikungunya may mimic Kawasaki disease. 11
• Laboratory tests reveal mild leukopenia and relative lymphocytosis; persistent mixed cryoglobulinemia is present in most cases. 12

Dermatological manifestations:
A rash characteristically appears on the first day of illness, but may be delayed.
• The patient exhibits erythema of the face and neck, which evolves to a macular or maculopapular exanthem of the trunk, limbs, face, palms, and soles in 50% of cases. 13
• Common findings also include hyperpigmentation, xerosis, excoriated papules, aphthous-like ulcers, vesiculobullous and lichenoid eruptions, and exacerbation of pre-existing or quiescent dermatoses. 14 15
• Pigmentary changes are seen in 42% of cases, intertriginous aphthous-like ulcers in 21.37% and a vesiculobullous eruption in 2.75% (only in infants). 16
• Morbilliform eruptions are most common, followed by scaling, macular erythema, intertrigo, hypermelanosis, xerosis, excoriated papules, urticaria and petechiae. 17
• Extensive bullous lesions have been reported in infected infants. 18
• Pruritus is common, and petechiae have been seen in some patients.
• Purpuric macules with vesiculobullous eruption 19, genital ulcers, erythema multiforme and erythema nodosum have also been reported in patients with Chikungunya. 20

Complications:
Complications include hemorrhagic syndrome, myopericarditis 21 22, hemodynamic disorders 23 and rare instances of renal failure. 24
Chikungunya in Israel

Three Israeli travelers acquired chikungunya in northern India in 2006.

References

26. ProMED <promedmail.org> archive: 20060106.2873
27. ProMED <promedmail.org> archive: 20070524.1669
28. ProMED <promedmail.org> archive: 20070718.2305
30. Arch Pediatr 2008 Mar 3;
31. ProMED <promedmail.org> archive: 20080304.0895
33. Int J Infect Dis 2010 Dec 3;
44. Neurol India 2009 Mar-Apr;57(2):177-80.

Infection by a related agent, *Semliki Forest virus*, is characterized by fever, myalgia, arthralgia and persistent headache.

This disease is endemic or potentially endemic to 37 countries. Although Chikungunya is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.
**Chlamydia infections, misc.**

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Chlamydiaceae, <em>Chlamydia</em>, Chlamydia trachomatis; Simkania negevensis; Waddlia chondrophila</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Sexual contact</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>5d - 10d</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Doxycycline 100 mg BID X 7d. OR Azithromycin 1g as single dose OR Levofloxacin 500 mg daily X 7 days OR Ofloxacin 300 mg BID X 7 days</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Weight &lt;45 kg: Erythromycin 10 mg/kg QID X 14d Weight &gt;=45 kg, but age &lt;8 years: Azithromycin 1 g as single dose Age &gt;= 8 years: Azithromycin 1 g as single dose OR Doxycycline 100 mg BID X 7d</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Thin, scant penile discharge; cervicitis; conjunctivitis; neonatal pneumonia; pelvic inflammatory disease; concurrent gonorrhea may be present.</td>
</tr>
</tbody>
</table>

**Clinical**

Infection with *Chlamydia trachomatis* may result in urethritis, epididymitis, obstructive uropathy, cervicitis, Fitz-Hugh-Curtis syndrome, acute salpingitis, tubal scarring and ectopic pregnancy, or other syndromes if sexually transmitted.

- The rates of orchitis/epididymitis, prostatitis, infertility, and urethral stricture following genital infection in males are 4.28%, 1.41%, 1.27%, and 0.13% respectively.
- The extent to which *Chlamydia* infection contributes to male and female infertility is unclear.

*Chlamydia trachomatis* infection is implicated in the etiology of reactive arthritis.

Parachlamydiaceae (including *Parachlamydia acanthamoebae*) have been associated with human respiratory infections, conjunctivitis, keratitis and uveitis.

- The signs and symptoms of infection are similar to those of genital *Mycoplasma* infection.
- Recurrent infection may represent either reinfection or treatment failure.

For surveillance purposes, the CDC (The United States Centers for Disease Control) case definition of nongonococcal urethritis requires that gonorrhea has been discounted in the setting of:

- a visible abnormal urethral discharge
- or, a positive leukocyte esterase test from a male aged <60 who does not have a history of kidney disease or bladder infection, prostatic enlargement, anatomical abnormality of the urogenital tract, or recent urinary tract instrumentation
- or microscopic evidence of urethritis (over 5 leukocytes per high-power field) on stain of a urethral smear.

**This disease is endemic or potentially endemic to all countries.**

**Chlamydia infections, misc. in Israel**

Chlamydial infection has been officially-reportable since 1994.
References

Individual years:
2004 - Included 74 cases (8.8 per 100,000) in the Haifa district. 36

Prevalence surveys:
6.1% of CSW in the Tel Aviv area
6.3% of brothel-based CSW in Tel Aviv (urine PCR, 2008 publication) 37
16.7% of foreign CSW in the Beer Sheva area (2006 publication) 38
3.2% of female military personnel (2003 publication) 39
51.5% of males with urethritis (STD clinics, 1996 to 1998). 40
25% of female IDU (1991 publication) 41
8.3% of pregnant women aged 16 to 50 years attending a child and mother health center in Gaza (2007 publication) 42
10% of patients with sterile pyuria in Gaza (2006 to 2007) 43
20.2% of female infertility and gynecology clinic patients in Gaza (2008 publication) 44

55% to 80% of healthy persons in the southern region are seropositive to Simkania Z 45; 15% of infants with acute bronchiolitis. 46

Graph: Israel. Chlamydia infection - genital, cases

© 2011 - GIDEON Informatics Inc - www.gideononline.com

Notes:

© 2011 GIDEON Informatics, Inc. www.gideononline.com All Rights Reserved.
Page 69 of 500
Chlamydophila pneumoniae infection

Agent | BACTERIUM. Chlamydiaceae, Chlamydiae, Chlamyphila [Chlamydia] pneumoniae
Reservoir | Human
Vector | None
Vehicle | Droplet
Incubation Period | 7d - 28d
Typical Adult Therapy | Respiratory isolation. Doxycycline 50 mg BID X 10d. Alternatives: Erythromycin 500 mg QID X 10d. Azithromycin 1 g, then 0.5 g daily. Clarithromycin 0.5 g BID
Typical Pediatric Therapy | Respiratory isolation; Erythromycin 10 mg/kg QID X 10d
Clinical Hints | Atypical pneumonia, often associated with pharyngitis and myalgia; consider when Mycoplasma, Legionella and influenza are discounted.

Clinical

Asymptomatic infection is common.
- Pneumonia and bronchitis are the most common clinical syndromes associated with C. pneumoniae. 1
- Sinusitis and pharyngitis may also occur, even in the absence of lower respiratory tract infection.
- Initial symptoms may consist of rhinitis, sore throat, or hoarseness; followed after several days or weeks prominent cough.
- Fever is often absent.
- Cough and malaise may persist for months; and reinfection may occur.
- A single, subsegmental, patchy infiltrate may be seen on chest X ray.
- Other findings described include, lobar pulmonary consolidation, interstitial infiltrates, bilateral pneumonia, pleural effusion, hilar adenopathy and myo-pericarditis. 2
- The appearance of a miliary infiltrate may suggest a diagnosis of tuberculosis. 3
- Chlamyphila pneumoniae has been identified as an agent of otitis media. 4
- The peripheral white blood cell count is usually not elevated.

C. pneumoniae has been identified as a cause of acute respiratory exacerbations in patients with cystic fibrosis and acute respiratory infection in children with sickle cell disease.
- C. pneumoniae infection is implicated in the etiology of recurrent tonsillitis. 5
- The organism has also been implicated in development of asthma 6-9, chronic rhinosinusitis 10, otitis media, migraine 11, endocarditis, lumbosacral meningoradiculitis, erythema nodosum, Guillain-Barre syndrome, hemophagocytic lymphohistiocytosis 12, reactive arthritis and atherosclerosis. 13

This disease is endemic or potentially endemic to all countries.

Chlamyphila pneumoniae infection in Israel

Prevalence surveys:
- 4.6% of atypical respiratory infections in this country. 55.5% of such patients have evidence of previous infection.
- 18% of winter respiratory tract infections in an outpatient setting (1998 publication) 14

Seroprevalence surveys:
- 31% of children and 74% of adults (1996 to 1997)
References

9. Allergy 2010 Nov 18;
Cholecystitis & cholangitis

Agent | BACTERIUM. *Escherichia coli*, Klebsiella pneumoniae, enterococci, et al.
Reservoir | Human
Vector | None
Vehicle | Endogenous bacteria
Incubation Period | Variable
Diagnostic Tests | Roentgenograms/imaging (cholecystogram, ultrasound, CT, etc).
Typical Adult Therapy | Antibiotics and surgical intervention as required
Typical Pediatric Therapy | As for adult
Clinical Hints | Fever, chills and right upper quadrant abdominal pain; often "female, fat and 40"; may be associated with gallstones or pancreatitis, or present as 'fever of unknown origin'.

Synonyms | Acute cholecystitis, Angiocholite, Ascending cholangitis, Cholangitis, Cholecystite, Cholecystitis, Cholezystitis, Colangite, Colangitis, Colecistite, Gall bladder.
ICD9: 575.0,576.1
ICD10: K81,K83.0

Clinical

Cholangitis is caused by obstruction of the common bile duct, which subsequently becomes infected. 1
• Strictures, stenosis, tumors, or endoscopic manipulation of the CBD cause bile stasis.
• The resultant infection ascends into the hepatic ducts, while increased biliary pressure spreads infection into the biliary canaliculi, hepatic veins and perihepatic lymphatics, leading to bacteremia.

Charcot's triad (fever, right upper quadrant pain, and jaundice) is found in 70% of patients.
• Additional findings include right upper quadrant pain, mild hepatomegaly, tachycardia, altered mental status, rigors, fever, hypotension, jaundice, pruritis, acholic stools.
• The case-fatality rate is 7% to 40%, and is highest in patients with hypotension, renal failure, liver abscess, cirrhosis, inflammatory bowel disease, malignant strictures and advanced age, or delays in diagnosis or surgery.

This disease is endemic or potentially endemic to all countries.

References

Cholera

Clinical

**WHO Case definition for surveillance:**
The WHO Case definition for surveillance is as follows:

**Clinical case definition**
- In an area where the disease is not known to be present: severe dehydration or death from acute watery diarrhea in a patient aged 5 years or more or
- In an area where there is a cholera epidemic: acute watery diarrhea, with or without vomiting in a patient aged 5 years or more

**Laboratory criteria for diagnosis**
- Isolation of *Vibrio cholerae* O1 or O139 from stools in any patient with diarrhea.

**Case classification**
- Suspected: A case that meets the clinical case definition.
- Probable: Not applicable.
- Confirmed: A suspected case that is laboratory-confirmed.

Note: In a cholera-threatened area, when the number of confirmed cases rises, shift should be made to using primarily the suspected case classification.

- Cholera does appear in children under 5 years; however, the inclusion of all cases of acute watery diarrhea in the 2-4 year age group in the reporting of cholera greatly reduces the specificity of reporting.
- For management of cases of acute watery diarrhea in an area where there is a cholera epidemic, cholera should be suspected in all patients.

Symptoms and signs of cholera reflect the degree of fluid loss: thirst, postural hypotension, tachycardia, weakness, fatigue and dryness of the mucous membranes.
- Following an incubation period of 24 to 48 hours, the patient experiences sudden onset of painless, watery diarrhea, which may later be accompanied by vomiting.
- Abdominal cramps may occur.
- Fever is typically absent in adults, but present in children.
- The diarrhea has a “rice water” appearance and fishy odor.
- In patients with severe disease, stool volume can exceed 250 ml per /kg during the first 24 hours (17.5 liters in a 70 kg adult!).
- Severe cases exhibit sunken eyes (depressed fontanelles in infants), thready pulse, somnolence or coma.
- Without replacement of fluids and electrolytes, hypovolemic shock and death ensue.
- The clinical features of cholera due to *Vibrio cholerae* O139 are indistinguishable from disease due to other strains.
- Rare cases of acalculous and infectious cholecystitis have been ascribed to *Vibrio cholerae*.

---

**Agent**

BACTERIUM. *Vibrio cholerae* A facultative gram-negative bacillus

**Reservoir**

Human

**Vector**

None

**Vehicle**

Water  Fecal-oral  Seafood (oyster, ceviche)  Vegetables  Fly

**Incubation Period**

1d - 5d (range 9h - 6d)

**Diagnostic Tests**

Stool culture. Advise laboratory when this organism is suspected.

**Typical Adult Therapy**

Stool precautions. **Doxycycline** 100 mg BID X 5d, or Fluoroquinolone (*Levofloxacin*, *Trovafloxacina, Pefloxacin*, *Sparfloxacin* or *Moxifloxacin*). Fluids (g/l): NaCl 3.5, NaHCO3 2.5, KCl 1.5, glucose 20

**Typical Pediatric Therapy**

Stool precautions. Age >=8 years: **Doxycycline** 2 mg/kg BID X 5d. Age <8 years: **Sulfamethoxazole/trimethoprim** Fluids (g/l): NaCl 3.5, NaHCO3 2.5, KCl 1.5, glucose 20

**Vaccines**

Cholera - injectable
Cholera - oral

**Clinical Hints**

Massive, painless diarrhea and dehydration; occasionally vomiting; apathy or altered consciousness common; rapid progression to acidosis, electrolyte imbalance and shock; fever is uncommon.

**Synonyms**

Colera, Kolera.
ICD9: 001
ICD10: A00
This disease is endemic or potentially endemic to 95 countries. Although Cholera is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

Cholera in Israel

Historical background:
The first documented cholera epidemic was recorded in 1831, in Bethlehem.
- Subsequent epidemics were reported during 1837 to 1840 (Jerusalem), 1848 (Schechem and the Galilee), 1855 (Haifa), 1864 (Jaffa), 1865 (Jerusalem, Jaffa and Tiberias), 1866 (Jerusalem), 1888 to 1890 (Jerusalem), 1902 (widespread), 1911 (Haifa), 1912 (Tiberias), 1916 (widespread), 1917 (Beer Sheva and Tiberias), and 1918 (Tiberias). 7

No cases were reported between 1988 and 2009
Notes:
1. Three cases were imported from Egypt in 1982 and 1987.
2. No cases have been reported in Israel (within the 'green line') since 1987.

495 cases occurred in Gaza, Judea and Samaria during 1970 to 1983 - including 180 in Gaza.
- One case was reported in Gaza in 1971.
- No cases were reported in the West Bank and Gaza during 1995 to 2004.

Notable outbreaks:
1970 - An outbreak (397 cases) in Jerusalem was caused by vegetables grown in human sewage. 8-11
1981 - An outbreak (161 cases) in Gaza originated with a visitor from Jordan. 12 13
1994 - An outbreak (103 cases, 1 fatal) in Gaza originated in persons arriving from Yemen and Egypt.

References

## Chromomycosis

<table>
<thead>
<tr>
<th>Agent</th>
<th>FUNGUS. Ascomycota, Euscomycetes, Chaetothyriales. Dematiaceous molds: Phialophora, Cladiophialophora, Fonsecaea, Rhinocladiella</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Wood, Soil, Vegetation</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Minor trauma</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>14d - 90d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Biopsy and fungal culture.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td><strong>Itraconazole</strong> 100 mg PO QID X (up to) 18 m. OR (for late disease) <strong>Flucytosine</strong> 25 mg/kg QID X 4m. <strong>Terbinafine</strong> has been used in some cases. Local heat; excision as necessary</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td><strong>Itraconazole</strong> 1 mg/kg PO BID X (up to) 18 m. OR <strong>Ketoconazole</strong> (if age &gt;2) 5 mg/kg/d X 3 to 6m. Local heat; excision as necessary</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Violaceous, verrucous, slowly-growing papule(s) or nodules, most commonly on lower extremities; usually follows direct contact with plant matter in tropical regions.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Chromoblastomycosis, Chromomycose, Verrucous dermatitis. ICD9: 117.2 ICD10: B43.0</td>
</tr>
</tbody>
</table>

### Clinical

The lesions of chromomycosis typically progress from a papule to cicatricial fibrosis: nodules, tumors, plaques, warty lesions, and scarring lesions.  
1. The verrucous form appears at the site of inoculation. 
2. The primary lesion, a small pink scaly papule, may be pruritic but rarely painful. 
3. Over time (often months to years), new crops of lesions appear in the same or adjacent areas as warty, purplish, scaly nodules or smooth, firm tumors. 
4. Peripheral spread may occur with healing in the center, as lesions enlarge and become grouped. 
5. Older lesions resemble cauliflower, with small ulcerations or "black dots" of hemopurulent material on the surface. 
6. These lesions can be pruritic and are rarely painful. 
7. Satellite lesions may develop through autoinoculation or lymphatic spread. 
8. Coalesced lesions form a large verrucous mass. 
9. Occasionally, an annular, flattened, papular lesion having a raised border is encountered. 
10. Keloid formation, fibrosis, lymphostasis and marked edema may follow. 
11. Fistulae are not seen. 
12. Malignant transformation has been reported in long-lasting lesions.  

Signs of mucosal infection may mimic those of rhinosporidiosis.  

Rarely instances have been reported of hematogenous spread to the brain, lymph nodes, liver, lungs, soft tissues and other organs.  

### This disease is endemic or potentially endemic to all countries.

### References

### Chronic fatigue syndrome

<table>
<thead>
<tr>
<th>Agent</th>
<th>UNKNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Unknown</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Unknown</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Clinical diagnosis; ie, discount other diseases.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive; ? immune modulators (experimental)</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Unexplained depression, fatigue, cognitive disorders, sleep disturbance, recurrent bouts of pharyngitis and adenopathy, rheumatological symptoms and fever lasting more than six months.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Myalgic encephalomyelitis. ICD9: 780.71 ICD10: G93.3</td>
</tr>
</tbody>
</table>

### Clinical

The CDC (The United States Centers for Disease Control) consensus definition of Chronic Fatigue Syndrome requires the presence of two major criteria, in addition to at least six symptom criteria and at least two physical criteria (or the presence of eight symptom criteria, without need for physical criteria) as follows: 1-5

**Major criteria:**
- A. New onset of persistent or relapsing, debilitating fatigue or fatigability without a history of similar illness. Fatigue does not resolve with bed rest, and reduces daily activity by at least 50% for at least 6 months.
- B. Exclusion of other disorders through history, physical examination and laboratory studies.

**Minor criteria:**
- A. Symptoms.
  1. Mild fever or chills
  2. Sore throat
  3. Painful cervical or axillary adenopathy
  4. Myalgia
  5. Muscle weakness
  6. Migratory arthralgia
  7. Prolonged fatigue not meeting major criteria
  8. Generalized headaches
  9. Neuropsychological complaints (photophobia), scotomata, forgetfulness, irritability, confusion, problems in thinking or concentration 1,7, depression)
  10. Sleep disturbances
  11. Description of the initial symptom complex as developing over a period of hours to days.

- B. Physical criteria.
  1. Low grade fever
  2. Nonexudative pharyngitis
  3. Cervical or axillary lymphadenopathy (nodes may be tender, and are usually no larger than 2 cm).

Affected children present with low levels of school attendance, fatigue, anxiety, functional disability and pain. 8
- Three phenotypes of Chronic Fatigue Syndrome are described in children: musculoskeletal, migraine and "sore throat." 9
Additional findings described in Chronic fatigue syndrome have included generalized hyperalgesia and postural orthostatic tachycardia.  

This disease is endemic or potentially endemic to all countries.

**Chronic fatigue syndrome in Israel**

This is one of only eight countries which specifically reported Chronic Fatigue Syndrome as of 1991.

**References**

8. Arch Dis Child 2008 Jan 11;
Chronic meningococcemia

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Neisseria meningitidis An aerobic gram-negative coccus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Air Infected secretions</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Blood culture. Test patient for complement component deficiency.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Intravenous Penicillin G 20 million units daily X 7 days</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Intravenous Penicillin G 200,000 units daily X 7 days</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Recurrent episodes of low-grade fever, rash, arthralgia and arthritis - may persist for months; rash is distal, prominent near joints and may be maculopapular, petechial or pustular; may be associated with complement component deficiency.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Meningococcemia, chronic. ICD9: 036.2 ICD10: A39.3</td>
</tr>
</tbody>
</table>

Clinical

Chronic meningococcemia is characterized by persistent meningococcal bacteremia associated with low-grade fever, rash and arthritis.

- The rash is similar to that of gonococcemia. 1 2
- The illness may recur over a period of weeks to months.
- Patients (or their contacts) may ultimately present with acute bacterial meningitis or septicemia.

Non-bacteremic cases occur, and may be diagnosed through demonstration of meningococci in skin lesions. 3

This disease is endemic or potentially endemic to all countries.

References

## Clostridial food poisoning

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. <em>Clostridium perfringens</em> An anaerobic gram-positive bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Soil Human Pig Cattle Fish Poultry</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Food</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>8h - 14h (range 5h - 24h)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Laboratory diagnosis is usually not practical. Attempt culture of food for C. perfringens.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Abdominal pain; watery diarrhea (usually no fever or vomiting) onset 8 to 14 hours after ingestion of meat, fish or gravy; no fecal leucocytes; usually resolves within 24 hours.</td>
</tr>
<tr>
<td>Synonyms</td>
<td></td>
</tr>
</tbody>
</table>

### Clinical

Seven to 15 hours after ingestion of toxin (range 6 to 24), the patient develops watery diarrhea (90%), abdominal cramps (80%); and occasionally nausea (25%), vomiting (9%) or fever (24%).

1. Symptoms may persist for 8 to 72 hours (usually one day)
2. Fatal cases are rare
3. This disease is endemic or potentially endemic to all countries.

### Clostridial food poisoning in Israel

This organism accounted for 18% of all food-related outbreaks reported during 1990 to 1992; and 15% of all food-related illness during 1990 to 1999.
References

Clostridial myonecrosis

Agent | BACTERIUM. Clostridium perfringens An anaerobic gram-positive bacillus
Reservoir | Soil Human
Vector | None
Vehicle | Soil Trauma
Incubation Period | 6h - 3d
Typical Adult Therapy | Prompt, aggressive debridement. Penicillin G 3 million units IV Q3h + Clindamycin 900 mg IV Q8h. Hyperbaric oxygen
Typical Pediatric Therapy | Prompt, aggressive debridement. Penicillin G 50,000 units/kg IV Q3h + Clindamycin 10 mg/kg IV Q6h. Hyperbaric oxygen
Vaccine | Gas gangrene antitoxin
Clinical Hints | Gas gangrene is heralded by rapidly progressive tender and foul smelling infection of muscle associated with local gas (crepitus or seen on X-ray), hypotension, intravascular hemolysis and obtundation.
Synonyms | Anaerobic myonecrosis, Clostridial gangrene, Gas gangrene.
ICD9: 040.0
ICD10: A48.0

Clinical

Gas gangrene is a fulminant infection with prominent findings at the infection site and severe systemic disease. ¹

The process may follow trauma (usually of an extremity), surgery (notably intestinal or biliary), septic abortion or delivery, vascular insufficiency or burns, underlying colorectal or pelvic cancer, or neutropenia complicating leukemia or cytotoxic therapy.

Following an incubation period of 1 to 4 days (range 6 hours to 3 weeks) the patient develops severe local pain, heaviness or pressure.

- The infection then progresses within minutes to hours, with localized edema, pallor and tenderness.
- Gas may be noted in the soft tissues by palpation, x-ray or scans, but crepitance is a late finding.
- The skin initially appears pale, and progresses to a magenta or bronze discoloration with hemorrhagic bullae and subcutaneous emphysema.
- A thin, brown, serosanguineous discharge may be present, associated with an offensive odor described as sweetish or "mousey."
- Gram's stain of the discharge shows a large number of gram-positive or gram-variable rods, with few or no white blood cells.

Profound systemic toxicity is also present, diaphoresis, anxiety, and tachycardia disproportionate to fever.

- In fact, fever may be low or absent in the early stages.
- Other complications include intravascular hemolysis, hemoglobinuria, hypotension, renal failure, and metabolic acidosis.
- Central nervous system manifestations are rare and most frequently comprise meningitis with or without pneumencephalon, encephalitis, plexitis, cerebral abscess, or subdural empyema. ²
- Coma and generalized 'bronze' edema are seen preterminally.

This disease is endemic or potentially endemic to all countries.

References

Clostridium difficile colitis

Agent | BACTERIUM. *Clostridium difficile* An anaerobic gram-positive bacillus
--- | ---
Reservoir | Human
Vector | None
Vehicle | Endogenous
Incubation Period | Variable
Diagnostic Tests | Assay of stool for C. difficile toxin.
Typical Adult Therapy | Metronidazole 250 mg PO TID X 10d. OR Vancomycin 125 mg [oral preparation] QID X 10d
Typical Pediatric Therapy | Vancomycin 2 mg/kg [oral preparation] QID X 10d
Clinical Hints | Fever, leukocytosis, abdominal pain; mucoid or bloody diarrhea during / following antibiotic therapy; fecal leukocytes present; suspect even when mild diarrhea follows antibiotic intake.
Synonyms | Klebsiella oxytoca colitis, Pseudomembranous colitis.
ICD9: 008.45
ICD10: A04.7

Clinical

Symptoms may appear as early as the first or second day of antimicrobial therapy; or as late as 10 weeks after cessation.

1. Occasionally, a single dose of an antimicrobial or antineoplastic agent has been implicated.  
2. The frequency of diarrhea ranges from three to as many as 20 stools per day.
3. Stools may be soft or watery, but rarely demonstrate overt blood.
4. Occult blood in the stool is found in approximately 25% of patients.
5. Abdominal pain is present in 22% of patients, fever in 28% and leukocytosis in 50%.
6. Reactive polyarthritis has been reported in some cases. 
7. Rare instances of *Clostridium difficile* bacteremia are reported.
8. Disease caused by *C. difficile* 027 is relatively severe and carries a higher mortality rate than infection by other strains.

This disease is endemic or potentially endemic to all countries.

Clostridium difficile colitis in Israel

Notable outbreaks:

1994 (publication year) - An outbreak (10 cases) was reported among institutionalized elderly patients.

References

5. J Med Microbiol 2010 Dec 2;  
### Coccidioidomycosis

<table>
<thead>
<tr>
<th>Agent</th>
<th>FUNGUS. Ascomycota, Euascomyces, Onygenales: Coccidioides immitis [possibly also Coccidioides posadasii] A dimorphic fungus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Soil</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Air</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>10d - 14d (range 7d - 28d)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Culture of sputum, CSF, biopsy etc for fungi. Nucleic acid amplification.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>(Non-meningitic) Fluconazole 500 mg PO daily. OR Itraconazole 200 mg PO BID X 1y. OR Amphotericin B 0.4 mg/kg/d X 6w, then 0.8 mg/kg qod</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>(Non-meningitic) Fluconazole 8 mg/kg/day PO or IV OR Ketoconazole 5 mg/kg/d X 1y, OR Amphotericin B 0.4 mg/kg/d X 6w, then 0.8 mg/kg qod</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Cough, chest pain, myalgia; often eosinophilia, erythema nodosum, headache; extrapulmonary infection (bone, skin, genitourinary, etc) is occasionally encountered.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>California disease, Coccidioides immitis, Coccidiodes posadasii, Coccidioidomykose, Desert rheumatism, Posada's disease, Valley fever. ICD9: 114 ICD10: B38</td>
</tr>
</tbody>
</table>

### Clinical

It is estimated that 50 to 65% of all infections due to *C. immitis* are subclinical. 1
- Overt disease is often indistinguishable from other forms of respiratory infection.
- Most cases are self-limited, and without sequelae.

Symptomatic acute infection is characterized by cough, chest pain, shortness of breath, fever, fatigue; often with weight loss. 2 3
- A nonpruritic fine papular rash is often present.
- Many patients experience erythema nodosum, erythema multiforme or migratory arthralgias (“desert rheumatism”). 4

Laboratory findings are usually normal except for an increase in the erythrocyte sedimentation rate, and eosinophilia in some cases. 5
- Chest X-rays may reveal unilateral infiltrates, hilar adenopathy 6, and pleural effusions (15%) 7; with pulmonary cavities in 5 to 10%.
- Fulminant bilateral pneumonia has been described rarely, but may herald underlying immune deficiency (eg, AIDS). 8

A residual pulmonary nodule may be detectable in 5% of cases.
- More overt complications such as fibrotic and cavitary pneumonia are occasionally seen.
- Eosinophilic pneumonia has been reported. 9
- Failure to respond to therapy may indicate the presence of concurrent tuberculosis. 10

Systemic dissemination complicates less than 1% of infections in the absence of competent immunity.
- Complications may include fungemia 11, and mediastinal or visceral abscesses 12
- Severe, disseminated and fatal infections are common in patients with AIDS. 13
- Organ transplant recipients 14 and pregnant women are at risk for disseminated infection. 15
- Older patients do not appear to be at risk for more severe infection. 16
- Virtually any organ or system may be infected in this manner 17, including the genital tract 18 19, bone 20 and spine 2122, joints 23, eye 24 25, meninges 26-28, skin 29-31 and pericardium. 32

Rare instances of primary cutaneous infection have been acquired through direct inoculation. 33-36

**This disease is endemic or potentially endemic to 13 countries.** Although Coccidioidomycosis is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.
Coccidioidomycosis in Israel

An imported case (from the United States) was reported in 1990.
- An additional imported case (from the United States) was reported in 2003. 37

References

17. Medicine (Baltimore) 2004 May;83(3):149-75.
22. Joint Bone Spine 2010 May 27;
25. Ophthalmology 2010 May 13;
Coenurosis

### Agent
PARASITE - Platyhelminthes, Cestoda. Cyclophyllidea, Taeniidae: Taenia multiceps (Multiceps spp.)

### Reservoir
Sheep, Wild carnivore, Horse, Dog

### Vector
None

### Vehicle
Water, Food, Soil (contaminated by dog)

### Incubation Period
Unknown

### Diagnostic Tests
Identification of parasite in biopsy material.

### Typical Adult Therapy
Excision

### Typical Pediatric Therapy
As for adult

### Clinical Hints
Mass in brain, eye, muscle or subcutaneous tissue; may present months to years after exposure in sheep-raising areas; basilar arachnoiditis with internal hydrocephalus is common.

### Synonyms
Multiceps, Taenia multiceps.

ICD9: 123.8
ICD10: B71.8

---

**Clinical**

Human infection has a predilection for the cysterna magna, and presents as basal arachnoiditis and hydrocephalus. ¹
- Subcutaneous tissue, muscle and eye infections are also reported, and present as a cystic masses (often containing daughter cysts) which may attain the size of a hen's egg.
- The clinical features of coenurosis may mimic those of echinococcosis. ²

**This disease is endemic or potentially endemic to 25 countries.**

**Coenurosis in Israel**

A case of human cerebral coenurosis was confirmed in Beer Sheba in 2006. ³

**References**

# Common cold

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Droplet Contact</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>1d - 3d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Viral culture and serology are available, but not practical.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive; Pleconaril under investigation</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Nasal obstruction or discharge, cough and sore throat are common; fever &gt;38 C unusual in adults; illness usually lasts one week, occasionally two.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Acute coryza, Raffreddore, Rhinovirus. ICD9: 079.460 ICD10: J00</td>
</tr>
</tbody>
</table>

---

## Clinical

In young adults, the common cold runs its course in an average of 7 days.

Fever is uncommon, and in most cases, rhinorrhea and nasal obstruction predominate. 1
- Sore throat, cough and hoarseness are often present.
- The nasal tip is often red, and mucoid secretions and a glistening nasal mucosa are evident.
- The pharynx may be mildly edematous and erythematous, but without exudate.

Complications include bacterial sinusitis, otitis media, exacerbation of chronic bronchitis and precipitation of asthma. 2
- Rare instances of pneumonia have been attributed to infection by Coronavirus strains OC43 and 229E.
- Severe symptoms, including bronchiolitis are associated with Coronavirus HCoV-NL63 infection in young children.

This disease is endemic or potentially endemic to all countries.

## References

2. Allergy 2010 Nov 18;
Conjunctivitis - inclusion

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. <em>Chlamydia</em>, Chlamydia trachomatis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Infected secretions Sexual contact Water (swimming pools)</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>5d - 12d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Demonstration of chlamydiae on direct fluorescence or culture of exudate.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Secretion precautions. Topical <em>Erythromycin</em>. <em>Erythromycin</em> 250 mg PO QID. X 14 days OR <em>Doxycycline</em> 100 mg PO BID X 14 days</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Secretion precautions. Topical <em>Erythromycin</em>. <em>Erythromycin</em> 10 mg/kg PO QID X 14 days</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Ocular foreign body sensation, photophobia and discharge which may persist for months to as long as 2 years; keratitis and conjunctival follicles may be evident.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Inclusion conjunctivitis, Paratrichoma. ICD9: 077.0 ICD10: P39.1,A74.0</td>
</tr>
</tbody>
</table>

Clinical

Ophthalmia neonatorum caused by *Chlamydia* is characterized by conjunctival injection without follicles. ¹

Follicular conjunctivitis in adults is most prominent on the lower lid, and the presence of bulbar follicles is highly suggestive of a Chlamydia etiology. ²

- The infection is usually bilateral and accompanied by profuse discharge.

Parachlamydiaceae (including *Parachlamydia acanthamoebae*) have been associated with conjunctivitis, keratitis and uveitis. ³

Trachoma may be differentiated from inclusion conjunctivitis by the presence of corneal scarring and a preference of the latter for the upper tarsal conjunctivae.

This disease is endemic or potentially endemic to all countries.

References

Conjunctivitis - viral

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS. Picornavirus, Adenovirus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Contact</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>1d - 3d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Viral isolation is available but rarely practical.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Watery discharge, generalized conjunctival injection and mild pruritus; may be associated with an upper respiratory infection.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Apollo conjunctivitis, Apollo eye, Conjunctivite virale, Hemorrhagic conjunctivitis, Viral conjunctivitis. ICD9: 077.1,077.2,077.3,077.4,077.8,372.0 ICD10: B30,B30.3,H10</td>
</tr>
</tbody>
</table>

**Clinical**

The symptoms of viral conjunctivitis include erythema, itching and lacrimation.
- The presence of large quantities of pus may suggest a bacterial etiology. ¹ ²

Hemorrhagic conjunctivitis is characterized by sudden onset of painful, swollen, red eyes with subconjunctival hemorrhaging, palpebral follicles, photophobia, foreign body sensation, eyelid edema, punctate keratitis, and excessive tearing. ³ ⁴
- Symptoms usually persist for 3 to 5 days.

**This disease is endemic or potentially endemic to all countries.**

**Conjunctivitis - viral in Israel**

**Notable outbreaks:**
- 1974 (publication year) - Outbreaks of febrile pharyngitis and pharyngoconjunctival fever on a kibbutz were associated with adenovirus types 2 and 7. ⁵
- 1993 (publication year) - An outbreak (28 cases) of Adenovirus type 8 conjunctivitis was associated with a neonatal intensive care unit. ⁶
- 1994 - An outbreak of hemorrhagic conjunctivitis due to Enterovirus 70 was reported. ⁷

**References**

4. ProMED <promedmail.org> archive: 20071006.3302
Cryptococcosis

<table>
<thead>
<tr>
<th>Agent</th>
<th>FUNGUS - Yeast. Basidiomycota, Hymenomycetes, Sporidiales: Cryptococcus neoformans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Pigeon Soil</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Air</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Variable</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Amphotericin B 0.3 mg/kg/d X 6w (+/- Flucytosine); then 0.8 mg/kg qod X 8w. OR Fluconazole 200 mg/d</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Amphotericin B 0.3 mg/kg/d X 6w (+/- Flucytosine); then 0.8 mg/kg qod X 8w. OR Fluconazole 3 mg/kg/d</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Chronic lymphocytic meningitis or pneumonia in an immune-suppressed patient; meningitis may be subclinical, or &quot;wax and wane&quot; - nuchal rigidity absent or minimal; bone, skin, adrenals, liver, prostate and other sites may be infected.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Busse-Buschke disease, Cryptococcus, European blastomycosis, Torulosis. ICD9: 117.5,321.0 ICD10: B45</td>
</tr>
</tbody>
</table>

Clinical

**Central nervous system infection:**
Central nervous system infection may be acute or gradual in onset, with acute manifestations most common in immunosuppressed patients (e.g., with AIDS). 1
  - Often, the onset is characterized by waxing and waning manifestations over weeks to months, interspersed by asymptomatic periods.
  - Complaints may be mild and nonspecific, and consist of headache, nausea, dizziness, irritability, somnolence, confusion, or obtundation. 2
  - Decreased visual acuity, diplopia, and facial weakness may be evident.
  - Fever is often absent, and patients have minimal or no nuchal rigidity.
  - Papilledema is noted as many as one third of cases, and cranial nerve palsies in 20%. Bilateral amaurosis has been reported as a sequela of infection. 3 4
  - Hyperreflexia, choreoathetoid movements or myoclonic jerks may be present.
  - Elevated CSF protein concentrations are present in 50%, hypoglycorrhachia in 33% and pleocytosis above 20 cells per cu. Mm. In 20%.
  - Peripheral blood eosinophilia may be present. 5 6

**Respiratory tract infection:**
Respiratory tract cryptococcosis may be asymptomatic, or limited to a mild productive cough with blood-streaked sputum and minor ache in the chest. 7 8
  - Pulmonary infection may present as a single rounded lesion, lobar pneumonia, bronchiolitis obliterans 9 or miliary disease.
  - Rales or pleural friction rub are unusual, and pleural effusions are uncommon.
  - Pulmonary infection in immunocompetent patients may progress or regress spontaneously over long periods.
  - Concurrent CNS infection may be evident in some cases.

One-half of AIDS patients with cryptococcal meningitis have concurrent pulmonary involvement, and two-thirds are fungemic. 10
  - Initial cough and dyspnea are found in 5 to 25% of HIV-positive patients with cryptococcosis.
  - Cryptococcal immune reconstitution inflammatory syndrome may present as a clinical worsening of cryptococcal disease after initiation of antiretroviral therapy. 11
  - Case-fatality rates for treated cryptococcosis in AIDS patients are 10% to 25%.

The clinical features of Cryptococcus neoformans var. gattii infection are similar to those of C. neoformans infection. 12
  - C. neoformans var. gattii infections usually involve the lungs (75 percent), although neurological (8 percent) and combined (9 percent) infections are seen. 13
Cryptococcosis may involve a variety of other sites including skin\textsuperscript{14-22} and subcutaneous tissues\textsuperscript{23 24}, blood stream\textsuperscript{25 26}, mucosa, colon or intestine\textsuperscript{27 28}, gall bladder, liver, peritoneum\textsuperscript{29}, lymph nodes\textsuperscript{30 31}, bone and joints, breasts, pericardium, genital tract\textsuperscript{32-34}, placenta (without neonatal involvement)\textsuperscript{35}, eyes\textsuperscript{36 37}, parotid glands\textsuperscript{38}, tongue\textsuperscript{39}, retropharyngeal space\textsuperscript{40}, etc.

The cutaneous features of cryptococcosis include papules, pustules, nodules, subcutaneous swelling, abscesses, molluscum contagiosum-like or tumor-like lesions, cellulitis, blisters, ulcers and very rarely, necrotizing fasciitis\textsuperscript{41}

Note: \textit{Cryptococcus neoformans} is one of at least a dozen \textit{Cryptococcus} species. See the Microbiology • Yeasts module.

\textbf{This disease is endemic or potentially endemic to all countries.}

\textbf{References}

1. CNS Drugs 2003 ;17(12):869-87.
4. Rev Iberoam Micol 2010 Oct 18;
8. Curr Opin Pulm Med 2009 Apr 4;
13. ProMED <promedmail.org> archive: 20100426.1341
29. Diagn Cytopathol 2010 Nov 2;
31. AIDS Res Hum Retroviruses 2010 Nov 18;
34. AIDS Patient Care STDS 2009 Feb ;23(2):71-3.
40. Travel Med Infect Dis 2010 Sep ;8(5):322-5.
# Cryptosporidiosis

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Mammal (over 150 species)</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Water Feces Oysters Fly</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>5d - 10d (range 2d - 14d)</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Stool/duodenal aspirate for acid-fast, direct fluorescence staining, or antigen assay. Nucleic acid amplification</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Stool precautions. <strong>Nitazoxanide</strong> 500 mg PO BID X 3 days</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>Stool precautions. <strong>Nitazoxanide</strong>: 1 to 3 years: 100 mg PO BID X 3 days 4 to 11 years: 200 mg PO BID X 3 days &gt;12 years: 500 mg PO BID X 3 days</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Watery diarrhea, vomiting, abdominal pain; although self-limited in healthy subjects, this is a chronic and wasting illness and may be associated with pulmonary disease among immunosuppressed (e.g., AIDS) patients.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Cryptosporidium, Cryptosporidium fayeri, Cryptosporidium felis, Cryptosporidium hominis, Cryptosporidium parvum, Cryptosporidium ubiquitum, Kryptosporidiose. ICD9: 007.4 ICD10: A07.2</td>
</tr>
</tbody>
</table>

## Clinical

Cryptosporidiosis affects the gastrointestinal tract and may be asymptomatic or associated with watery diarrhea and abdominal cramps.

- Fever and anorexia are uncommon, and fecal leukocytes are not seen.
- Although vomiting is not common among adults, it is often encountered in children.  

Rare instances of pulmonary infection have been reported.  

There is some evidence that *Cryptosporidium hominis* infection in children is associated with diarrhea, nausea, vomiting, general malaise, and increased oocyst shedding intensity and duration.

- In contrast, infections caused by *C. parvum*, *C. meleagridis*, *C. canis*, and *C. felis* are associated with diarrhea only.

Illness persists for 1 to 20 days (mean 10) in immunocompetent individuals

- Protracted, severe diarrhea leading to malabsorption, dehydration, extraintestinal (ie, biliary or pulmonary  3-5 ) and fatal infection may develop in immunocompromised individuals.  

**This disease is endemic or potentially endemic to all countries.**

## Cryptosporidiosis in Israel

IgG antibody is found in 42.3% of the general population and 81.5% of healthy adults.  

91% of Bedouin children will be infected by *Cryptosporidium* by age 2 years.  

**Prevalence surveys:**

- 3.25% of childhood diarrhea in Israel  
- 19% of childhood gastroenteritis in Gaza requiring hospitalization
Infection has been demonstrated in a free-ranging house gecko (*Hemidactylus turcicus*). 13

**Notable outbreaks:**
- 1991 (publication year) - An outbreak (11 cases) of cryptosporidiosis was reported among children who had been in contact with calves. 14
- 2010 (publication year) - An outbreak (30 cases confirmed) was reported in Nablus. 15

**References**

15. Trop Med Int Health 2010 Dec 3;
Cutaneous larva migrans

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Nematoda. Phasmidea: Ancylostoma braziliense, A. caninum, Bunostomum phlebotomum, Strongyloides myopotami</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Cat, Dog, Cattle</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Soil, Contact</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>2d - 3d (range 1d - 30d)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Biopsy is usually not helpful.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td><strong>Albendazole</strong> 200 mg BID X 3d OR <strong>Ivermectin</strong> 200 micrograms/kg as single dose. OR <strong>Thiabendazole</strong> topical, and oral 25 mg/kg BID X 5d (max 3g).</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td><strong>Albendazole</strong> 2.5 mg/kg BID X 3d OR <strong>Ivermectin</strong> 200 micrograms/kg once OR <strong>Thiabendazole</strong> topical, and oral 25 mg/kg BID X 5d (max 3g).</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Erythematous, serpiginous, pruritic advancing lesion(s) or bullae - usually on feet; follows contact with moist sand or beach front; may recur or persist for months.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Creeping eruption, Pelodera, Plumber’s itch.</td>
</tr>
</tbody>
</table>

Cutaneous larva migrans is characterized by one or more erythematous linear or vesicular lesions which tend to be raised and palpable.  
1. The lesions are intensely pruritic and extend in length from day to day.  
2. The site of the lesions reflects contact with sand / soil, as from walking barefoot or lying on a beach.  
3. Infection may persist for months

This disease is endemic or potentially endemic to all countries.

Cutaneous larva migrans in Israel

Sporadic imported cases are reported.  

References

6. Harefuah 1993 Apr 1;124(7):405-8, 455.
## Cyclosporiasis

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>PARASITE - Protozoa. Sporozoa, Coccidea, Eimeriida: Cyclospora cayetanensis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human ? Non-human primate</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Water Vegetables</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>1d - 11d</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Identification of organism in stool smear. Cold acid fast stains and ultraviolet microscopy may be helpful.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Sulfamethoxazole/trimethoprim 800/160 mg BID X 7d Ciprofloxacin 500 mg PO BID X 7 d (followed by 200 mg TIW X 2 w) has been used in sulfa-allergic patients</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>Sulfamethoxazole/trimethoprim 10/2 mg/kg BID X 7d</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Watery diarrhea (average 6 stools daily), abdominal pain, nausea, anorexia and fatigue lasting up to 6 weeks (longer in AIDS patients); most cases follow ingestion of contaminated water in underdeveloped countries.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Cryptosporidium muris, Cyanobacterium-like agent, Cyclospora. ICD9: 007.5 ICD10: A07.8</td>
</tr>
</tbody>
</table>

### Clinical

Symptoms appear abruptly in 68% of cases
- Patients usually present with intermittent watery diarrhea, with up to eight or more stools per day. ¹ ²
- Other symptoms may include anorexia, nausea, abdominal cramps, bloating, flatulence, mild to moderate weight loss, fatigue, and myalgia.
- Fever is rare.

In the immunocompetent patient, the diarrhea may last from a few days to up to three months, with the organism detectable in the stool for up to two months.
- In immune compromised individual, particularly AIDS patients, the disease can persist for weeks to several months.

Reactive arthritis syndrome (Reiter's syndrome) has been associated with progression of the disease. ³

Acalculous *Cyclospora* cholecystitis has been demonstrated in a patient with AIDS.

**This disease is endemic or potentially endemic to all countries.**

### References

### Cysticercosis

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>PARASITE - Platyhelminthes, Cestoda. Cyclophyllidea, Taeniidae: Taenia solium</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Pig Human</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Soil (contaminated by pigs) Fecal-oral Fly</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>3m - 3y</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Serology (blood or CSF) and identification of parasite in biopsy material.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td></td>
</tr>
</tbody>
</table>
  - Albendazole 400 mg PO BID X 30d. OR Praziquantel 30 mg/kg TID X 14d (15 to 30d for neurocysticercosis). Surgery as indicated Add corticosteroids if brain involved. |
| **Typical Pediatric Therapy** | 
  - Albendazole 15 mg/kg PO BID X 30d. OR Praziquantel 30 mg/kg TID X 14d (15 to 30d for neurocysticercosis). Surgery as indicated Add corticosteroids if brain involved. |
| **Clinical Hints** | Cerebral, ocular or subcutaneous mass; usually no eosinophilia; calcifications noted on X-ray examination; lives in area where pork is eaten; 25% to 50% of patients have concurrent Taenia infestation. |
| **Synonyms** | Taenia crassiceps. ICD9: 123.1 ICD10: B69 |

### Clinical

Cysticercosis is manifest as painless, rubbery (average 2 cm) nodules in skin and soft tissues, or other body sites.1-3

- "Rice grain" calcifications are often visible on routine roentgenograms of soft tissue, notably the pelvis and upper legs.
- Virtually any area of the body may be affected.4-8
- Cysticercosis involving the subcutaneous tissues may mimic malignancy or tuberculous lymphadenitis.9 10
- Rare instances of cysticercosis are reported in infants.11

Central nervous system infection may present as seizures, increased intracranial pressure, altered mental status, eosinophilic meningitis12, focal neurological defects, medullary13 or extramedullary spinal mass14, or encephalitis.15 16

- In humans, cysticerci are more frequently located in the ventricles and subarachnoid space at the base of the brain, while in pigs, cysticerci are more frequently found in the parenchyma.17
- Intramedullary spinal infection is rarely encountered

The eyes are infested in 15% to 45% of patients.18 19

- The first ophthalmologic signs of cysticercosis are papilledema, pupillary abnormalities, or nystagmus.20
- Cysticercosis of the extraocular muscles is associated with limitation of eye movement, ptosis, proptosis and local mass.21-25

**This disease is endemic or potentially endemic to all countries.**

### Cysticercosis in Israel

Ten cases of neurocysticercosis were reported during 1994 to 2004 - including five returning Israeli travelers, and one Arab citizen with no history of travel. - 17 cases of neurocysticercosis were identified during the period 1994 to 2009, including two which were presumably acquired in Israel.

### References

25. Ophthalmology 2010 Jan 6;
Cytomegalovirus infection

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - DNA. Herpesviridae, Betaherpesvirinae: Human herpesvirus 5 (Cytomegalovirus)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Droplet (respiratory) Urine Dairy products Tears Stool Sexual contact (rare) Transplacental</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>3w - 5w (range 2w - 12w)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Viral culture (blood, CSF, urine, tissue). Serology. Direct viral microscopy. Nucleic acid amplification</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>[Most cases self-limited]. [Ganciclovir 5 mg/kg q12h IV X 2 to 3w. OR Foscarnet 90 mg/kg Q12h IV]</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>[Most cases self-limited] [Ganciclovir 5 mg/kg q12h IV X 2 to 3w]</td>
</tr>
<tr>
<td>Vaccine</td>
<td>Cytomegalovirus immunoglobulin</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Heterophile-negative &quot;mononucleosis&quot; mild pharyngitis (without exudate); variable lymphadenopathy and splenomegaly; retinitis in AIDS patients; pneumonia in setting of immune suppression.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Cytomegalovirus, Zytomegalie. ICD9: 078.5 ICD10: B25</td>
</tr>
</tbody>
</table>

Clinical

Acute Cytomegalovirus infection is clinically similar to infectious mononucleosis (IM), and characterized by fever, generalized lymphadenopathy and hepatosplenomegaly. 1
• In contrast to IM, pharyngitis is uncommon in Cytomegalovirus infection.
• Cytomegalovirus infection is often identified in cases of fatal myocarditis in immunocompetent patients. 2
• Primary CMV infection may be associated with uveitis 3, retinitis or pneumonia 4 even in immunocompetent patients 5, 6
• Additional manifestations of CMV infection include prostatitis 7, adrenal failure 8, protracted diarrhea 9, gastritic colitis with megacolon 11, esophagitis 12, myocarditis 13 and protein-losing gastropathy (Menterier’s disease). 14
• The clinical features of Cytomegalovirus colitis in AIDS patients may mimic those of amebic colitis 15, 16 or Crohn’s disease. 17
• Cases of pruritic maculo-papular exanthem due to CMV infection are reported among patients with AIDS. 18
• Evidence for primary CMV infection is often present among infants hospitalized for wheezing. 19
• Ocular infection may present as inflammatory ocular hypertensive syndrome (IOHS) or corneal endothelitis. 20
• CMV / EBV co-infection may be associated with prolonged illness. 21

Severe or fatal multisystem disease occurs is encountered in congenital infection 22-27 and infection of immune-suppressed individuals. 28-31
• Instances of pure red-cell aplasia 32 and hemophagocytic syndrome have been reported. 33
• Sensorineural hearing loss detected in 21% of asymptomatic and 33% of symptomatic congenital infections 34
• Residual neurological damage including epilepsy is common among infants with congenital infection. 35
• Immunocompetent persons may also develop major complications 36, including peripheral venous 37-44, mesenteric 45-48 or portal vein thrombosis 49-55; hemolytic anemia 56 and cholecystitis. 57

This disease is endemic or potentially endemic to all countries.

Cytomegalovirus infection in Israel

Seroprevalence surveys:
81.5% to 87% of pregnant women (1997 to 2005 publications) 58 59

The rate of congenital infection is 0.7%. 60
References

3. Medicine (Baltimore) 2008 May ;87(3):167-76.
12. Dis Esophagus 2010 Jul 23;
22. Curr Opin Obstet Gynecol 2010 Dec 13;
44. Thromb Res 2010 Oct 4;.
52. BMC Gastroenterol 2006 ;6:10.

© 2011 GIDEON Informatics, Inc. www.gideononline.com All Rights Reserved.
Dengue

| Agent | VIRUS - RNA. Flaviviridae, Flavivirus: Dengue virus |
| Reservoir | Human Mosquito ? Monkey (in Malaysia and Africa) |
| Vector | Mosquito - Stegomyia (Aedes) aegypti, S. albopictus, S. polynesiensis, S. scutellaris |
| Vehicle | Blood (rare) |
| Incubation Period | 5d - 8d (range 2d - 15d) |
| Typical Adult Therapy | Supportive; IV fluids to maintain blood pressure and reverse hemoconcentration |
| Typical Pediatric Therapy | As for adult |
| Clinical Hints | Headache, myalgia, arthralgia, relative bradycardia, leukopenia and macular rash; dengue hemorrhagic (DHF) = dengue + thrombocytopenia and hemoconcentration; dengue shock = DHF + hypotension. |
| Synonyms | Bouquet fever, Break-bone fever, Dandy fever, Date fever, Dengue Fieber, Duengero, Giraffe fever, Petechial fever, Polka fever. ICD9: 061 ICD10: A90,A91 |

**WHO Case definitions for surveillance:**

1. **DENGUE FEVER:**
   - **Clinical description:**
     - An acute febrile illness of 2-7 days duration with 2 or more of the following: headache, retro-orbital pain, myalgia, arthralgia (as many as 41% of cases have rash, hemorrhagic manifestations, leucopenia.
   - **Laboratory criteria for diagnosis:** One or more of the following:
     - Isolation of the dengue virus from serum, plasma, leukocytes, or autopsy samples
     - Demonstration of a fourfold or greater change in reciprocal IgG or IgM antibody titers to one or more dengue virus antigens in paired serum samples
     - Demonstration of dengue virus antigen in autopsy tissue by immunohistochemistry or immunofluorescence or in serum samples by EIA
     - Detection of viral genomic sequences in autopsy tissue, serum or CSF samples by polymerase chain reaction (PCR)
   - **Case classification:**
     - **Suspected:** A case compatible with the clinical description.
     - **Probable:** A case compatible with the clinical description with one or more of the following:
       - Supportive serology (reciprocal hemagglutination-inhibition antibody titer >1280, comparable IgG EIA titer or positive IgM antibody test in late acute or convalescent-phase serum specimen).
       - Occurrence at same location and time as other confirmed cases of dengue fever.
     - **Confirmed:** A case compatible with the clinical description, laboratory confirmed.

2. **DENGUE HEMORRHAGIC FEVER:**
   - A probable or confirmed case of dengue and hemorrhagic tendencies evidenced by one or more of the following:
     - Positive tourniquet test (sensitivity questioned • see reference)
     - Petechiae, ecchymoses or purpura
     - Bleeding: mucosa, gastrointestinal tract, injection sites or other
     - Hematemesis or melena
     - And thrombocytopenia (100 000 cells or less per mm3)
     - And evidence of plasma leakage due to increased vascular permeability, manifested by one or more of the following:
       - 20% rise in average hematocrit for age and sex
       - 20% drop in hematocrit following volume replacement treatment compared to baseline
       - signs of plasma leakage (pleural effusion, ascites, hypoproteinemia)

3. **DENGUE SHOCK SYNDROME:**
   - All the above criteria, plus evidence of circulatory failure manifested by rapid and weak pulse, and narrow pulse pressure (<=20 mm Hg) or hypotension for age, cold, clammy skin and altered mental status.

**CDC case definition:**
For surveillance purposes, the U.S. Centers for Disease Control (CDC) case definition of dengue fever consists of "acute febrile illness characterized by frontal headache, retro-ocular pain, muscle and joint pain, and rash."

- The initial fever rises rapidly and lasts for two to seven days.
- Occasionally "saddleback" fever pattern is evident, with a drop after a few days and rebound within 24 hours. Relative bradycardia is common.
- Conjunctival injection and pharyngeal inflammation may occur as well as lymphadenopathy.
- Rash occurs in up to 50 percent of patients, either early in the illness with flushing or mottling, or between the 2nd to the 6th day as a scarlatiniform or maculopapular rash that usually spreads centrifugally.
- The later rash usually lasts for two to three days.
- Diffuse erythema and late desquamation of hands and feet may be confused with toxic shock syndrome.
- Additional manifestations of dengue may include post-dengue depression, acalculous cholecystitis, uveitis, retinitis and psychological depression.

**Additional clinical features:**

- The likelihood of encountering classic clinical findings of dengue fever increases with patient age.
- The rash of dengue may be mistaken for measles or rubella.
- A long time interval between attacks of dengue may actually increase the risk of dengue hemorrhagic fever.
- Rare instances of encephalopathy, seizures, splenic rupture and aplastic anemia complicating dengue are reported.
- Hepatic dysfunction is common.
- Retinal involvement may manifest as foveolitis, which can be diagnosed by funduscopy and optical coherence tomography.
- Prolonged post-dengue fatigue is common.
- Renal failure is associated with increased mortality rates in dengue.
- Risk factors for fatal dengue hemorrhagic fever among elderly patients include male sex, chronic obstructive pulmonary disease, dengue shock syndrome and acute renal failure.

The diagnosis of Dengue Hemorrhagic Fever (DHF) is defined by:

- thrombocytopenia (<100,000/mm3)
- evidence of plasma leakage (hematocrit increased by at least 20%) or other objective evidence of increased capillary permeability
- Dengue Shock Syndrome (DSS) consists of DHF in addition to hypotension or narrow pulse pressure (less than 21 mm Hg).

Note that Leptospirosis, Zika, Crimean-Congo hemorrhagic fever and Dengue are clinically similar, and may coexist in a given country.

**This disease is endemic or potentially endemic to 119 countries.** Although Dengue is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

**Dengue in Israel**

Outbreaks were described in the Tiberias area in 1921 and 1927.

*Stegomyia (Aedes) aegypti* was last identified in Israel in 1975; but was again identified in the area of Lod in 2002.

**Notable outbreaks:**

- 1927 - An outbreak (200 cases) was reported in Tiberias.

**References**

22. ProMED <promedmail.org> archive: 20020920.5363
Dermatophytosis

| Reservoir | Human Dog Cat Rabbit Marsupial Other mammal |
| Vector | None |
| Vehicle | Contaminated soil/flooring Animal contact |
| Incubation Period | 2w - 38w |
| Diagnostic Tests | Fungal culture and microscopy of skin, hair or nails. Nucleic acid amplification. |
| Typical Adult Therapy | Skin - topical Clotrimazole, Miconazole, etc. Hair/nails - Terbinafine, Griseofulvin, Itraconazole or Fluconazole PO |
| Typical Pediatric Therapy | As for adult |
| Clinical Hints | Erythematous, circinate, scaling or dyschromic lesions of skin, hair or nails; pruritus, secondary infection and regional lymphadenopathy may be present. |
| ICD9: | 110,111 |
| ICD10: | B35,B36 |

**Clinical**

Dermatophytosis is characterized by indolent infection of skin, hair or nails. 1 2

Common findings include scaling, pruritis and discoloration • usually without overt signs of inflammation.

Tinea imbricata, a superficial mycosis caused by *Trichophyton concentricum*, an anthropophilic dermatophyte. • The skin lesions are characteristically concentric and lamellar (imbricata: in Latin, tiled) plaques of scale. 3

• Predisposing conditions include humidity, inheritance, and immunologic factors. 4

**This disease is endemic or potentially endemic to all countries.**

**Dermatophytosis in Israel**

**Notable outbreaks:**

1975 to 1976 - An outbreak (78 cases) of *Microsporum canis* infection was reported in Eilat. 5 6
1976 (publication year) - An outbreak of pityriasis versicolor involved members of a family. 7
1979 (publication year) - Outbreaks of *Microsporum canis* infection were reported. 8

**References**

Dientamoeba fragilis infection

Agent | PARASITE - Protozoa. Archezoa, Parabasala, Trichomonadea. Flagellate: Dientamoeba fragilis
--- | ---
Reservoir | Human Gorilla
Vector | None
Vehicle | Fecal-oral (except pinworm ova)
Incubation Period | 8d - 25d
Diagnostic Tests | Identification of trophozoites in stool. Nucleic acid amplification. Alert laboratory if this diagnosis is suspected.
Typical Adult Therapy | Stool precautions. Iodoquinol 650 mg PO TID X 20d. OR Tetracycline 500 mg QID X 10d. OR Paromomycin 10 mg/kg TID X 7d OR Metronidazole 750 mg PO TID X 10d
Typical Pediatric Therapy | Stool precautions. Iodoquinol 13 mg/kg PO TID X 20d. OR (age >8) Tetracycline 10 mg/kg QID X 10d OR Paromomycin 10 mg/kg TID X 7d OR Metronidazole 15 mg/kg PO TID X 10d
Clinical Hints | Abdominal pain with watery or mucous diarrhea; eosinophilia may be present; infestation may persist for more than one year.

Clinical

Most infections are asymptomatic.
- Symptoms may include diarrhea, flatulence, abdominal pain, fatigue and anorexia; and may rarely mimic acute appendicitis. ¹ ²
- Clinical features are similar to those of giardiasis; however, vomiting, anorexia and weight loss are less common in Dientamoeba infection. ³
- The presence of abdominal pain or diarrhea in a patient with enterobiasis should suggest the diagnosis of concurrent Dientamoeba infection. ⁴

This disease is endemic or potentially endemic to all countries.

References
Diphtheria

Agent | BACTERIUM. Corynebacterium diphtheriae A facultative gram-positive bacillus
Reservoir | Human
Vector | None
Vehicle | Droplet Contact Dairy products Clothing
Incubation Period | 2d - 5d (range 1d - 10d)
Diagnostic Tests | Culture on special media. Advise laboratory when this diagnosis is suspected.
Typical Adult Therapy | Respiratory isolation. Equine antitoxin 20,000 to 80,000 units IM. Erythromycin 500 mg QID X 10d
Typical Pediatric Therapy | Respiratory isolation. Equine antitoxin 1,000 units/kg IM. Erythromycin 10 mg/kg QID X 10d
Vaccines | Diphtheria antitoxin
 | Diphtheria
 | DTP
 | DT
 | DTaP
 | Td
Clinical Hints | Pharyngeal membrane with cervical edema and lymphadenopathy; or punched out skin ulcers with membrane; myocarditis or neuropathy (foot/wrist drop) appears weeks later.
Synonyms | Corynebacterium diphtheriae, Difteri, Difteria, Difterie, Difterite, Diphterie.

WHO Case definition for surveillance:
Clinical description
- An illness of the upper respiratory tract characterized by laryngitis or pharyngitis or tonsillitis, and adherent membranes of tonsils, pharynx and/or nose
Laboratory criteria for diagnosis
- Isolation of Corynebacterium diphtheriae from a clinical specimen.
- Note: A rise in serum antibody (fourfold or greater) is of interest only if both serum samples were obtained before administration of diphtheria toxoid or antitoxin. This is not usually the case in surveillance, where serological diagnosis of diphtheria is thus unlikely to be an issue.
Case classification
- Suspected: Not applicable.
- Probable: A case that meets the clinical description.
- Confirmed: A probable case that is laboratory confirmed or linked epidemiologically to a laboratory confirmed case.
Note: Persons with positive C. diphtheriae cultures who do not meet the clinical description (i.e. asymptomatic carriers) should not be reported as probable or confirmed diphtheria cases.

Faucal diphtheria:
Following an incubation period of 2 to 5 days (7 days after primary skin infection for cutaneous diphtheria), the patient presents with nonspecific symptom which may include fever and chills, malaise, sore throat, hoarseness or dysphagia, cervical edema and lymphadenopathy, rhinorrhea (mucopurulent or blood-tinged), cough, stridor, wheezing, nausea and vomiting and headache.
- Respiratory diphtheria may progress rapidly to respiratory arrest from airway obstruction by a tracheobronchial pseudomembrane.
- Tachycardia, pallor, and foul breath may be present.
- The pseudomembrane is generally firm, adherent, thick, fibrinous and of a gray-brown color.
- It may occur over the palate, pharynx, epiglottis, larynx, or trachea occasionally extending into the tracheobronchial tree.
- The area may bleed if disturbed.
- Marked edema of the tonsils, uvula, submandibular region and anterior neck (“bull neck) may be observed and may be associated with thick speech, stridor, anterior cervical lymphadenopathy, and petechial hemorrhages.

Cutaneous diphtheria:
Cutaneous diphtheria is associated with a history of a break in the skin, followed by pain, tenderness, erythema, or exudate.
Lesions appear as punched-out ulcers with dirty gray membranes at their margins.
Genital ulcers may be misdiagnosed as venereal disease.

**Cardiac complications:**
Cardiovascular signs ensue 1 to 2 weeks following the initial illness.
- Myocarditis occurs in as many as two thirds of patients, and approximately 20% develop cardiac dysfunction.
- Circulatory collapse, heart failure, atrioventricular blocks and arrhythmias may occur.
- Endocarditis and mycotic aneurysms also have been reported, typically in intravenous drug users.

**Neurological complications:**
Approximately 70% of patients with severe infection develop neuropathy, neuritis or motor paralysis 2 to 8 weeks following initial illness.
- Clinical and cerebrospinal fluid findings at this stage are indistinguishable from those Guillain-Barre syndrome.
- Potentially fatal paralysis of the diaphragm may ensue.
- Paralysis typically resolves completely with resolution of infection.

The neurological manifestations of diphtheria include:
- hypesthesia and paralysis of the soft palate
- weakness of the posterior pharyngeal, laryngeal, and facial nerves, resulting in a "nasal tone" to the voice, difficulty in swallowing, and occasionally aspiration
- cranial neuropathies, typically during the fifth week, leading to oculomotor and ciliary paralysis (strabismus, blurred vision, and loss of accommodation)
- symmetric polyneuropathy beginning within 10 days to 3 months after infection, and manifest as motor deficit with diminished deep tendon reflexes
- proximal muscle weakness of the extremities progressing distally (or distal weakness progressing proximally).

**Other forms of diphtheria:**
Other less common manifestations include infection of the genitourinary tract, gastrointestinal tract, vagina, external ear, and conjunctiva.
- Hemorrhagic conjunctivitis and dissolution of the cornea may occur.
- Focal necrosis of the kidneys, liver, and adrenal glands may be observed.
- Cases of septic arthritis, osteomyelitis, splenic abscesses, and bacteremia have been reported.

This disease is endemic or potentially endemic to all countries.

**Diphtheria in Israel**
Routine immunization was introduced in 1952; and replaced by DPT in 1957.
- Tdap-IPV was vaccination of elementary school students was introduced in 2005.

**Vaccine Schedule:**
DTaP - 2, 4, 6 months; 1 year
Tdap-IPV - second year of elementary school
HepA - 18, 24 months
HepB - birth; 1, 6 months
Hib - 2, 4, 6 months; 1 year
IPV - 2, 4, 12 months; 7 years
MMR - 12 months; 6 years
Td - 8-9, 13-14 years
Varicella - 12 months and 6-7 years
Seroprevalence surveys:

58.1% of Army recruits (1991 publication)  
64.3% of male Army reserve soldiers ages 18 to 19, 32.8% ages 25 to 35, and 15% ages 41 to 51 (1994 publication)  
94.7% of the general population; 90.3% in the age group 50 to 54, and 81.1% in the age group > 60 (2006 publication)

95.2% of male / 97.9% of female immigrants from the former Soviet Union (1990 to 1991)
2. Although no cases of diphtheria were reported from Israel per se during 1976 to 1987, cases of *Corynebacterium diphtheriae* mitis infection were registered in Nablus and the Sinai during this period.

3. Review of diphtheria in Israel - see reference 8

   Individual years:
   1988 - One case (fatal) was reported in Bnei Barak.
   1996 - One case (fatal) was reported in Jerusalem; and an asymptomatic culture-positive contact was also identified.

A case of toxigenic *C. diphtheriae* infection was reported in a British child from a religious community, following return to England from Israel in 2002.

**UNRWA, West Bank and Gaza:**

The population administered by UNRWA is given DTP at ages 2, 3, 4, and 15 months; with DT at age 6 years.
In the West Bank and Gaza, routine vaccination (DTP) is administered at ages 2, 4, 6 and 12 months. DT is given at ages 6 and 15 years.
Graph: West Bank and Gaza. Diphtheria - estimated vaccine (DTP%) coverage - GIDEON

References

Diphyllobothriasis

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Platyhelminthes, Cestoda. Pseudophyllidea, Diphyllobothriidae: Diphyllobothrium latum, et al</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human, Dog, Bear, Fish-eating mammal</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Fresh-water fish - notably (for D. latum) perch, burbot and pike</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>4w - 6w (range 2w - 2y)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Identification of ova or proglottids in feces.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Praziquantel 10 mg/kg PO as single dose OR Niclosamide 2 g PO once</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Praziquantel 10 mg/kg PO as single dose OR Niclosamide 50 mg/kg PO once</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Abdominal pain, diarrhea and flatulence; vitamin B12 deficiency is noted in 0.02% of patients; rare instances of intestinal obstruction have been described; worm may survive for decades in human intestine.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Bandwurmer [Diphyllobothrium], Broad fish tapeworm, Diphyllobothrium latum, Diplogonoporiasis, Fish tapeworm. ICD9: 123.4 ICD10: B70.0</td>
</tr>
</tbody>
</table>

Clinical

Patients may experience abdominal pain, diarrhea, weight loss, asthenia or vertigo. • Vitamin B-12 deficiency is described in cases of prolonged infestation.

This disease is endemic or potentially endemic to all countries.

Diphyllobothriasis in Israel

The first case of diphyllobothriasis in Israel was reported in 1920.

Prevalence surveys:
0.04% of the population of Jerusalem in 1934; 0.02% in 1955

References

Dipylidiasis

Agent
PARASITE - Platyhelminthes, Cestoda. Cyclophyllidea, Dipylidiidae: Dipylidium caninum

Reservoir
Dog  Cat

Vector
None

Vehicle
Flea = Ctenocephalides spp. (by ingestion)

Incubation Period
21d - 28d

Diagnostic Tests
Identification of proglottids in feces.

Typical Adult Therapy
Praziquantel 10 mg/kg PO as single dose OR Niclosamide 2 g PO once

Typical Pediatric Therapy
Praziquantel 10 mg/kg PO as single dose OR Niclosamide 50 mg/kg PO once

Clinical Hints
Diarrhea, abdominal distention and restlessness (in children); eosinophilia may be observed; proglottids may migrate out of anus.

Synonyms
Cucumber tapeworm, Dipylidium caninum, Dog tapeworm, Double-pored dog tapeworm.
ICD9: 123.8
ICD10: B71.1

Clinical

Most infections with *Dipylidium caninum* are asymptomatic.

- Severe diarrhea, urticaria, fever and eosinophilia are occasionally encountered. ¹
- The principal sign (in animals and children) consists of the passage of proglottids on the perianal region, feces, diapers, or occasionally on floor covering and furniture.
- Infection has been reported in patients as young as two years. ²
- Proglottids are motile when freshly passed and may be mistaken for maggots or fly larvae.

This disease is endemic or potentially endemic to all countries.

References

## Dirofilariasis

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Nematoda. Phasmidea, Filariae: Dirofilaria (Nochtiella) immitis (pulmonary); D. tenuis &amp; D. repens (subcutaneous infection) &amp; D. ursi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Mammal Dog Wild carnivore (D. tenuis in raccoons; D. ursi in Bears)</td>
</tr>
<tr>
<td>Vector</td>
<td>Mosquito</td>
</tr>
<tr>
<td>Vehicle</td>
<td>None</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>60d - 90d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Identification of parasite in tissue (ie, lung biopsy). Serologic tests available in some centers.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Not available; excision is often diagnostic and curative</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Most patients are asymptomatic; occasional instances of cough and chest pain, with solitary pulmonary coin lesion; or multiple tender subcutaneous nodules; eosinophilia usually not present.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Dirofilariosis, Dirofilaria, Dog heartworm, Filaria conjunctivae. ICD9: 125.6 ICD10: B74.8</td>
</tr>
</tbody>
</table>

### Clinical

Pulmonary infections usually present as a well-circumscribed coin lesion.  
- Occasionally the lesions are transient or multiple.  
- Symptoms such as chest pain, dyspnea, fever, cough and eosinophilia are present in only 50% of cases.  
- Isolated infections have been reported in the mesentery, spermatic cord, epididymis, peritoneal cavity, orbital muscles and liver.  
- Lesions may suggest malignancy, and coexistence of dirofilariasis and lung cancer has been reported.  
- In rare cases pulmonary cavitation may occur.

Skin and subcutaneous infections are caused by *D. tenuis, D. repens, D. ursi, D. immitis* and *D. striata*.  
- Clinical manifestations are limited to a small (0.5 to 1.5 cm) discrete nodule which may appear on any area of the body.  
- Local pain, inflammation, eosinophilia and a sensation of motion may be present in some cases.

This disease is endemic or potentially endemic to 228 countries.

### Dirofilariasis in Israel

The first report of dirofilariasis in Israel (infection of a dog) was reported in 1934.

Seven cases of human infection were reported to 1997 - most in northern Israel: 4 ocular, 1 lymphatic and 2 cutaneous.  
- An additional case report of subconjunctival *Dirofilaria repens* infection was published in 2006.

*Dirofilaria repens* infection in dogs has been reported.  
- 26 cases of canine infection were reported by veterinary clinics during 1998 to 2009 - most from the Galilee.

### References

12. Chir Main 2010 Oct 29;  
Dracunculiasis

Agent: PARASITE - Nematoda. Phasmidea, Filariae: Dracunculus medinensis
Reservoir: Human
Vector: None
Vehicle: Copepod (Mesocyclops and Thermocyclops) in drinking water
Incubation Period: 12m - 18m
Diagnostic Tests: Identification of adult worm in situ; or identification of discharged larvae from wound.
Typical Adult Therapy: Worm removal Metronidazole 500 mg PO TID X 10d. OR Thiabendazole 30 mg/kg PO BID X 3d have been used to facilitate worm removal.
Typical Pediatric Therapy: Worm removal Metronidazole 8 mg/kg PO TID X 10d. OR Thiabendazole 30 mg/kg BID X 3d have been used to facilitate worm removal.
Clinical Hints: Nausea and urticaria followed by the appearance of a papule or bulla (usually lower leg) which ruptures; calcified worm on x-ray; occasional eosinophilia; worm may survive for 18 months in human.
Synonyms: Dracunculose, Dracunculus medinensis, Dracunculiasis, Filaria medinensis, Guinea worm, Medina worm.
ICD9: 125.7
ICD10: B72

Clinical

WHO Case definition for surveillance:
Clinical case definition
• A case of dracunculiasis is defined as an individual exhibiting or having a history of a skin lesion with the emergence of a Guinea worm.
• A recent history (within one year) of a skin lesion with emergence of a Guinea worm (Dracunculus medinensis) is the only time-frame which must be used in surveillance programs.

As the adult female migrates, a blister develops on the skin where the worm will emerge. 1
• Symptoms consist of fever, urticaria and other allergic phenomena, swelling, and local pain and burning. 2
• The blister will eventually rupture, and the patient seeks relief through immersing the affected skin in water.
• The resulting temperature change causes the blister to erupt, exposing the worm, which then releases a milky white liquid containing millions of larvae into the water.
• The process of larval shedding continues for several days after it has emerged from the ulcer.

More than 90% of the worms appear on the legs and feet, but may occur anywhere on the body.
• Ulcers may take many weeks (8 weeks average) to heal; and are secondarily infected with bacteria in approximately 50% of cases.
• Permanent disabling scars and crippling may result.
• Each time a worm emerges, the patient may be unable to work and resume daily activities for an average of 3 months.
• Overtly symptomatic infection become apparent during planting or harvesting season, resulting in heavy crop losses.
• Dermal onchocerciasis may mimic dracunculiasis. 3

This disease is endemic or potentially endemic to 16 countries. Although Dracunculiasis is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

Dracunculiasis in Israel

Autochthonous disease does not occur.

Several cases were diagnosed among Yemenite immigrants during 1948 to 1950. 4 5
References

Echinococcosis - unilocular

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Platyhelminthes, Cestoda. Cyclophyllidea, Taeniidae: Echinococcus granulosus, Echinococcus canadensis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Dog, Wolf, Dingo, Sheep, Horse, Pig</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Soil, Dog, Feces, Fly</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>1y - 20y</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Serology. Identification of parasite in surgical specimens.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Albendazole 400 mg BID X 28d. Repeat X 3, with 2 week hiatus between cycles. Praziquantel has been used preoperatively to sterilize cyst. Follow by surgery as indicated. PAIR (puncture-aspiration-injection-reaspiration) is also used</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Albendazole 10 mg/kg/day X 28d. Repeat X 3, with 2 week hiatus between cycles. Praziquantel has been used preoperatively to sterilize cyst. Follow by surgery as indicated. PAIR (puncture-aspiration-injection-reaspiration) also used</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Calcified hepatic cyst or mass lesions in lungs and other organs; brain and lung involvement are common in pediatric cases.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Echinococcus canadensis, Echinococcus granulosus, Hydatid cyst, Unilocular echinococcosis. ICD9: 122.0,122.1,122.2,122.3,122.4</td>
</tr>
</tbody>
</table>

Clinical

Symptoms are often absent, even when large cysts are present; and cysts are often discovered incidentally on a routine x-ray or ultrasound study. 1

**Hepatic echinococcosis** often presents as abdominal pain with or without a palpable mass in the right upper quadrant. 2
- Biliary compression or rupture of the cysts into a bile duct may mimic cholecystitis or cholelithiasis.
- Ductal compression may also result in pancreatitis. 3
- Leakage from a cyst may cause fever, pruritus, urticaria, eosinophilia or even anaphylactic shock. 4

**Extra-hepatic echinococcosis** presents as space-occupying lesions of brain 5, lung 6, bone 7-13, muscle 14-17, joints 18, parapharyngeal spaces 19, or paranasal sinuses 20, heart 21-24, and heart valves 25, pericardium 26, breast 27-29, subcutaneous tissue 30, peripheral nerves 31, ovary, thyroid 32, spleen 33-36, adrenal 37, kidney 38, urinary bladder 39, peritoneum 40, or virtually any other organ. 42 43
- In contrast to hepatic echinococcosis, extrahepatic cysts are often non-calcified and may at times be mistaken for malignancy. 44
- The brain is involved in 1 to 2% of all *Echinococcus granulosus* infections. 45
- The clinical features of cerebral coenurosis may mimic those of echinococcosis. 46
- Primary spinal hydatidosis occurs in 1% of cases and may be confused with space-occupying non-infectious disorders 47-50

**Pulmonary cysts** 51 may rupture into the bronchial tree and produce cough, hemoptysis and chest pain. 52
- Rupture of cysts may disseminate protoscolices to contiguous organs or into the vascular system, resulting in the formation of additional cysts.
- Late intrathoracic complications include intrapulmonary or pleural rupture, infection of the ruptured cysts, reactions of the adjacent tissues, thoracic wall invasion and iatrogenic involvement of pleura. 53
- Rupture can occur spontaneously or as a result of trauma or surgery. 54
- Anaphylaxis may follow cyst rupture, but has also reported in patients with intact cysts. 55

Primary superinfection of cysts by bacteria or fungi occurs in approximately 7.3% of cases. 56

This disease is endemic or potentially endemic to 153 countries.
Echinococcosis - unilocular in Israel

Echinococcosis is common in the rural Galilee and Gaza, particularly among Arab and Druze residents.

Notes:
1. Annual rates of 0.68 to 0.75 per 100,000 were reported among Bedouin in the Negev region during 1970 to 1979.
2. Annual rates of 53 per 100,000 were recorded in Yirka (a Druze community) during 1960 to 1989 - 224 surgically-confirmed cases.
Graph: Israel. Echinococcosis - unilocular, deaths

Prevalence surveys:
0.258% of sheep in 1990; 0.399% in 1995
10% of sheep and 8% of dogs in Yarqa (1989)
7.65% of sheep in Yarqa (1995)
0% of foxes and other wild animals (1998 to 2005)

Seroprevalence surveys:
0.68% of Bedouin and 0.5% of Jews in southern Israel (2002 publication)
0.48% of adults in Tamra (northern Israel, 1997 publication)
14.2% of dogs in Yarqa (1991 to 1992)

West Bank and Gaza:

Graph: West Bank and Gaza. Echinococcosis - unilocular, cases

Notes:
1. 390 surgically-confirmed cases were reported in the West Bank during 1990 to 1997.
2. The overall annual rate per 100,000 was 3.1 for the entire West Bank, 4.9 Hebron, 5.0 Jericho, 5.1 Bethlehem.

Rates in Kfar Yata (West Bank) are 16.8/100,000 per year - 2.1% to 2.4% of children in the town are seropositive (1990 to 1997).

References
19. Dysphagia 2010 Mar 4;
40. Arch Gynecol Obstet 2010 Feb 19;
43. Int Urogynecol J Pelvic Floor Dysfunct 2010 Jun 12;
44. Med Oncol 2008 Dec 9;
49. Spine (Phila Pa 1976) 2010 Apr 1;
50. Eur Spine J 2010 Jun 1;
51. Curr Opin Pulm Med 2010 Mar 6;
57. Harefuah 1993 May 2;124(9):529-34, 600.
Ehrlichiosis - human monocytic

**Agent**  
BACTERIUM. Anaplasmataceae Ehrlichia chaffeensis Intracellular Rickettsia-like bacteria

**Reservoir**  
Dog  
Tick  
Deer  
Coyote

**Vector**  
Tick  
(Dermacentor variabilis or Amblyomma americanum)

**Vehicle**  
None

**Incubation Period**  
7d - 21d

**Diagnostic Tests**  

**Typical Adult Therapy**  
Doxycycline 100 mg PO BID X 7 to 14 days OR Rifampin 600 mg daily

**Typical Pediatric Therapy**  
Above age 8 years: Doxycycline 2 mg/kg PO BID X 7 to 14 days. OR Rifampin 10 mg/kg/day PO

**Clinical Hints**  
Headache, myalgia and vomiting 1 to 2 weeks following tick bite; arthralgia or macular rash may be present; leukopenia, thrombocytopenia or hepatic dysfunction common; inclusions in monocytes.

**Synonyms**  

ICD9: 082.41  
ICD10: B28.8

---

**Clinical**

Human Monocytic Ehrlichiosis (HME) and Human Granulocytic Ehrlichiosis (HE) are similar, and characterized by fever, headache, myalgia, thrombocytopenia, leukopenia, and elevated liver enzyme levels.  
- A rash occurs in approximately one third of patients with HME but is less common in patients with HE. Rash is much more common among children than adults with the disease.  
- Most cases of ehrlichiosis are mild; however, complications such as adult respiratory distress syndrome, renal failure, neurological disorders, and disseminated intravascular coagulation can occur.  
- Case-fatality ratios in severe cases are as high as 5% for HME and 10% for HGE.  
- Symptomatic infection is more common among patients with AIDS than among immunocompetent persons.

**This disease is endemic or potentially endemic to 24 countries.**

**Ehrlichiosis - human monocytic in Israel**

Five cases (none fatal) were confirmed in a survey of 1,000 patients with fever of unknown origin.

Sporadic cases of clinical ehrlichiosis are documented.

**Seroprevalence surveys:**
- 5.5% of patients treated for vasculitis (Haifa, 1993 to 1998)  
- 63% of dogs with suspected tick-borne infection (*Ehrlichia canis*, 1998 publication)  
- 23.9% of pet dogs and 37.5% of stray dogs (*Ehrlichia canis*, 1996 publication)  
- 30% of domestic dogs and 0% of horses (*Ehrlichia canis*, 2006 publication)  
- 26.4% of jackals (*Canis aureus syriacus* were found to be seropositive toward *Ehrlichia chaffeensis* and 35.8% toward *Ehrlichia canis* (1999 publication)  
- 54.3% of adult free-ranging golden jackals (*Canis aureus, Ehrlichia canis*, 2001 publication)  
- 36% of red foxes (*Vulpes vulpes, Ehrlichia canis*, 2004 publication)

*Ehrlichia canis* has been identified in dogs and ticks (*Rhipicephalus turanicus*).
References

Clinical syphilis (bejel)

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Treponema pallidum subsp. endemicum A microaerophilic gram-negative spirochete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Contact</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>14d - 90d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>VDRL &amp; FTA (or MHTP) are positive, as in venereal syphilis.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Benzathine Penicillin G 1.2 million units</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Benzathine Penicillin G IM: &lt;14 kg - 300,000u X one dose 14 to 18kg - 600,000u X one dose &gt;18kg</td>
</tr>
<tr>
<td></td>
<td>- 1.2 million units X one dose</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Oral mucous patches, intertriginous papillomata and generalized lymphadenopathy; occasional</td>
</tr>
<tr>
<td></td>
<td>instances of condyloma lata; late gummat and periostitis (often of the tibia or fibula) may</td>
</tr>
<tr>
<td></td>
<td>develop.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Bejel, Belesh, Dichuchwa, Endemic syphilis, Firjal, Frenga, Mal de Breno, Morbus Skerljebo,</td>
</tr>
<tr>
<td></td>
<td>Njovera, Siti, Skerljevo. ICD9: 104.0 ICD10: A65</td>
</tr>
</tbody>
</table>

Clinical

Fewer than 1% of patients manifest a primary lesion (most often on the mouth or breast).

- Secondary lesions are reminiscent of the mucous patches of venereal syphilis, and are usually accompanied by regional lymphadenopathy. 1 2
- Disseminated papillomata and generalized lymphadenopathy are also encountered in some cases. 3
- Late lesions include tibial osteopéristitis and destruction of the palate and nasal septum.

This disease is endemic or potentially endemic to 24 countries. Although Endemic syphilis (bejel) is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

Endemic syphilis (bejel) in Israel

Although identified among Iraqi immigrants and once found in the Hebron-Beit Jibrin district and Nahalin, the disease is no longer endemic.

References

Endocarditis - infectious

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM OR FUNGUS. viridans streptococci, Staphylococcus aureus, enterococci, Candida albicans, et al.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Endogenous</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Variable</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Blood culture, clinical findings, ultrasonography of heart valves.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Bactericidal antibiotic appropriate to species</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Consider in any patient with fever, multisystem disease (i.e., skin lesions, hematuria, neurological symptoms, single or multiple abscesses or bone, brain, lung, etc) and a preexisting cardiac valvular lesion.</td>
</tr>
</tbody>
</table>

**Clinical**

The definitive diagnosis of infective endocarditis requires: 1 2
1) Demonstration of microorganisms; and/or histological lesions in the heart or heart valves; or
2) Presence of two major criteria; or 1 major and 3 minor criteria; or 5 minor criteria, as follows:

**Major Criteria:**
A. Culture:
   • 1. Typical microorganisms (HACEK, Streptococcus viridans, Streptococcus bovis) in 2 separate blood cultures; or community acquired Staphylococcus aureus or enterococci without obvious focus.
   • 2. Persistently positive blood cultures (drawn more than 12 hours apart; or three positive cultures at least one hour apart).
B. Evidence of endocardial or valvular involvement (echocardiogram, abscess, new valvular regurgitant lesion)

**Minor Criteria:**
A. Predisposition (heart condition, drug abuse)
B. Fever
C. Embolic phenomena, mycotic aneurysm, Janeway lesion, or intracranial hemorrhage.
D. Immunological phenomena (Osler nodes, positive rheumatoid factor)
E. Echocardiogram with suggestive, but not specific findings.
F. Positive blood culture, but not meeting Major criteria.

**Etiological associations:**
• Injecting drug user: Staphylococcus aureus, enterococci, Enterobacteriaceae, Pseudomonas aeruginosa, Candida
• Prosthetic valve: Staphylococcus epidermidis Enterobacteriaceae, Candida, Aspergillus
• Rheumatic or other valvular disease: viridans Streptococci, enterococci

This disease is endemic or potentially endemic to all countries.

**References**

## Enterobiasis

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>PARASITE - Nematoda. Phasmidea: Enterobius vermicularis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Fecal-oral  Air  Clothing  Sexual contact (rare)</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>14d - 42d</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Apply scotch tape to anal verge in a.m. &amp; paste onto glass slide for microscopy.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Albendazole 400 mg PO as single dose - repeat in 2w. OR Mebendazole 100 mg PO as single dose - repeat in 2w. OR Pyrantel pamoate 11 mg/kg (max 1g) PO as single dose; or</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>Mebendazole 100 mg PO as single dose (&gt;age 2) - repeat in 2w. OR Pyrantel pamoate 11 mg/kg (max 1g) PO X 1</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Nocturnal anal pruritus; occasionally vaginitis or abdominal pain; eosinophilia is rarely, if ever, encountered.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Enterobio, Enterobius vermicularis, Oxyuriasis, Oxyuris, Pinworm, Seatworm.</td>
</tr>
</tbody>
</table>

### Clinical

The typical manifestation of enterobiasis is nocturnal pruritus ani related to hypersensitivity to worm antigens.

- Local dermal "tingling" is also encountered. ¹
- Migration of adult females to the vulva may result in vulvovaginitis ² or predispose to urinary tract infection.
- Eosinophilia is occasionally present.

Complications are rare, and include salpingitis ³, cystitis ⁴, peritonitis ⁵ and urethritis. ⁶
- Although abdominal symptoms may mimic those of appendicitis, Enterobius is at least as common in normal as in inflamed appendices. ⁷⁻¹⁰
- Cases of Enterobius prostatitis ¹¹ and peritonitis have been reported. ¹²
- Ova of Enterobius have been identified in a kidney removed for nephrolithiasis. ¹³

The presence of diarrhea or abdominal pain suggests coinfection with *Dientamoeba fragilis*.

### This disease is endemic or potentially endemic to all countries.

#### Enterobiasis in Israel

**Prevalence surveys:**
- 24.5% of Israelis (1980's)
- 1.6% of school children in the northern West Bank (2010 publication) ¹⁴
References

Enterovirus infection

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - RNA. Picornaviridae: Coxsackievirus, ECHO virus, Enterovirus, Parechovirus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Droplet  Fecal-oral</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>2d-7d</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive. Pleconaril 200 to 400 mg PO TID X 7d has been used for severe infections</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Supportive. Pleconaril 5 mg/kg PO BID has been used for severe infections</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Summer-to-autumn sore throat; occasionally chest pain, macular or vesicular rash, meningitis, myopericarditis, etc.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Boston exanthem [Coxsackie. A 16], Coxsackie, Coxsackievirus, ECHO, Echovirus, Enteroviruses, Hand, foot and mouth disease, Hand-foot-and-mouth disease, Herpangina [Coxsackievirus A], HPeVs, Human Parechovirus, Ljungan virus, Myocarditis, enteroviral, Parechovirus, Pericarditis, enteroviral.</td>
</tr>
<tr>
<td></td>
<td>ICD9: 049,079.2,008.67,074.0,074.8,074.3,070.4,078.89</td>
</tr>
<tr>
<td></td>
<td>ICD10: A88.0,A87.0,B08.4,B08.5,B08.8,B30.3,B34.1</td>
</tr>
</tbody>
</table>

Clinical

The various enteroviruses are associated with fever and pharyngitis, which may be followed by appearance of: 1 2

- rash
- aseptic meningitis
- encephalitis 3
- acute disseminated encephalomyelitis 4
- epidemic conjunctivitis
- herpangina
- hand-foot-and-mouth disease
- myocarditis
- pericarditis
- pleurodynia
- pneumonia
- acute flaccid paralysis 5 6
- conjunctivitis, etc

Hand, foot and mouth disease (HFM) is characterized by a prodrome of fever and sore throat, followed by the appearance of vesicles on the palmar and plantar regions, and oral mucosa.

- Vesicles in the mouth are often pleomorphic, with rectangular and triangular shapes.
- Hand foot and mouth disease has been associated with onychomadesis • complete nail shedding from the proximal portion, affecting both fingernails and toenails. 7-15

The clinical features of Enterovirus infection among neonates and infants are similar to those of Parechovirus infection. 16

Echoviruses 22 and 23 have been reclassified as human paraechovirus (HPeV) 1 and 2 , respectively. 17

- HPeV infections are characterized by mild gastrointestinal symptoms or respiratory distress.
- HPeV2 is usually associated with gastrointestinal illness.
- HPeV3 has been associated with transient paralysis and sepsis-like syndromes.
- HPeV4 has been associated with fever in a neonate 18
- HPeV6 (NII561-2000) has been associated with infectious gastroenteritis, fever with rash, upper respiratory infection and Reye’s syndrome

This disease is endemic or potentially endemic to all countries.
Enterovirus infection in Israel

Epidemics of Echovirus-9 infection were reported in 1959; 1964; 1968.

Notable outbreaks:
1959 (publication year) - An outbreak of Echovirus 9 infection was reported. 19
1964 (publication year) - An outbreak of Echovirus 9 infection was reported on a Kibbutz. 20
1970 (publication year) - An outbreak of Echovirus 4 infection was reported on a Kibbutz. 21
1970 (publication year) - An outbreak of Echovirus 4 and 9 meningitis was reported in Jerusalem. 22 23
1973 (publication year) - Outbreaks of Coxsackie virus B4 and Echovirus 9 infection were reported on a kibbutz. 24
1975 - An outbreak (148 cases) of Coxsackievirus B1 infections on a kibbutz were characterized by fever, gastrointestinal and upper respiratory symptoms, pleurodynia and myocarditis. 25
1986 to 1988 - An outbreak (14 confirmed cases, 2 fatal) of Coxsackie B 1, 2 and 3 infection was reported from a Tel Aviv nursery.
1992 - An outbreak (19 cases) of Echovirus 22 gastroenteritis was reported in a neonatal intensive care unit. 26
1994 (publication year) - An outbreak (14 cases) of Coxsackie B virus infection was reported in a neonatal unit. 27
1994 - An outbreak of hemorrhagic conjunctivitis due to Enterovirus 70 was reported. 28
1997 - An outbreak of Echovirus-4 meningitis was reported - the first time that this strain had been isolated in the area since 1980. 29 30
1999 - An outbreak (16 cases, including 3 meningitis) of Echovirus-11 infection was reported in a children's home. 31
2000 - An outbreak (91 cases) of Echovirus-13 meningitis was reported. 32
2001 - An outbreak of Echovirus-4 meningitis was reported. 33

References
9. Euro Surveill 2008 Jul 3;13(27)
11. Euro Surveill 2010 ;15(37)
12. Euro Surveill 2010 ;15(37)
13. ProMED <promedmail.org> archive: 20100916.3356
14. ProMED <promedmail.org> archive: 20100921.3401
15. ProMED <promedmail.org> archive: 20100922.3421
30. ProMED <promedmail.org> archive: 19980214.0290
<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM. <em>Staphylococcus aureus</em>, facultative gram negative bacilli, etc</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Endogenous</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>Variable</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Imaging (CT scan, MRI). Gram-stain and culture of blood or pus.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Intravenous antibiotic(s) appropriate to identified or suspected pathogens. Drainage as indicated</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>Intravenous antibiotic(s) appropriate to identified or suspected pathogen. Drainage as indicated</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Frontal bone abscess; or spinal cord compression with signs of infection - often in setting of injecting drug abuse or preexisting staphylococcal infection.</td>
</tr>
</tbody>
</table>

## Clinical

**Intracranial epidural abscesses:**
Intracranial epidural abscesses may appear gradually, with initial findings suggestive of the underlying sinusitis or otitis.  
- Early findings include local pain followed by generalized headache, often with alteration of mental status.
- Focal neurological signs and focal or generalized seizures appear, which reflect the local anatomy of the lesion, for example:
  - abscess near the petrous bone may involve cranial nerves V and VI, with unilateral facial pain and lateral rectus weakness (Gradenigo's syndrome)
  - an occipital epidural abscess may obstruct the superior sagittal sinus
Eventually, papilledema and other signs of elevated intracranial pressure develop.
- Extension into the subdural space is accompanied by rapid neurological deterioration.

**Spinal epidural abscess:**
Spinal epidural abscess is more common in men than in women and may occur at any age.
- The presentation may be acute or gradual, over several months.
- Most begin with focal vertebral pain, which begins to radiate along the course of involved nerve roots.
- Signs of spinal cord compression (long-tract findings), later progress to paralysis below the level of the lesion.
- Hematogenous infection of the epidural space produces rapid progression with prominent systemic signs, and severe local pain.
- Chronic abscesses may mimic epidural neoplasia, often without systemic signs of infection.
- Cervical abscesses may compromise respiration, and produce rapid evolving flaccid hyporeflexia, suggestive of Guillain-Barre syndrome.
- Epidural abscess has occasionally been reported as a complication of pyomyositis.

This disease is endemic or potentially endemic to all countries.

## References

Erysipelas or cellulitis

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Erysipelas: <em>Streptococcus pyogenes</em> Cellulitis: <em>Staphylococcus aureus, Streptococcus pyogenes</em>, occasionally others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Endogenous</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>1d - 7d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Clinical diagnosis is usually sufficient. Aspiration of lesion for smear and culture may be helpful in some cases.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Antibiotic directed at likely pathogens (Group A Streptococcus and Staphylococcus aureus)</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Erysipelas is well-circumscribed, tender, edematous (peau d’orange), warm and painful; cellulitis is less painful, flat and without a distinct border.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Cellulite, Cellulitis, Celulite, Celulitis, Erisipela, Erysipelas, St. Anthony’s fire (erysipelas), St. Francis’ fire (erysipelas), Zellulitis. ICD9: 035,681,682 ICD10: A46,L03</td>
</tr>
</tbody>
</table>

Clinical

Erysipelas:
Erysipelas is characterized by abrupt onset of “fiery-red” superficial swelling of the face or extremities. ¹
- The lesion is typically recognized by the presence of well-defined indurated margins, particularly along the nasolabial fold; rapid progression; and intense pain. ²
- Flaccid bullae may develop on the second or third day of illness; but extension to deeper soft tissues is rare.
- Desquamation occurs between the fifth and tenth days of illness.

Cellulitis:
Cellulitis is characterized by local pain, erythema, swelling, and heat. ³ ⁴
- Cellulitis may be caused by any of a wide variety of bacteria or yeasts; however, *S. aureus* or *S. pyogenes* are most often implicated.
- A history of preceding trauma, insect bite, needle insertion or surgery is often present.
- Cultures of biopsy specimens or aspirates are positive in only 20% of cases.
- Infection by *S. aureus* often spreads out from a localized infection (abscess, folliculitis) or foreign body
- Streptococcal cellulitis tends to be more diffuse and rapid in onset, and associated with lymphangitis and fever.
- Streptococci also cause recurrent cellulitis in the setting of lymphedema resulting from elephantiasis or lymph node damage.

Recurrent staphylococcal cutaneous infections are encountered in patients with "Job's syndrome" (eosinophilia and elevated serum levels of IgE); and nasal carriers of staphylococci.

This disease is endemic or potentially endemic to all countries.

References
Clinical Erysipeloid

Erysipeloid is limited to the skin (mainly hands and fingers)

Infection is characterized by pain, edema and purplish erythema with sharp irregular margins which extends peripherally but clears centrally.  

• Relapses and extensions of the lesions to distant areas are common, but there is no fever.  
• 31 cases of endocarditis due to *Erysipelothrix rhusiopathiae* had been reported to 1976; and approximately 50 to 1988.  
• There is no permanent immunity following an attack.  
• Lesions of cutaneous leishmaniasis may mimic those of erysipeloid.  
• A case of erysipeloid presenting as chronic granulomatosis cheilitis was reported in Morocco.  
• A case of *Erysipelothrix rhusiopathiae* peritonitis associated with peritoneal dialysis has been reported.

This disease is endemic or potentially endemic to all countries.

Erysipeloid in Israel

Human infection has been acquired from sheep.

In 1982, three persons in Acre were infected during a single month.

Notable outbreaks:

1942 - An outbreak (15 cases) is Tel Aviv was associated with handling fish.

References

### Erythrasma

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM. Corynebacterium minutissimum A facultative gram-positive bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Indigenous flora</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>Unknown</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Coral fluorescence of skin lesion under Wood's lamp. Culture (alert lab regarding diagnosis).</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Erythromycin 250 mg PO QID X 14d. Topical Clindamycin 2% has also been used</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>Erythromycin 10 mg/kg PO QID X 14d. Topical Clindamycin 2% has also been used</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Pruritic, scaling, slowly-progressive red-brown patch; usually in groin - occasionally in toe webs; common in obese or diabetic males; coral fluorescence with Wood’s light.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Corynebacterium minutissimum, Eritrasma. ICD9: 039.0 ICD10: L08.1</td>
</tr>
</tbody>
</table>

#### Clinical

Erythrasma is characterized by slowly spreading, reddish-brown, pruritic patches • usually in the groin and axillae. • Other areas include the interdigital regions of the feet, the vulva and intergluteal and crural folds. • Most patients are obese, male diabetics. • The lesions fluoresce red when exposed to Wood’s lamp. The differential diagnosis of erythrasma includes psoriasis, dermatophytosis, candidiasis and intertrigo.

The etiologic agent of erythrasma, *Corynebacterium minutissimum*, has also been associated with bacteremia, meningitis, breast abscesses, eye infection, endocarditis, peritonitis, cutaneous granulomas, costochondral abscess, puerperal infection and pyelonephritis.

This disease is endemic or potentially endemic to all countries.

#### References

7. AMA Arch Derm Syphilol 1952 May ;65(5):614-5.
**Escherichia coli diarrhea**

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. <em>Escherichia coli</em> A facultative gram-negative bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human Mammal</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Food Water Fecal-oral</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>1d - 3d (range 12h - 10d)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Supportive therapy. Avoid anti-motility drugs and antimicrobial agents. Note that antimicrobial agents may increase risk for hemolytic-uremic syndrome when used in cases of E. coli O157:H7 infection</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive therapy. Avoid anti-motility drugs and antimicrobial agents. Note that antimicrobial agents may increase risk for hemolytic-uremic syndrome when used in cases of E. coli O157:H7 infection</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Supportive therapy. Avoid anti-motility drugs and antimicrobial agents. Note that antimicrobial agents may increase risk for hemolytic-uremic syndrome when used in cases of E. coli O157:H7 infection</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Watery diarrhea or dysentery - common among travelers and infants; hemorrhagic colitis and hemolytic uremic syndrome are associated with type O157:H7 (&amp; occasionally other types).</td>
</tr>
<tr>
<td>Synonyms</td>
<td>DAEC (Diffusely Adherent E. coli), E. coli diarrhea, EAEC (Enteroadherent E. coli), EAggEC (Enteroaggregative E. coli), EHEC (Enterohemorrhagic E. coli), EIEC (Enteroinvasive E. coli), EPEC (Enteropathogenic E. coli), ETEC (Enterotoxic E. coli), Hamolytisch-uramisches Syndrom, Hemolytic Uremic Syndrome, HUS.</td>
</tr>
<tr>
<td></td>
<td>ICD9: 008.0</td>
</tr>
<tr>
<td></td>
<td>ICD10: A04.0,A04.1,A04.2,A04.3,A04.4</td>
</tr>
</tbody>
</table>

**Clinical**

**Enterotoxic *Escherichia coli*** (ETEC) infection is characterized by a short incubation period, and watery diarrhea without blood or mucus.
- Fever and vomiting occur in a minority of patients.  
- The disease may be life-threatening in infants.

**Enteropathogenic *E. coli*** (EPEC) causes watery diarrhea with fever and vomiting, primarily among children under age 2 years.

**Enteroinvasive *E. coli*** (EIEC) causes watery diarrhea; only a minority of patients experience dysentery.

**Enterohemorrhagic *E. coli*** (EHEC) causes diarrhea without fever, often with blood and cramps at all ages.
- Rare instances of toxic megacolon have been reported  
- One strain of EHEC, O157:H7 is an important cause of hemolytic-uremic syndrome (HUS).  
- Approximately 6% to 10% of patients infected by this strain develop HUS with an overall mortality rate of 0.6% for STEC O157 infections and 4.6% for HUS.
- Reactive arthritis is reported in 10% of cases  

**Enteroaggregative *E. coli*** (EAggEC) causes watery, persistent diarrhea (over 2 weeks) without vomiting.
- Low-grade fever may be observed, and gross blood may occasionally be present in stools.

**This disease is endemic or potentially endemic to all countries.**

**Escherichia coli diarrhea in Israel**
Notes:
1. Data reported to European CDC
Notes:
1. *E. coli* accounted for 4% of food poisoning cases reported during 1990 to 1999.
Graph: Israel. E. coli foodborne outbreak-associated cases - GIDEON

Prevalence surveys:
- 11% of diarrhea among children on a communal settlement (1988 to 1992) 9
- 5% of diarrhea among children below age 5 in Gaza (2008 publication) 10

EAEC serotype O126:H27 appears to be an important cause of severe diarrhea in children. 11

Notable outbreaks:
- 1990 (publication year) - An outbreak of enteritis associated with enteroinvasive Escherichia coli was reported on a military base. 12
- 1990 - An outbreak (4 cases) E. coli O157 (nonmotile) infection was reported a day care center. This was the country's first outbreak of E. coli O157 infection. 13
- 1998 - An outbreak (175 military personnel and 54 civilians) of ETEC infection in the Golan Heights was associated with contaminated water. 14
- 2000 - An outbreak (4 cases) of enterohemorrhagic E. coli (O26:H11) infection was reported in a northern agricultural settlement.

West Bank and Gaza:

Prevalence surveys:
E. coli O157:H7 accounted for 4.7% of diarrhea in children less than 5 years of age in Gaza (2007 publication) 15
EPEC accounted for 8.3% of childhood diarrhea in Gaza, and EHEC for 1.3% (2006 to 2007) 16

E. coli O157 has been identified from symptomatic patients 17 and raw beef samples in the area of Nablus. 18

References
15. Int J Infect Dis 2007 Mar 28;
Fascioliasis

Agent
PARASITE - Platyhelminthes, Trematoda. Echinostomatida, Fasciolidae: Fasciola hepatica or Fasciola gigantica

Reservoir
Sheep Cattle Snail (Lymnaea, Fossaria)

Vector
None

Vehicle
Food Aquatic plants Watercress (Nasturtium officinale)

Incubation Period
2w - 3m

Diagnostic Tests
Identification of ova in stool or duodenal aspirates (adult parasites in surgical specimens). Serology. CT scan.

Typical Adult Therapy
Triclabendazole 10 mg/kg PO X 2 doses. OR Bithionol 50 mg/kg every other day X 10 doses OR Nitazoxanide 500 mg PO BID X 7d

Typical Pediatric Therapy
Triclabendazole 10 mg/kg PO X 2 doses. OR Bithionol 50 mg/kg every other day X 10 doses OR Nitazoxanide: Age 1 to 3y 100 mg BID X 7 d Age 4 to 11y 200 mg BID X 7d

Clinical Hints
Fever, hepatomegaly, cholangitis, jaundice and eosinophilia; urticaria occasionally observed during the acute illness; parasite may survive more than 10 years in the biliary tract.

Synonyms
Eurytrema, Fasciola gigantica, Fasciola hepatica, Hepatic distomiasis, Lederegelbefall, Sheep liver fluke.

ICD9: 121.3
ICD10: B663.

Clinical
The presence and severity of disease depend on the intensity of infection and the host.

Symptoms may appear a few days after ingestion of larvae, when the immature worms reach the abdominal cavity and begin migrating across or within the liver. 1

• Typical early symptoms include fever, abdominal pain, gastrointestinal disturbances and urticaria. 2
• Hepatomegaly, anemia and jaundice may also be present.
• Creeping eruption has been reported. 3
• Rare instance of ectopic adult worms are reported 4-7

A latent phase follows during which the only finding is prominent eosinophilia.

• Eventually, the patient enters a chronic phase characterized by biliary colic 8, epigastric pain, jaundice, hepatomegaly and abdominal tenderness. 9 10
• Sporadic cases of pancreatitis are encountered. 11-16

This disease is endemic or potentially endemic to 96 countries. Although Fascioliasis is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

Fascioliasis in Israel
Two cases were published in the world's literature during 1969 to 1989.

Prevalence surveys:
0.4% of Ethiopian immigrants to Israel (1991 publication) 17

References
7. Trop Doct 2010 Sep 16;
### Filariasis - Bancroftian

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Nematoda. Phasmidea, Filariae: Wuchereria bancrofti</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>Mosquito (Anopheles, Aedes, Culex)</td>
</tr>
<tr>
<td>Vehicle</td>
<td>None</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>5m - 18m (range 1m - 2y)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Identification of microfilariae in nocturnal blood specimen. Nucleic acid amplification. Serology may be helpful.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td><strong>Diethylcarbamazine</strong>: 50 mg day 1 50 mg TID day 2 100 mg TID day 3 Then 2 mg/kg TID X 18 days. OR <strong>Ivermectin</strong> 200ug/kg PO as single dose. <strong>Doxycycline</strong> 200 mg daily X 8 w is also effective.</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Lymphangitis, lymphadenitis, eosinophilia, epididymitis, orchitis, hydrocoele or progressive edema; episodes of fever and lymphangitis may recur over several years; chyluria occasionally encountered.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Bancroftian filariasis, Rosetta leg, Wuchereria bancrofti. ICD9: 125.0 ICD10: B74.0</td>
</tr>
</tbody>
</table>

### Clinical

**WHO Case definition for surveillance:**

- **Clinical case definition**
  - Hydrocoele or lymphedema in a resident of an endemic area for which other causes of these findings have been excluded.
- **Laboratory criteria for diagnosis**
  - Microfilaria positive, antigen positive or biopsy positive.
- **Case classification**
  - Suspected: Not applicable.
  - Probable: A case that meets the clinical case definition.
  - Confirmed: A person with laboratory confirmation even if he/she does not meet the clinical case definition.

Clinical manifestations reflect either acute inflammation or lymphatic obstruction. 1-3

- Repeated episodes of lymphangitis, lymphadenitis, fever, headache, backache and nausea may occur; and arthritis, funiculitis, epididymitis, or orchitis are common.
- In long-standing cases lymphedema or persistent adenopathy may develop.
- Hydrocoele is the most common clinical manifestation of lymphatic filariasis, and causes sexual disability.
- Hydrocoelectomy accounts for 25% of all surgical procedures performed in endemic areas of Ghana and Kenya.
- Lower limb involvement is characterized by initial pretilial pitting edema, which eventually becomes nonpitting and involves the entire leg.
- The skin of the leg or scrotum becomes thick, fissured, and warty; and ulceration and secondary infection may occur.
- Chyluria reflects rupture of swollen lymphatics into the urinary tract. Microscopic (occasionally gross) hematuria is reported in some cases. 6 7
- Filarial granuloma may mimic testicular cancer. 8

Microfilariae may be found in properly timed blood specimens, hydrocoele fluid, chylous urine and organ aspirates. 9

- Adult worms are identified in biopsy material.
- Eosinophilia usually appears only during acute episodes of inflammation.

There is extensive evidence that endosymbiont bacteria (Wolbachia spp.) are necessary for the development of filarial larvae, and fertility of adult parasites. 10-12

- Doxycycline has proven effective in therapy, presumably through inhibition of Wolbachia spp. 13-16

**This disease is endemic or potentially endemic to 117 countries.** Although Filariasis - Bancroftian is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.
Filariasis - Bancroftian in Israel

Autochthonous disease does not occur.

The parasite was identified in 13.5% of 1,900 Jews emigrating from Cochin during the 1950's. 17-19

References

<table>
<thead>
<tr>
<th>Fungal infection - invasive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agent</strong></td>
</tr>
<tr>
<td><strong>Reservoir</strong></td>
</tr>
<tr>
<td><strong>Vector</strong></td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
</tr>
</tbody>
</table>

**Clinical Hints**

- Major syndromes (Aspergillosis, Candidiasis, Coccidioidomycosis, Cryptococcosis, Penicilliosis, etc) are discussed elsewhere in this module.

**Clinical syndromes associated with systemic fungal infection (in alphabetical order):**

**Adiaspiromycosis** (Haplocladium) is a pulmonary infection due to *Emmonsia (Chrysosporium)* species.
- Most cases have been described in Latin America and Central Europe, with additional reports from Israel and the United States.
- Three forms are recognized: solitary granuloma, localized granulomatous disease and diffuse, disseminated granulomatous disease.  

**Arthrographis kalaiae** has been reported as a cause of sinusitis and meningitis in patient with AIDS.

**Blastobotrys proliferans** is an ascomyeteous yeast that has been reported to cause peritonitis in a dialysis patient.  

**Curvularia inaequalis** has been associated with several cases of peritonitis complicating peritoneal dialysis.  

**Exophiala jaenselmei** and **Rhinocladiella** species have been implicated in cases of nosocomial fungemia.
- An outbreak of *Exophiala* infection in the United States was associated with contamination of injectable steroids.  

**Exserohilum** is a dematiaceous fungus that has been associated with skin infections, keratitis, systemic infections and sinustis.  

**Fusarium** often infects the cornea, but may occasionally cause subcutaneous infection, fungemia, pneumonia, arthritis, bursitis, brain abscess and a variety of other systemic infection.  
- Pathogenic members of the *Fusarium solani* complex are common in the environment.  

**Geotrichosis** is a rare form of pneumonia and systemic mycosis caused by *Geotrichum candidum*.
- The organism is ubiquitous in nature and often found in the stool of healthy humans.
• Pulmonary disease simulates tuberculosis; and mucosal infection is similar to moniliasis.

*Graphium basitruncatum* has been associated with fungemia in a patient with leukemia. 8

*Hansunella* species have been implicated in nosocomial infections, endocarditis, fungemia and urinary tract infection

*Lasiodiplodia theobromae* has been reported to cause keratomycoses. 9

*Neocosmospora vasinfecta*, a plant pathogen, has caused at least 3 cases of soft tissue infection (lower extremities, in Senegal) or fatal disseminated infection in immunocompromized humans. 10

*Neosartorya hiratsukae* has been implicated in a case of brain abscess.

*Penicillium* • 31 cases of invasive infection by *Penicillium* species other than *P. marneffei* were reported during 1951 to 2001 • including 12 of pulmonary disease, and 4 prosthetic valve endocarditis.

Phaeohyphomycosis (infection by demataceous fungi) is manifested as:
• brain abscess (typically *Cladosporium trichoides*; also *Exophiala dermatitidis* 11 , *Fonsecaea pedrosoi, Ramichloridium obovoidum, Ochroconis gallopavum, Chaetomium atrobrunneum*, et al),
• sinusitis (*Drechslera, Bipolaris, Exsorohilum, Curvularia, Alternaria, Cladosporium*)
• subcutaneous infection (typically due to *Exophiala* and *Phialophora* species • occasionally *Fonsecaea, Cladosporidium, Alternaria, Bacillus, Mycocentrospora, Phaeoacremonium* 12 , *Veronaea, Cyphellophora pluriseptata*, etc)
• endocarditis.

*Pseudoallescheriasis* (Petriellidiosis) is caused by *Scedosporium apiospermum* (*Pseudoallescheria boydii*) and may present as mycetoma; or infection of the brain, bone and joints, orbits and other tissues. 13 14

*Ramichloridium mackenziei* has been reported to cause brain abscess in the Middle East.

*Sarcopegium oculorum* has been implicated as a cause of corneal ulcer in Brazil.

*Trichoderma* spp. are associated with peritonitis among dialysis patients, and disseminated infection in the immune-suppressed.

Fungal eye infection:
• Fungal endophthalmitis may be exogenous or endogenous.
• Clinically, onset is delayed and more gradual than infection due to bacteria.
• Hyaline fungi:
  • *Fusarium* species are implicated in keratitis, scleritis and intraocular infections
  • *Aspergillus* in keratitis following industrial trauma or surgery, orbital infection, dacryocystitis, scleritis and endophthalmitis
  • *Scedosporium* in keratitis, scleritis, endophthalmitis, orbital infection
  • *Paecilomyces* in keratitis, endophthalmitis and intralenticular infections
  • *Acremonium* in keratitis and endophthalmitis.
• Demataceous fungi
  • *Bipolaris, Curvularia, Exophiala, Exsorohilum, Lecytophora* and *Phialophora* are implicated in keratitis and intraocular infections
  • *Lasiodiplodia* keratitis and endophthalmitis.
• Other fungal agents (*Candida, Cryptococcus, Coccioidoides, Paracoccidioides, Blastomyces, Histoplasma, Sporothrix*) which may cause ocular infection are discussed separately in this module.

This disease is endemic or potentially endemic to all countries.

Fungal infection - invasive in Israel

Notable outbreaks:
• 2002 - An outbreak (5 cases, total) of *Phialemonium* (4 cases, 1 fatal) and *Paecilomyces* (1 case) endocarditis was caused by contaminated syringes used for intracavernous penile injection. 15

References
### Gastroenteritis - viral

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - RNA Calicivirus (Norwalk, Hawaii, Sapporo, Snow Mountain, Norovirus); Torovirus; or Astrovirus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Food Water Shellfish Vegetables</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Norwalk 1d - 2d; astrovirus 3d - 4d</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Stool precautions; supportive</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Vomiting (less common with Astrovirus), abdominal pain; loose, watery diarrhea lasting 1 to 3 days; no fecal leucocytes; fever in 50% - headache and myalgia in some cases.</td>
</tr>
</tbody>
</table>

#### Clinical

The onset of infection due to the Norwalk virus group may be gradual or abrupt, and is heralded by abdominal cramps with or without nausea.

- In most cases, both vomiting and diarrhea occur. ¹
- Four to eight non-bloody stools are passed per day; and fecal leucocytes are absent.
- 87% of patients with NLV infection develop diarrhea within 5 days; and only 60% of patients with Sapporo-like virus [SLV] infection.
- 59% of children below age 1 year develop vomiting with NLV, and 44% with SLV.
- Myalgias, malaise, headaches and even benign febrile seizures ² may also be present.
- A low-grade fever occurs in 50% of cases.
- Original publications stated that symptoms remit in 48 to 72 hours without sequelae; however, recent studies suggest that illness usually persists for 5 to 6 days.
- The duration of illness has been correlated with fecal concentration of virus.
- Cases of necrotizing enterocolitis in newborn infants have been ascribed to Norovirus infection. ³ ⁴

Astrovirus diarrhea is similar to NLV infection; however, the incidence of vomiting is somewhat lower.

**This disease is endemic or potentially endemic to all countries.**

### Gastroenteritis - viral in Israel

#### Notable outbreaks:

- 1992 - An outbreak (19 cases) of Echovirus 22 gastroenteritis was reported in a neonatal intensive care unit. ⁵
- 1999 - An outbreak (159 cases) of Norovirus infection was reported at a military base. ⁶ ⁷
- 2002 - An outbreak (279 cases) of Norovirus infection affected six nursing homes in the Tel Aviv region. ⁸
- 2002 to 2003 - Outbreaks of Norovirus infection affected three nursing homes in the Haifa region. ⁹

#### References

2. Clin Infect Dis 2009 Feb 24; ³
3. J Pediatr 2008 Jun 4; ⁴
**Gianotti-Crosti syndrome**

<table>
<thead>
<tr>
<th>Agent</th>
<th>UNKNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Unknown</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Unknown</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Clinical features and skin biopsy findings.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>None</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>None</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Generalized eruption involving the extremities, face and buttocks; lymphadenopathy of the axillae and inguinal region; anicteric hepatitis; resolves in 15 to 42 days. Rare outbreaks have been reported.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Acrodermatitis papulosa infantilis, Papular acrodermitis of childhood, Papulovesicular acrolocated syndrome. ICD9: 693.0 ICD10: L27.8</td>
</tr>
</tbody>
</table>

**Clinical**

Most patients are in the age group 2 to 6 years; however, the disease has occasionally been reported in infants and young adults.  

Clinical features are largely limited to discrete flat-topped papules on the face, extensor surfaces of the extremities and buttocks.  

- The eruption is symmetrical, occasionally pruritic, either skin-colored or erythematous, and evolves over a period of two to three days.  
- The skin lesions measure 2 to 4 mm in diameter, with a tendency for larger lesions among young children.  
- Koebner phenomenon has been described.  
- In most cases, the exanthem resolves after 15 to 20 days, but may persist for as long as 5 weeks.  
- Hemorrhagic skin lesions and petechiae have been described in some cases.  
- Prominent lymphadenopathy is noted, primarily in the inguinal and axillary regions.  
- Hepatomegaly and anicteric hepatitis are common.

Gianotti-Crosti syndrome may be the only presenting manifestation of Epstein-Barr virus infection.

The diagnosis is confirmed by skin biopsy, which reveals spongiosis of the upper epidermis and upper dermis, with perivascular lymphocytic and histiocytic infiltrates.

**This disease is endemic or potentially endemic to all countries.**

**References**

Giardiasis

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Protozoa. Archezoa, Metamonada, Trepomonadea. Flagellate: Giardia lamblia [G. intestinalis, G. duodenalis]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human, Beaver, Muskrat</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Food, Water, Fecal-oral, Fly</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>1w - 3w (range 3d - 6w)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>String test (gelatin capsule containing string). Stool microscopy or antigen assay. Nucleic acid amplification.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Metronidazole 250 mg PO TID X 5d. OR Nitazoxanide 500 mg PO BID X 3d OR Tinidazole 2 g PO X 1. OR Furazolidone 100 mg PO QID X 7d OR Paromomycin 10 mg/kg PO TID X 7d OR Quinacrine 100 mg PO TID X 5d</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Metronidazole 5 mg/kg PO TID X 5d. OR Tinidazole 50 mg PO X 1 (maximum 2g). OR Furazolidone 1.5 mg/kg QID X 7d OR Nitazoxanide: Age 1 to 3y 100 mg BID X 7d Age 4 to 11y 200 mg BID X 7d</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Foul smelling, bulky diarrhea, nausea and flatulence; may 'wax and wane'; weight loss and low-grade fever are common.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Beaver fever, Giardia duodenalis, Giardia intestinalis, Giardia lamblia, Lambiliasis. ICD9: 007.1 ICD10: A07.1</td>
</tr>
</tbody>
</table>

Clinical

The usual interval between infection and the onset of acute symptoms ranges from one to two weeks.

In most instances, the individual will experience sudden explosive, watery, foul-smelling diarrhea; excessive gas; abdominal pain; bloating; nausea; asthenia; and anorexia. ¹
- Symptoms consistent with irritable bowel syndrome and functional dyspepsia are reported in 80.5% and 24.5% of patients, respectively. ²
- Upper gastrointestinal symptoms such as vomiting may predominate. ³
- Fever is unusual, and asymptomatic infection is common.
- Blood or mucus in the stool is rare, and there is neither leucocytosis nor eosinophilia.

Occasionally, the illness may last for months, or even years, causing recurrent episodes of impaired digestion, lactose intolerance, diarrhea, depression, asthenia and weight loss. ⁴⁻⁶
- Recurrence of symptoms is also common following effective treatment. ⁷
- Severe and prolonged infections are reported among patients with IgA deficiency and malnutrition.
- Infection in children may result in stunted growth, delayed development ⁸⁻⁹ and vitamin A deficiency. ¹⁰
- Reactive arthritis may occasionally follow infection by Giardia intestinalis. ¹¹

This disease is endemic or potentially endemic to all countries.

Giardiasis in Israel

© 2011 GIDEON Informatics, Inc. www.gideononline.com All Rights Reserved.
Disease rates peak during summer months.
- 52% to 71% of patients are in the age group 1 to 9 years.
- Approximately 25% of Bedouin children will experience one or more symptomatic episodes of giardiasis by age 18 months (southern region, 2009 publication)  

Prevalence surveys:
- 37% of asymptomatic children ages 3 months to 3 years (1989 publication)  
- 29.5% of children ages 3 to 5 years, in Jeser El-Zarka, 6.3% in Kfar Qaraa and 8.8% in Faradis (2003 to 2004)  
- 4% of diarrheal pathogens (6.3% among children)  
- 9% of diarrhea patients and 8% of asymptomatic controls (1986 to 1987)  
- 1.1% of diarrhea episodes among military personnel (1983)  
- 10% of diarrhea among children on a communal settlement (1998 to 1992)  
- 11.3% of Ethiopian immigrants (1991 publication)  

One foodborne outbreak (18 cases) was reported in 1994.

West Bank and Gaza:
Prevalence surveys:

- 7.3% of stool specimens submitted in Nablus (1981 to 1986) \(^\text{16}\)
- 8.0% of children in Khan Younis (Gaza, 2004 publication) \(^\text{17}\)
- 26% of children in the West Bank and Gaza (1992 publication) \(^\text{18}\)
- 4.1% of school children in the northern West Bank (2010 publication) \(^\text{19}\)
- 1% of diarrhea among children below age 5 in Gaza (2008 publication) \(^\text{20}\)

References

5. Trends Parasitol 2010 Jan 5;
6. Fam Pract 2010 Mar 22;
19. Trop Med Int Health 2010 Nov 14;
20. Med Princ Pract 2008;17(4);296-301.
Clinical

Four clinical forms of glanders are described: septicemia, pulmonary infection, acute localized infection and chronic infection

- One form of the disease may progress to another

Localized infections are characterized by nodules, abscesses and ulcers in the mucous membranes, skin or subcutaneous tissues at the site of inoculation.
- Dermal nodules are white or gray and firm, with a caseous or calcified center. They are surrounded by areas of inflammation, and may progress to gangrene.
- Mucous membranes may exhibit a mucopurulent or blood-tinged discharge. Nodules and deep ulcers may also develop in the mucosa of the nasal septum and nasal turbinates.
- Lesions are accompanied by fever, sweats and swelling of regional lymph nodes which may suppurate.
- Mucosal or skin infections may disseminate, resulting in a papular or pustular rash and abscesses of the liver, spleen, lungs, subcutaneous tissues and muscles.

Lung infection results from either inhalation of *B. mallei* or hematogenous spread.
- The patient experiences acute onset of fever, diaphoresis, cough, chest pain and dyspnea.
- Pulmonary lesions are characterized by small nodules which have caseous or calcified centers surrounded by inflammatory zones.
- Untreated pulmonary disease often progresses to septicemia.

This disease is endemic or potentially endemic to 22 countries. Although Glanders is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

Glanders in Israel

The last case in horses was reported in 1951.

References

1. Dtsch Tierarztli Wochenschr 2006 Sep ;113(9):323-30.
Gonococcal infection

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Neisseria gonorrhoeae An aerobic gram-negative coccus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Sexual contact, Childbirth, Exudates</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>2d - 7d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Smear (male), culture. Consult laboratory for proper acquisition &amp; transport. Nucleic acid amplification.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Ceftriaxone 250 mg IM X 1. Alternative Cefixime 400 mg PO X 1 OR Spectinomycin 2g IM X 1. Consider empiric therapy for concurrent Chlamydia infection</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Ceftriaxone 125 mg IM X 1 (wt &gt;45 kg). OR Spectinomycin 40 mg/kg IM (weight &lt;45 kg - adult dose if &gt; 45 kg) Consider empiric therapy for concurrent Chlamydia infection ( Erythromycin )</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Copious urethral discharge (male) or cervicitis beginning 2 to 7 days after sexual exposure; PID; fever, painful pustules and suppurrative arthritis (primarily encountered in postmenstrual females).</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Blennorragie, Blenorragia, Gonococcemia, Gonorre, Gonore, Gonorrea, Gonorrhea, Gonorrhoe, Gonorrhho, Gonorrhoe, Infeccion gonococica, Infeccoes gonococicas, Neisseria gonorrhoeae.</td>
</tr>
</tbody>
</table>

Clinical

Gonorrhea:
Gonorrhea in males typically presents as urethral discomfort, dysuria, and discharge.
- The degree of discomfort and discharge are variable.
- Asymptomatic infection is common among females, but may also occur in males.
- Gonococcal epididymitis presents with unilateral pain and swelling localized posteriorly within the scrotum.
- Gonorrhea in the female are usually manifest as vaginal discharge and endocervicitis.
- The discharge is thin, purulent and mildly odorous.
- Dysuria or a scant urethral discharge may be present.
- Non-gonococcal urethritis, including infection by Chlamydia trachomatis and other Neisseria species may mimic gonococcal infection.
- Infection can be passed to the male urethra from the pharynx through fellatio.

Gonococcal PID:
Pelvic or lower abdominal pain suggests infection of the endometrium, fallopian tubes, ovaries or peritoneum.
- Pain may be midline, unilateral, or bilateral.
- Fever and vomiting may be present.
- Right upper quadrant pain from perihepatitis (Fitz-Hugh-Curtis syndrome) may occur following the spread of organisms upward along peritoneal planes to the hepatic capsule (The syndrome is also reported as a complication of gonorrhea in males).

Other clinical forms:
Gonococcal proctitis is often asymptomatic, but rectal pain, pruritus, tenesmus, bloody diarrhea and rectal discharge may be present.
Gonococcal pharyngitis may be asymptomatic, or associated with severe inflammation. Neisseria gonorrhoeae is often present in throat specimens from patients with urethritis.
Gonococcal conjunctivitis is usually unilateral in adults; however, neonatal infection (ophthalmia neonatorum) involves both eyes.
- Symptoms include pain, redness, and a purulent discharge and may result in blindness.
- Rare instances of corneal perforation are reported.

Disseminated gonococcal infection is characterized by joint or tendon pain, of single or multiple joints.
- Severe pain, swelling, and decreased mobility in a single joint (usually the knee) suggest purulent arthritis.
- Tenosynovitis is common, usually affecting the small joints of the hands.
- A rash is present in 25% of patients with gonococemia.
- Additional complications include meningitis, endocarditis, septic shock with ARDS and other localized infections.
This disease is endemic or potentially endemic to all countries.

**Gonococcal infection in Israel**

![Graph: Israel. Gonorrhea, cases]

**Notes:**
1. Gonorrhea accounts for one third of male urethritis cases.
2. Gonorrhea has been a reportable disease since 1951.
3. Only cases among Jews were reported during 1961 to 1962.
4. Declining incidence during the 1980's was ascribed to the global AIDS epidemic.  
   Individual years:
   - 1998 - Included 29 cases in Tel Aviv.
   - 1999 - Included 120 cases in Tel Aviv.
   - 2000 - Included 321 cases in Tel Aviv.
   - 2004 - Included 57 cases in the Haifa district (7.9 per 100,000)

Disease rates among soldiers decreased from 2.3 cases per 1,000 in 1978 to 0.07 cases per 1,000 in 2008.

**Prevalence surveys:**
- 8.7% of CSW in the Tel Aviv region have pharyngeal gonorrhea, and 3.1% urogenital gonorrhea.
- 9.0% of brothel-based CSW in Tel Aviv have pharyngeal gonorrhea (2008 publication).
- 4.2% of males with urethritis (STD clinics, 1996 to 1998).
One case of gonococcal ophthalmia (in 1998) was reported during 1994 to 1999.  

**Drug susceptibility:**
- Approximately 34% of isolates are penicillinase-producing.
- As of 2000, ciprofloxacin-resistance rates are 61% in Tel Aviv and 54% in southern Israel.  

**Notable outbreaks:**
- 1988 to 1989 - An outbreak (94 cases) of PPNG infection was reported in southern Israel.

**West Bank and Gaza:**
Graph: West Bank and Gaza. Gonorrhea, cases - GIDEON

© 2011 - GIDEON Informatics Inc - www.gideononline.com

References

Granuloma inguinale

Agent | BACTERIUM. *Klebsiella granulomatis* (formerly *Calymmatobacterium granulomatis*) An gram-negative bacillus

Reservoir | Human

Vector | None

Vehicle | Sexual contact Direct contact

Incubation Period | 7d - 30d (range 3d - 1 year)


Typical Adult Therapy | *Doxycycline* 100 mg BID PO X 3w. Alternatives: *Azithromycin* 1 g daily X 3 w. *Sulfamethoxazole/trimethoprim* 800/160 mg BID X 3w *Erythromycin* 500 mg QID X 3w.

Typical Pediatric Therapy | *Doxycycline* 2 mg/kg BID X 2 to 3w (above age 8). Alternatives: *Sulfamethoxazole/trimethoprim*, *Erythromycin* or *Azithromycin*

Clinical Hints | Slowly expanding, ulcerating skin nodule with friable base; usually painless; may be complicated by edema or secondary infection - rarely spreads to bone or joints.

Synonyms | Calymmatobacterium granulomatis, Donovanosis, Granuloma genitoinguinale, Granuloma inguinale tropicum, Granuloma venereum, Sixth venereal disease. ICD9: 099.2 ICD10: A58

Clinical

The primary lesion of granuloma inguinale appears on the perineum or genitals in 80% to 90% of cases.
- Infection begins as a small painless papule or indurated nodule which progresses to a painless beefy-red ulcer with rolled edges and a friable surface.
- Multiple ulcers may coalesce, and new lesions may also form through autoinoculation. ¹
- Scar formation, deformity, keloids and lymphedema may develop. ²
- The most common sites of infection are the prepuce, coronal sulcus, and penile shaft; the labia and the fourchette .
- Rectal lesions may follow anal intercourse.
- Systemic disease of bones, joints, liver and lymphatics is rare, and may follow infection of the uterine cervix.
- Granuloma inguinale may present as mass lesions which mimic malignancy. ³

This disease is endemic or potentially endemic to all countries.

Granuloma inguinale in Israel

Sporadic, cases were diagnosed in the Arab sector of Jerusalem during 1920 to 1942.

References

Clinical Hantavirus infection - Old World

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - RNA. Bunyaviridae, Hantavirus - Old world : Hantaan, Puumala, Dobrava/Belgrade, Saaremaa &amp; Seoul viruses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Field mouse (Apodemus agrarius-Hantaan) Vole (Myodes glareolus-Puumala) Rat (Rattus norvegicus-Seoul) Bat  Bird</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Animal excreta</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>12d - 21d (range 4d - 42d)</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive. Suggest Ribavirin: 1g IV q6h X 4d, then 0.5g q6h X 6d</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Supportive. Suggest Ribavirin</td>
</tr>
<tr>
<td>Vaccine</td>
<td>Hantavirus [old world]</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Headache, backache, myalgia, diarrhea, vomiting, conjunctivitis, hemorrhage and azotemia; proteinuria and thrombocytopenia common; history of local rodent infestation may be elicited; case-fatality rates 0.1% (Puumula) to 15% (Belgrade).</td>
</tr>
</tbody>
</table>

Clinical

The course of severe Hemorrhagic Fever and Renal Syndrome (HFRS • Nephropathia epidemica) involves five overlapping stages:

- febrile
- hypotensive
- oliguric
- diuretic
- convalescent

**Febrile stage:**
It is not uncommon for one or more of these stages to be inapparent or absent. The onset of the disease is sudden, with intense headache, backache, fever, and chills. Hemorrhage is manifested during the febrile phase as a flushing of the face or injection of the conjunctiva and mucous membranes. A petechial rash may appear on the palate and axillary skin folds. Extreme albuminuria, typically appearing on the fourth day, is characteristic of severe HFRS. Severe renal disease is more likely in patients with thrombocytopenia.

**Hypotensive stage:**
As the febrile stage ends, hypotension may develop and last for hours to days, accompanied by nausea and vomiting. One-third of deaths occur during this phase, related to vascular leakage and shock. Electrocardiographic abnormalities are present in 57% of patients with Puumala virus infection. Approximately 50% of deaths occur during the subsequent (oliguric) phase. Patients who survive and progress to the diuretic phase show improved renal function but may still die of shock or pulmonary complications. The final (convalescent) phase can last weeks to months. Residual hypopituitarism may follow severe Puumala virus infection.
Case-fatality rates range from less than 0.1% for Hemorrhagic Fever Renal Syndrome [HFRS] caused by Puumala [PUU] virus to approximately 5% to 10% for HFRS caused by Hantaan [HTN] virus.

Scrub typhus and hemorrhagic fever with renal syndrome (HFRS) often coexist in areas of Asia. 10
- Retro-orbital, lumbar, or flank tenderness; proteinuria; and microscopic hematuria, and hemorrhagic manifestations are most common in HFRS.
- Dermal eschar, regional lymphadenopathy, and maculopapular rash should suggest scrub typhus.
- Gastrointestinal symptoms of Hantavirus infection may mimic those of acute appendicitis. 11

This disease is endemic or potentially endemic to 93 countries. Although Hantavirus infection - Old World is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

Hantavirus infection - Old World in Israel

No cases were reported between 1985 and 2008

Seroprevalence surveys:
- 12.3% of the hemodialysis patients, and 2% of controls (Puumala virus)
- 3.7% of hemodialysis patients are seropositive toward Hantaan virus (1998 publication) 12

Serum antibody toward Dobrava virus has been detected in patients suspected of leptospirosis.

References
### Hepatitis A

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>VIRUS - RNA. Picornaviridae, Hepatovirus: Hepatitis A virus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human Non-human primate</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Fecal-oral Food Water Fly</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>21d - 30d (range 14d - 60d)</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Serology. Nucleic acid amplification.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Stool precautions; supportive</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>As for adult</td>
</tr>
<tr>
<td><strong>Vaccines</strong></td>
<td>Hepatitis A Hepatitis A + Hepatitis B Immune globulin</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Vomiting, anorexia, dark urine, light stools and jaundice; rash and arthritis occasionally encountered; fulminant disease, encephalopathy and fatal infections are rare (case-fatality rate 0.15% to 2.7%, depending on age).</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Botkin’s disease, Epatite A, HAV, Hepatite per virus A, Infectious hepatitis. ICD9: 070.0 ICD10: B15.0, B15.9</td>
</tr>
</tbody>
</table>

### Clinical

**WHO Case definition for surveillance of acute viral hepatitis (all types):**

**Clinical description**
- Acute illness typically including acute jaundice, dark urine, anorexia, malaise, extreme fatigue, and right upper quadrant tenderness.
- Biological signs include increased urine urobilinogen and >2.5 times the upper limit of serum alanine aminotransferase.
- Note: Most infections occur in early childhood. A variable proportion of adult infections is asymptomatic.

**Laboratory criteria for diagnosis**
- Hepatitis A: IgM anti-HAV positive
- Hepatitis B: positive for Hepatitis B surface antigen (HBsAg) or IgM anti-HBC-positive
- Non-A, non-B: IgM anti-HAV and IgM anti-HBc (or HBsAg) negative

Note 1: The anti-HBc IgM test, specific for acute infection, is not available in most countries.

- HBsAg, often available, cannot distinguish between acute new infections and exacerbations of chronic hepatitis B, although continued HBsAg seropositivity (>6 months) is an indicator of chronic infection.

Note 2: For patients negative for hepatitis A or B, further testing for a diagnosis of acute hepatitis C, D, or E is recommended:
- Hepatitis C: anti-HCV positive
- Hepatitis D: HBsAg positive or IgM anti-HBc positive plus anti-HDV positive (only as co-infection or super-infection of hepatitis B)
- Hepatitis E: IgM anti-HEV positive

**Case classification**
- Suspected: A case that is compatible with the clinical description.
- Probable: Not applicable.
- Confirmed: A suspected case that is laboratory confirmed or, for hepatitis A only, a case compatible with the clinical description, in a person who has an epidemiological link with a laboratory-confirmed case of hepatitis A (i.e. household or sexual contact with an infected person during the 15-50 days before the onset of symptoms).

**Clinical features of Hepatitis A:**

The prodrome is characterized by anorexia, asthenia, headache, myalgia and moderate fever.
- Patients develop nausea, vomiting and right upper abdominal pain and later overt jaundice.  
- Rare instances of acute renal failure are reported in non-fulminant hepatitis A.  
- Symptoms persist for 4 to 8 weeks, and the patient may remain asthenic and anorectic for several months thereafter.  
- As many as 90% of cases in children less than 5 years of age are asymptomatic; fewer 50% among adults.  
- Relapses may occur for up to 6 months following the initial infection.  
- Rare instances of acute disseminated encephalomyelitis, myelitis, meningoencephalitis, acalculous cholecystitis,
Hepatitis A in Israel

Vaccine Schedule:
DTaP - 2, 4, 6 months; 1 year
TdaP-IPV - second year of elementary school
HepA - 18, 24 months
HepB - birth; 1, 6 months
Hib - 2, 4, 6 months; 1 year
IPV - 2, 4, 12 months; 7 years
MMR - 12 months; 6 years
Td - 8-9, 13-14 years
Varicella - 12 months and 6-7 years

Widespread use of post-exposure prophylaxis of soldiers with immune serum globulin was introduced during the 1970's.
- Israel was the first country to introduce routine infant vaccination against hepatitis A (initiated in 1999).
- Vaccine coverage during 2001 to 2002 was 90% for the first dose and 85% for the second dose.
- Introduction of vaccination was followed by a 95% reduction in disease rates as of 2002 to 2004; and a 25-fold reduction in less than 10 years.
- Annual incidence rates among children age <5 years decreased from 239.4 per 100,000 in 1998 to 2.2 per 100,000 in 2007.

Graph: Israel. Hepatitis - viral, cases - GIDEON

Notes:
1. Individual reporting for Hepatitis A and Hepatitis B was instituted in 1992.
Graph: Israel. Hepatitis - viral, deaths - GIDEON

Graph: Israel. Hepatitis A, cases - GIDEON

Notes:
1. Reporting rates are estimated at 10% to 30% of true incidence.
2. Hepatitis A accounts for 65% to 90% of all viral hepatitis in Israel.
3. The male/female ratio for patients with acute infection is 1.3/1. Highest rates (pre-vaccine era) occur in the age group 5 to 9.
4. The average annual rate of clinical hepatitis A was 600 per 100,000 during the 1960’s, 250 per...
100,000 during the 1970’s, 50 to 100 per 100,000 during the 1980’s; 2.2 to 2.5 per 100,000 as of 2002 to 2004.  

Between 1950 and 1979, hepatitis rates increased, and later declined during the early 1980s.  

During the 1950’s and 1960’s large scale epidemics occurred every 3-4 years in the Israel Defense Forces, with annual rates in excess of 1,000 per 100,000 soldiers at risk.  

- 68.4% of military recruits were seropositive in 1977, 54% in 1984, and 38.4% in 1996.  

Disease rates were highest among non-Jews prior to 1987.  
- Since 1988, rates among Jews have been approximately 50% higher than those of non-Jews.  
- Increased risk has been identified among yeshiva students, day care center and kindergarten staff, food industry workers, teachers, physicians, dentists, and medical technicians.  

One food borne outbreak (34 cases) was reported in 1993, 0 during 1994 to 1997, and 1 (47 cases) in 1998.  

**Seroprevalence surveys:**  
- 64% among military conscripts in 1977; 38.4% in 1996.  
- 90% among day-care workers 90% (1998)  
- 48.2% of pediatric hospital staff (2002 publication)  

**Notable outbreaks:**  
- 1985 (publication year) - An outbreak (9 cases) at a day care center in Finland was related to an index patient who had returned from Israel.  
- 1988 (publication year) - An outbreak (19 cases) was reported in a military unit.  
- 1999 (publication year) - An outbreak (23 cases) was reported in a day care center.  
- 2001 (publication year) - An outbreak was reported in a village.  
- 2010 - An outbreak (5 cases) among Orthodox Jews consisted of two primary cases originating in Israel and 3 secondary cases in England.  

**West Bank and Gaza:**  

Seropositivity rates in the Gaza Strip are 93.7% - 87.8% by age 6 months.
References

23. J Viral Hepat 2009 Aug 18;
Hepatitis B

Agent
VIRUS - DNA. Hepadnaviridae, Orthohepadnavirus: Hepatitis B virus

Reservoir
Human Non-human primate

Vector
None

Vehicle
Blood Infected secretions Sexual contact Transplacental

Incubation Period
2m - 3m (range 1m - 13m)

Diagnostic Tests
Serology. Nucleic acid amplification.

Typical Adult Therapy
Needle precautions; supportive. For post-exposure or chronic infection: Peginterferon alfa-2a or Peginterferon alfa-2b; OR Lamivudine; OR Adefovir

Typical Pediatric Therapy
As for adult

Vaccines
Hepatitis A + Hepatitis B
Hepatitis B + Haemoph. influenzae
Hepatitis B immune globulin
Hepatitis B

Clinical Hints
Vomiting and jaundice; rash or arthritis occasionally noted; risk group (drug abuse, blood products, sexual transmission); cirrhosis or hepatoma may follow years after acute illness; fulminant and fatal infections are encountered.

Synonyms
Epatite B, HBV, Hepatite per virus B, Serum hepatitis.
ICD9: 070.1
ICD10: B16.2, B16.9, B16.1

WHO Case definition for surveillance of acute viral hepatitis (all types):

Clinical description
• Acute illness typically including acute jaundice, dark urine, anorexia, malaise, extreme fatigue, and right upper quadrant tenderness.
• Biological signs include increased urine urobilinogen and >2.5 times the upper limit of serum alanine aminotransferase.
• Note: Most infections occur in early childhood. A variable proportion of adult infections is asymptomatic.

Laboratory criteria for diagnosis
• Hepatitis A: IgM anti-HAV positive
• Hepatitis B: positive for Hepatitis B surface antigen (HBsAg) or IgM anti-HBc positive
• Non-A, non-B: IgM anti-HAV and IgM anti-HBc (or HBsAg) negative

Note 1: The anti-HBc IgM test, specific for acute infection, is not available in most countries.

Note 2: For patients negative for hepatitis A or B, further testing for a diagnosis of acute hepatitis C, D, or E is recommended:
• Hepatitis C: anti-HCV positive
• Hepatitis D: HBsAg positive or IgM anti-HBc positive plus anti-HDV positive (only as co-infection or super-infection of hepatitis B)
• Hepatitis E: IgM anti-HEV positive

Case classification
• Suspected: A case that is compatible with the clinical description.
• Probable: Not applicable.
• Confirmed: A suspected case that is laboratory confirmed or, for hepatitis A only, a case compatible with the clinical description, in a person who has an epidemiological link with a laboratory-confirmed case of hepatitis A (i.e. household or sexual contact with an infected person during the 15-50 days before the onset of symptoms).

Clinical features of Hepatitis B:
Infection can be asymptomatic (particularly in young children) or quite mild, with only fatigue, anorexia, and malaise.
• Clinical disease with jaundice occurs in 50% of adults and 10% of young children.
• Extrahepatic manifestations include arthralgia, arthritis, rash, focal segmental glomerulosclerosis and acute glomerulonephritis.
• Rare instances of pancreatitis are reported.
• Chronic infection occurs in most young children and in 5% to 10% of adults, and can lead to persistent hepatitis, active...
hepatitis, cirrhosis, or hepatocellular carcinoma.  
- Acute exacerbation of chronic Hepatitis B may occur.  
- Patients with HBV-HDV coinfection appear to have more severe acute disease and a higher risk of fulminant hepatitis (2% to 20%) compared with those infected with HBV alone; however, chronic HBV infection appears to occur less frequently in persons with HBV-HDV coinfection.  
- Concurrent HIV infection increases the incidence of cirrhosis and HCC among Hepatitis B carriers.

One to two million deaths are attributed to hepatitis B annually. 25% of chronic carriers died of primary liver cancer or cirrhosis as adults.  
- This infection is responsible for 60% to 80% of the world’s primary liver cancer.  
- Primary liver cancer is one of the three leading causes of cancer death in East Asia, Southeast Asia, the Pacific Basin and sub-Saharan Africa.  
- Hepatitis B predominates among patients with hepatocellular carcinoma in most Asian, African and Latin American countries; while hepatitis C predominates in Japan, Pakistan, Mongolia, Egypt, Europe and the United States.

This disease is endemic or potentially endemic to all countries.

**Hepatitis B in Israel**

Routine immunization was introduced in 1992.

**Vaccine Schedule:**
- DTaP - 2, 4, 6 months; 1 year  
- Tdap-IPV - second year of elementary school  
- HepA - 18, 24 months  
- HepB - birth; 1, 6 months  
- Hib - 2, 4, 6 months; 1 year  
- IPV - 2, 4, 12 months; 7 years  
- MMR - 12 months; 6 years  
- Td - 8-9, 13-14 years  
- Varicella - 12 months and 6-7 years

© 2011 GIDEON Informatics Inc - www.gideononline.com

Graph: Israel. Hepatitis B - WHO-UNICEF est. % (HepB3) vaccine coverage - GIDEON
1. Individual reporting for Hepatitis A and Hepatitis B was instituted in 1992.
HBsAg-positivity surveys:
- 1% of the general population
- 3% of immigrants from the former Soviet Union (1990 to 1991) ¹¹
- 15.7% of Bukharian immigrants (1997 publication) ¹²
- 0.85% male and 0.44% female blood donors (1992) ¹³
- 0.64% of pregnant women (Jerusalem, 1994 publication) ¹⁴
- 4.8% of alcoholics (1998 publication) ¹⁵
- 5.5% of IDU (1993 publication) ¹⁶
- 3.5% of IDU (2003 to 2005) ¹⁷
- 0.9% of patients with lichen planus (2010 publication) ¹⁸

18% of HBsAg-positive IDU and 3% of HBsAg-negative IDU are seropositive toward Hepatitis D virus ¹⁹; 20% of HBsAg-positive patients with advanced liver disease ²⁰

Notable outbreaks:
- 1972 (publication year) - An outbreak of hepatitis B was reported in a chronic dialysis unit. ²¹
- 1986 - An outbreak (16 cases) of hepatitis B in Jerusalem was related to acupuncture. ²² ²³
- 1986 - An outbreak (5 cases) of fulminant hospital-acquired hepatitis B was reported in Haifa. ²⁴-²⁶

UNRWA:
Routine immunization is administered given at birth, 1 month and 6 months of age.
**West Bank and Gaza:**

Routine immunization is administered given at birth, 1 month and 6 months of age.
HBsAg-positivity surveys:
8.1% of hemodialysis patients in Gaza (2010 publication) 27
3.5% of the general population and 3.8% of blood donors in Gaza
2.4% of blood donors (2004)
References

1. Nephrol Dial Transplant 2010 Oct 19;
## Hepatitis C

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>VIRUS - RNA. Flaviviridae, Hepacivirus: Hepatitis C virus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Blood, Sexual contact, Transplacental</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>5w - 10w (range 3w - 16w)</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Serology, Nucleic acid amplification</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Needle precautions; supportive. If evidence of hepatocellular disease: Weekly Peginterferon alfa-2a 180 mcg SC or Peginterferon alfa-2b 1.5 mcg SC; and Ribavirin 400 mg in AM &amp; 600 mg in PM daily Duration per viral genotype</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>Peginterferon alfa-2b 3 MU/m2 SC x1 weekly + Ribavirin 15mg/kg</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Vomiting and jaundice; may be history of transfusion within preceding 1 to 4 months; chronic hepatitis and fulminant infections are encountered.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Epatite C, HCV, Hepatite per virus C, Non-A, non-B parenteral hepatitis.</td>
</tr>
</tbody>
</table>

### WHO Case definition for surveillance of acute viral hepatitis (all types):

**Clinical description**
- Acute illness typically including acute jaundice, dark urine, anorexia, malaise, extreme fatigue, and right upper quadrant tenderness.
- Biological signs include increased urine urobilinogen and >2.5 times the upper limit of serum alanine aminotransferase.
- Note: Most infections occur in early childhood. A variable proportion of adult infections is asymptomatic.

**Laboratory criteria for diagnosis**
- **Hepatitis A:** IgM anti-HAV positive
- **Hepatitis B:** positive for Hepatitis B surface antigen (HBsAg) or IgM anti-HBc positive
- **Non-A, non-B:** IgM anti-HAV and IgM anti-HBc (or HBsAg) negative

Note 1: The anti-HBc IgM test, specific for acute infection, is not available in most countries.
- HBsAg, often available, cannot distinguish between acute new infections and exacerbations of chronic hepatitis B, although continued HBsAg seropositivity (>6 months) is an indicator of chronic infection.

Note 2: For patients negative for hepatitis A or B, further testing for a diagnosis of acute hepatitis C, D, or E is recommended:
- **Hepatitis C:** anti-HCV positive
- **Hepatitis D:** HBsAg positive or IgM anti-HBc positive plus anti-HDV positive (only as co-infection or super-infection of hepatitis B)
- **Hepatitis E:** IgM anti-HEV positive

**Case classification**
- **Suspected:** A case that is compatible with the clinical description.
- **Probable:** Not applicable.
- **Confirmed:** A suspected case that is laboratory confirmed or, for hepatitis A only, a case compatible with the clinical description, in a person who has an epidemiological link with a laboratory-confirmed case of hepatitis A (i.e. household or sexual contact with an infected person during the 15-50 days before the onset of symptoms).

### Clinical features of Hepatitis C:

Patients with acute infection typically are either asymptomatic or have a mild clinical illness.
- 60% to 70% of patients have no symptoms
- 20% to 30% of patients have jaundice
- 10% to 20% of patients have non-specific symptoms, such as anorexia, malaise, or abdominal pain.

Clinical illness in patients with acute hepatitis C who seek medical care is similar to that of other types of viral hepatitis.
- The average time period from exposure to symptom onset is 6-7 weeks, whereas the average time period from exposure to seroconversion is 8-9 weeks.
- Anti-HCV can be detected in 80% of patients within 15 weeks after exposure, in >90% within 5 months after exposure, and in >97% by 6 months after exposure.
Hepatitis C in Israel

- Rarely, seroconversion is delayed for as long as 9 months after exposure.
- Rare instances of optic neuritis have been reported. ²

The clinical course is variable; and fluctuating elevations in serum ALT levels, are the most characteristic feature. ³ ⁴
- Fulminant hepatic failure following acute infection is rare.
- 15% to 25% of infections resolve without sequelae.
- Chronic HCV infection develops 75% to 85% of patients who exhibit persistent or fluctuating ALT elevations.
- 75% to 85% of patients with acute hepatitis C infection progress to chronic disease, and 20% to cirrhosis within 20 to 25 years. ⁵
- No clinical or epidemiological features among patients with acute infection are predictive of persistent infection or chronic liver disease.
- Chronic liver disease is usually insidious, progressing without symptoms or physical signs in the majority of patients during 20 or more years following acute infection.
- Cirrhosis develops in 10% to 20% of persons with chronic hepatitis C over a period of 20 to 30 years; and hepatic cell carcinoma in 1% to 5%.
- HCV infection appears to have little short-term impact on survival after bone marrow transplantation, but is a risk factor for veno-occlusive disease and graft-versus-host disease. ⁶
- Concurrent HIV infection shortens the time to development of chronic liver disease in patients with Hepatitis C. ⁷

Hepatitis B predominates among patients with hepatocellular carcinoma in most Asian, African and Latin American countries; while hepatitis C predominates in Japan, Pakistan, Mongolia, Egypt, Europe and the United States. ⁸

Additional manifestations seen in patients with chronic hepatitis C infection ⁹ may include mixed cryoglobulinemia with systemic vasculitis of the skin, erythema induratum ¹⁰ kidney ¹¹ ¹² and nervous system disorders ¹³; thrombocytopenia ¹⁴; non-Hodgkin lymphoma; porphyria cutanea tarda and lichen planus ¹⁵; hypothyroidism; lymphocytic saloadenitis (similar to that of Sjogren's syndrome) ¹⁶; autoimmune and other rheumatological disorders ¹⁷-²⁰, nectolytic acral erythema ²¹; scleritis ²²; and orbital plasmacytoma. ²³

This disease is endemic or potentially endemic to all countries.

Hepatitis C in Israel

![Graph: Israel. Hepatitis C, cases - GIDEON](https://www.gideononline.com)

© 2011 - GIDEON Informatics Inc - www.gideononline.com
Graph: Israel. Hepatitis C, cases

Prevalence surveys:
0.44% of blood donors (estimated, 1997)
18% of hemodialysis patients and 7% of CAPD patients

In the era of blood screening, hepatitis C has become a largely iatrogenic disease in Israel. 24

Seroprevalence surveys:
7.6% of alcoholics (1998 publication) 25
26.5% of Bukharian immigrants (1997 publication) 26
0.66% male and 0.55% female blood donors (1992) 27
8.7% of patients with autoimmune diseases, vs. 0.4% of matched controls (2009 publication) 28
1.9% of patients with lichen planus vs. 0.4% of controls (2010 publication) 29
0.33% of dentists (2009 publication) 30
35.7% of IDU (2003 to 2005) 31
54% of IDU in Jerusalem (1994 publication) 32
9% of female sex workers working illegally in Israel (Beer-Sheva, 2006 publication) 33

Notable outbreaks:
2001 to 2003 - An outbreak (33 cases) of Hepatitis C infection in Beer Sheva was related to an infected anesthesiologist. 34

West Bank and Gaza:
Seroprevalence in the Gaza Strip is 0.2%.
Seroprevalence surveys:
22% of hemodialysis patients in Gaza (2010 publication) 35

References
19. Rheumatol Int 2009 Jun 18;
20. Clin Rheumatol 2010 Apr 22;
28. J Autoimmun 2009 Apr 6;
31. J Autoimmun 2009 Apr 6;
34. J Autoimmun 2009 Apr 6;
# Hepatitis D

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - RNA. Deltavirus: Hepatitis D virus - a 'satellite' virus which is encountered as infection with a co-virus (Hepatitis B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Infected secretions  Blood  Sexual contact</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>4w - 8w (range 2w - 20w)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Serology. Nucleic acid amplification.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Needle precautions; supportive Interferon alfa 2-a has been used.</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Vomiting and jaundice - biphasic course often noted; occurs as a co-infection or superinfection of hepatitis B; may be chronic or fulminant (combined hepatitis B and delta carries a worse prognosis than seen with hepatitis B alone).</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Epatite D, Hepatitis delta.  ICD9: 070.41,070.52  ICD10: B17.0</td>
</tr>
</tbody>
</table>

## Clinical

**WHO Case definition for surveillance of acute viral hepatitis (all types):**

**Clinical description**
- Acute illness typically including acute jaundice, dark urine, anorexia, malaise, extreme fatigue, and right upper quadrant tenderness.  
- Biological signs include increased urine urobilinogen and >2.5 times the upper limit of serum alanine aminotransferase.  
- Note: Most infections occur in early childhood. A variable proportion of adult infections is asymptomatic.  

**Laboratory criteria for diagnosis**
- Hepatitis A: IgM anti-HAV positive  
- Hepatitis B: Positive for Hepatitis B surface antigen (HBsAg) or IgM anti-HBc positive  
- Non-A, non-B: IgM anti-HAV and IgM anti-HBc (or HBsAg) negative  

Note 1: The anti-HBc IgM test, specific for acute infection, is not available in most countries.  
- HBsAg, often available, cannot distinguish between acute new infections and exacerbations of chronic hepatitis B, although continued HBsAg seropositivity (>6 months) is an indicator of chronic infection.  
- Note 2: For patients negative for hepatitis A or B, further testing for a diagnosis of acute hepatitis C, D, or E is recommended:  
  - Hepatitis C: anti-HCV positive  
  - Hepatitis D: HBsAg positive or IgM anti-HBc positive plus anti-HDV positive (only as co-infection or super-infection of hepatitis B)  
  - Hepatitis E: IgM anti-HEV positive  

**Case classification**
- Suspected: A case that is compatible with the clinical description.  
- Probable: Not applicable.  
- Confirmed: A suspected case that is laboratory confirmed or, for hepatitis A only, a case compatible with the clinical description, in a person who has an epidemiological link with a laboratory-confirmed case of hepatitis A (i.e. household or sexual contact with an infected person during the 15-50 days before the onset of symptoms).  

**Clinical features of Hepatitis D:**
- Hepatitis D is characterized by gradual onset of abdominal pain and vomiting, followed by development of jaundice.  
- A biphasic course often noted.  
- When co-infection by hepatitis B is often present, the course may be chronic or fulminant.  
- 80% of patients with chronic hepatitis D infection progress to cirrhosis within 5 to 10 years.  

**This disease is endemic or potentially endemic to all countries.**
Hepatitis D in Israel

Seroprevalence surveys:
- 18% of HBsAg-positive IDU and 3% of HBsAg-negative IDU (1993 publication) 4
- 20% of HBsAg-positive patients with advanced liver disease (1988 publication) 5

References
Hepatitis E

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - RNA. Caliciviridae: Hepatitis E virus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human Rodent Pig</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Fecal-oral Water Shellfish Blood (rare) Meat (rare)</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>30d - 40d (range 10d - 70d)</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Stool precautions; supportive</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Clinically similar to hepatitis A - no chronic residua; severe or fatal if acquired during pregnancy (10% to 24% case-fatality rate).</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Epatite E, Non-A, non-B enteric hepatitis. ICD9: 070.43,070.53 ICD10: B17.2</td>
</tr>
</tbody>
</table>

**Clinical**

**WHO Case definition for surveillance of acute viral hepatitis (all types):**

**Clinical description**
- Acute illness typically including acute jaundice, dark urine, anorexia, malaise, extreme fatigue, and right upper quadrant tenderness.
- Biological signs include increased urine urobilinogen and >2.5 times the upper limit of serum alanine aminotransferase.
- Note: Most infections occur in early childhood. A variable proportion of adult infections is asymptomatic.

**Laboratory criteria for diagnosis**
- Hepatitis A: IgM anti-HAV positive
- Hepatitis B: positive for Hepatitis B surface antigen (HBsAg) or IgM anti-HBc positive
- Non-A, non-B: IgM anti-HAV and IgM anti-HBc (or HBsAg) negative

Note 1: The anti-HBc IgM test, specific for acute infection, is not available in most countries.
- HBsAg, often available, cannot distinguish between acute new infections and exacerbations of chronic hepatitis B, although continued HBsAg seropositivity (>6 months) is an indicator of chronic infection.

Note 2: For patients negative for hepatitis A or B, further testing for a diagnosis of acute hepatitis C, D, or E is recommended:
- Hepatitis C: anti-HCV positive
- Hepatitis D: HBsAg positive or IgM anti-HBc positive plus anti-HDV positive (only as co-infection or super-infection of hepatitis B)
- Hepatitis E: IgM anti-HEV positive

**Case classification**
- Suspected: A case that is compatible with the clinical description.
- Probable: Not applicable.
- Confirmed: A suspected case that is laboratory confirmed or, for hepatitis A only, a case compatible with the clinical description, in a person who has an epidemiological link with a laboratory-confirmed case of hepatitis A (i.e. household or sexual contact with an infected person during the 15-50 days before the onset of symptoms).

**Clinical features of Hepatitis E**

In contrast to hepatitis A, hepatitis E is characterized by:
- relatively long incubation period
- prolonged clinical course
- severe and often fatal illness among pregnant women, patients with pre-existing hepatic cirrhosis, hemodialysis patients and possibly women taking oral contraceptive medication.
- poor protective value of immune serum globulin.

Rare instances of pancreatitis are reported.

Possible chronic hepatitis E infection has been reported among liver transplant recipients.
Clinical disease in western countries and Japan is most common among males and persons above age 60 years. 8

Clinical signs and symptoms are similar to those of other types of viral hepatitis and include abdominal pain, anorexia, dark urine, fever, hepatomegaly, jaundice, malaise, nausea, and vomiting. 9

- Less common findings include arthralgia, arthritis 10, diarrhea, pruritus, an urticarial rash, severe thrombocytopenia 11, Guillain-Barre syndrome 12 and hemophagocytic syndrome. 13
- A false positive serological reaction toward Epstein-Barr virus has been reported in Hepatitis E virus infection. 14
- The case fatality rate for young adults is 0.5% to 3%; 15% to 20% for pregnant women. 15

The period of infectivity following acute infection is not known; however, virus excretion in stools has been demonstrated up to 14 days after illness onset.

- The period of viral excretion appears to be prolonged among patients with hematological malignancy. 16

In most hepatitis E outbreaks, the highest rates of clinically evident disease have been among young to middle-age adults.

- Lower disease rates in younger age groups may be the result of anicteric and/or subclinical HEV infection.

Sporadic cases of chronic Hepatitis E virus infection are reported, notably among immunosuppressed patients. 17-25

This disease is endemic or potentially endemic to all countries.

Hepatitis E in Israel

Five Israeli travelers acquired hepatitis E overseas (India and Nepal) - all recovered (1999 publication) 26

Seroprevalence surveys:
- 2.81% of Jews and 1.81% of Arabs (1995 publication) 27
- 9% of hemophiliacs (1995 publication) 28
- 9.6% of Ethiopian immigrants
- 13% of Bedouin.
- 0% of Israeli back-packers traveling overseas (2000 publication) 29

References

1. J Hepatol 2010 Nov 13;
20. J Viral Hepat 2010 Apr 1;
Hepatitis G

Agent | VIRUS - RNA. Flaviviridae, Hepacivirus: Hepatitis G virus. HGBV-A, B and C appear to be related
Reservoir | Human
Vector | None
Vehicle | Blood. Vertical transmission has also been documented. Sexual transmission suspected
Incubation Period | Unknown
Diagnostic Tests | Serology. Nucleic acid amplification.
Typical Adult Therapy | Supportive. Alpha interferon has been shown to transiently eliminate the carrier state
Typical Pediatric Therapy | As for adult
Clinical Hints | Acute or chronic hepatitis acquired from blood (needles, etc); clinically milder than hepatitis C - most cases limited to anicteric elevation of hepatic enzyme levels; viremia documented for as long as 10 years.
Synonyms | Epatite G, Hepatitis GB.
ICD9: 070.59
ICD10: B17.8

Clinical

Hepatitis G is characterized by acute or chronic hepatitis acquired from blood (needles, etc).  
- The disease is milder than hepatitis C, with most cases limited to anicteric elevation of hepatic enzyme levels.  
- Viremia has been documented for as long as 10 years.

This disease is endemic or potentially endemic to all countries.

Hepatitis G in Israel

Prevalence surveys:
- 5.2% of hemodialysis patients (1999 publication)  
- 19.4% of multi-transfused patients with thalassemia (1998 publication)

References
3. Harefuah 1999 Nov 1;137(9):361-3, 432.  
Herpes B infection

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - DNA. Herpesviridae, Alphaherpesviridae, Simplexvirus: Cercopithecine herpesvirus 1 (Herpes B virus)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Monkey (usually Macaca species and cynomolgus)</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Contact or bite</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>10d - 20d (range 2d - 60d)</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Therapy: Acyclovir 12 mg/kg IV q8h. OR Ganciclovir 5 mg/kg IV q12h. Follow with prolonged Acyclovir 800 mg PO 5X daily. Postexposure prophylaxis: Valacyclovir 1g PO q8h X 14 days. OR Acyclovir 800 mg PO X 5 X 14 days</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Acyclovir or Ganciclovir as for adult.</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Vesicles, lymphadenopathy, myalgia, singultus, major neurological signs; usually within one month following contact with monkey; case-fatality rates exceed 80%. permanent neurological residua are common.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Cercopithecine herpesvirus 1, Herpes B, Herpesvirus simiae.</td>
</tr>
<tr>
<td></td>
<td>ICD9: 078.89</td>
</tr>
<tr>
<td></td>
<td>ICD10: B00.4</td>
</tr>
</tbody>
</table>

Clinical

Most human infections have been fatal, consisting of myelitis and hemorrhagic encephalitis with concomitant multiorgan involvement. 1

The illness begins with fever, malaise, diffuse myalgia, nausea, abdominal pain and headache.

- Lymphadenitis is seen proximal to the site of inoculation.
- Dermal vesicles may be present.
- Abdominal pain and nausea may occur.
- Neurological findings then predominate, with dysesthesia, ataxia, diplopia, seizures, and ascending flaccid paralysis. 2
- A lymphocytic CSF pleocytosis and elevated protein levels are noted, often with numerous erythrocytes.
- In contrast to herpes simplex infection, the encephalitis is multifocal.
- Rarely, isolated skin infection and even an isolated meningitis may be encountered.

This disease is endemic or potentially endemic to all countries.

References

## Herpes simplex encephalitis

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>VIRUS - DNA. Herpesviridae, Alphaherpesvirinae, Simplexvirus: Human herpesvirus (usually type I)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Infected secretions, including Sexual contact</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>Unknown</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Viral culture CSF usually negative. CT brain. Compare CSF/blood antibody levels. Nucleic acid amplification.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td><strong>Acyclovir</strong> 10 mg/kg IV Q8h</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td><strong>Acyclovir</strong> 10 mg/kg IV Q8h</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Rapidly-progressive severe encephalitis, usually without exanthem; often unilateral, temporal and parietal lobe predominance; permanent residua and high case-fatality rate in untreated cases.</td>
</tr>
</tbody>
</table>

### Clinical

Although fever, headache, behavioral changes, confusion, focal neurological findings, and abnormal cerebrospinal fluid are suggestive of herpetic encephalitis, signs are not pathognomonic.

- Typical findings include fever, headache, psychiatric symptoms, altered consciousness, dysphagia, seizures and vomiting.  
1. Focal weakness, ataxia, hemiparesis, and memory loss are common.
2. In some cases, patients exhibit memory loss, photophobia, cranial nerve deficits, papilledema, loss of visual fields, olfactory disturbance, choreoathetosis or other movement disorders.  
3. Meningismus and cutaneous herpes simplex are uncommon.
4. Infection is usually frontotemporal and unilateral and characterized by severe, often fatal disease.  
5. Unilateral involvement of the temporoparietal region is typical, and helps distinguish herpetic infection from other forms of viral encephalitis which tend to be bilateral and symmetrical.  
6. Cases of overt cerebral hemorrhage and symmetric brain stem encephalitis have been reported.  
7. West Nile viral encephalitis may mimic herpes simplex encephalitis.  

Herpes encephalitis is a risk factor for acute retinal necrosis.  
10. Relapse of encephalitis occurs in 12% of treated patients.  
11. 12.

### This disease is endemic or potentially endemic to all countries.

### References

2. J Neurol 2009 Oct 10;  
3. Indian J Pediatr 2010 Aug 19;  
Clinical Herpes simplex infection

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - DNA. Herpesviridae, Alphaherpesvirinae, Simplexvirus: Human herpesvirus I and II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Infected secretions, including Sexual contact</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>1d - 14d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Viral culture or microscopy of lesions. Serology. Nucleic acid amplification.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Acyclovir 400 mg PO TID X 7d. OR Famciclovir 250 mg PO TID X 7d. OR Valacyclovir 1 g PO BID X 7d</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Acyclovir 10 mg/kg PO QID X 7d</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Recurring localized crops of painful vesicles on a red base; regional adenopathy often present; may follow a prodrome of neuropathy or hyperesthesia.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Herpes gladiatorum, Herpes rugbiorum, Herpes simplex. ICD9: 054.0,054.1,054.2,054.4,054.5,054.6,054.7,054.8,054.9 ICD10: A60,B00</td>
</tr>
</tbody>
</table>

Clinical

The initial attack of herpes simplex is generally more overt than recurrent episodes; however, primary infections are often asymptomatic. 1

• Symptoms will also vary depending on the site of infection (eye 2 3 , esophagus 4 , anal region, etc).

Signs and symptoms:
Following a prodrome of local discomfort, tender papular, vesicular or ulcerative lesions on an erythematous base appear. 5

• Anorexia, malaise and fever may accompany individual episodes.
• The lesions coalesce, and tender bilateral lymphadenopathy develops.
• Skin lesions usually heal over the next several days to weeks.
• Patients may give a history of occupational exposure (ie, herpetic whitlow, found in medical or dental personnel; herpes gladiatorum among wrestlers).
• Vesicular skin lesions of tularemia may mimic those of herpes simplex 6 ; and herpetic infection may present as folliculitis. 7

Complications:
Immunosuppressed patients and neonates are at particular risk for disseminated and severe infections. 8-12

• Chronic (>1 month) mucocutaneous infections may occur in HIV-positive patients, in the absence of disseminated disease. 13

• Lesions of the tongue may present as Herpetic geometric glossitis. 14
• Mucosal herpetic lesions may serve as a portal for bacterial invasion. 15
• Ocular complications include conjunctivitis, scleritis 16 , severe keratitis and retinal necrosis. 17 18 Over 10% of keratouveitis cases are complicated by secondary glaucoma 19 Herpetic keratitis may complicated ocular steroid injection 20
• Herpes simplex infection has been etiologically linked to facial (Bell's) palsy. 21 22
• Pancreatitits 23 , esophagitis 24 , cardiomyopathy 25 and rhabdomyolysis with renal failure have been reported to complicate herpes simplex infection.
• Rare cases of hepatitis and fulminant hepatic failure due to HSV infection have been reported in immunocompetent persons. 27-31
• HSV-related erythema multiforme 32 has been reported in stem-cell transplant recipients 33
• Disseminated infection among patients with eczema (Eczema herpeticum) may resemble smallpox. 34

Neonatal herpes simplex infection is characterized by vesicular rash, hypothermia, lethargy, seizures, respiratory distress, hepatosplenomegaly, thrombocytopenia, hepatic dysfunction and cerebrospinal fluid pleocytosis. 35

Herpes simplex virus is an important cause of encephalitis (discussed separately in this module) and keratitis. 36
This disease is endemic or potentially endemic to all countries.

**Herpes simplex infection in Israel**

The incidence of genital herpes infection was 32.4/1,000 in 1990 (21% of these due to HSV-1).

74 cases of genital herpes were confirmed during 1973 to 1979; 24 in 1980.  

**Seroprevalence surveys:**

- 9.2% (HSV-2) and 59.8% (HSV-1) in the general population (2000 to 2001)  
- 2 to 3% of healthy women were (HSV-2) during 1986 to 1990; 4 to 5% during 1998 to 1999  
- 61% of CSW in the Tel Aviv region (HSV-2)  
- 60% of brothel-based CSW in Tel Aviv (HSV-2, 2008 publication)  
- 9.33% of STD patients (HSV-2) (1998 to 1999)  
- 22% of children ages 6 to 12 months (HSV-1); 60% by age 21 years; 87% by age 70 years (1998 to 1999)  
- 50% (HSV-1) by age of 14 years (2000 to 2001)  
- 13.3% of pregnant women (HSV-2) (2003 publication)  

Herpes simplex 1 accounts for 66.3% of genital herpes infections in the Tel Aviv area (1993 to 2002).
Notes:
Individual years:
1999 - 37 cases of genital herpes were reported.

References

3. Medicine (Baltimore) 2008 May ;87(3):167-76.
11. Infect 2010 Jul 3;
18. Int Ophthalmol 2009 Apr 3;
24. Wien Klin Wochenschr 2010 Sep 28;
Herpes zoster

Agent | VIRUS - DNA. Herpesviridae, Alphaherpesvirinae: Varicella-zoster virus
Reservoir | Human
Vector | None
Vehicle | Air, Direct contact
Incubation Period | Unknown
Typical Adult Therapy | Acyclovir 800 mg PO X 5 daily X 7 to 10d. OR Famciclovir 500 PO TID. OR Valacyclovir 1 g PO TID
Typical Pediatric Therapy | Acyclovir 20 mg/kg PO QID X 7 to 10d
Vaccine | Herpes zoster
Clinical Hints | Unilateral dermatomal pain, tenderness and paresthesia followed in 3 to 5 days by macular, erythematous rash evolving to vesicles; trunk and chest most common, but other areas possible; patients usually above age 50.
Synonyms | Fuocodi Saint'Antonio, Shingles, Zona, Zoster.
ICD9: 053
ICD10: B02

Clinical

The condition represents reactivation of dormant Varicella-Zoster virus in dorsal root ganglia.

Disease is characterized by grouped vesicular lesions distributed along one to three sensory dermatomes, usually unilateral and on the trunk or face. 1
• Mild pruritis or excruciating pain may be present, and after the disappearance of the rash.
• In immunocompromised individuals, herpes zoster may become disseminated.
• A chronic verrucous form of herpes zoster seen in HIV-positive patients is associated with antiviral drug-resistance. 2

Most healthy persons recover without complications; however, individuals above age 50 years are at increased risk of postherpetic neuralgia which may persist for months to years after the rash has healed.
• Immunocompromised patients are risk for chronic herpes zoster; or infection of the central nervous system, liver, lungs or pancreas.
• Chronic (>1 month) mucocutaneous infections may occur in HIV-positive patients, in the absence of disseminated disease. 4
• Visual impairment or scleral damage may follow zoster ophthalmia. 5-7 Over 10% of keratouveitis cases are complicated by secondary glaucoma 8
• VZ virus infection may be associated with facial nerve palsy. 9
• VZ virus infection can be a presenting symptom of hyperparathyroidism and occurs twice as often in persons with hypercalcemia than age-matched controls. 10
• In some cases, reactivation of VZ virus may present as radiculitis, cranial nerve palsy or other features of herpes zoster but without rash (zoster sine herpete). 11

This disease is endemic or potentially endemic to all countries.

Herpes zoster in Israel

© 2011 GIDEON Informatics, Inc. www.gideononline.com All Rights Reserved.
References

7. Curr Treat Options Neurol 2010 Oct 12;
8. Int Ophthalmol 2009 Apr 3;
## Heterophyid infections

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Snail (Cerithidea cingulata, Pirenella conica) Fish</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Fish (mullet and Tilapia)</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>7d - 14d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Identification of ova or adults in stool.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td><strong>Praziquantel</strong> 25 mg/kg TID X 3 doses</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Abdominal pain and mucous diarrhea with eosinophilia beginning 1 to 2 weeks after ingesting undercooked fish; infestation resolves spontaneously within two months.</td>
</tr>
<tr>
<td></td>
<td>ICD9: 121.6 ICD10: B66.8</td>
</tr>
</tbody>
</table>

### Clinical

As a group, these infestations are characterized by abdominal pain and mucous diarrhea, often associated with eosinophilia.

- Asymptomatic infection is common.
- Rarely, metastatic granulomata in various organs have been ascribed to ectopic ova.

This disease is endemic or potentially endemic to 38 countries. Although Heterophyid infections is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

### Heterophyid infections in Israel

Infestation was common, particularly among Jewish women (2% prevalence during the 1920's) until importation of Egyptian fish ceased in 1948.

### References

Histoplasmosis

<table>
<thead>
<tr>
<th>Agent</th>
<th>FUNGUS, Ascomycota, Euascomycetes, Onygenales: Histoplasma capsulatum var. capsulatum A dimorphic fungus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Soil, Caves, Chicken roosts, Bat</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Air</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>10d - 14d (range 5d - 25d)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Fungal culture. Serologic tests less helpful. Antigen tests currently under study. Nucleic acid amplification.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Itraconazole 200 mg daily X 9m For severe or immunocompromized patients: Amphotericin B 0.4 mg/kg/d X 6w, then 0.8 mg/kg qod X 8w</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Itraconazole 2 mg/kg daily X 9m. For severe or immunocompromized patients: Amphotericin B 0.4 mg/kg/d X 6w, then 0.8 mg/kg qod X 8w</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Fever, cough, myalgia, pulmonary infiltrates and calcifying hilar lymphadenopathy; chronic multisystem infection often encountered.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Darling's disease, Histoplasma capsulatum, Histoplasmose, Ohio River Valley Fever, Ohio Valley disease, Reticuloendothelial cytomycosis.</td>
</tr>
<tr>
<td>ICD9:</td>
<td>115.0</td>
</tr>
</tbody>
</table>

Clinical

Asymptomatic infection is common, and may be found as an incidental finding on chest X-ray, or through serological or skin tests. 1

**Pulmonary histoplasmosis:**
Acute benign respiratory infection is characterized by weakness, fever, chest pains, and cough. 2
- The severity of illness is related to the magnitude of the exposure.
- Chronic pulmonary infection occurs in persons with pre-existing lung diseases such as emphysema.
- The infection is most common in males over the age of 40.
- Chronic pulmonary lesions are characterized by extensive cavitation, but may resemble those of tuberculosis. 3

**Disseminated histoplasmosis:**
Disseminated infection is seen in immunocompromized patients (AIDS 4-6, leukemia, corticosteroid therapy, anti-TNF therapy 7, etc) and is characterized by fever, anemia, hepatitis, pneumonia, pleuritis, pericarditis 8, meningitis, atypical skin lesions 9 and ulcers of the mouth 10, tongue 11, nose 12, paranasal sinuses 13, esophagus 14, 15, colon 16 and larynx. 17 18
- Associated findings include upper lobe cavitation with fibrosis (similar to tuberculosis); sclerosing mediastinitis with obstruction of the superior vena cava, pulmonary arteries and veins; esophagus; and constrictive pericarditis. 19
- Fungemia is most common in patients with immunosuppression or neutropenia (<3,000 per cu mm). 20
- Central nervous system infection can present at chronic meningitis, focal parenchymal lesions of the brain or spinal cord, stroke due to infected emboli, and diffuse encephalitis. 21
- Spinal infection may mimic tuberculosis spondylodiscitis. 22
- Adrenal infection 23 24 and renal infection are occasionally reported 25 and may mimic carcinoma. 26
- Peritoneal histoplasmosis has been reported as a complication of peritoneal dialysis. 27
- Epididymo-orchitis is occasionally reported. 28
- Gastrointestinal infection may mimic colonic carcinoma 29 or abdominal tuberculosis. 30
- Dermatological manifestations include erythema nodosum 31, erythema multiforme 32, or the appearance of ulcerating verrucous plaques 33 Primary infection may present as a dermal nodule with regional adenopathy. 34

"Ocular histoplasmosis syndrome" is characterized by peripapillary atrophy, punched out lesions, a macular disciform lesion or scar in one eye without vitritis.
- The role of *Histoplasma capsulatum* in this condition is unclear. 35
- Overt *Histoplasma* keratitis has been reported 36

© 2011 GIDEON Informatics, Inc. www.gideononline.com All Rights Reserved.
Acute disseminated infection is also seen in infants and young children and is marked by fever, cough, exhaustion and hepatosplenomegaly.  
• Roentgenographic findings include multiple nodules (3 to 4 mm) changing into punctate calcifications; histoplasmoma (non-calculifying nodules <3 mm); a "target lesion" (ie, central calcification); or hilar/mediastinal adenopathy ("popcorn" calcification).

Primary histoplasmosis of the mouth has been reported.  

This disease is endemic or potentially endemic to 93 countries. Although Histoplasmosis is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

Histoplasmosis in Israel

*Histoplasma capsulatum* was identified in a bat cave in the Galilee (1977 publication).  

References

13. Mycopathologia 2010 Jul 16;.
23. Diagn Cytopathol 2009 Nov 5;.
24. Diagn Cytopathol 2010 Jul 6;.
27. Nat Rev Nephrol 2010 Jun 1;.
HIV infection - initial illness

**Agent**
VIRUS - RNA. Retroviridae, Lentivirinae: Human Immunodeficiency Virus

**Reservoir**
Human

**Vector**
None

**Vehicle**
Blood  Semen  Sexual Transplacental  Breast-feeding

**Incubation Period**
1w - 6w

**Diagnostic Tests**
HIV antibody (ELISA, Western blot). HIV or HIV antigen assays. Nucleic acid amplification.

**Typical Adult Therapy**
Supportive; 'prophylactic' Zidovidine + additional drugs (DDI, 3TC, etc) should be considered particularly during pregnancy

**Typical Pediatric Therapy**
Supportive; role for 'prophylactic' Zidovidine + additional drugs (DDI, 3TC, etc) should be considered

**Clinical Hints**
Fever, diarrhea, sore throat and a mononucleosis-like illness in a 'high risk' patient (eg, men who have sex with men, drug abuser, etc).

**Synonyms**
HIV, HIV infection.
ICD9: 042
ICD10: B20,B21,B22,B23,B24

**Clinical**

The clinical features of acute HIV infection are protean and often characterized by fever, generalized lymphadenopathy, headache, fatigue, myalgia, rash, nausea, vomiting, night sweats, sore throat, diarrhea or weight loss.  
- 40% to 90% of persons have symptoms suggestive of an acute viral infection.
- Symptoms tend to subside within two weeks; however, some patients continue to be ill for as long as ten weeks.
- In most cases, a history of likely acquisition within the past several weeks can be established: unprotected sex, extramedical injection, transfusion, etc.

This disease is endemic or potentially endemic to all countries.

**HIV infection - initial illness in Israel**

Data regarding HIV infection are included in the note for AIDS

**References**

## Hookworm

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Soil Contact</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>7d - 2y</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Examination of stool for ova.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Albendazole 400 mg X 1 dose. OR Mebendazole 100 mg BID X 3d. OR Pyrantel pamoate 11 mg/kg (max 3g) X 3d; or</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Pruritic papules (usually of feet) - later cough and wheezing; abdominal pain and progressive iron-deficiency anemia; eosinophilia common; dyspnea and peripheral edema in heavy infections; Ancylostoma caninum implicated in eosinophilic enteritis.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Anchilostoma, Ancylostoma ceylanicum, Ancylostoma duodenale, Ancylostomiasis, Anquilostomiasis, Cyclodontostomum, Eosinophilis enteritis, Hakenwurmer-Befall, Miner's anemia, Necator americanus, Necatoriasis, Uncinariasis. ICD9: 126.0,126.1, ICD10: B76.0,B76.1,B76.8</td>
</tr>
</tbody>
</table>

### Clinical

Initial manifestations of hookworm consist of pruritus, erythema, and a papular, or vesicular rash at the site of larval penetration ("ground itch").

- Migration of larvae through the lungs may result in a Loeffler-like syndrome with transitory cough, wheezing, diffuse opacities on x-ray and eosinophilia in sputum and blood.
- Migration of *A. duodenale* larvae to the breast, with infection of nursing infants ('hypobiosis') has been described.
- The major finding in overt infection is iron-deficiency anemia.
- Heavy intestinal infection may also produce local symptoms of abdominal pain, diarrhea, and occasionally malabsorption with weight loss (most commonly in children).
- Rare instances of overt melena have been reported.

**This disease is endemic or potentially endemic to all countries.**

### Hookworm in Israel

Hookworm was first described in Israel during the 1920's.

**Prevalence surveys:**

As many as 90% of the populations of Arab villages in the areas of Petah Tikva and Hadera were infested during the 1920's.

- 10% in some villages in the Netanya area (1968)
- 44% of Thai workers in Israel (1994 publication)
- 54.2% of Ethiopian immigrants (1991 publication)
- 44.1% of Thai workers in Israel (1994 publication)

74 cases were officially reported in 1955, and 81 in 1956.

**Notable outbreaks:**

1982 (publication year) - An outbreak of hookworm-associated anemia was reported in a closed institution.
References

## Hymenolepis diminuta infection

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Platyhelminthes, Cestoda. Cyclophyllidea, Hymenolepididae: Hymenolepis diminuta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Rodent Various insects</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Arthropod - ingestion</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>2w - 4w</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Identification of ova in stool</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Praziquantel 25 mg/kg as single dose. OR Niclosamide 2g, then 1g/d X 6d</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Praziquantel 25 mg/kg as single dose. OR Niclosamide 1g, then 0.5g/d X 6d (1.5g, then 1g for weight &gt;34kg)</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Nausea, abdominal pain and diarrhea; eosinophilia may be present; primarily a pediatric disease, in rodent-infested areas; infestation resolves spontaneously within 2 months.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Hymenolepis diminuta, Mathevotaenia, Rat tapeworm.</td>
</tr>
<tr>
<td></td>
<td>ICD9: 123.6</td>
</tr>
<tr>
<td></td>
<td>ICD10: B71.0</td>
</tr>
</tbody>
</table>

### Clinical

Patients, usually children, may develop mild abdominal pain, nausea diarrhea and eosinophilia.  

This disease is endemic or potentially endemic to all countries.

### References

Hymenolepis nana infection

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Platyhelminthes, Cestoda. Cyclophyllidea, Hymenolepididae: Hymenolepis (Rodentolepis) nana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human Rodent (especially hamster)</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Food Water Fecal-oral</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>2w - 4w</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Identification of ova in stool</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Praziquantel 25 mg/kg once. OR Nitazoxanide 500 mg daily for 3 days OR Niclosamide 2g/d X 1, then 1g/d X 6d</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Praziquantel 25 mg/kg once. OR Nitazoxanide 100 mg (age 1 to 3 years) to 200 mg (age 4 to 11 years) BID X 3d OR Niclosamide 1g/d X 1, then 0.5g/d X 6d (1.5g, then 1g for weight &gt;34kg)</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Nausea, abdominal pain, diarrhea, irritability and weight loss; eosinophilia may be present; infection is maintained by autoinfection (worm reproduces within the intestinal lumen).</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Dwarf tapeworm, Hymenolepis nana, Rodentolepis (Hymenolepis) microstoma, Rodentolepisiasis, Vampirolepis nana. ICD9: 123.6 ICD10: B71.0</td>
</tr>
</tbody>
</table>

Clinical

Infestation by Hymenolepis nana is largely asymptomatic.  
- Children are most likely to exhibit symptoms consisting of abdominal pain and diarrhea.  
- Pruritis ani and behavioral and sleep disturbances are occasionally encountered.  
- Most patients have eosinophilia (5% to 10% of total leucocyte count).

This disease is endemic or potentially endemic to all countries.

Hymenolepis nana infection in Israel

Prevalence surveys:
- 1.04% of the population of Jerusalem in 1934; 1.40% in 1955  
- 0.1% of Bedouin children in southern Israel (1994 publication)  
- 21.3% of Ethiopian immigrants (1991 publication)  
- 1.0% of children in Khan Younis (Gaza, 2004 publication)  
- 3% of children in the West Bank and Gaza (1992 publication)

References

Infection of wound, puncture, IV line, etc

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. <em>Staphylococcus aureus</em>, streptococci, facultative or aerobic gram negative bacilli, anaerobes, et al</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human  Soil  Water  Air (spores)  Various animals and plants</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Trauma  Water  Medications  Bandages  Autoinoculation</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Variable</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Smear and culture of catheter, material from wound.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Drainage, remove catheter, debridement and antibiotics appropriate to infecting species</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Source (ie, venous line, postoperative, marine, animal bite) may suggest species; onset less than 24 hrs = group A Strep. or <em>Cl. perfringens</em>; 2 to 7 days <em>S. aureus</em>; over 7 days gram negative bacilli; foul odor anaerobes.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Intravenous catheter infection, Line infection, Surgical wound infection, Wound infection.  ICD9: 686.9,451  ICD10: T79.3,180.0, Y95</td>
</tr>
</tbody>
</table>

**Clinical**

Wound infection is a self-defined illness.

The features and severity of infection are largely determined by the health status of the patient, and the nature of the wound and infecting organism.

Signs of infection which develop in a patient with an intravenous catheter should be assumed to be related to the catheter until proven otherwise.

**This disease is endemic or potentially endemic to all countries.**
Infectious mononucleosis or EBV infection

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - DNA. Herpesviridae. Gammaherpesvirinae, Lymphocryptovirus: Human herpesvirus 4 (Epstein Barr virus)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Saliva Blood transfusion</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>28d - 42d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Serology. Nucleic acid amplification.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Exudative pharyngitis, symmetrical cervical lymphadenopathy, splenomegaly and hepatic dysfunction; atypical lymphocytes and positive serology appear after 10 to 14 days; acute illness resolves in 2 to 3 weeks, but malaise and weakness may persist for months.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>EBV, EBV, Epstein-Barr, Febbre ghiandolare, Glandular fever, Infectious mononucleosis, Monocytic angina, Mononucleose, Mononucleosi, Mononucleosis - infectious, Mononukleose, Pfeiffer's disease. ICD9: 075 ICD10: B27.0</td>
</tr>
</tbody>
</table>

Clinical

Symptoms of Infectious Mononucleosis (IM) usually consist of fever, pharyngitis, and lymphadenopathy.  
• Patients usually do not recall a history of possible exposure.  
• A prodrome consisting of 1 to 2 weeks of fatigue, malaise, and myalgia is common; however, abrupt presentations may occur.  
• A low-grade fever is usually present and lasts for 1 to 2 weeks, occasionally up to 5 weeks.  
• CMV / EBV co-infection may be associated with prolonged illness.

Pharyngitis may be severe, particularly during the first week of illness.
• Tonsillitis may be present, and lymphadenopathy is almost universal, lasting for 1 to 2 weeks.
• Posterior cervical nodes are often affected, and generalized adenopathy may occur.
• Periorbital edema and palatal petechiae are often present.
• Splenomegaly is found in most cases, and hepatomegaly in 25%.
• Patients often complain of headache.
• A morbilliform or papular erythematous eruption of the upper extremities or trunk is noted in 5% of cases.
• Lemmiere’s syndrome has been reported as a complication of infectious mononucleosis.
• Guillain-Barre syndrome and membranous glomerulonephritis have been reported following primary EBV infection.

It is of note that a macular erythematous rash may occur in patients treated with ampicillin, usually appearing 5 to 9 days following the first dose.
• This phenomenon should not be misinterpreted as a penicillin allergy.
• Erythema nodosum and erythema multiforme have been associated with IM, as have petechiae and jaundice.
• The presence of severe abdominal pain may herald splenic rupture.

Other diseases ascribed to Epstein-Barr virus include nasopharyngeal carcinoma, Burkitt’s lymphoma (African type), post-transfusion lymphoproliferative disorder (PTLD) and hemolytic anemia.
• Epstein-Barr virus infection, like many other infectious diseases, is occasionally followed by Guillain-Barre syndrome.
• Gianotti-Crosti syndrome may be the only presenting manifestation of Epstein-Barr virus infection.

A false positive serological reaction toward Epstein-Barr virus has been associated with a variety of conditions, including rheumatoid arthritis, Hepatitis E, Hepatitis A and Parvovirus B19 infection.

This disease is endemic or potentially endemic to all countries.
References
5. Arch Pediatr 2010 Sep 15;
Influenza

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>VIRUS - RNA. Orthomyxoviridae, Orthomyxovirus: Influenza virus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human Occasionally Ferret Bird Pig</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Droplet</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>1d - 3d</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Viral culture (respiratory secretions). Serology. Nucleic acid amplification techniques are available.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Respiratory precautions. Influenza A or B: Oseltamivir 75 mg PO BID X 5d OR Zanamavir 10 mg BID X 5 days</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>Respiratory precautions. Influenza A or B: Oseltamivir 2 mg/kg (max 75 mg) PO BID X 5d OR Zanamavir (age &gt; 5 years) 10 mg BID X 5 days</td>
</tr>
<tr>
<td><strong>Vaccines</strong></td>
<td>Influenza - inactivated</td>
</tr>
<tr>
<td></td>
<td>Influenza - live</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Myalgia, headache, cough, fever; pharyngitis and conjunctivitis often present; usually encountered in the setting of an outbreak; leucocytosis, chest pain and lobar infiltrate herald bacterial (pneumococcal or staphylococcal) pneumonia.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Asian flu, Aviaire influenza, Avian flu, Avian influenza, Bird flu, Epidemic catarrh, Grippe, H1N1, H2N2, H3N2, H5N1, Hong Kong flu, LPAI, Spanish influenza, Swine flu, Swine influenza.</td>
</tr>
</tbody>
</table>

**Clinical**

Influenza is characterized by acute onset of fever, headache, myalgia, nonproductive cough, sore throat, and rhinitis. 1
- The illness usually resolves in 2 to 7 days; however, symptoms often persist for up to two weeks.
- Severe illness or death may complicate the acute infection, notably in pregnant women 2, the elderly and patients with underlying medical conditions. 3
- Complications include primary viral pneumonia or bacterial pneumonia (most commonly pneumococcal); myocarditis, myositis, Guillain-Barre syndrome 4, encephalitis 5, and transverse myelitis. 6-8

**WHO Case definition for surveillance • Influenza:**
Clinical case definition
A person with sudden onset of fever of >38°C and cough or sore throat in the absence of other diagnoses.
Laboratory criteria for diagnosis
- Virus isolation: Swab or aspirate from the suspected individual, or
- Direct detection of influenza viral antigen.
- Serology: Fourfold rise in antibody titer between early and late serum.
Case classification
- Suspected: A case that meets the clinical case definition.
- Confirmed: A case that meets the clinical case definition and is laboratory-confirmed (used mainly in epidemiological investigation rather than surveillance).

**WHO definition for surveillance • Swine influenza (H1H1):**
confirmed case • person with swine influenza A (H1N1) virus infection laboratory confirmed by
- real-time RT-PCR and/or
- viral culture and/or
- 4-fold rise in swine influenza A(H1N1) virus specific neutralizing antibodies probable case • either
- person with influenza test positive for influenza A, but unsubtypable by reagents used to detect seasonal influenza virus infection, or
- person with clinically compatible illness or who died of unexplained acute respiratory illness who is considered to be epidemiologically linked to probable or confirmed case

**CDC definition for surveillance • Swine influenza (H1H1):**
confirmed case • person with acute respiratory illness with swine influenza A (H1N1) virus infection laboratory confirmed at CDC by
• real-time reverse transcriptase polymerase chain reaction (RT-PCR) and/or
• viral culture
• probable case • person with acute febrile respiratory illness who is
• positive for influenza A, but negative for H1 and H3 by influenza RT-PCR
• positive for influenza A by influenza rapid test or influenza immunofluorescence assay (IFA) plus meets criteria for suspected case
• suspected case • person with acute respiratory illness (defined as recent onset of >= 2 of rhinorrhea or nasal congestion, sore throat, or cough) plus
• close contact to confirmed case of swine influenza A (H1N1) virus infection during case’s infectious period, or
• close contact defined as within about 6 feet of ill person
• infectious period defined as 1 day prior to illness onset to 7 days after onset
• travel to or residence in area with confirmed cases of swine influenza A (H1N1) virus infection

Avian influenza H5N1 infection:
Avian influenza H5N1 infection is characterized by fever greater than 38 C, shortness of breath and cough. 9 10
• The incubation period is 2 to 4 days.
• All patients reported to date have presented with significant lymphopenia and marked chest radiograph abnormalities consisting of diffuse, multifocal or patchy infiltrates.
• Some cases showed segmental or lobular consolidation with air bronchograms.
• Crackles were frequently heard on auscultation.
• Some of the patients reported sore throat, conjunctivitis, myalgia, rash or rhinorrhea.
• Watery diarrhea or loose stools was noted in approximately 50% of the cases.
• Myocardial dysfunction and hepatic dysfunction are also reported.
• Reactive hemophagocytic syndrome is the most characteristic pathological finding and may contribute to the lymphopenia, liver dysfunction, and abnormal clotting profiles observed among patients with severe infection.
• Approximately 90% of patients with H5N1 infection have been below age 40. 11
• Approximately 60% of patients have died, on an average of 10 days after onset of symptoms.

Influenza virus H1N1 infection
• During the "Spanish flu" H1N1 pandemic of 1918 to 1919, illness was characterized by unusual severity, tendency to affect young healthy adults, rapid progression and overwhelming pneumonia.
• During the outbreak of H1N1 2009 virus infection 12 , children 13 14 and young adults accounted for a large proportion of cases. 15 16 Severe cases were not necessarily associated with underlying disease. Obesity, 17-21 , immune-compromise 22 , pregnancy, 23-31 sickle cell disease, 32 and asthma were identified as risk factors for complications. 33-39 Children below age 5 years, particularly those with neuro-developmental disorders, were also found to be at risk. 40-42
• Most deaths were caused by primary viral pneumonia 43-53 , and bacterial co-infection was identified in as many as 29% of fatal cases. 54-56
• Vomiting and diarrhea were reported in up to 25% of patients 59 , and as many as 6% were afebrile. 60 Case-fatality rates were not necessarily higher than those reported for other strains of Influenza virus. 61 62
• Additional complications included rhabdomyolysis 63-67 , encephalitis or encephalopathy 68-83 , acute hemorrhagic leukoencephalitis 84-88 , cerebellitis 89 , acute myelopathy 90 , Guillain-Barre syndrome 91-95 , parkinsonism 96 , quadriplegia 97 , glomerulonephritis 98-99 hemolytic-uremic syndrome 100-101 , myopathy 102 , cold agglutinin syndrome 103 , renal failure 104-106 , myocarditis 107-119 or reversible myocardial dysfunction 120-122 , pericarditis 123 , subacute thyroiditis 124 , pancreatitis 125 , plastic bronchitis 126 and Acute Respiratory Distress Syndrome (ARDS). 127-138

This disease is endemic or potentially endemic to all countries.

Influenza in Israel

GIDEON does not follow routine country reports on human Influenza, since the scope and nature of these data are often diffuse, sporadic or inconsistent. See the "Worldwide" note for material regarding pandemic influenza, influenza vaccine, avian influenza in humans and other relevant subjects.

Avian influenza (H5N1) was confirmed in birds in 2006 139-142 , 2008 143 144 and 2010. 145-149
- H5N1 infection was confirmed in the Palestinian Authority (Gaza Strip) in 2006 150-152 and 2010. 153 154

Notable outbreaks:
2009 to 2010 - An outbreak (113 fatal cases, including 28 in Gaza and the West Bank) was reported. 155-163 Context : A pandemic of H1N1 Influenza virus infection occurred. 164-218 Over 600,000 cases had been officially-reported worldwide as of March, 2010. 219-221 18,449 fatal cases were reported to August 1, 2010. 222-244 Indigenous populations from Australia, Canada, the United States and New Zealand were found to have a at least a 3-fold greater death rate than others in their countries. 245-253 Reporting of case-number summaries was suspended by WHO as of July 6 254 ; and on August 10, the pandemic was declared to have ended. 255 256 The pandemic began in Mexico, spreading rapidly to the United
Swine were not implicated in the transmission of disease. Human-to-swine transmission was confirmed in Argentina, and Canada during the outbreak; and infected swine were identified in Argentina, Australia, Denmark, Finland, Germany, Iceland, India, Indonesia, Ireland, Italy, Japan, England, Mexico, Northern Ireland, Norway, Republic of Korea, Russian Federation, Scotland, Taiwan, Thailand, and the United States. Infected turkeys were subsequently identified in Canada, Chile, France, and the United States. Infection was reported in cats, ferrets, a dog, and a cheetah in the United States; skunks in Canada; and in dogs and swine in Hong Kong.

- Reporting dates vary by country. The following updates include incidence data as of June 18. Afghanistan (17 fatal), Albania (6 fatal), Algeria (57 fatal cases), American Samoa (94), Andorra (1), Angola (37), Anguilla (1), Antigua and Barbuda (0 fatal), Argentina (626 fatal), Armenia (3 fatal), Aruba (13), Australia (191 fatal), Austria (24 fatal), Azerbaijan (2), Bahamas (4 fatal), Bahrain (7 fatal), Bangladesh (7 fatal), Barbados (156 - 3 fatal), Belarus (20 fatal), Belgium (17 fatal), Belize (36), Bermuda (1 fatal), Bhutan (6), Bolivia (59 fatal), Bosnia and Herzegovina (10 fatal), Botswana (23), Brazil (2,125 fatal), British Virgin Islands (12), Brunei (850 - 1 fatal), Bulgaria (40 fatal), Burundi (7), Cambodia (6 fatal), Cameroon (4) 411 412, Canada (429 fatal), Cape Verde (118), Cayman Islands (104 - 1 fatal), Chad (1), Chile (156 fatal), China (724 fatal - including 56 in Hong Kong 446-459 and 2 in Macao) 460-502, Colombia (254 fatal), Comoros (2 fatal in Mayotte) 504, Congo (21) 505, Cook Islands (106 - 1 fatal), Costa Rica (65 fatal), Croatia (25 fatal), Cuba (83 fatal), Cyprus (6 fatal), Czech Republic (97 fatal), Democratic Republic of Congo (222), Democratic Republic of Korea (9) 507, Denmark (30 fatal), Dominican Republic (464 - 24 fatal), Ecuador (130 fatal) 510, Egypt (210 fatal) 511-514, El Salvador (34 fatal), Estonia (19 fatal), Ethiopia (12), Falkland Islands (7), Fiji (234), Finland (41 fatal), France (308 fatal), French Guiana (29 - 1 fatal), French Polynesia (7 fatal) 539 540, Gabon (4), Georgia (20 fatal), Germany (243 fatal) 541-553, Ghana (1 fatal), Gibraltar (16), Greece (138 fatal) 554-561, Grenada (20), Guadeloupe (5 fatal), Guam (2 fatal), Guatemala (26 fatal), Guyana (17), Haiti (92) 563 564, Guyana (17), Haiti (92) 563 564, Hungary (130 fatal), Iceland (2 fatal) 580 581, India (1,385 fatal) 582-597, Indonesia (691 - 10 fatal) 599-604, Iran (147 fatal), Iraq (42 fatal) 605, Ireland (23 fatal) 606-608, Israel (113 fatal, including 28 in Gaza and the West Bank) 609-617, Italy (200 fatal) 618-623, Ivory Coast (5), Jamaica (7 fatal), Japan (145 fatal) 624-627, Jordan (19 fatal) 638, Kazakhstan (17), Kenya (417) 539, Kiribati (4), Kuwait (30 fatal), Laos (156 - 1 fatal) 640 641, Latvia (34 fatal), Lebanon (5 fatal), Lesotho (65), Libya (1 fatal), Liechtenstein (5), Lithuania (23 fatal), Luxembourg (3 fatal), Macao (2 fatal) 643, Macedonia (23 fatal), Madagascar (3 fatal) 644, Malaysia (1,780 - 77 fatal) 645-651, Malawi (4), Maldives (1 fatal), Mali (12), Malta (5 fatal), Marshall Islands (115 - 1 fatal), Martinique (44 - 1 fatal) 652, Mauritania (15), Mauritius (8 fatal), Mexico (1,289 fatal) 653-659, Micronesia (82), Moldova (35 fatal) 683, Monaco (1), Mongolia (29 fatal) 684, Montenegro (7 fatal), Morocco (53 fatal) 685, Mozambique (2 fatal), Myanmar (137) 686, Namibia (1 fatal), Nauru (8), Nepal (2 fatal) 687, The Netherlands (58 fatal) 688-693, Netherlands Antilles (179 cases - 53 in Curacao, including 3 on a cruise ship; 24 in St. Maarten and 31 on Bonaire), New Caledonia (507 - 7 fatal), New Zealand (35 fatal) 694-712, Nicaragua (2,152 cases - 11 fatal) 713, Niger (12), Nigeria (2 fatal) 714, Niue (0), Northern Marianas (6), Norway (29 fatal) 715 716, Oman (31 fatal), Pakistan (14 fatal) 717-719, Palau (47), Panama (12 fatal) 720, Papua New Guinea (12), Paraguay (47 fatal), Peru (238 fatal) 721-724, Philippines (3,207 - 30 fatal), Pitcairn Island (0), Poland (148 fatal), Portugal (83 fatal) 725 726, Puerto Rico (20), Qatar (8 fatal), Republic of Korea (170 fatal) 727-733, Reunion (7 fatal) 734-743, Romania (122 fatal) 744, Russian Federation (19 fatal) 745 746, Rwanda (433) 747, Saint Kitts and Nevis (2 fatal), Saint Lucia (1 fatal), Saint Vincent and the Grenadines (2), Samoa (132 - 8 fatal), Sao Tome and Principe (2 fatal), Saudi Arabia (124 fatal) 748-759, Scotland (38 fatal) 760-764, Senegal (184), Serbia (71 fatal), Seychelles (33), Singapore (19 fatal) 765-780, Slovakia (53 fatal), Slovenia (19 fatal), Solomon Islands (4), South Africa (93 fatal) 781 782, Spain (271 fatal) 783-803, Sri Lanka (48 fatal), Sudan (5 fatal), Suriname (108 - 2 fatal), Swaziland (2), Sweden (25 fatal) 804 805, Switzerland (16 fatal) 806, Syria (127 fatal), Taiwan (36 fatal) 807-815, Tanzania (1 fatal), Thailand (212 fatal) 816-826, Tonga (1 fatal), Trinidad and Tobago (5 fatal), Tunisia (21 fatal), Turkey (415 fatal) 827-830, Turks and Caicos Islands (36), Tuvalu (23), Uganda (263), Ukraine (282 fatal) 831-840, United Arab Emirates (6 fatal) 841 842, United Kingdom (362 fatal: at least 142 in England, 38 in Scotland - including the first fatal case in Europe 843-845, 21 in Wales and 13 in Northern Ireland) 846-870, United States (2,718 fatal) 871-911, Uruguay (20 fatal), Vanuatu (3), Venezuela (137 fatal) 912 913, Vietnam (53 fatal) 914-915, Virgin Islands, U.S. (49), Wallis and Futuna (55), Yemen (28 fatal) 920-976, Zambia (90) and Zimbabwe (41).
Intestinal spirochetosis

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Brachyspira pilosicoli and B. aalborgi Anaerobic gram-negative spirochetes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human, Fowl, Pigs</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Endogenous</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Spirochetes resemble &quot;brush border&quot; on bowel biopsy; identification of Brachyspira by PCR</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Metronidazole appears to be effective in some cases.</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult.</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Chronic diarrhea and abdominal pain in the absence of other identifiable etiology</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Human intestinal spirochetosis. ICD9: 009.1, ICD10: A04.8</td>
</tr>
</tbody>
</table>

Clinical

This diagnosis should be suspected in patients with persistent or chronic diarrhea lasting more than several weeks, in whom alternative etiologies are not identified.

- Abdominal pain, hematochezia, flatulence and intermittent constipation are also reported in some cases. 1-3
- Brachyspira has been identified in the blood in some cases. 4
- Asymptomatic infection is common. 5
- Although some patients improve following administration of Metronidazole, other cases resolve without specific therapy. 6

Roentgenographic studies may reveal colonic mucosal edema and luminal narrowing. 7

Standard H & E staining of colonic biopsies reveals a 'pseudo-brush border' consisting of tiny spirochetes 8-10; or free-floating spirochetes in the intestinal mucus. 11

- Similar findings are often present in asymptomatic individuals. 12
- The organism can be identified using specialized culture 13 or molecular methods. 14-16

This disease is endemic or potentially endemic to all countries.

References

5. J Med Microbiol 2010 Apr 8;
11. Hum Pathol 2009 Oct 14;
Intra-abdominal abscess

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Mixed anaerobic / aerobic, staphylococci, Neisseria gonorrhoeae, Chlamydia trachomatis, etc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>None</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Variable</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Various imaging techniques (CT, Gallium scan, ultrasound, etc).</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Percutaneous or open drainage + antibiotics directed at known or suspected pathogen(s)</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Fever, chills and localizing pain (e.g., chest pain in subphrenic abscess) - setting of prior surgery, biliary or colonic disease, appendicitis, vaginal discharge (PID); FUO, subdiaphragmatic gas or limited diaphragmatic motion may be present.</td>
</tr>
</tbody>
</table>

**Clinical**

Intraabdominal abscesses often occur in the setting of prior abdominal trauma, surgery or infection.

Signs and symptoms may include fever, pain, tenderness and leucocytosis.
- In many cases, the sole presenting feature is prolonged fever, which may be accompanied by weight loss, lethargy and anemia.
- One or more localized masses may be detectable on palpation or through the use of imaging techniques.

Comprehensive reviews of clinical presentation:
- Pelvic Inflammatory Disease
- Splenic Abscess
- Pancreatic Abscess
- Pylephlebitis

This disease is endemic or potentially endemic to all countries.

**References**

Intracranial venous thrombosis

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Oral anaerobes, streptococci, et al</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Endogenous</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Variable</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Culture (blood, CSF if indicated). Ophthalmoscopy. Roentgenographic studies of skull &amp; sinuses.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Antibiotic(s) directed at known or suspected pathogens</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Headache, seizures and fever; cranial nerve dysfunction may be present; usually occurs in the setting of facial, otic or sinus infection.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Cavernous sinus thrombosis, Cerebral sinus thrombosis, Cortical vein thrombosis, Internal cerebral vein thrombosis, Straight sinus thrombosis, Superior sinus thrombosis, Transverse sinus thrombosis. ICD9: 325 ICD10: G08</td>
</tr>
</tbody>
</table>

Clinical

Cortical vein thrombosis may occasionally be clinically silent, or produce only transient neurological findings.  
- Septic cortical vein or venous sinus occlusion may progress to subdural empyema, meningitis, brain abscess, systemic infection or pulmonary embolism.
- Severe headache is present in 90% of cases, and cerebral lesions with neurological signs in 50%. If collateral flow is compromised, the resulting neurological may mimic brain abscess, with impairment of consciousness, focal or generalized seizures, and increased intracranial pressure.
- Depending on the site of the lesion, one may encounter hemiparesis, which involves the face and hand if veins; unilateral or bilateral leg weakness; aphasia; etc.

Cavernous sinus thrombosis is characterized by diplopia, photophobia, orbital edema, and progressive exophthalmos.
- Involvement of cranial nerves III, IV, V, and VI is reflected by ophthalmoplegia, fixed pupil, a loss of the corneal reflex and diminished upper facial. Papilledema, retinal hemorrhages, and visual loss may also occur.

Anterior superior sagittal sinus thrombosis may produce intracranial hypertension without other signs.
- More extensive blockage of this sinus is associated with bilateral leg weakness followed by arm weakness and clouding of consciousness.

Lateral sinus thrombosis causes pain over the ear and mastoid, occasionally with edema over the mastoid itself (Griesinger’s sign); or ipsilateral facial pain and lateral rectus weakness (Gradenigo’s syndrome).

This disease is endemic or potentially endemic to all countries.

References

Isosporiasis

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Protozoa. Sporozoa, Coccidea, Eimeriida: Isospora [Cystoisospora] belli</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Food, Liquids, Fecal-oral, Sexual (homosexual) contact</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>7d - 10d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Microscopy of stool or duodenal contents. Advise laboratory when this organism is suspected.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td><strong>Sulfamethoxazole/trimethoprim</strong> 800/160 mg BID X 10 days - Then BID X 3 weeks (may be indefinite in AIDS patient) Increase dosage / duration in immune-suppressed patients <strong>Pyrimethamine</strong> 50 to 75 mg per day + leucovorin if allergic to sulfa</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td><strong>Sulfamethoxazole/trimethoprim</strong> 25/5 mg/kg BID X 10 days - Then BID X 3 weeks</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Myalgia, watery diarrhea, nausea and leukocytosis; eosinophilia may be present; prolonged and severe in AIDS patients.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Isospora belli. ICD9: 007.2 ICD10: A07.3</td>
</tr>
</tbody>
</table>

### Clinical

Isosporiasis is characterized by abdominal cramps, watery diarrhea, headache, weight loss and myalgias.  
- Fever and vomiting may also be present.  
- A low-grade eosinophilia is present in 50% of patients  
- Fecal leucocytes are not seen.  

Infection in AIDS patients may cause significant weight loss and dehydration, requiring hospitalization.  
- Disease is also more severe among patients with lymphoma and leukemia.  
- Chronic and severe infection may occasionally affect immunocompetent patients as well, and infants and young children are most likely to suffer severe disease.  
- Paralysis related to severe potassium depletion has been reported in an AIDS patient with isosporiasis.  
- Biliary disease similar to primary sclerosing cholangitis has been reported.  
- Disseminated extraintestinal infection has rarely been reported.  

### This disease is endemic or potentially endemic to all countries.

### References

5. Hum Pathol 2009 May 15;
# Israeli spotted fever

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM. <em>Rickettsia conorii</em> subsp. <em>Israelensis</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Dog, Rodent, Tick</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>Tick (Rhipicephalus sanguineus)</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>7d - 8d (range 3d - 18d)</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Serology. Demonstration of rickettsiae by immunofluorescence or culture. Nucleic acid amplification.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td><strong>Doxycycline</strong> 100 mg PO BID X 3 to 5d. OR <strong>Chloramphenicol</strong> 500 mg PO QID X 3 to 5d</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td><strong>Doxycycline</strong> 2 mg/kg PO BID X 3 to 5d (maximum 200 mg/day). OR <strong>Chloramphenicol</strong> 10 mg/kg PO QID X 3 to 5d</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Disease similar to Mediterranean spotted fever; however, an eschar is not seen. The rash is often centripetal, and hepatosplenomegaly is present in 30%.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td><em>Rickettsia</em> &quot;sharoni&quot;, <em>Rickettsia conorii</em> subsp. <em>israelensis</em>. ICD9: 082.1, ICD10: A77.8</td>
</tr>
</tbody>
</table>

### Clinical

The disease is similar to Mediterranean spotted fever (q.v.) in most ways; however, an eschar ('tache noire') is unusual in the Israeli variety • and hepatosplenomegaly is seen in 30% to 35% of cases. **1**

• There is evidence that Israeli spotted fever is more virulent than Mediterranean spotted fever. **2** **3**

### This disease is endemic or potentially endemic to 4 countries.

### Israeli spotted fever in Israel

See note for "Spotted fevers - Old World"

### References

Japanese encephalitis

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - RNA. Flaviviridae, Flavivirus: Japanese encephalitis virus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Pig Bird</td>
</tr>
<tr>
<td>Vector</td>
<td>Mosquito (Aedes spp., Anopheles barbirostris and hyrcanus groups, Culex tritaeniorhynchus group and Cu. annulus)</td>
</tr>
<tr>
<td>Vehicle</td>
<td>None</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>6d - 8d (range 4d - 15d)</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Vaccine</td>
<td>Japanese encephalitis</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Myalgia, headache, vomiting, diarrhea, seizures, paralysis and leukocytosis; polymorphonuclear leukocytes may predominate in cerebrospinal fluid; case-fatality rates of 10% to 40% are reported; neurological residua in 80%</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Alfuy, Encefalite giapponse, Langat, Nam Dinh, Russian autumnal encephalitis, Summer encephalitis</td>
</tr>
</tbody>
</table>

**Clinical**

**WHO Case definition for surveillance:**

Clinical description
- Japanese encephalitis virus infection may result in a febrile illness of variable severity associated with neurological symptoms ranging from headache to meningitis or encephalitis.
- Symptoms can include: headache, fever, meningeal signs, stupor, disorientation, coma, tremors, paresis (generalized), hypertonia, loss of coordination.
- The encephalitis cannot be distinguished clinically from other central nervous system infections.

Laboratory criteria for diagnosis

Presumptive:
- Detection of an acute phase anti-viral antibody response through one of the following:
  - Elevated and stable serum antibody titers to JE virus through ELISA, hemagglutination-inhibition or virus neutralization assays or
  - IgM antibody to the virus in the serum

Confirmatory:
- Detection of the JE virus, antigen or genome in tissue, blood or other body fluid by immunochemistry or immunofluorescence or PCR, or
- JE virus-specific IgM in the CSF, or
- Fourfold or greater rise in JE virus-specific antibody in paired sera (acute and convalescent phases) through IgM / IgG, ELISA, hemagglutination inhibition test or virus neutralization test, in a patient with no history of recent yellow fever vaccination and where cross-reactions to other flaviviruses have been excluded

Note:
- JE infections are common and the majority are asymptomatic.
- JE infections may occur concurrently with other infections causing central nervous system symptoms, and serological evidence of recent JE viral infection may not be correct in indicating JE to be the cause of the illness.

Case classification
- Suspected: A case that is compatible with the clinical description.
- Probable: A suspected case with presumptive laboratory results.
- Confirmed: A suspected case with confirmatory laboratory results.

Fewer than one percent of cases are symptomatic.

**Acute illness:**
Initial findings include lethargy, fever, headache, abdominal pain, nausea and vomiting.
- Agitated delirium and abnormal movements may develop, progressing to somnolence and coma
- In some cases, a sudden seizure is the presenting sign of disease.
Japanese encephalitis in Israel

1989 - An Israeli tourist acquired nonfatal infection in Thailand.  

References

Clinical

Diagnostic criteria are as follows: 1 2
Fever for at least five days in addition to at least 4 of the following:
1. Changes in the oral mucosa (erythema, strawberry tongue, etc)
2. Changes in hands and feet (erythema, swelling, periungual desquamation, rarely gangrene 3)
3. Rash, primarily on trunk (maculopapular, scarlatiniform, erythema multiforme).
4. Cervical lymphadenopathy
5. Absence of other etiology.

Occasionally, the initial presentation of Kawasaki disease may be limited to fever with cervical lymphadenopathy. 4

There is no diagnostic test for Kawasaki disease.

The appearance of redness or crusting at a BCG inoculation site is a valuable predictive sign for Kawasaki disease. 5

Kawasaki disease is encountered among adults 6 7 as well as children.
• The incidence of specific diagnostic criteria are roughly similar in both groups
• Cheilitis, meningitis, and thrombocytosis are more common in children. Rare instances of thrombocytopenia are also reported 8
• Arthralgia is common, and may involve one or multiple joints 9
• Arthralgia, adenopathy, and liver function abnormality 10 11 are more common in adults. 12
• Older children may have a more marked inflammatory response and worse outcome, as compared to young children. 13
• Absence of fever 14, acute hepatitis 15, pleural effusion, disseminated intravascular coagulopathy 16, pancreatitis 17 18 and cholestasis have been reported in some cases. 19

Infants below age 1 year have a relatively high incidence of cardiac involvement. 20
• Cardiac involvement is present in 13.6% of cases (Japan, 2003 to 2004) 21
• Coronary arteritis is common, and coronary artery aneurysms may rupture 22 23 or persist into adulthood. 24-27
• Meningoencephalitis, often with seizures, has been reported as a presenting feature of Kawasaki disease. 28 29
• Additional complications include oculomotor 30 or facial palsy 31, parotitis 32, large pleural effusions 33, retropharyngeal mass 34, sensorineural hearing loss 35 and peripheral vascular gangrene 36 and necrotic lesions on the face. 37
• 7% of affected children develop Kawasaki disease shock syndrome, with decreased systolic blood pressure or evidence of hypoperfusion. The shock syndrome is characterized by an increased rate of echocardiographic abnormalities and is less likely

**Kawasaki disease**

<table>
<thead>
<tr>
<th>Agent</th>
<th>UNKNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Unknown</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Unknown</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Diagnosis is based on clinical criteria only.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Intravenous gamma globulin 2.0 g/kg over 10 to 12h X 1 dose. Plus aspirin 100 mg/kg/day X 14d (or until defervescence) - then 5 to 10 mg/kg/day until normal ESR Infliximab 5 mg/kg has been successful in some studies.</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Fever, conjunctivitis, stomatitis, erythematous rash which desquamates; occasional coronary artery occlusion; the disease is most common among children; case-fatality rates of 1% to 4% are reported.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Kawasaki's disease, Mucocutaneous lymph node syndrome. ICD9: 446.1 ICD10: M30.3</td>
</tr>
</tbody>
</table>

© 2011 GIDEON Informatics, Inc. www.gideononline.com All Rights Reserved.
to respond to IVIG therapy\(^{38}\)
- Neutrophilia, anemia, thrombocytosis, hepatic dysfunction\(^{39}\) and sterile pyuria\(^{40}\) are common. Syndrome of inappropriate ADH secretion has been reported.\(^{41}\)

Diseases which may mimic Kawasaki disease include Chikungunya\(^{42}\), meningococcal septicemia\(^{43}\), Takayasu's arteritis\(^{44}\), systemic onset juvenile idiopathic arthritis\(^{45}\) and Q fever.\(^{46}\)

This disease is endemic or potentially endemic to all countries.

References

4. J Paediatr 2010 Jan 22;
5. Pediatr Infect Dis J 2009 Dec 22;
8. Rheumatol Int 2009 May 15;
18. Pediatr Infect Dis J 2010 Apr 9;
30. Rheumatol Int 2009 Oct 13;
35. J Clin Rheumatol 2010 Sep 17;
37. Arch Pediatr 2010 Sep 26;
41. Pediatr Int 2010 Oct 4;
42. Pediatr Infect Dis J 2009 Nov 20;
44. Rheumatol Int 2010 May 15;
45. Rheumatol Int 2010 Dec 5;
Kikuchi's disease and Kimura disease

<table>
<thead>
<tr>
<th>Agent</th>
<th>UNKNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Unknown</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Unknown</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Biopsy.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive Hydroxychloroquine and corticosteroids have been successful for Kikuchi's disease in some cases.</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Most patients of Asian origin. Kikuchi disease: prolonged (1 to 12 months) cervical lymphadenopathy (rubbery, non-matted - may be tender), fever (40%), weight loss, 'sweats', leukopenia. Salivary gland involvement, glomerulitis, painless subcutaneous masses and eosinophilia suggest Kimura disease.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Angiolymphoid hyperplasia, Angiolymphoid hyperplasia-eosinophilia, Eosinophilic follicular lymphadenitis, Histiocytic necrotizing lymphadenitis, Kikuchi and Fujimato's disease, Kikuchi's disease, Kimura disease. ICD9: 289.3 ICD10: I89.8</td>
</tr>
</tbody>
</table>

Clinical

Kikuchi's disease:
Kikuchi's disease (histiocytic necrotizing lymphadenitis) is characterized by histiocytic necrotizing lymphadenitis, usually of the cervical region.  
• Generalized lymphadenopathy is occasionally encountered  
• The disease is primarily seen in young Japanese women or women of Oriental descent in the third decade of life.  
• Pediatric , male and elderly patients are occasionally encountered.  
• Leukopenia is present in 50% of cases, and atypical lymphocytes may be seen in the peripheral blood smear.  
• Additional features may include aseptic meningitis , maculopapular or urticarial rash , arthralgia, myalgia, hepatosplenomegaly, hepatic dysfunction, neuropathy, pulmonary infiltrates with pleural effusion and pulmonary hemorrhage.  
• Biopsy material reveals paracortical hyperplasia without granulocytic infiltration and a typical 'starry sky' pattern.  
• Clinical features may mimic those of lupus erythematosus or lymphoma.  
• The prognosis is good, and patients recover after a mean of 3 months.  
• Relapse occurs in 20% of cases.  
• Hydroxychloroquine and corticosteroids have been advocated by some authorities.  

Kimura disease:
Kimura disease (angiolymphoid hyperplasia with eosinophiles (eosinophilic follicular lymphadenitis) is also most common among Oriental males.  
• Most present as painless subcutaneous masses and lymphadenopathy of the cervical region.  
• Cases of isolated Kimura disease of the earlobe and eyelid have been reported.  
• In contrast to Kikuchi's disease, salivary gland involvement, glomerulitis, nephrotic syndrome, elevated IgE and eosinophilia are often encountered.  
• Hypercoagulability has been reported in some cases.  

Angiolymphoid hyperplasia with eosinophilia is clinically similar to Kimura disease, but is histologically distinct from the latter.  

This disease is endemic or potentially endemic to all countries.
Kikuchi's disease and Kimura disease in Israel

19 cases of Kikuchi's disease were reported (from 7 medical centers) in Israel as of 2009. 28-31

References

11. Hum Pathol 2010 Apr 28;
15. Int J Infect Dis 2009 Feb 7;
### Clinical

*Kingella kingae*, *K.* (*Suttonella*) *indologenes*, *K.* *denitrificans* and *K.* *oralis* are found in the normal respiratory tract, and occasionally associated with bacteremia, bone and joint infection (notably in young children)\(^1\)\(^2\) and endocarditis (the 'K' in the HACEK group).\(^3\)

- *Kingella potus* has been isolated from a kinkajou wound in a zookeeper.\(^4\)

**This disease is endemic or potentially endemic to all countries.**

### Kingella infection in Israel

The incidence of *Kingella kingae* infection among children below age 24 months is 27.4 per 100,000 (southern Israel).\(^5\)

Rates appear to be highest among children in the southern portion of the country.\(^6\)\(^7\)

Asymptomatic pharyngeal carriage is common among children (southern Israel, 2009 publication).\(^8\)

**Notable outbreaks:**

- 2006 (publication year) - An outbreak (3 cases) of *Kingella kingae* skeletal infections was associated with a child day-care facility in the Negev region.\(^9\)

### References

## Laryngotracheobronchitis

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>VIRUS OR BACTERIUM. Parainfluenza virus, Influenza virus, Mycoplasma, et al</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Droplet</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>3d - 8d</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Viral culture (respiratory secretions). Serology. Nucleic acid amplification.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Supportive</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>As for adult</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Usually encountered in the setting of bronchiolitis, laryngitis or croup following a minor upper respiratory infection in young children.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Bronchitis, Croup, Laringitis, Laryngite, Laryngitis, Laryngotracheitis. ICD9: 464,466 ICD10: J04,J05,J20,J21</td>
</tr>
</tbody>
</table>

### Clinical

Laryngotracheobronchitis is a self-defined syndrome consisting of hacking cough, often with an 'itching' or 'foreign body' sensation in the airways, and hoarseness. 1

- Viral croup and epiglottitis are two major inflammatory causes of airway obstruction in children.
- Spasmodic croup and membranous laryngotracheobronchitis may be associated with obstruction. 2

Bacterial tracheitis is an uncommon (>200 cases reported worldwide) severe condition usually affecting children that manifests as cough, stridor, mucopurulent tracheal secretions and lack of response to therapeutic modalities used for treating viral croup. 3

- Fever may be low-grade or even absent.
- 75% of patients require intubation and mechanical ventilation.
- The case-fatality rate is approximately 2%.
- Causative pathogens include *Staphylococcus aureus* (50% of cases) and *S. pneumoniae, H. influenzae, M. catarrhalis* and *S. pyogenes*. Gram-negative bacilli are also reported in some cases.
- Occasionally, co-infection with viral croup agents is found.

*This disease is endemic or potentially endemic to all countries.*

### References

Lassa fever

Agent | VIRUS - RNA. Arenaviridae, Arenavirus: Lassa virus
Reservoir | Multimammate rat (Mastomys natalensis)
Vector | None
Vehicle | Rodent secretions Dust Food Patient secretions
Incubation Period | 8d - 14d (range 3d - 21d)
Typical Adult Therapy | Strict isolation. Ribavirin 2g IV Then 1g q6h IV X 4d Then 0.5g IV q8h X 6d
Typical Pediatric Therapy | Strict isolation. Ribavirin 30 mg/kg IV Then 15 mg/kg IV q6h X 4d Then 7.5 mg/kg IV q8h X 6d
Clinical Hints | Gastrointestinal symptoms, cough, pharyngitis, conjunctivitis and retrosternal pain; leukopenia, proteinuria and hepatic dysfunction may be present; case-fatality rates of 15% to 25% are reported.
Synonyms | Lassa-Fieber, Lujo. ICD9: 078.89 ICD10: A96.2

Clinical

WHO Case definition for surveillance:
Clinical description
An illness of gradual onset with one or more of the following:
• malaise, fever, headache, sore throat, cough, nausea, vomiting, diarrhea, myalgia, chest pain, hearing loss, and
• A history of contact with excreta of rodents or with a probable or confirmed case of Lassa fever.
Laboratory criteria for diagnosis
• Isolation of virus (only in laboratory of biosafety level 4) from blood, urine or throat washings or
• Positive IgM serology or seroconversion (IgG antibody) in paired serum specimens or
• Demonstration of Lassa virus antigen in autopsy tissues by immunohistochemistry or in serum by ELISA
• Positive PCR from serum or autopsy tissues
Case classification
• Suspected: A case compatible with the clinical description.
• Probable: A suspected case that is epidemiologically linked to a confirmed case.
• Confirmed: A suspected case that is laboratory-confirmed.
• Contact: A person having close personal contact with the patient (living with, caring for) or a person testing the laboratory specimens of a patient in the 3 weeks after the onset of the illness.

Acute illness:
The onset of symptoms is gradual, with fever, malaise, headache, sore throat, cough, nausea, vomiting, diarrhea, myalgia and chest and abdominal pain.
• The fever may be either constant or intermittent with spikes.
• Inflammation of the throat and eyes is commonly observed.
• In severe cases, hypotension or shock, pleural effusion, hemorrhage, seizures, encephalopathy and swelling of the face and neck are commonly encountered
• Case-fatality rates of 15% to 28% are reported.
• The disease is more severe in pregnancy, and fetal loss occurs in greater than 80% of cases.

Additional signs and symptoms:
Hair loss and loss of coordination may occur in convalescence.
• Sensorineural deafness occurs in 29%, making this the most common cause of deafness in West Africa.
The clinical syndrome of Lassa fever is difficult to distinguish from severe malaria, septicemia, yellow fever and other viral hemorrhagic fevers (e.g., Ebola).
• Inflammation of the throat with white tonsillar patches is an important distinguishing feature.
Definitive diagnosis requires testing that is available only in highly-specialized laboratories.
• Laboratory specimens may be hazardous and must be handled with extreme care at the highest level of biosafety containment.
This disease is endemic or potentially endemic to 13 countries. Although Lassa fever is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

Lassa fever in Israel

A nonfatal imported case was reported in 1987 - an engineer who had been in Liberia and Sierra Leone. 7

No cases have been reported since 1987.

References

6. Eur Arch Otorhinolaryngol 2010 Sep 1;
Legionellosis

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Legionella pneumophila, et al An aerobic gram-negative bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Water</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Water  Aerosols</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>5-6d (range 2-12d); Pontiac fever = 1-2d</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Fluoroquinolone (Levofloxacin, Trovafoxacin, Pefloxacin, Sparfloxacin or Moxifloxacin). OR Azithromycin. OR Erythromycin + Rifampin</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Azithromycin. OR Erythromycin + Rifampin</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Respiratory illness with extrapulmonary manifestations (diarrhea, confusion, renal or hepatic dysfunction, relative bradycardia, etc.); most cases reported during summer in temperate areas; case-fatality rates of 5% to 25% are reported.</td>
</tr>
<tr>
<td>WHO Case definition for surveillance:</td>
<td></td>
</tr>
<tr>
<td>Clinical description</td>
<td>An illness characterized by an acute lower respiratory infection with focal signs of pneumonia on clinical examination and/or radiological evidence of pneumonia.</td>
</tr>
<tr>
<td>Laboratory criteria for diagnosis</td>
<td>Presumptive: one or more of the following:</td>
</tr>
<tr>
<td></td>
<td>Detection of specific Legionella antigen in respiratory secretions or urine</td>
</tr>
<tr>
<td></td>
<td>Direct fluorescent antibody (DFA) staining of the organism in respiratory secretions or lung tissue, using evaluated monoclonal reagents</td>
</tr>
<tr>
<td></td>
<td>A fourfold or greater rise in specific serum antibody titer to Legionella species other than Legionella pneumophila serogroup 1, using a locally validated serological test</td>
</tr>
<tr>
<td>Confirmative: one or more of the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Isolation of Legionella from respiratory secretions, lung tissue, pleural fluid, or blood</td>
</tr>
<tr>
<td></td>
<td>A fourfold or greater rise in specific serum antibody titer to L. pneumophila serogroup 1 by indirect immunofluorescence antibody test or microagglutination</td>
</tr>
<tr>
<td></td>
<td>Most European countries and others such as the United States now include the detection of L. pneumophila serogroup 1 antigen in urine as a confirmatory test</td>
</tr>
<tr>
<td>Case classification</td>
<td>Suspected: Not applicable.</td>
</tr>
<tr>
<td></td>
<td>Probable: A case compatible with the clinical description, with presumptive laboratory results.</td>
</tr>
<tr>
<td></td>
<td>Confirmed: A case compatible with the clinical description, with confirmative laboratory results.</td>
</tr>
<tr>
<td>Pneumonia associated with extrapulmonary findings should suggest the possibility of Legionnaire’s disease.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Q-fever may be mistaken for Legionnaires’ disease.</td>
</tr>
<tr>
<td></td>
<td>The most common clinical manifestation is pneumonia, ranging from mild to severe, with respiratory failure and death.</td>
</tr>
<tr>
<td></td>
<td>Risk factors for overt disease include advanced age, smoking, chronic obstructive pulmonary disease, immunosuppression, and recent surgery.</td>
</tr>
<tr>
<td></td>
<td>Person-to-person transmission has not been demonstrated.</td>
</tr>
</tbody>
</table>

Legionnaire’s disease vs. Pontiac fever: |
There are 2 currently recognized distinct clinicoepidemiological manifestations of legionellosis: |
|  | Both forms are characterized initially by anorexia, vomiting, myalgia and headache, followed within a day by rising fevers and chills. |
|  | Legionnaires. disease. (pneumonic form) and |
|  | Pontiac fever (non-pneumonic Legionnaires disease) |
Legionnaires disease

- In the pneumonic form, non-productive cough, abdominal pain / diarrhea, confusion / delirium are common.
- It is not possible, clinically, to distinguish *Legionella* pneumonia from other pneumonias; suspicion should be raised in any pneumonia connected with epidemiological information (e.g., recent traveling, hospitalization, gatherings, immunosuppression).
- In addition, age (>50), sex (M), smoking, alcohol consumption have been shown to be risk factors.

Pontiac fever:

Pontiac fever is a self-limited, influenza-like illness lasting 2 to 5 days, often in healthy persons following exposure to contaminated whirlpools or spas.
- Pontiac fever is not associated with pneumonia. It is thought to represent a reaction to inhaled antigen, rather than to bacteria.
- Proposed case definition for Pontiac fever include occurrence of at least one symptom among headache, myalgia, fever and rigors, beginning 2 to 8 days following exposure.

Complications:

Complications include empyema, pleural effusion, lung abscess, renal failure (in 10% to 50% of cases), endocarditis, peritonitis, cutaneous and visceral abscesses, arteriovenous fistula infection, pericarditis and myocarditis.
- Case-fatality rates may approach 40%, particularly among patients with underlying disease or immunosuppression.
- Additional risk factors for fatal infection include heart disease, malignancy, alcoholism and renal disease.

This disease is endemic or potentially endemic to all countries.

Legionellosis in Israel

The predominant strain in Israel is *Legionella pneumophila* serotype 3.

![Graph: Israel. Legionellosis, cases - GIDEON](https://www.gideononline.com/graphs/Israel-Legionellosis-cases.jpg)

© 2011 - GIDEON Informatics Inc - www.gideononline.com

Notes:
1. Legionellosis was first reported in Israel in 1979 (in a tourist from France).
2. The first case report of nosocomially-acquired Legionellosis was published in 1982.
3. No deaths were ascribed to legionellosis during 1991 to 1995.

Prevalence surveys:
- 11.2% of febrile adult respiratory tract infection treated in emergency rooms (Beer Sheva, winter or 1999)
- 12% of winter respiratory tract infections in an outpatient setting (1998 publication)
5% to 9% of pneumonia (1993 to 1997)  
3.3% of community-acquired pneumonia in patients above age 60 requiring hospitalization (northern Israel, 1999 to 2000)  

**Seroprevalence surveys:**  
6.35 of hemodialysis patients (1982 publication)  
8.3% of hospitalized patients  
30.5% of patients and 35.7% of staff members in one hospital; 12.1% of patients and 17.2% of staff members in a second hospital; 9.1% of day club attendants; 0% of old people living in their own households (1986 publication)  
16.7% of patients with exacerbation of chronic obstructive pulmonary disease (2002 publication)  

**Notable outbreaks:**  
2002 (publication year) - An outbreak (4 cases) of *Legionella pneumophila* serogroup 3 pneumonia was reported in a bone marrow transplant unit in Haifa.  

**References**  
Leishmaniasis - cutaneous

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human, Hyrax, Rodent, Marsupial, Dog, Sloth, Anteater, Armadillo</td>
</tr>
<tr>
<td>Vector</td>
<td>Fly (sandfly = Phlebotomus for old world; Lutzomyia or Psychodopygus for new world)</td>
</tr>
<tr>
<td>Vehicle</td>
<td>None</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>2w - 8w (range 1w - months)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Identification of organism on smear or specialized culture. Nucleic acid amplification</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Pentavalent antimonials 20 mg/kg/d IV or IM X 21d &amp; / or topical paromomycin. Alternatives: L. major - Fluconazole or Azithromycin, PO L. mexicana or L. panamensis - Ketoconazole, PO L. braziliensis - Azithromycin, PO</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Chronic ulcerating skin nodule; painless (Leishmania tropica) or painful (L. major); diffuse infection or regional lymphadenopathy occasionally encountered.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Aleppo button, Antep boil, Baghdad boil, Bay sore, Bejucu, Biskra button, Bolho, Bush yaws, Chiclero ulcer, Cutaneous leishmaniasis, Delhi ulcer, Domal, El-Mohtafura, Forest yaws, Gafsa boil, Granuloma endemicum, Hashara, Jericho boil, Kaal Daana, Kannahar sore, Leishmania major, Leishmania tropica, Leishmaniasis, Leishmaniose: Kutane, Leishmaniosi cutanea, Lepra de montana, Liana, Okhet, One-year boil, Oriental sore, Pendjeh sore, Pian bois, Saldana, Ulcer de Bejucu, Uta, Yatevi. ICD9: 085.1,085.2,085.3,085.4 ICD10: B55.1</td>
</tr>
</tbody>
</table>

**WHO Case definition for surveillance:**

**Clinical description**
- Appearance of one or more lesions, typically on uncovered parts of the body.
- The face, neck, arms and legs are the most common sites.
- At the site of inoculation a nodule appears, and may enlarge to become an indolent ulcer.
- The sore remains in this stage for a variable time before healing, and typically leaves a depressed scar.
- Other atypical forms may occur.
- In some individuals, certain strains can disseminate and cause mucosal lesions. These sequelae involve nasopharyngeal tissues and can be very disfiguring.

**Laboratory criteria for diagnosis**
- positive parasitology (stained smear or culture from the lesion)
- mucocutaneous leishmaniasis only: positive serology (IFA, ELISA)

**Case classification**

WHO operational definition:
- A case of cutaneous leishmaniasis is a person showing clinical signs (skin or mucosal lesions) with parasitological confirmation of the diagnosis (positive smear or culture) and/or, for mucocutaneous leishmaniasis only, serological diagnosis.

Typically, a nodule develops at the site of a sandfly bite following a few days to several months. 1 2
- The lesion may be erythematous, or covered by a thin yellow crust.
- The nodule reaches a diameter of 1 to 5 cm over a period of weeks or months, and is not painful. 3
- The crust may thicken, and even replace the nodule; or may fall away to reveal an ulcer with a raised edge.
- Satellite papules are common.
- The lesion may heal over a period of months or even years, leaving a depressed scar.
- Secondary infection is not prominent, and the major residua are scarring and disability.
- Rare instances of late scar carcinoma have been reported. 4

Lesions caused by *Leishmania major* evolve and heal most rapidly, and are often inflamed or exudative ("wet sore" or "rural sore").
- Lesions caused by *L. tropica* are less inflamed ("dry sore" or "urban sore").
- Lesions due to *L. infantum* appear only after several months, and are small, nodular, and persist for years.

Lesions of *L. aethiopica* are typically single, and often involve the face.
- Satellite papules evolve to produce a slowly growing, shiny tumor or plaque that may not crust nor ulcerate.
• If the site borders an area of mucosa, mucocutaneous leishmaniasis may develop, with swelling of the lips and enlargement of the nose over many years.

*Leishmania brasiliensis* produces deep, usually single, ulcers with a granulomatous base.

• 15 per cent of patients will relapse after spontaneous recovery or therapeutic improvement.

The lesions of *L. guyanensis* are multiple, fleshy and protuberant, and involve the limbs.

• Unlike other *Leishmania* species, *L. braziliensis* and *L. panamensis* are commonly associated with metastatic lesions along the path of draining lymphatics.

• Nodular lymphadenitis occurs, and may mimic nocardiosis. ⁵

The lesions of *L. mexicana* (‘chiclero ulcer’) are commonly located on the side of the face or behind the ears.

• Destruction of the pinna is common.

Skin lesions with regional adenopathy may also occur in visceral leishmaniasis, and suggest a diagnosis of cutaneous leishmaniasis. ⁶

**Other clinical forms:**

Three forms of cutaneous leishmaniasis do not heal spontaneously: *Disseminated cutaneous leishmaniasis,* *Leishmaniasis recidivans* and *American mucosal leishmaniasis.*

• Diffuse cutaneous leishmaniasis is often seen with *L. amazonensis* infections, and also occurs in about 0.01% of *L. aethiopica* infections.

• The nodule spreads locally without ulceration, while secondary hematogenous lesions appear on other body sites.

• These are often symmetrical, and involve the face and extensor surfaces of the limbs.

• The external genitalia may also be affected, but the eye, mucosae and peripheral nerves are not infected (in contrast to lepromatous leprosy).

• The infection evolves gradually over many years.

Cases of erysipeloid, recidiva cutis (LRC), and disseminated leishmaniasis (DL) have been ascribed to *L. panamensis* infection. ⁷

Leishmaniasis recidivans (lupoid leishmaniasis) is a rare complication of *L. tropica* infection.

• After initial healing, papules reappear in the edge of the scar and the lesion spreads slowly over many years.

• The condition most commonly involves the face, and may be quite disfiguring.

*Sporotrichoid cutaneous leishmaniasis* may mimic cutaneous sporotrichosis. ⁸

• Lesions of cutaneous leishmaniasis may mimic those of erysipeloid ⁹ or carcinoma. ¹⁰

• Diffuse cutaneous leishmaniasis may mimic lepromatous leprosy ¹¹

Atypical, non-ulcerating nodular granulomatous lesions caused by *L. mexicana* and *L. chagasi* have been described in Central America.

• Most cases have involved exposed areas on the body, and most patients have been children.

In rare cases, leishmaniasis of the nose may present as rhinophyma ¹²

**This disease is endemic or potentially endemic to 85 countries.**

**Leishmaniasis - cutaneous in Israel**

**Time and Place:**

- Infection is endemic to the Jordan Valley, Dead Sea shore, central Negev, and Sinai border. ¹³⁻¹⁶

- Emerging foci have been identified in the areas of Nizzana (western Negev) and Yerucham. ¹⁷ Nizzana accounts for 55% of cases among military personnel. (1996 to 2006) ¹⁸

- Rates increased after the Six-day war of 1967, due to acquisition of Judea and Samaria.

- Increasing rates of leishmaniasis were reported in northern Israel during 1999 to 2003 (62.5 per 100,000 in Tiberias in 2003).
Notes:
1. Cutaneous leishmaniasis has been a reportable disease since 1956.
2. The highest incidence is encountered during June to October.
3. Rates among military personnel were 0.11 per 100,000 in 2002, increasing to 196 per 100,000 in 2006.
4. 371 cases were reported from a university clinic in Jerusalem during 1988 to 1992. 19

Agents:
- Most cases are due to *Leishmania major*, with sporadic infections by *L. tropica*.
- 33 cases of Leishmania tropica infection were documented in Tiberias and four nearby villages during 1996 to 2002. 
- 161 cases of Leishmania tropica infection were reported in the Jerusalem district during 2004 to 2005, including 127 in Ma'ale Adumim. 
- 72 cases of Leishmania major infection were reported from rural areas near Beit She'an during 2006 to 2008.

Reservoirs:
- The local reservoirs are Psammomys obesus (Jordan Valley, Arava and southern Israel) and Meriones crassus (western Negev).
- The hyrax (Procavia capensis) is a proven reservoir in northern Galilee, including areas of Leishmania tropica adjacent to the Sea of Galilee. 
- Voles (Microtus guentheri) in Sde Eliyahu (Beit She'an region) are infected by Leishmania major.
- Sporadic infection has also been documented in gerbils (Gerbillus dasyurus).
- Leishmanial DNA has also been identified in Gerbillus dasyurus.

Prevalence surveys:
58% of rock hyraxes (Procavia capensis) in Ma'ale Adumim (PCR, 2010 publication) 
7.8% of golden jackals (Canis aureus) and 8% of red foxes (Vulpes vulpes) (Leishmania tropica, 2010 publication)

Vectors:
- The local vectors are Phlebotomus papatasi (for Leishmania major) and Ph. (Paraphlebotomus) sergenti (for Leishmania tropica).
- Ph. (Adlerius) arabicus is a proven vector of Leishmania tropica in the Northern Galilee.
- Ph. sergenti is implicated in transmission of L. tropica in the area of Tiberias; Ph. arabicus in the area of Karzim, Karkom and Amhun.
- Species found in the Judean Desert include Ph. (Paraphlebotomus) sergenti, Ph. papatasi, Ph. syriacus and Ph. Tobbi

Notable outbreaks:
1994 - An outbreak (32 cases) was reported in Yerucham.
2009 (publication year) - An outbreak of Leishmania tropica and Leishmania major infections was reported in Kfar Adumim (Jerusalem region).

West Bank and Gaza:

- 28 cases of L. tropica infection were confirmed in Jericho during 1997 to 2002, accounting for 48.5% of cutaneous leishmaniasis.
- Cases of L. tropica infection are also reported in the Jenin district.
26.3% of persons in the vicinity of Jericho are seropositive. 31

The principal vectors in the West Bank (Jenin) region are *Phlebotomus papatasi* (for *Leishmania major*) and *Ph. Sergenti* (*L. tropica*).

References

# Leishmaniasis - visceral

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Protozoa. Neozoa, Euglenozoa, Kinetoplastea. Flagellate: Leishmania donovani, L. infantum, L. cruzi; rarely, L. tropica</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human  Rodent  Dog  Fox</td>
</tr>
<tr>
<td>Vector</td>
<td>Fly (sandfly = Phlebotomus for old world; Lutzomyia for new world)</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Blood</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>2m - 6m (10d - 12m)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Smear / culture of bone marrow, splenic aspirate, lymph nodes. Serology. Nucleic acid amplification.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Pentavalent antimonials (Stibogluconate) 20 mg/kg/d X 28d. OR Amphotericin B 1 mg/kg/QOD X 8w (or lipid complex 3 mg/kg/d X 5d) OR Paromomycin 11 mg/kg IM QD X 21 days OR Miltefosine 50 to 150 mg PO daily X 4 to 6 weeks.</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Pentavalent antimonials (Stibogluconate) 20 mg/kg/d X 28d. OR Amphotericin B 1 mg/kg/QOD X 8w (or lipid complex 3 mg/kg/d X 5d) OR Paromomycin 11 mg/kg IM QD X 21 days OR Miltefosine 2.5 mg/kg daily (maximum 150 mg) X 28d</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Chronic fever, weight loss, diaphoresis, hepatosplenomegaly, lymphadenopathy and pancytopenia; grey pigmentation (Kala Azar = 'black disease') may appear late in severe illness; case-fatality rate = 5% (treated) to 90% (untreated).</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Burdwan fever, Cachectic fever, Dum Dum fever, Kala azar, Leishmania donovani, Leishmania infantum, Leishmaniose: Viszerale, Leishmaniosi viscerale, Ponos, Visceral leishmaniasis. ICD9: 085.0 ICD10: B55.0</td>
</tr>
</tbody>
</table>

## Clinical

### WHO Case definition for surveillance:

**Clinical description**
- An illness with prolonged irregular fever, splenomegaly and weight loss as its main symptoms.
- Laboratory criteria for diagnosis
  - positive parasitology (stained smears from bone marrow, spleen, liver, lymph node, blood or culture of the organism from a biopsy or aspirated material)
  - positive serology (IFA, ELISA)
- Case classification

**WHO operational definition:**
- A case of visceral leishmaniasis is a person showing clinical signs (mainly prolonged irregular fever, splenomegaly and weight loss) with serological (at geographical area level) and/or parasitological confirmation (when feasible at central level) of the diagnosis.
- In endemic malarious areas, visceral leishmaniasis should be suspected when fever lasts for more than two weeks and no response has been achieved with anti-malaria drugs (assuming drug resistant malaria has also been considered).

Following an incubation period of two to eight months, the patient develops chronic fever, abdominal pain (from an enlarged spleen) and swelling, weight loss, cough and occasionally, diarrhea.
- The classical fever rises twice daily, without rigors; however, single 'spikes,' irregular or undulant fevers are common.
- Caucasians may experience an abrupt onset of high fever, with rapid progression of illness, toxemia, weakness, dyspnea, and anemia.
- Visceral leishmaniasis in HIV-positive patients is characterized by short incubation period, high incidence of multi-organ disease, and tendency to relapse. ¹

Physical signs may be limited to splenomegaly; but chronically-ill patients are typically pale and cachetic.
- Hyperpigmentation of face, extremities and abdomen ('Kala azar) may be present in advanced cases.
- The spleen is non-tender, and may be massively enlarged, reaching the left or even right iliac fossa.
- Moderate hepatomegaly is present in one-third of cases.
- Rare instances of granulomatous hepatitis are reported. ²
- Generalized lymphadenopathy is found in 50% of African patients, and a smaller percentage of Indian and European cases.
- Jaundice, mucosal and retinal hemorrhage, laryngeal lesions ³, uveitis, chronic diarrhea with malabsorption ⁴, interstitial nephritis ⁵, pericardial effusion ⁶ are occasionally encountered.
• Skin lesions with regional adenopathy may suggest a diagnosis of cutaneous leishmaniasis.  
• A chronic rash (Post kala-azar dermal leishmaniasis = PKDL) resembling leprosy, and involving primarily the extremities and face often appears months to years following infection. 
• Other rare manifestations include the hemophagocytic syndrome, leukemoid changes or myelodysplasia or pyothorax

Laboratory studies reveal pancytopenia, hypoalbuminemia, hyperglobulinemia, and only mild hepatic dysfunction.
- Intercurrent infections are common notably pneumococcal disease (otitis, pneumonia or septicemia), tuberculosis and measles.

The case/fatality rate without treatment is 80% to 90%.

This disease is endemic or potentially endemic to 107 countries.

**Leishmaniasis - visceral in Israel**

**Time and Place:**
- Visceral leishmaniasis was first reported in Israel in 1929.
- Sporadic cases are encountered, notably from the Western Galilee area.
- The first case of infection in the Central region was reported in 1993.
- Since 1994, this area has accounted for over 90% of all cases of human infection in Israel.  

Approximately 113 cases were reported in the Galilee during 1950 to 1993.
76 of 87 cases reported during 1960 to 2000 were in children.

Serological studies suggest that asymptomatic infection is present in endemic areas.

Intestinal leishmaniasis has been reported in an Ethiopian immigrant with AIDS.
**Seroprevalence surveys:**
10% in Yirka in 1989; 1.5% during 1994 to 1996.
6.7% of cats in the Jerusalem region (2008 publication)
5.5% of stray dogs in the Jenin and Ramallah districts

**Reservoirs:**
Canine infection by *Leishmania infantum* was common before 1948.
- Although canine infection was confined to the northern region prior to 1994, it has recently emerged in the center.
- Only two reports of dogs infected with Leishmania were published during 1948 to 1994 - from Wadi Hamam and Avtalion.
- Infected jackals (7.6% of those examined) and foxes (4.5%) have also been identified in recent years.

**Vectors:**
- The identity of the local vector has not been established; however, *Phlebotomus neglectus* and *Phlebotomus (Larroussius) major syriacus* have been implicated.
- *Ph. tobbi* and *Ph. perfiliewi* have also been identified in the Jenin region, but are not proven vectors.

**Notable outbreaks:**
2005 (publication date) - An outbreak of visceral leishmaniasis was reported among dogs in central Israel.

**West Bank and Gaza:**

---

Notes:
1. 127 cases were reported among Arabs in the West Bank during 1990 to 1999 - 50 of these in Jenin, 32 Hebron, 17 Tulkarm and 15 Ramallah.
2. 176 cases were reported among Arabs in the West Bank during 1990 to 2004.
3. 50 cases (2.79 per 100,000; 2 fatal) were diagnosed in the Jenin district during 1989 to 1998 - including 49 below the age of 6 years. During this same period, 32 cases were reported in Hebron, 17 in Tulkarm and 15 in Ramallah.
4. 76 cases of visceral leishmaniasis due to *Leishmania infantum* were reported in the Arab sector of Hebron during 1993 to 2007 - all below age 9 years.

**Vectors:**
- The principal vectors are *Phlebotomus tobbi*, *Ph. perfiliewi* and *Ph. syriacus*.
- The principal vector in the Jenin (West Bank) and Hebron is *Ph. syriacus*.

References

14. Vet Parasitol 2008 Sep 26,
**Leprosy**

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. <em>Mycobacterium leprae</em> An acid-fast bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human ? Armadillo</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Patient secretions</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>3y - 5y (range 3m - 40y)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Visualization of organisms in exudate, scrapings or biopsy. Nucleic acid amplification.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Multibacillary: One year therapy Dapsone 100 mg + Clofazimine 50 mg daily; and, Rifampin 600 mg + Clofazimine 300 mg once monthly Paucibacillary: Six month therapy Dapsone 100 mg daily; and Rifampin 600 mg once monthly</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Multibacillary: One year therapy Dapsone 1 to 2 mg/kg + Clofazimine 1 mg/kg daily; and, Rifampin 10 mg/kg + Clofazimine 1 mg/kg once monthly Paucibacillary: Six month therapy Dapsone 1 to 2 mg/kg daily; and Rifampin 10 mg/kg once monthly</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Anesthetic, circinate hypopigmented skin lesions and thickened peripheral nerves (tuberculoid leprosy); or diffuse, destructive papulonodular infection (lepromatous leprosy); or combined/intermediate forms.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Aussatz, Doence de Hansen, Hansen's disease, Lebbra, Lepra, Mycobacterium leprae, Mycobacterium lepromatosis.</td>
</tr>
</tbody>
</table>

**WHO Case definition for surveillance:**
Clinical description
- The clinical manifestations of the disease vary in a continuous spectrum between the two polar forms, lepromatous and tuberculoid leprosy:
- In lepromatous (multibacillary) leprosy, nodules, papules, macules and diffuse infiltrations are bilateral symmetrical and usually numerous and extensive; involvement of the nasal mucosa may lead to crusting, obstructed breathing and epistaxis; ocular involvement leads to iritis and keratitis
- In tuberculoid (paucibacillary) leprosy, skin lesions are single or few, sharply demarcated, anesthetic or hypoesthesic, and bilateral asymmetrical, involvement of peripheral nerves tends to be severe
- Borderline leprosy has features of both polar forms and is more labile
- Indeterminate leprosy is characterized by hypopigmented maculae with ill-defined borders; if untreated, it may progress to tuberculoid, borderline or lepromatous disease
Laboratory criteria for confirmation
- Alcohol-acid-fast bacilli in skin smears (made by the scrape-incision method).
- In the paucibacillary form the bacilli may be so few that they are not demonstrable.
- In view of the increasing prevalence of HIV and hepatitis B infection in many countries where leprosy remains endemic, the number of skin smear sites and the frequency of smear collection should be limited to the minimum necessary.

**Case classification:**
WHO operational definition:
A case of leprosy is defined as a person showing one or more of the following features, and who as yet has to complete a full course of treatment:
- hypopigmented or reddish skin lesions with definite loss of sensation
- involvement of the peripheral nerves, as demonstrated by definite thickening with loss of sensation
- skin smear positive for acid-fast bacilli
Classification (microbiological):
Paucibacillary (PB): includes all smear-negative cases
Multibacillary (MB): includes all smear-positive cases.
Classification (clinical):
Paucibacillary single lesion leprosy: 1 skin lesion.
Paucibacillary leprosy: 2 to 5 patches or lesions on the skin.
Multibacillary leprosy: >5 patches or lesions on the skin.

© 2011 GIDEON Informatics, Inc. www.gideononline.com All Rights Reserved. Page 231 of 500
The major forms of leprosy are as follows: 

Tuberculoid • one or a few well-demarcated, hypopigmented, and anesthetic skin lesions, frequently with active, spreading edges and a clearing center; peripheral nerve swelling or thickening also may occur.

Lepromatous • a number of erythematous papules and nodules or an infiltration of the face (including oral mucosa), hands, and feet with lesions in a bilateral and symmetrical distribution that progress to thickening of the skin.

Borderline (dimorphous) • skin lesions characteristic of both the tuberculoid and lepromatous forms.

Indeterminate • early lesions, usually hypopigmented macules, without developed tuberculoid or lepromatous features.

Relapsing disease may manifest as lymphadenopathy mimicking tuberculosis • Relapses may follow effective antimicrobial therapy.

The skin lesions of paracoccidioidomycosis may mimic those of tuberculoid leprosy.

Lepromatous leprosy may mimic sarcoidosis.

Lupus vulgaris may mimic actinomycosis or mycetoma.

Diffuse cutaneous leishmaniasis may mimic lepromatous leprosy.

Leprosy may be associated with endocrine dysfunction including hypogonadism, sterility and osteoporosis.

6% of leprosy patients exhibit rheumatological manifestations, most commonly resembling rheumatoid arthritis. Rare instances of spondylodiscitis have been reported.

Lucio's phenomenon is a rare and aggressive necrotizing variant of erythema nodosum leprosum that classically occur in patients with undiagnosed, diffuse non-nodular lepromatous leprosy.

Chronic skin lesions may undergo malignant transformation.

**This disease is endemic or potentially endemic to all countries.**

### Leprosy in Israel

![Graph: Israel. Leprosy, cases - GIDEON](https://example.com/graph)

© 2011 - GIDEON Informatics Inc - www.gideononline.com

**Notes:**
1. There is no autochthonous transmission.
2. Leprosy has been officially reportable since 1960.
3. 292 cases were reported during 1948 to 1978.
4. One to two imported cases were reported yearly during the 1980's, and 2 in 1990.
200 patients were under follow-up as of 1993, and 212 registered as of 1994. 17

West Bank and Gaza:

No cases were reported between 2005 and 2010

No cases were reported between 1999 and 2009

References

13. Rheumatology (Oxford) 2010 Aug 19;
14. Eur Spine J 2010 Apr 7;
Leptospirosis

**Agent**
BACTERIUM. *Leptospira interrogans* An aerobic non-gram staining spirochete

**Reservoir**
Cattle  Dog  Horse  Deer  Rodent  Fox  Marine mammal  Cat  Marsupial  Frog

**Vector**
None

**Vehicle**
Water  Soil  urine contact

**Incubation Period**
7d - 12d (range 2d - 26d)

**Diagnostic Tests**
Culture on specialized media. Dark field microscopy of urine, CSF. Serology.

**Typical Adult Therapy**
*Doxycycline* 100 mg BID X 5 to 7d

**Typical Pediatric Therapy**
Age >= 8y: *Doxycycline* 2.2 mg/kg BID X 5 to 7d. Age < 8y: IV *Penicillin G* 50,000u/kg q6h X 5 to 7d

**Clinical Hints**
"Sterile" meningitis, nephritis, hepatitis, myositis and conjunctivitis; often follows recent skin contact with fresh water in rural or rodent-infested areas; case-fatality rates of 5% to 40% are reported.

**Synonyms**

ICD9: 100
ICD10: A27

**WHO Case definition for surveillance:**
**Clinical description**
Acute febrile illness with headache, myalgia and prostration associated with any of the following symptoms:
- conjunctival suffusion
- meningeal irritation
- anuria or oliguria and/or proteinuria
- jaundice
- hemorrhages (from the intestines; lung bleeding is notorious in some areas)
- cardiac arrhythmia or failure
- skin rash
and a history of exposure to infected animals or an environment contaminated with animal urine. Other common symptoms include nausea, vomiting, abdominal pain, diarrhea, arthralgia.

**Laboratory criteria for diagnosis**
- Isolation (and typing) from blood or other clinical materials through culture of pathogenic leptospires
- Positive serology, preferably Microscopic Agglutination Test (MAT), using a range of *Leptospira* strains for antigens that should be representative of local strains

**Case classification**
- Suspected: A case that is compatible with the clinical description.
- Probable: Not applicable.
- Confirmed: A suspect case that is confirmed in a competent laboratory.

**Note:** Leptospirosis is difficult to diagnose clinically in areas where diseases with symptoms similar to those of leptospirosis occur frequently.

**SPECIAL ASPECTS**
- Serology by Microscopic Agglutination Test (MAT) may provide presumptive information on causative serogroups.
- Attempts should be made to isolate leptospires, and isolates should be typed to assess locally circulating serovars.
- Questioning the patient may provide clues to infection source and transmission conditions.
- Animal serology may give presumptive information on serogroup status of the infection Isolation followed by typing gives definite information on serovar.

Disease due to *Leptospira interrogans* serovar. *icterohaemorrhagiae* is usually overt, and often manifest as hepatitis, meningitis and nephritis.

- Canicola fever is due to serovar. *canicola* (occasionally *L. interrogans* serovar. *pomona*) and characterized by a milder lymphocytic meningitis, without hepatic or renal involvement.
- Serovar. *autumnalis* (occasionally *L. interrogans* serovar. *pomona*) produces Fort Bragg fever, a febrile illness associated with raised, erythematous, and mildly tender pretibial skin lesions.

**Acute phase**
Leptospirosis in Israel

Subclinical infection is common.
- Overt leptospirosis (90% of cases) is characterized by a self-limited, systemic illness.
- Patients are at risk for severe and potentially fatal illness which may present with renal failure, liver failure, pneumonia or hemorrhagic diathesis.
- Illness begins abruptly with such symptoms as fever (38 to 40 C), headache (over 95% of cases), rigors, myalgia (over 80%), conjunctivitis (30 to 40%), abdominal pain (30%), vomiting (30 to 60%), diarrhea (15 to 30%), cough, muscular (calf) tenderness, pharyngitis (20%) and a pretibial maculopapular rash (fewer than 10%).
- Additional findings may include lymphadenopathy, splenomegaly, hepatomegaly or pancreatitis.
- During the acute illness, bacteria can be recovered from or seen in blood, CSF, or tissue using specialized techniques.
- Organisms are demonstrated in urine after the 5th to 7th days. Pyuria, hematuria and proteinuria may be evident as well.
- Severe hypomagnesemia has been reported during the acute phase of infection.

Latency and relapse:
The acute phase is followed by an asymptomatic period of 4 to 30 days.
- At this point, illness reappears, with conjunctival suffusion, photophobia, eye pain, myalgia, lymphadenopathy and hepatosplenomegaly.
- Additional findings may lymphocytic meningitis (70 to 80% of patients) with normal glucose levels; pretibial purpura, uveitis, iridocyclitis or chorioretinitis, and facial nerve palsy.
- Weil’s disease is characterized by hepatic and renal function which may progress to severe and even fatal hepatorenal failure which carries a case-fatality rate of 5 to 40%.
- Renal involvement may be severe, even in the absence of jaundice.
- Additional findings in such patients include thrombocytopenia, hypotension and myopericarditis.
- Pulmonary infiltrates, severe hemorrhagic pneumonia and acute pulmonary distress syndrome may be encountered, even in the absence of hepatic and renal failure.
- Congestive heart failure is rare; however, cardiac arrhythmias may occur and result in sudden deaths.
- Acute disseminated encephalomyelitis has been reported as a complication of leptospirosis.

Persistent, asymptomatic renal colonization by Leptospirae may follow infection in humans.

The clinical features of dengue and pyomyositis may mimic those of leptospirosis.

This disease is endemic or potentially endemic to all countries.

Leptospirosis in Israel
Notes:
1. Leptospirosis is most common in agricultural settlements of the Galilee during June to September.  
2. 48 cases were reported during 2002 to 2008 - including 20 travel-related cases (15 of these acquired in southeast Asia).  

Infecting species:
- During 1970 to 1973, the main infecting serotypes were *grippotyphosa* (41%) and *hebdomadis* (31%).  
- Serovars *hardjo*, *hebdomadis* and *grippotyphosa* accounted for 79% of cases during the 1970’s, and 32% during 1985 to 1999.  
- *L. interrogans* serovar. *icterohaemorrhagiae* accounted for 2% during the 1970’s, and 29% during 1985 to 1999.  

Notable outbreaks:
1948 (publication year) - An outbreak of "bovine" leptospirosis was reported in humans.  
1964 (publication year) - An outbreak was reported in the Beisan Valley.  
1970 (publication year) - An outbreak was reported in the Upper Galilee, Israel.  
1997 (publication year) - An outbreak of *Leptospira canicola* infection was reported among feedlot calves.  
2006 (publication year) - An outbreak (7 cases) of *Leptospira* serovar. *hardjo* infection was reported among soldiers on maneuvers near the Jordan River.  

References
24. Harefuah 1948 Apr 1;34(7):83.  
**Listeriosis**

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. <em>Listeria monocytogenes</em> A facultative gram-positive bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Mammal  Human  Bird  Soil  Water</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Transplacental  Dairy products (eg, soft cheeses), Infected secretions  Vegetables  Poultry  Water</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>3d - 21d (-60d post-ingestion)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Culture of blood or CSF.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Ampicillin 2g IV q6h X 2w (higher dosage in meningitis) + Gentamicin. Sulfamethoxazole/trimethoprim recommended for Penicillin-allergic patients</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Ampicillin 50 mg/kg IV Q6h X 2w (higher dosage in meningitis). Sulfamethoxazole/trimethoprim recommended for Penicillin-allergic patients</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Meningitis or sepsis, often immune-suppressed patients (lymphoma, AIDS, etc); gastroenteritis - may follow ingestion of 'over-the-counter' foods; neonatal septicemia occasionally encountered.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Listeria monocytogenes, Listeriose, Listeriosi. ICD9: 027.0 ICD10: A32</td>
</tr>
</tbody>
</table>

**Clinical**

Major risk factors for invasive Listeriosis reflect T-cell mediated immune compromise, including old age, pregnancy, hematological malignancy, chemotherapy, corticosteroid therapy and anti-TNF-alpha agents.

Signs of *Listeria* meningitis are often atypical:  
- brain stem involvement in 11%  
- nuchal rigidity in only 80% to 85%  
- movement disorders (ataxia, myoclonus) in 15% to 20%  
- seizures in 25%.  

The blood culture is positive in 75% of meningitis cases; and the cerebrospinal fluid gram stain is positive in only 40%. 

Symptoms of foodborne listeriosis develop between one day and three months after ingestion the bacteria in food.  
- Most cases are characterized by diarrhea and fever  
- Headache, myalgia and arthralgia are common.  
- The bacteria may be excreted in stool for several months.

**Other forms of listeriosis:**  
- Hepatic listeriosis may present as single or multiple abscesses, or diffuse granulomatous hepatitis.  
- Numerous cases of *Listeria* endocarditis of both native and prosthetic valves have been reported.  
- Cardiac pseudotumor, and aortitis with aortic dissection have also been reported.  
- Rare instances of prosthetic joint infection, renal failure, brain abscess, cutaneous infection, mycotic aortic aneurysm, uveitis and rhabdomyolysis have been reported.  
- *Listeria* peritonitis has been reported in a patient undergoing peritoneal dialysis and in a patient with biliary cirrhosis.

**This disease is endemic or potentially endemic to all countries.**

**Listeriosis in Israel**

In recent years, the incidence of listeriosis has been underreported in this country:  
- A central laboratory was established in 1997.  
- 321 isolates were identified by the central laboratory during 1997 to 2007 - 113 from perinatal sources and 208 from non-perinatal sources.
Notes:
1. 1995 to 1999 - 161 cases were reported - 70 (43%) perinatal, with a mortality rate of 45%.

Individual years:
1998 - Included 2 fatal and 10 congenital cases

41 infected animals were identified between 1974 and 1978.

Vehicles:
- In 1998, *L. monocytogenes* was found in 22.8% of humus (chick-pea paste) samples tested, 42.8% of smoked salmon, 17.9% of processed meat, 7.8% of smoked meat, 0% of dairy products and 7.2% of salad dips.
- In 1999, *L. monocytogenes* was found in 4% of humus samples tested, 2.1% of salad dips, 34.3% of smoked salmon, 5.7% of fish products, 13.5% of processed meat and 3% of dairy products.
- In 2000, *L. monocytogenes* was found in 26.6% of humus samples tested, 5.2% of salad dips, 10.8% of smoked salmon, 12.5% of fish products, 8.3% of processed meat and 1.3% of dairy products.
- In 2001, *L. monocytogenes* was found in 9.1% of humus samples tested, 0% of salad dips, 23.0% of smoked salmon, 3.8% of fish products, 4.5% of processed meat and 0% of dairy products.

Human infection by *Listeria ivanovii* has been reported. 38

References

Liver abscess - bacterial

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Various species from portal (Bacteroides, mixed aerobe-anaerobe) or biliary (Escherichia coli, etc) source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Endogenous</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Variable</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Ultrasonography, CT or radionucleotide scan. If amoebic abscess suspected, perform Entamoeba serology</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Intravenous antibiotic(s) directed at likely or suspected pathogens. Percutaneous or open drainage</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Tender liver, and prolonged fever in a patient with history of diverticulosis, cholecystitis, appendicitis, etc; clinically similar to amoebic abscess, but often multiple.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Ascesso fegato, Bacterial liver abscess, Hepatic abscess - bacterial, Liver abscess. ICD9: 572.0 ICD10: K75.0</td>
</tr>
</tbody>
</table>

Clinical

Symptoms of pyogenic hepatic abscess include fever and rigors of several days' to several weeks' duration.

- Dull right upper quadrant pain may be associated with cough and pleuritic pain with radiation to the right shoulder and an associated pleural rub.  
- Tender hepatomegaly is present in 50 to 70% of the patients.
- Jaundice is uncommon, unless the abscess is extensive or associated with ascending.
- In some cases, the sole presentation may be fever of unknown origin.

Serological studies, a history of diarrhea, edema of the right chest wall, and limitation to a single abscess in the posterior, superior right hepatic lobe may be suggestive of amoebic abscess.  

Alkaline phosphatase is the most consistently elevated serum enzyme in patients with liver abscess.

- Blood cultures are positive in 50% of cases.

This disease is endemic or potentially endemic to all countries.

References

# Lyme disease

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Borrelia spp.: Borrelia burgdorferi; B. afzelii and B. garinii are also encountered (in Eurasia) A microaerophilic spirochete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Tick  Deer  Rodent  Bird</td>
</tr>
<tr>
<td>Vector</td>
<td>Tick  (Ixodes, Amblyomma)</td>
</tr>
<tr>
<td>Vehicle</td>
<td>None</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>7d - 14d (range 2d - 180d)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Serology. Nucleic acid amplification. Culture of blood and body fluids available in some laboratories.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Doxycycline, Ceftriaxone, Amoxicillin or Cefuroxime Dosage, route and duration according to nature and severity of disease</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>&gt;= Age 8 years: As for adult  &lt; Age 8 years: Ceftriaxone, Cefuroxime or Amoxicillin. Dosage, route and duration according to nature and severity of disease</td>
</tr>
<tr>
<td>Vaccine</td>
<td>Lyme disease</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Fever, circular erythematous skin lesion, arthralgia and lymphadenopathy; later meningitis or myocarditis, and eventual destructive polyarthritis; patient may recall recent tick bite.</td>
</tr>
</tbody>
</table>

## Clinical

### CDC case definition for surveillance:
For surveillance purposes, the CDC (The United States Centers for Disease Control) defines Lyme disease as '"...erythema migrans...>=5 cm in diameter or laboratory confirmation of infection with *Borrelia burgdorferi* and at least one objective sign of musculoskeletal, neurological or cardiovascular disease.'

### European Union case definition for surveillance: 1
In view of a wider range of clinical and bacteriological presentations, the European Union (EUCALB) definition requires preceding risk of tick exposure in addition to one or more of the following:
- erythema migrans 2
- borrelial lymphocytoma (lymphadenosis benigna cutis • a painless bluish nodule or plaque, usually of the ear lobe, nipple or scrotum) 3
- acrodermatitis chronica atrophicans (long standing red or bluish red lesions, usually of the extensor surfaces of the extremities) 3
- early neurological disease (meningo-radiculoneuritis, with or without cranial nerve palsy) 3
- chronic neuroborreliosis (encephalitis, encephalomyelitis, radiculomyelitis) 3
- arthritis 4
- carditis.

There appears to be a specific association between *Borrelia afzelii* and acrodermatitis chronica atrophicans; and between *B. garinii* and nervous system manifestations.
- *B. garinii* infection appears to be more likely than *B. afzelii* infection to affect older patients, produce skin lesions on the trunk rather than extremities, and be associated with shorter incubation period, rapid clinical course and abnormal liver function.

Only 25% of patients recall a preceding tick bite.
- Co-infection by *Anaplasma phagocytophilum* is common. 5

### Acute illness:
Typical features include low-grade fever, fatigue, headache, conjunctivitis, myalgia and arthralgia.
• The typical rash of erythema migrans is present in 75% of cases and usually neither pruritic nor painful
• Multiple skin lesions may occur in 20% to 50% of cases.
• A nodule in the nipple or ear lobe (borreial lymphocytoma) may be present, and appears to be more common in Europe.
• Acrodermatitis chronicum atrophicans, typically seen on the hands and feet, is also more common in the European variety.
• Acropapular dermatis has also been reported in children with Lyme disease.
• Erythema annulare centrifugum is an inflammatory skin disease with incoherent conglomeration of figurate or gyrate erythemas. Lesions associated with borreliosis are positive by PCR.

**Systemic manifestations of Lyme disease:**

• A wide variety of neurological diseases have been associated with advancing Lyme disease.
• Some patients present with a typical Bell’s palsy, which may be bilateral in 25% of cases.
• Parsonage-Turner syndrome (acute brachial neuritis or neuralgic amyotrophy), Guillain-Barre and Bannarth syndrome (radiculitis with lymphocytic pleocytosis), Horner’s syndrome, paralytic strabismus, recurrent laryngeal nerve paralysis, lower motor neuron disease, peripheral neuropathy, personality changes and sleep disturbances are also encountered.

The range of joint involvement includes tendonitis, myositis and bursitis which wax and wane.
• Ultimately, true arthritis ensues, characterized by erythema, pain, swelling and erosion of one or more large joints
• most commonly the knees.

**Cardiac disease** is characterized by arrhythmia, heart block, chest pain or myo-pericarditis.
• The rate of carditis among children with early disseminated Lyme disease is 16%.

Other findings associated with Lyme disease include eye disease (keratitis, iritis, papilledema, optic neuritis, panophthalmitis, panuveitis), splenomegaly, hepatomegaly, vasculitis syndrome (**Borrelia lusitaniae** infection), diffuse reversible alopecia and regional lymphadenopathy

Lyme reinfection has been well-documented after successfully treated early infection.

A distinct **Borrelia** species (**Borrelia lonestari**) is found in *Amblyomma americanum* ticks, and has been implicated in human infections in the United States.

• The condition has been referred to as, "southern tick-associated rash illness (STARI)" or Master's disease.
• Erythema migrans has been described in patients with STARI.

**This disease is endemic or potentially endemic to 63 countries.**

**Lyme disease in Israel**

Sporadic Imported cases are reported.

One autochthonous case has been described to date (acquired on a northern kibbutz).

**Seroprevalence surveys:**

10% of dogs with suspected tick-borne disease (1998 publication)

**References**

<table>
<thead>
<tr>
<th>Reference</th>
<th>Details</th>
</tr>
</thead>
</table>
Lymphocytic choriomeningitis

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - RNA. Arenaviridae, Arenavirus: Lymphocytic choriomeningitis virus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>House mouse  Guinea pig  Hamster  Monkey</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Urine  Saliva  Feces  Food  Dust</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>8d - 12d (range 6d - 14d)</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Headache, myalgia, meningitis and encephalitis; photophobia or pharyngitis may be present; prior exposure to rodents; infection resolves within 2 weeks, however convalescence may require an additional 2 months.</td>
</tr>
<tr>
<td>Synonyms</td>
<td></td>
</tr>
</tbody>
</table>

Clinical

Acute infection:
35% of infections are asymptomatic and 50% are characterized by a nonspecific flu-like illness.
- Overt infections are characterized by fever, headache, nausea and systemic symptoms, leukopenia and thrombocytopenia.  
- Patients may also exhibit lymphadenopathy and a maculopapular rash (12% to 15% of patients have rash and/or meningitis or encephalitis).
- Relapses characterized by a more severe headache with meningitis may occur after initial improvement.
- Papilledema may be noted

The CSF protein concentration ranges from 50 to 300 mg/dl.
- A pleocytosis of several hundred lymphocytes/mm3 is commonly observed.
- Decreases in CSF glucose concentration are documented in over 20% of cases.

Complications:
Complications include encephalitis, psychosis, paraplegia, transitory aqueductal stenosis, and disturbances of cranial, sensory, or autonomic nervous function.
- Occasionally, orchitis, myocarditis, arthritis, or alopecia are encountered.
- Lymphocytic choriomeningitis is increasingly recognized as a cause of hydrocephalus, psychomotor retardation, congenital chorioretinitis and blindness, most often when acquired during the first or second trimesters of pregnancy.  
- Congenital infection is also associated with microencephaly, periventricular calcifications, ventriculomegaly, pachygyria, cerebellar hypoplasia, porencephalic and periventricular cysts.  

The case-fatality rate for Lymphocytic choriomeningitis is less than one percent; however, patients with sustained viremia lacking an inflammatory response seem to be at risk for fatal outcome.

This disease is endemic or potentially endemic to all countries.

References

2. ProMED <promedmail.org> archive: 20050804.2273
### Lymphogranuloma venereum

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM. Chlamydiaceae, <em>Chlamydia</em>, Chlamydia trachomatis, types L1, L2, L3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Sexual contact</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>7d - 12d (range 3d - 30d)</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Serology. Culture of pus performed in specialized laboratories.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Doxycycline 100 mg PO BID X 3w. OR Erythromycin 500 mg QID X 3w</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>Age &lt; 8 years: Erythromycin 10 mg/kg PO QID X 2 to 4w. Age &gt;= 8 years: Doxycycline 2 mg/kg PO BID X 2 to 4w</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Genital nodule or vesicle with large, suppurating regional nodes; generalized lymphadenopathy or proctitis may be present; late complications include genital edema, rectal strictures and perianal abscesses.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Bubonulus, Durand-Nicolas-Favre disease, Linfogranuloma venereum, Lymphogranuloma inguinale, Lymphopathia venereum, Maladie de Nicolas et Favre, Tropical bubo, Venereal bubo, Venerisk lymfogranulom.</td>
</tr>
</tbody>
</table>

### Clinical

**Acute illness:**
The first stage of Lymphogranuloma venereum (LGV) is characterized by a papule or ulcer on the genital mucosa or adjacent skin. 1-3
- Occasionally, the lesion is intraurethral or cervical, producing urethritis or cervicitis.
- The secondary stage occurs days to weeks after the primary lesion and is characterized by lymphadenopathy and systemic illness.
- Cervical lymphadenopathy may occur if infection is acquired through oro-genital contact. 4

**Lymphadenitis:**
The inguinal lymph nodes are most often affected, and are unilateral in two thirds of patients.
- The obturator and iliac nodes are occasionally affected in women.
- Initially the lymph nodes are discrete and tender with overlying erythema.
- A characteristic "groove" may be evident between the femoral and inguinal lymph nodes.
- In some cases, patients may present with a "bubonulus": penile adenopathy and secondary local acute lymphedema. 5
- Later, the nodes may suppurate and coalesce, forming a bubo that may rupture spontaneously (30% of cases) to produce fistulae 6 or sinus tracts which may drain for months.

Inguinal lymphadenopathy in cat-scratch disease may suggest a diagnosis of lymphogranuloma venereum. 7
- Rectal involvement may suggest a diagnosis of inflammatory bowel disease. 8

Systemic manifestations at this stage include fever, headache, and myalgia.
- Meningitis may also occur.
- LGV is increasingly recognized as a cause of hemorrhagic proctitis in men who have sex. 9
- Reactive arthritis has been reported following LGV proctitis 10

Relapse occurs in 20% of untreated patients.

Only 25% of women present with inguinal lymphadenopathy.
- Women and homosexual men may present with proctitis or pain in the lower abdomen and back pain related to involvement of pelvic and lumbar lymph nodes.
- Late complications include esthiomene (chronic hypertrophic and ulceration of the vulva, scrotum or penis), and elephantiasis of the male or female genitalia.
This disease is endemic or potentially endemic to all countries.

**Lymphogranuloma venereum in Israel**

Lymphogranuloma venereum was first reported in Israel 1931 in an Arab resident of Jerusalem.

**References**

8. Scand J Gastroenterol 2010 Nov 30;
10. Sex Transm Infect 2009 Jun ;85(3);180-1.
# Malaria

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>PARASITE - Protozoa. Sporozoa, Coccidea, Haemosporida: Plasmodium spp.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human Primate (Plasmodium knowlesi)</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>Mosquito (Anopheles)</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Blood</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>12d - 30d</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Examination of blood smear. Serology, antigen &amp; microscopic techniques. Nucleic acid amplification.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Resistant falcip: Quinine + (Doxycycline or Clindamycin) OR Mefloquine OR Atovaquone/proguanil OR Artemisinin OR Artesunate (IV indications) If sens., Chloroquine 1g, then 500 mg at 6, 24 &amp; 48 hrs. If P. ovale or P. vivax - follow with Primaquine</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>Resistant falcip: Quinine + (Doxycycline or Clindamycin) - OR Atovaquone/proguanil OR Artesunate (&gt;age 8) for IV indications If sensitive, Chloroquine 10 mg/kg, then 5 mg/kg at 6, 24, &amp; 48 hrs. If P. ovale or P. vivax - follow with Primaquine</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Fever, headache, rigors (&quot;shaking chills&quot;), vomiting, myalgia, diaphoresis and hemolytic anemia; fever pattern (every other or every third day) and splenomegaly may be present; clinical disease may relapse after 7 (ovale and vivax) to 40 (malariae) years.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Ague, Bilious remittent fever, Chagres fever, Estiautumnal fever, March fever, Marsh fever, Paludism, Paludismo, Plasmodium falciparum, Plasmodium knowlesi, Plasmodium malariae, Plasmodium ovale, Plasmodium vivax.</td>
</tr>
</tbody>
</table>

## WHO Case definition for surveillance
(For use in endemic areas and people exposed to malaria, e.g., a history of visit to endemic area).
- Malaria must be defined in association with clinical disease symptoms.
- The case definition for malaria cannot be uniform: it will vary according to how malaria is perceived in a given country, local patterns of transmission, and disease consequences.
- The suggested definitions are deliberately broad.
- Each national malaria control programme must adapt the definition and introduce additional indicators to make it more applicable to local epidemiology and control targets.

### Clinical description
- Signs and symptoms vary; most patients experience fever.
- Splenomegaly and anemia are commonly associated signs.
- Common but non-specific symptoms include otherwise unexplained headache, back pain, chills, sweating, myalgia, nausea, vomiting.
- Untreated *Plasmodium falciparum* infection can lead to coma, generalized convulsions, hyperparasitemia, normocytic anemia, disturbances of fluid, electrolyte, and acid-base balance, renal failure, hypoglycemia, hyperpyrexia, hemoglobinuria, circulatory collapse / shock, spontaneous bleeding (disseminated intravascular coagulation), pulmonary edema, and death.

## Laboratory criteria for diagnosis
Demonstration of malaria parasites in blood films (mainly asexual forms).

### Case classification
- **Probable uncomplicated malaria**: A person with symptoms and/or signs of malaria who receives anti-malarial treatment.
- **Probable severe malaria**: A patient who requires hospitalization for symptoms and signs of severe malaria and receives anti-malarial treatment.
- **Probable malaria death**: Death of a patient diagnosed with probable severe malaria.

## Acute infection:
- Most cases present with non-specific signs suggestive of 'sepsis,' such as fever, rigors, headache and myalgia.
- Clinical findings include cough, fatigue, malaise, arthralgia, myalgia, headache, and diaphoresis.
In Africa, tickborne relapsing fever and rabies are often mis-diagnosed as malaria.  

The typical malarial paroxysm begins with rigors lasting 1 to 2 hours, followed by high fever.  
• This is followed by marked diaphoresis and a fall in temperature.  
• Tertian (every other day) fever may occur in infection by *P. falciparum, P. vivax* and *P. ovale*; quartan (every third day) fever with *P. malariae* infection; and dally fever with *P. knowlesi* infection.  
• *P. knowlesi* malaria appears to be more severe than *P. malariae* malaria, with higher rates of parasitemia and fatality.  
• 'Classical' fever patterns are rarely helpful, and anemia and splenomegaly develop only after several attacks.  
• Less common findings include anorexia, vomiting, diarrhea and hypotension.

**Complications:**
Complications include pulmonary disease (ARDS), encephalopathy, nephropathy, retinopathy, purpura fulminans, massive diarrhea, myocarditis and dysfunction of other organs.  
• Occasionally, patients experience Post-malaria Neurological Syndrome: acute confusion, cerebellar ataxia, diffuse cerebral demyelination, seizures, cognitive dysfunction or other neuropsychiatric findings several days to weeks following successful treatment of falciparum malaria.  
• *Plasmodium falciparum* infection accounts for most complications and deaths from malaria; however, severe disease may occasionally complicate infection by other species.  
• The presence of malarial retinopathy is associated with a poor prognosis.  
• *P. falciparum* is also responsible for most malarial drug resistance.  
• Maternal infection is associated with fetal loss and low birth weight in infants.  
• 5% of African children with severe malaria were found to have concomitant bacteremia.  
• Severe disease associated with *Plasmodium vivax* infection is increasingly reported in recent years.  
• *Plasmodium malariae* infection is rarely associated with severe illness; and may lead to renal glomerular damage and nephrotic syndrome.  
• Rare instances of acute respiratory distress syndrome have been reported with *Plasmodium vivax* and *Plasmodium ovale* infections.

**Malaria and HIV infection:**
HIV infection increases the incidence of clinical malaria; however, in severe malaria the level of parasitemia is similar in HIV-positive and HIV-negative patients.  
• During pregnancy, HIV infection increases the incidence of clinical malaria, maternal morbidity, and fetal and neonatal morbi-mortality.  
• HIV infection increases the risk of malaria treatment failure.  
• Some antimalarial drugs may inhibit HIV, while certain anti-retroviral drugs are effective against *Plasmodium* species.

**Relapse:**
Relapse may occur months to years following the initial episode.  
• Relapses of *P. vivax* and *P. ovale* infection result from release of parasites which had remained dormant in the liver.  
• As such, treatment of infection by either of these two species should include a drug (eg, primaquine) active against intrahepatic parasites.  

*Plasmodium malariae* persists without symptoms in the blood, rather than the liver.  
• Relapse has been reported as long as 40 to 50 years following exit from an endemic area.

This disease is endemic or potentially endemic to 113 countries. Chloroquine resistant falciparum malaria endemic to 81 countries. Chloroquine-sensitive malaria endemic to 29 countries. Although Malaria is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

**Malaria in Israel**

**Historical background:**
51,580 cases of malaria were officially registered by governmental clinics during 1929 to 1934.  
- 13 fatal cases were reported in 1946, and 43 during 1950 to 1964.  
- The disease rate for 1948 was 152.3 per 100,000.  
- Autochthonous disease was eradicated during the 1950’s.

*Plasmodium vivax* predominated among endemic cases during the first half of the 20th century.  
- Chloroquine-resistant *Plasmodium falciparum* predominates among imported cases most recent years; however, *P. vivax* was the most common species in 1995, 1996 and 1998.
Notes:
1. Imported or relapsed cases
2. Malaria has been a reportable disease since 1951.
3. No cases of locally acquired disease (with the exception of introduced and 'airport' malaria) have been reported since 1974.
4. Most patients in recent years have been immigrants from Ethiopia and returning tourists.
5. 683 cases of imported malaria were reported during 1995 to 2005 - 467 from Africa, 90 Asia, 36 from Latin America (0.64 per 100,000 Israeli travelers to this area) and 17 Oceania.

Individual years:
1988 - Included one case of 'airport malaria' 

© 2011 GIDEON Informatics, Inc. www.gideononline.com All Rights Reserved.
2004 - Included one case of malaria acquired by a worker unloading ships in Haifa port.
2010 - Several clusters of relapsing *P. vivax* malaria were reported among Eritrean refugees in Israel who had passed through Sudan.\(^{41}\)

**Graph:** Israel. Malaria - *P. falciparum*, cases - GIDEON

```
© 2011 - GIDEON Informatics Inc - www.gideononline.com
Graph: Israel. Malaria - *P. falciparum*, cases
```

**Graph:** Israel. Malaria, deaths - GIDEON

```
© 2011 - GIDEON Informatics Inc - www.gideononline.com
Graph: Israel. Malaria, deaths
```

**Vectors:**
The local potential vectors are *Anopheles superpictus*, *An. sacharovi*, *An. sergenti*, *An. claviger* and *An. pharoensis*.42-44
- *An. sergenti* and *An. claviger* predominate in the north (1996 to 1998)
- *An. claviger* predominates in the south
- *An. sergenti* predominated in the area of Jerusalem.45-47

References

5. ProMED <promedmail.org> archive: 20080105.0060
27. Trop Med Int Health 2009 Jun 22;
41. Euro Surveill 2010 ;15(26)
## Malignant otitis externa

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. <em>Pseudomonas aeruginosa</em>: aerobic gram-negative bacillus (virtually all cases)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Endogenous</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Variable</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Culture of otic exudate and biopsy material. Careful roentgenographic and neurological examinations.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Early debridement complemented by at least 2 parenteral antibiotics active against <em>Pseudomonas aeruginosa</em></td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Otic pain, swelling and discharge; infection of bony and cartilaginous ear canal; over 80% of patients are diabetics over age 50; cranial nerve (usually VII) signs in 50%. Case-fatality rate &gt; 55%.</td>
</tr>
</tbody>
</table>

### Clinical

Severe pain and tenderness in the mastoid area are accompanied by drainage of pus from the external canal.

- Involvement of the temporal bone, meninges, venous sinuses, cranial nerves (IX, X, XII) and brain may follow.

This disease is endemic or potentially endemic to all countries.

### References

# Measles

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - RNA. Paramyxoviridae, Paramyxovirinae, Morbillivirus: Measles virus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Droplet</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>8d - 14d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Viral culture (difficult and rarely indicated). Serology. Nucleic acid amplification.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Respiratory isolation; supportive. Ribavirin 20 to 35 mg/kg/day X 7 days has been used for severe adult infection</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Vaccines</td>
<td>Measles&lt;br&gt;Measles-Mumps-Rubella&lt;br&gt;Measles-Rubella</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Coryza, fever, headache, conjunctivitis, photophobia and a maculopapular rash after 3 to 5 days; Koplik's spots (bluish-grey lesions on buccal mucosa, opposite second molars) often precede rash; encephalitis or viral pneumonia occasionally encountered.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Masern, Masling, Mazelen, Meslinger, Morbilli, Morbill, Rubeola, Rugeole, Sarampion, Sarampo. ICD9: 055 ICD10: B05</td>
</tr>
</tbody>
</table>

## Clinical

**WHO Case definition for surveillance:**

Any person with:
- fever, and
- maculopapular (i.e. non-vesicular) rash, and
- cough, coryza (i.e. runny nose) or conjunctivitis (i.e. red eyes).

or

Any person in whom a clinician suspects measles infection.

**Laboratory criteria for diagnosis**
- At least a fourfold increase in antibody titer or
- Isolation of measles virus or
- Presence of measles-specific IgM antibodies

**Case classification**
- Clinically confirmed: A case that meets the clinical case definition.
- Probable: Not applicable.
- Laboratory-confirmed: only for outbreak confirmation and during elimination phase A case that meets the clinical case definition and that is laboratory-confirmed or linked epidemiologically to a laboratory-confirmed case.

**Acute illness:**

Symptoms begin to appear about 10 to 12 days after exposure to the virus, with fever followed by cough, rhinorrhea, and/or conjunctivitis.

- The rash appears approximately 14 days after exposure and lasts 5 to 6 days.
- The rash begins at the hairline, spreading to the face and neck.
- Over the next three days, the rash gradually extends, eventually reaching the hands and feet.

**Complications:**

Complications of measles include diarrhea, otitis media (10%), pneumonia (5%), encephalitis (0.1%) 3, arthropathy (28%) 4, seizures, and death. 5

- Twenty percent of patients experience one or more complications, most often children below five years of age and adults over 20.
- Measles in pregnancy is characterized by abortion or low birth weight. 6 7
- In developing countries, measles has been known to kill as many as one out of four people.
- Measles is the leading cause of blindness among African children, as a result of concomitant vitamin A deficiency.
• Measles pneumonia accounts for approximately 17% of bronchiolitis obliterans in children (Beijing, 2001 to 2007) 8
• Rare instances of thyroiditis, pancreatitis and sialoadenitis have been reported. 9

This disease is endemic or potentially endemic to all countries.

Measles in Israel

Vaccine Schedule:
DTaP - 2, 4, 6 months; 1 year
Tdap-IPV - second year of elementary school
HepA - 18, 24 months
HepB - birth; 1, 6 months
Hib - 2, 4, 6 months; 1 year
IPV - 2, 4, 12 months; 7 years
MMR - 12 months; 6 years
Td - 8-9, 13-14 years
Varicella - 12 months and 6-7 years

Live attenuated measles vaccine was introduced in 1967, and MMR in 1988. 10 11
- Administration of a booster dose was introduced in 1994.
- Since 1990, a 'catch-up' dose has been employed at age 13 years. 12

Seroprevalence surveys:
90.9% at age 2 to 4 years; 93.1% at 5 to 9 years; 94.8% at 10 to 19 years; 93.0% at 20 to 39 years; 98.6% at 40+ years (1998) 13
73.3% of Army recruits in 1987; 84.6% in 1990; 95.6% in 1996 (99% of females and 93.5% of males) 14
84.1% of Army recruits before a mass immunization campaign, and 96.5% following the campaign (1996 publication) 15
84.6% of males ages 1 to 4, 92.2% ages 5 to 9, 92.5% ages 10 to 14, 87.1% ages 15 to 19, 83.9% ages 20 to 39, 93.3% ages 40 to 65 (1998)
85.8% of females ages 1 to 4, 97.1% ages 5 to 9, 93.3% ages 10 to 14, 91.7% ages 15 to 19, 85.1% ages 20 to 39, 92.9% ages 40 to 65 (1998)
Graph: Israel. Measles, cases

Notes:
1. The peak reporting year was 1950. Subsequent epidemics with rates over 750 per 100,000 occurred in 1955, 1959 and 1962.
2. During 1961 to 1966, only cases in the age group 1 to 4 years were reported.
3. Review of cases reported during 1990 to 1999 - see reference 16

Graph: Israel. Measles, deaths

110 cases of SSPE were reported during 1966 to 1979 (70 Jews and 40 Arabs); 5 during 1993 to 1998. The rate for SSPE among Sephardic Jews and Arabs is 8.6-fold that for Ashkenazi Jews.
Notable outbreaks:

1982 - An outbreak (8,000 cases or more, including 2,940 military personnel) was reported. 17 18
1985 - An outbreak (40 cases hospitalized) was reported among military personnel. 19
1991 - An outbreak (1,036 cases) was reported. 20-22 433 cases (7 fatal) were also reported in Ramallah District, in the West Bank. 23
2003 - An outbreak (107 cases) in an unvaccinated religious community in Jerusalem followed introduction of an index patient from Switzerland. 24
2004 - An outbreak (117 cases) was reported among non-vaccinated members of a religious community in Jerusalem. 25
2007 - An outbreak (156 cases) was reported among "Irish Travelers" in England. 26-28 Additional outbreaks related to travel in England were reported among "Irish Travelers" in Norway (15 cases) 29-32 , Belgians (23 cases) 33 34 , Italians (46 cases) 35 36 and Israelis (3 cases) exposed to tourists returning from England. 37 38 A subsequent outbreak (491 cases) was reported in an ultra-orthodox community in Jerusalem. 39
2007 to 2008 - An outbreak (1,467 cases, 0 fatal) was reported - most among ultra-orthodox individuals. 40 Cases reported in Canada and the United States had been acquired in Israel.

UNRWA, West Bank and Gaza:

Measles vaccine is administered at ages 9 and 15 months, and 4 years.
**Graph: UNRWA. Measles (cases) - GIDEON**

<table>
<thead>
<tr>
<th>Year</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974</td>
<td>0</td>
</tr>
<tr>
<td>1976</td>
<td>1000</td>
</tr>
<tr>
<td>1978</td>
<td>2000</td>
</tr>
<tr>
<td>1980</td>
<td>3000</td>
</tr>
<tr>
<td>1982</td>
<td>4000</td>
</tr>
<tr>
<td>1984</td>
<td>5000</td>
</tr>
<tr>
<td>1986</td>
<td>4000</td>
</tr>
<tr>
<td>1988</td>
<td>3000</td>
</tr>
<tr>
<td>1990</td>
<td>2000</td>
</tr>
<tr>
<td>1992</td>
<td>1000</td>
</tr>
<tr>
<td>1994</td>
<td>0</td>
</tr>
<tr>
<td>1996</td>
<td>0</td>
</tr>
<tr>
<td>1998</td>
<td>0</td>
</tr>
</tbody>
</table>

Notes:
1. 1998 - 2.1 per 100,000.

**West Bank and Gaza**
- Measles vaccine is administered at age 9 months; or MMR at 15 months.

**Graph: West Bank and Gaza. Measles - estimated % measles vaccine coverage - GIDEON**

<table>
<thead>
<tr>
<th>Year</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1955</td>
<td>0%</td>
</tr>
<tr>
<td>1965</td>
<td>20%</td>
</tr>
<tr>
<td>1975</td>
<td>40%</td>
</tr>
<tr>
<td>1985</td>
<td>60%</td>
</tr>
<tr>
<td>1995</td>
<td>90%</td>
</tr>
</tbody>
</table>

Notes:
- Measles vaccine is administered at age 9 months; or MMR at 15 months.
- Coverage increases over time.
Notes:
1. 1999 - Included 122 cases in Hebron.
2. 1.5 per 100,000 in 1998, and 0.2 per 100,000 in 2000.

References

28. ProMED <promedmail.org> archive: 20070622.2019
31. ProMED <promedmail.org> archive: 20070525.1673
32. ProMED <promedmail.org> archive: 20070622.2020
34. ProMED <promedmail.org> archive: 20070711.3723
36. ProMED <promedmail.org> archive: 20070120.3880
38. ProMED <promedmail.org> archive: 20070922.3148
39. Euro Surveill 2008 Feb 21;13(8)
40. J Infect 2009 Jul 17;
Melioidosis

**Agent**
BACTERIUM. *Burkholderia pseudomallei* An aerobic gram-negative bacillus

**Reservoir**
Soil  Water  Sheep  Goat  Horse  Pig  Rodent  Monkey  Marsupial

**Vector**
None

**Vehicle**
Water: Contact, ingestion, aerosol  Breast milk (rare)

**Incubation Period**
3d - 21d (range 2d - 1y)

**Diagnostic Tests**
Culture of blood, sputum, tissue. Serology. Nucleic acid amplification.

**Typical Adult Therapy**
*Ceftazidime* or *Meropenem* or *Imipenem* IV X at least 14 days  May be combined with *Sulfamethoxazole/trimethoprim* PO  Follow with *Sulfamethoxazole/trimethoprim* +/- *Doxycycline* X at least 3 months.

**Typical Pediatric Therapy**
*Ceftazidime* or *Meropenem* or *Imipenem* IV X at least 14 days  May be combined with *Sulfamethoxazole/trimethoprim* PO  Follow with *Sulfamethoxazole/trimethoprim* X at least 3 months.

**Clinical Hints**
May present as: lymphangitis with septicemia; or fever, cough and chest pain; or diarrhea; bone, central nervous system, liver and parotid infection are occasionally encountered; case-fatality rate 10% to over 50% (septicemic form).

**Synonyms**
*Burkholderia pseudomallei*, *Burkholderia thailandensis*, *Melioidose*, *Nightcliff Gardeners' Disease*, *Whitmore disease*.

**ICD9**: 025
**ICD10**: A24.1, A24.2, A24.3, A24.4

The clinical features of melioidosis are similar to those of tuberculosis: prolonged fever, weight loss, latency with reactivation, upper-lobe infiltrates, etc. 1-4
- As in tuberculosis, long latent periods may precede appearance of the disease; in some reports 29 years 5, or even 69 years. 6

Acute melioidosis can be divided into five clinical forms:
- septicemia without abscess formation
- septicemia with disseminated foci
- localized infection
- transitory bacteremia
- "fever of unknown origin"

45% of cases present as septicemia with infection of multiple organs.
- Pericarditis 7 8 may complicate the pulmonary infection, and necessitate surgical drainage for tamponade.
- Visceral abscesses may involve the spleen 9 10, liver 11 12, kidneys, pancreas 13, prostate 14 or other organs.
- Osteomyelitis is common. 15 16
- Generalized or local suppurative lymphadenitis is occasionally encountered. 17
- Primary cutaneous diseases occurs in 12% of cases, and secondary cutaneous dissemination in 2%. 18
- Complications of melioidosis include nasopharyngitis, brain abscess 19, septic arthritis 20, dural sinus thrombosis 21, orbital infection 22, meningitis, urinary tract infection 23, epididymo-orchitis, prostatitis 24 25, suppurative parotitis 26, parapharyngeal abscess, corneal ulcer, necrotizing fasciitis 27-29, septic arthritis 30 31, psoas and other muscular abscesses. 32-34
- Melioidosis is the most common cause of mycotic aneurysm in some areas of Thailand. 35

Renal failure occurs in up to one-third of hospitalized patients with melioidosis, and carries a poor prognosis.

Most patients with overt infection present with pneumonia which may include pulmonary nodules, consolidation, necrotizing lesions, pleural effusion, pleural thickening and mediastinal abscesses. 36
- Occasionally, the only lesion may be a pleural mass.
- Although confluent upper lobe infiltrates are common, the apices are generally spared in non-septicemic cases.
- Rapid progression and early cavitation are common.
- Pleural effusion is seen in 21% of patients with acute disease, and 13% of patients with chronic melioidosis.
• Pericarditis occurs in six to ten percent of all patients.
• Patients with cystic fibrosis (i.e., traveling to endemic countries) appear to be at high risk for pulmonary infection.
• The pattern of organ involvement in recurrent or relapsing melioidosis is similar to that of primary infection.  

In nonendemic regions, patients present with reactivated disease occurring months to years after initial exposure to the organism.
• Typical symptoms include fever, cough, weight loss and apical changes on chest x-ray • all suggestive of tuberculosis.
• The clinical features of melioidosis may also mimic those of enteric fever.  
• It is not uncommon for the two diseases to coexist.

This disease is endemic or potentially endemic to 73 countries. Although Melioidosis is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

Melioidosis in Israel

2008 - Melioidosis was diagnosed in a Thai worker in Israel.  

References

31. Clin Rheumatol 2008 May 28;
34. J Trop Pediatr 2010 Sep 5;
40. ProMED <promedmail.org> archive: 20080819.2588
## Meningitis - aseptic (viral)

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - RNA. Picornaviridae, enteroviruses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Fecal-oral  Droplet</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Variable</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Viral isolation (stool, CSF, throat). Serology.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Lymphocytic meningitis (normal CSF glucose); often follows sore throat; typically occurs during late summer and early autumn in temperate regions.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Aseptic meningitis, Encephalitis - viral, Meningite virale, Meningitis, viral, Meningo-encefalite virale, Viral encephalitis, Viral meningitis. ICD9: 047,048,049,320.2 ICD10: A87,G03.0</td>
</tr>
</tbody>
</table>

### Clinical

**WHO Case definition for surveillance:**

**Clinical case definition**
A case with fever 38.5°C and one or more of the following:
- neck stiffness
- severe unexplained headache
- neck pain and 2 or more of the following: photophobia, nausea, vomiting, abdominal pain, pharyngitis with exudates
For children <2 years of age a case is defined as
- A case with fever 38.5°C and one or more of the following: irritability, bulging fontanelle

**Laboratory criteria for confirmation**
- The specific virus confirmed on cell culture.

**Case classification**
- Suspected: A case that meets the clinical case definition and one or more of the following:
  - normal CSF glucose and normal or mild increase in CSF protein (>50 mg/dl), moderate increase CSF cells (<500/mm3) and lymphocyte predominance (>50%)
  - CSF Positive for viral genomic sequences using PCR (Polymerase Chain Reaction)
  - Epidemiological link to a confirmed case
- Confirmed: A suspected or probable case with laboratory confirmation.

As a group, the viral meningitides are characterized by fever, headache, meningismus and lymphocytic pleocytosis.  
- Major complications and sequelae are unusual.  
- The cerebrospinal fluid glucose level is normal, and a transitory neutrophilic pleocytosis is occasionally encountered.  
- CSF pleocytosis may be absent among younger infants with enteroviral meningitis.

**This disease is endemic or potentially endemic to all countries.**

### Meningitis - aseptic (viral) in Israel
Notable outbreaks:

- 1970 (publication year) - An outbreak of Echovirus 4 and 9 meningitis was reported in Jerusalem.  
- 1986 to 1988 - An outbreak (14 cases confirmed, 2 fatal) of Coxsackie B 1, 2 and 3 infection was reported from a Tel Aviv nursery.
- 1993 - An outbreak of aseptic meningitis was reported.
- 1997 - An outbreak of Echovirus-4 meningitis was reported - the first time that this strain had been isolated in the area since 1980.
1999 - An outbreak (16 cases, including 3 of meningitis) of Echovirus-11 infection was reported in a children's home.  
2000 - An outbreak (91 cases) of Echovirus-13 meningitis was reported.  
2001 - An outbreak of Echovirus-4 meningitis was reported.

West Bank and Gaza:

121 cases of 'meningitis' were reported in Gaza during January to May 1996; 180 during January to May 1997 (126 of these viral).

Graph: West Bank and Gaza. Meningitis - 'other including viral', cases

Notes:
Individual years:
2004 - Included 4,375 cases in the Gaza Strip.

Notable outbreaks:
1997 - An outbreak (350 cases) of viral meningitis was reported in the Gaza Strip.

References

5. Pediatr Emerg Care 2010 Jan 20;
10. ProMED <promedmail.org> archive: 19980214.0290
14. ProMED <promedmail.org> archive: 19970617.1283
Meningitis - bacterial

Agent: BACTERIUM. Neisseria meningitidis, Streptococcus pneumoniae, Haemophilus influenzae, et al.

Reservoir: Human

Vector: None

Vehicle: Air, Infected secretions

Incubation Period: Variable


Typical Adult Therapy: Bactericidal agent(s) appropriate to known or suspected pathogen + dexamethasone

Typical Pediatric Therapy: As for adult

Vaccines: H. influenzae (HbOC-DTP or -DTaP), Haemophilus influenzae (HbOC), Haemophilus influenzae (PRP-D), Haemophilus influenzae (PRP-OMP), Haemophilus influenzae (PRP-T), Meningococcal, Hepatitis B + Haemoph. influenzae

Clinical Hints: Headache, stiff neck, obtundation, high fever and leukocytosis; macular or petechial rash and preceding sore throat suggest meningococcal infection.

Synonyms: Bacterial meningitis, Enfermedad Meningococica, Haemophilus influenzae, Haemophilus influenzaes, HIB meningitis, HIBs, Infections a meningocoque, Meningite bacterica, Meningite meningococcica, Meningococcal, Meningokokken Erkr., Meningokokkose.

ICD9: 036.0, 320
ICD10: A39, G00, G01, G02

Clinical

**WHO Case definition for surveillance of Meningococcal infection:**

Clinical case definition
- An illness with sudden onset of fever (>38.5°C rectal or >38.0°C axillary) and one or more of the following:
  - neck stiffness
  - altered consciousness
  - other meningeal sign or petechial or purpuric rash
- In patients <1 year, suspect meningitis when fever accompanied by bulging fontanelle.

Laboratory criteria for diagnosis
- Positive CSF antigen detection or
- Positive culture

Case classification
- Suspected: A case that meets the clinical case definition.
- Probable: A suspected case as defined above and turbid CSF (with or without positive Gram stain) or ongoing epidemic and epidemiological link to a confirmed case
- Confirmed: A suspected or probable case with laboratory confirmation.

**WHO Case definition for surveillance of Haemophilus influenzae type b (Hib disease):**

Clinical description
- Bacterial meningitis is characterized by fever of acute onset, headache and stiff neck.
- Meningitis is not a specific sign for Hib disease, and Hib disease cannot be diagnosed on clinical grounds.

Laboratory criteria for diagnosis
- Culture: isolation of Hib from a normally sterile clinical specimen, such as cerebrospinal fluid (CSF) or blood.
- Culture of Hib from non-sterile sites such as the throat, where bacteria can grow without causing disease, does not define Hib disease.
- Antigen detection: identification of Hib antigen in normally sterile fluids, by methods such as latex agglutination or counter-immunoelectrophoresis (CIE).

Case classification
- Potential: (bacterial meningitis case): a child with a clinical syndrome consistent with bacterial meningitis.
- Probable: Not applicable.
- Confirmed: A case that is laboratory-confirmed (growth or identification of Hib in CSF or blood).
Note: Any person with Hib isolated from CSF or blood may be reported as a confirmed case, regardless of whether their clinical syndrome was meningitis.

As a group, the bacterial meningitides are characterized by signs of sepsis, fever, headache, meningismus and neutrophilic pleocytosis.  
- 69% of adult cases have hyperglycemia on admission  
- Major complications and sequelae are common.

This disease is endemic or potentially endemic to all countries.

Meningitis - bacterial in Israel
Notes:
1. Meningococcal meningitis has been a reportable disease since 1951.  
2. 133 cases of invasive meningococcal infection were reported in Jerusalem during 1999 to 2005 (2.45 per 100,000).
48 of 68 meningococci submitted to the Central Laboratory during 1992 were type B.
- There has been a marked increase in group C meningococci (including rifampicin-resistant strains) in recent years.

*Haemophilus influenzae* meningitis has been a reportable disease since 1970.
- Routine vaccination was introduced in 1994.
- *Haemophilus influenzae* rates have declined since the introduction of universal vaccination.

**Vaccine Schedule:**
- DTaP - 2, 4, 6 months; 1 year
- TdaP-IPV - second year of elementary school
- HepA - 18, 24 months
- HepB - birth; 1, 6 months
- Hib - 2, 4, 6 months; 1 year
- IPV - 2, 4, 12 months; 7 years
- MMR - 12 months; 6 years
- Td - 8-9, 13-14 years
- Varicella - 12 months and 6-7 years
Notes:
1. Pneumococcal meningitis has been a reportable disease since 1971.

**Notable outbreaks:**
- 1992 to 1993 - Outbreaks (8 cases in 3 outbreaks) of meningococcal meningitis were reported among military personnel.
- 2002 (publication year) - An outbreak of group C infection was reported in an Israeli Arab village.
- 2007 (publication year) - An outbreak (3 cases) of group B meningococcal meningitis was associated with a day-care
West Bank and Gaza:

121 cases of 'meningitis' were reported in Gaza during January to May 1996; 180 during January to May 1997 - 54 of these bacterial.
- 233 cases of bacterial meningitis (non-meninococcal, non-*Haemophilus influenzae*) were reported in the West Bank and Gaza in 1999.
- 470 cases (14 fatal) of bacterial meningitis were reported in the West Bank and Gaza in 2004.

© 2011 GIDEON Informatics Inc. www.gideononline.com All Rights Reserved.
Graph: West Bank and Gaza. Meningitis - meningococcal, cases

Notes:
1. 2004 - 13 fatal

References
### Microsporidiosis

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Rabbit Rodent Carnivore Non-human primate Fish Dog Bird</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>? Fecal-oral</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Microscopy of duodenal aspirates. Inform laboratory if this organism is suspected. Nucleic acid amplification.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td><strong>Albendazole</strong> 400 mg PO BID X 3 weeks. Add Fumagillin for ocular S. intestinalis may respond to <strong>Albendazole</strong> and Fumagillin <strong>Nitazoxanide</strong> has been used for E. bieneusi.</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td><strong>Albendazole</strong> 200 mg PO BID X 3 weeks. Add Fumagillin for ocular S. intestinalis may respond to <strong>Albendazole</strong> and Fumagillin <strong>Nitazoxanide</strong> has been used for E. bieneusi.</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>In AIDS patients, infection is characterized by chronic diarrhea, wasting and bilateral keratoconjunctivitis; hepatitis and myositis may be present.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Brachiola, Encephalitozoon, Enterocytozoon, Microsporidium, Nosema, Pleistophora, Trachipleistophora, Vittaforma. ICD9: 136.8 ICD10: A07.8</td>
</tr>
</tbody>
</table>

---

**Clinical**

Intestinal disease in immunocompetent patients is characterized by self-limited diarrhea, traveler's diarrhea or asymptomatic carriage.  
- Immunocompromized patients present with diarrhea, cholangitis, cholecystitis, sinusitis or pneumonia.  

Ocular microsporidiosis is associated with keratoconjunctivitis.

Other syndromes include sinusitis, nephritis, myositis and prostatitis.

**This disease is endemic or potentially endemic to all countries.**

**References**

# Moniliformis and Macracanthorhynchus

| Reservoir | Pig (Maracanthorhynchus), rat and fox (Moniliformis), |
| Vector | None |
| Vehicle | Insect (ingestion) |
| Incubation Period | Unknown - presumed 15 to 40 days |
| Diagnostic Tests | Identification of worm in stool. |
| Typical Adult Therapy | Infection is usually self-limited. Pyrantel pamoate has been used against Moniliformis moniliformis - 11 mg/kg PO - repeat once in 2 weeks |
| Typical Pediatric Therapy | Infection is usually self-limited. Pyrantel pamoate has been used against Moniliformis moniliformis - 11 mg/kg PO - repeat once in 2 weeks |
| Clinical Hints | Most infections are characterized by asymptomatic passage of a worm; however, vague complaints such as 'peri umbilical discomfort' and 'giddiness' have been described. |
| Synonyms | Acanthocephalan worms, Macracanthorhynchus, Moniliform acanthocephalan, Moniliformis moniliformis. ICD9: 128.9 ICD10: B83.8 |

## Clinical

Most infections are characterized by asymptomatic passage of a worm; however, vague complaints such as 'peri umbilical discomfort' and 'giddiness' have been described. ¹

- In one instance, a man developed marked abdominal pain following experimental self-infection.
- In another case, intestinal perforation was associated with *Macracanthorhynchus hirudinaceus* infestation. ²

This disease is endemic or potentially endemic to all countries.

## References

Mumps

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - RNA. Paramyxoviridae, Paramyxovirinae, Rubulavirus: Mumps virus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Aerosol</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>14d - 24d (range 12d - 24d)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Viral culture (saliva, urine, CSF) indicated only in complicated cases. Serology. Nucleic acid amplification.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Respiratory isolation; supportive</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Vaccines</td>
<td>Measles-Mumps-Rubella Mumps Rubella - Mumps</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Fever, parotitis, orchitis (20% of post-pubertal males), meningitis (clinically apparent in 1% to 10%), oophoritis, or encephalitis (0.1%); most cases resolve within 1 to 2 weeks.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Bof, Epidemic parotitis, Fiebre urliana, Infectious parotitis, Kusma, Oreillons, Paperas, Parotidite epidemica, Parotiditis, Parotite epidemica, Passjuka.</td>
</tr>
</tbody>
</table>

Clinical

One third of Mumps virus infections are asymptomatic.

**Acute illness:**
The prodrome of mumps consists of low-grade fever, anorexia, malaise, and headache.
- Usually within one day, the patient complains "earache" and tenderness is noted over the parotid gland. 1
- The gland is soon visibly enlarged and progresses to maximum size over the next 2 to 3 days, often with lifting of the ear lobe upward and outward.
- The orifice of Stensen's duct is edematous and erythematous, and trismus and pain on chewing may be present.
- It is important to remember that the enlarged gland obscures the angle of the mandible, while cervical adenopathy does not.
- Parotid involvement if unilateral in 25% of cases.
- As the disease progresses, fever may reach 40°C.
- Subsequently pain, fever, and tenderness resolve, and the parotid gland returns to normal size within a week.
- Involvement of the other salivary glands occurs in 10% of cases, but are rare in the absence of parotid involvement.
- Presternal edema develops in 6% of patients, most often in those who have submandibular adenitis.

8% to 15% of patients will continue shedding Mumps virus 5 days after the onset of symptoms. 2

**Neurological manifestations:**
Central nervous system involvement is the most common extrasalivary gland manifestation of this disease.
- Cerebrospinal fluid pleocytosis has been documented in 51% patients with mumps, without other evidence of meningitis.
- Clinical meningitis occurs in 1 to 10% of persons with mumps parotitis; while parotitis is documented in less than 50% of patients with mumps.
- Meningitis may occur before, during or after salivary gland involvement.
- The features of mumps meningitis are similar to those of other viruses, and the clinical course is benign; however, polymorphonuclear CSF pleocytosis and reduced glucose levels are not unusual.

Encephalitis occurs in less than 0.1% of cases, and may be accompanied by altered consciousness, seizures, paresis, aphasia, involuntary movements; and sequelae such as psychomotor retardation, deafness (1 per 1,000 to 20,000 cases 3 ) and convulsive disorders.
- Other neurological complications of mumps include cerebellar ataxia 5 , facial nerve palsy, transverse myelitis, Guillain-Barre syndrome, and aqueductal stenosis.
Epididymo-orchitis:
Epididymo-orchitis is the most common extra-salivary gland manifestation in adults, developing in 20 to 30% of infected postpubertal males.
- This complication is bilateral in 15% of cases, and appears during the first week of mumps in 70% of cases.
- Rarely, this is the only manifestation of mumps.
- Onset is abrupt, with elevation of fever, chills, headache, vomiting, and testicular pain.
- The testis is warm, swollen (to as much as four times normal size), and tender, with erythema of the scrotum.
- Epididymitis is present in 85%, and usually precedes the orchitis.
- Tenderness may persist for more than 2 weeks in 20% of cases; and some degree of atrophy is noted in 50% of the patients, even after 2 years.
- Impotence is not encountered, and sterility is rare.

Additional manifestations of mumps:
Other features of mumps include oophoritis, fetal wastage, migratory polyarthritis, monoarticular arthritis and arthralgia, electrocardiographic changes (with or without overt myocarditis), nephritis, thyroiditis, mastitis, prostatitis, hepatitis, cholecystitis and thrombocytopenia.

This disease is endemic or potentially endemic to all countries.

Mumps in Israel

Vaccine Schedule:
DTaP - 2, 4, 6 months; 1 year
Tdap-IPV - second year of elementary school
HepA - 18, 24 months
HepB - birth; 1, 6 months
Hib - 2, 4, 6 months; 1 year
IPV - 2, 4, 12 months; 7 years
MMR - 12 months; 6 years
Td - 8-9, 13-14 years
Varicella - 12 months and 6-7 years

Mumps vaccine was introduced in 1984, and replaced by MMR in 1988.

Estimated vaccine coverage (%) was 95% in 2003.

Seroprevalence surveys:
- 77.0% of the general population (1997 to 1998)
- 69.9% of males ages 1 to 4, 76.5% ages 5 to 9, 70.5% ages 10 to 14, 82.7% ages 15 to 19, 92.2% ages 20 to 39, 94.1% ages 40 to 65 (1998)
- 76.1% of females ages 1 to 4, 80.4% ages 5 to 9, 71.8% ages 10 to 14, 84.0% ages 15 to 19, 88.2% ages 20 to 39, 96.0% ages 40 to 65 (1998)
Notes:
1. 1955 - Reported for Jewish population only.
2. Mumps has been a reportable disease since 1977.
3. The peak reporting year was 1974 (784.7 per 100,000).
4. Virtually all patients are between the ages of one and nine.
5. Approximately 60% of cases are reported during March to July.
6. 474 cases of mumps meningitis or encephalitis were reported during 1971 to 1976.

Notes:
1. 16 fatal cases were reported during 1963 to 1975.
West Bank and Gaza:

Notable outbreaks:
- 1987 to 1988 - An outbreak of mumps was reported. [9, 10]
- 2003 to 2005 - An outbreak (3,871 cases) was reported in the West Bank. [11]
- 2009 to 2010 - An outbreak (4,190 cases to August) was reported - the majority of cases among Yeshiva students. [12-20]

References
13. ProMED <promedmail.org> archive: 20091119.3990
14. ProMED <promedmail.org> archive: 20091120.3996
15. ProMED <promedmail.org> archive: 20100106.0059
16. ProMED <promedmail.org> archive: 20100126.0287
17. ProMED <promedmail.org> archive: 20100517.1609
18. ProMED <promedmail.org> archive: 20100723.2472
19. ProMED <promedmail.org> archive: 20100814.2799
20. ProMED <promedmail.org> archive: 20100816.2838
**Mycetoma**

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM OR FUNGUS. Nocardia spp, Madurella mycetomatis, Actinomadura pellitieri, <em>Streptomyces somaliensis</em>, et al</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Soil, Vegetation</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Contact, Wound, Soil</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>2w - 2y</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Bacterial and fungal culture of material from lesion.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Antimicrobial or antifungal agent as determined by culture. Excision as indicated</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>As for adult</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Painless, chronic, draining, fistulous subcutaneous nodule - usually involving lower extremity; osteolytic lesions may be noted on x-ray; usually no fever; most patients are males age 20 to 40 (ie, occupational exposure).</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Madura foot, Madura-Fuss, Madurella, Mycetom, White grain eumycetoma. ICD9: 039.4,117.4 ICD10: B47</td>
</tr>
</tbody>
</table>

**Clinical**

Mycetoma is typically characterized by a painless nodule or thickening, which involve the feet in 80% of cases.  
- The lesions slowly enlarge and form sinus tracts which drain bloody, serous or purulent fluid containing granules of various colors.  
- Systemic findings are absent.  
- Lesional hyperhidrosis is common, and tendons and nerves are usually spared until late stages of the infection.  
- Regional lymphadenopathy is encountered in 1% to 3% of cases.  
- Lupus vulgaris may mimic mycetoma.

Hematogenous spread of infection is extremely rare.  
- Mycetoma may spread to involve contiguous bone or regional lymph nodes.  
- In Actinomycotic infections, the course is more rapid and aggressive, with prominent inflammation and early destruction of bone.

Dark granules characterize Madurella infection, while pale colored granules are seen in Acremonium infection.  
- *Actinomadura madurae*, *Nocardia brasiliensis*, and *Streptomyces somaliensis* produce smaller white, yellow, or brownish granules.

Rare instances of mycetoma of the scalp due to *Microsporum canis* have been reported.  
- Perianal actinomycetoma may mimic other chronic diseases of the anal region.  
- Ocular mycetoma has been reported as a complication of a sub-tenon injection.  
- A rare case of paranasal and cavernous sinus infection has been reported.

Diagnosis is based on radiological and ultrasonic imaging, histology, culture and serology.  
- Although Actinomycotic lesions may be amenable to antibiotic therapy, eumycetoma requires aggressive surgical excision.

**This disease is endemic or potentially endemic to all countries.**

**Mycetoma in Israel**

Autochthonous infections by *Madurella mycetomatis* and *Actinomadura madurae* have been described.

Sporadic imported cases are reported.

Eumycetoma caused by *Madurella mycetomatis* has been reported in a mare (2009 publication).
References

6. Cornea 2009 Aug 1;
7. Surg Neurol 2009 Oct 7;
15. Med Mycol 2009 Nov 3;
Mycobacteriosis - M. marinum

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM. Actinomycetes, <em>Mycobacterium marinum</em> An aerobic acid-fast bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Fresh and salt water (eg, swimming pools, aquaria) Fish (ornamental, salmon, sturgeon, bass)</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Water per areas of minor skin trauma</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>5d - 270d (median 21d)</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Mycobacterial culture from lesion. Alert laboratory when this organism is suspected.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Rifampicin 600 mg/day + Ethambutol 20 mg/kg/day X 6w. Alternative: Minocycline</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>Sulfamethoxazole/trimethoprim 5 mg-25 mg/kg BID X 6w. Alternative Minocycline (Age &gt;= 8)</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Violaceous papule, ulcer, plaque, psoriaform lesion; onset weeks after exposure (swimming pool, aquarium); commonly involves the elbow, knee, hand or foot.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Aquarium granuloma, Fish fanciers’ finger syndrome, Fish tank granuloma, Mariner’s TB, Mycobacterium balnei, Mycobacterium marinum, Mycobacterium scrofulaceum, Spam, Swimming pool granuloma. ICD9: 031.1 ICD10: A31.1</td>
</tr>
</tbody>
</table>

**Clinical**

The incubation period varies from 5 to 170 days (median 21 days); with 35% of cases exceeding 30 days.
- Characteristic painful, slowly-growing blue papules usually involve the extremities, and may ulcerate. 1
- The upper extremities are involved in 95%, and spread to deeper structures occurs in 29%. 2
- Dissemination is rare, but has been described in AIDS patients. 2
- Multiple sporotrichoid subcutaneous nodules have been reported. 3 4
- Extensive verrucous dermal plaques have been reported among Pacific Islanders infected by *Mycobacterium marinum*. 5 6
- Tenosynovitis ("fish-tank finger") is occasionally encountered. 7-10
- Scarring may occur, but is less pronounced than that which follows *M. ulcerans* infection.

This disease is endemic or potentially endemic to all countries.

**References**

Mycobacteriosis - M. scrofulaceum

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Actinomycetes, Mycobacterium scrofulaceum An aerobic acid-fast bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Water (lakes, rivers) Soil Raw milk Plant material</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Water Soil ? Through areas of minor trauma</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Culture of tissue or aspirates.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Excision. Drugs (Isoniazid - Rifampin - streptomycin - Cycloserine) are rarely indicated</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Painless lymphadenopathy, most commonly unilateral and submandibular (true tuberculosis involves the lower neck and produces a strongly positive tuberculin reaction and/or suggestive chest X ray). The disease is most common during early childhood.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Mycobacterium scrofulaceum is a common cause of lymphadenitis, most commonly among children ages 1 to 3 years. Most infections involve the submandibular region, however involvement of other lymph node groups or body organs may occur. Rare instances of dissemination are reported. This disease is endemic or potentially endemic to all countries.</td>
</tr>
</tbody>
</table>

Clinical

Mycobacterium scrofulaceum is a common cause of lymphadenitis, most commonly among children ages 1 to 3 years. Most infections involve the submandibular region, however involvement of other lymph node groups or body organs may occur. Rare instances of dissemination are reported. This disease is endemic or potentially endemic to all countries.

References

Mycobacteriosis - miscellaneous nontuberculous

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Actinomycetes, Mycobacterium spp. An aerobic acid-fast bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Water  Soil  Fish  Mammal  Bird</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Air  Water  Contact  Ingestion  Trauma</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Variable</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Microscopy &amp; culture of tissue, secretions, blood. Nucleic acid amplification. Inform laboratory if suspected</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Drug, route and duration appropriate to clinical setting and species [in Therapy module, scroll through upper left box]</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Pneumonia, or chronic granulomatous infection of various tissues; systemic disease may complicate immune suppression; M. avium-intracellulare characterized by aggressive course and resistance to most antimycobacterial drugs.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Mycobacterium abscessus, Mycobacterium avium, Mycobacterium avium-intracellulare, Mycobacterium immunogenenum, Mycobacterium jacussii, Mycobacterium xenopi, Segniliparus.</td>
</tr>
</tbody>
</table>

ICD9: 031.9,031.2
ICD10: A31.0,A31.1,A31.8

Clinical

The clinical features of systemic mycobacterial infection are protean, and can involve disease of virtually any organ or tissue.

1-5

• Specific syndromes reflect the immune status of the patient and the specific fungal species involved (see Worldwide note)

Mycobacterium avium-intracellulare infection is clinically similar to tuberculosis, producing localized pulmonary disease 6 or disseminated lesions of virtually any organ. 7 8

- Bacteremia is common, and can be detected using specialized blood culture systems.

Mycobacterium kansasii infection is characterized by productive cough, dyspnea, and chest pain.

• 16% of patients are asymptomatic.
• A right sided, apical or subapical, thin walled cavitary infiltrate is characteristic. 9

Mycobacterium malmoense infection is usually characterized by pulmonary disease suggestive of tuberculosis, or pediatric cervical lymphadenopathy. 10

Note: Over 110 species of Mycobacterium have been associated with human infection.

• See Microbiology  • Mycobacteria module

This disease is endemic or potentially endemic to all countries.

Mycobacteriosis - miscellaneous nontuberculous in Israel

56 cases of Mycobacterium kansasii infection were identified for the period 1999 to 2004 - none associated with HIV infection. 11

Mycobacterium simiae accounts for 40.5% of non-tuberculous mycobacterial infections among cystic fibrosis patients, M. abscessus 31.0%, and M. avium complex 14.3%. (2001 to 2003). 12

41 cases of Mycobacterium haemophilum lymphadenitis among immunocompetent children were diagnosed in a single hospital during 1985 to 2006. 13
**Notable outbreaks:**

2003 - An outbreak (15 cases) of "Mycobacterium jacuzzii" infection was associated with breast implant surgery.  

2008 (publication year) - An outbreak (8 cases) of *Mycobacterium mucogenicum* bacteremia in a pediatric hematology-oncology ward was related to a contaminated faucet.\(^{14}\) \(^{15}\) \(^{16}\)

**References**

15. J Hosp Infect 2008 Sep 15;  
### Mycoplasma (miscellaneous) infections

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Mycoplasmatales <em>Mycoplasma genitalium</em>, <em>Mycoplasma hominis</em>, <em>Mycoplasma fermentans</em>, <em>Mycoplasma penetrans</em>, <em>Ureaplasma urealyticum</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Secretion, Sexual transmission</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Azithromycin 1 g orally as single dose OR Doxycycline 100 mg PO BID X 7 days OR Levofloxacin 500 mg daily X 7 days OR Ofloxacin 300 mg BID X 7 days</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Erythromycin 10 mg/kg PO QID X 2w</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Urethritis, vaginitis, neonatal pneumonia; rarely stillbirth, prematurity or infertility</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Acholeplasma laidlawii, Epirythrozoon, Hemotrophic Mycoplasma, Mycoplasma amphoriforme, Mycoplasma buccale, Mycoplasma faucium, Mycoplasma felis, Mycoplasma fermentans, Mycoplasma genitalium, Mycoplasma hominis, Mycoplasma lipophilum, Mycoplasma orale, Mycoplasma penetrans, Mycoplasma pirum, Mycoplasma primatum, Mycoplasma salivarium, Mycoplasma spermatophilum, T Mycoplasmas, T strains, Ureaplasma parvum, Ureaplasma urealyticum. ICD9: 041.81 ICD10: A49.3</td>
</tr>
</tbody>
</table>

#### Clinical

Asymptomatic pharyngeal and vaginal carriage of *Mycoplasma* species and *Ureaplasma* is common.
- As many as 70% of sexually-active persons are colonized.

The signs and symptoms of infection are similar to those of *Chlamydia* infection.  
- Urogenital infection may present as vaginitis, cervicitis, non-gonococcal urethritis, epididymitis, prostatitis, or urinary discharge.
- Less common findings may include pelvic inflammatory disease, post-partum fever, chorioamnionitis, infertility, prematurity, and stillbirth.
- Bronchitis, arthritis, neonatal meningitis and encephalitis, osteitis, endocarditis, brain abscess, soft tissue infections, genital under disease, bacteremia, respiratory distress in the newborn and pneumonia have been reported.

Infection by hemotrophic *Mycoplasma* species (formerly *Epirythrozoon*) is characterized by fever, anemia and hemolytic jaundice. Notably among pregnant women and newborns.

**This disease is endemic or potentially endemic to all countries.**

#### Mycoplasma (miscellaneous) infections in Israel

**Prevalence surveys:**
- 45.6% of men with non-gonococcal urethritis are infected by *Ureaplasma urealyticum* and 13.2% *Mycoplasma hominis*.
- (1996 to 1998)  
- 26.8% of illegal CSW are infected by *Ureaplasma* and 7% *Mycoplasma* (2006 publication)  
- 24% of preterm infants have respiratory tract colonization with *Mycoplasma hominis*; 22% of mechanically-ventilated preterm infants (1991 publication)  
- 57% of women attending a methadone clinic were found to carry *Mycoplasma hominis*, 65% *Ureaplasma urealyticum* (1987)  
- 18.5% of clinical specimens from patients with urogenital inflammation contain *Ureaplasma urealyticum*, 7.2% *Mycoplasma hominis*, 0.4% *Mycoplasma fermentans*, 0% *Mycoplasma genitalium* (1988 publication)
Mycoplasma hominis was found in 5% of patients with sterile pyuria in Gaza, Mycoplasma genitalium 3% and Ureaplasma urealyticum 1% (2006 to 2007) 37

References

Mycoplasma pneumoniae infection

### Agent
BACTERIUM. Mollicutes. *Mycoplasma pneumoniae*

### Reservoir
Human

### Vector
None

### Vehicle
Droplet

### Incubation Period
6d - 23d

### Diagnostic Tests

### Typical Adult Therapy
**Erythromycin** 500 mg PO BID X 2w. OR **Azithromycin** 1 g, followed by 500 mg PO daily X 5 days. OR **Doxycycline** 100 mg PO BID

### Typical Pediatric Therapy
**Erythromycin** 10 mg/kg PO QID X 2w

### Clinical Hints
Coryza, "hacking" cough; subsegmental infiltrate; bullous otitis media is often present; most patients below age 30; cold agglutinins are neither sensitive nor specific for infection, and appear only during second week.

### Synonyms
*Mycoplasma pneumoniae*, Primary atypical pneumonia.
ICD9: 041.81,483.0
ICD10: B96.0

## Clinical

**Acute infection:**
Onset is insidious and gradual, and characterized by fever, malaise, a dry cough, headache, 'scratchy' throat and chest wall (ie, muscular) pain.
- Pleuritic pain, productive cough and rigors are unusual and should suggest infection by other bacterial species.
- The pharynx and tympanic membranes are often erythematous, without adenopathy; and the lungs are usually normal to auscultation.
- A macular, urticarial or vesicular rash is occasionally present; and erythema multiforme (including Stevens-Johnson syndrome) is reported.

**Atypical manifestations:**
Atypical and severe disease is encountered among older adults.
- Rare instances of acute hepatitis, glomerulonephritis, rhabdomyolysis, septic shock, endocarditis, ARDS, pericarditis and empyema have been reported.
- Neurological findings may include encephalitis, aseptic meningitis, acute transverse myelitis, stroke, or polyradiculopathy.
- Obsessive-compulsive disorder has been ascribed to *Mycoplasma pneumoniae* infection.
- Extrapulmonary manifestations also include hematologic (including autoimmune hemolytic anemia), pancytopenia, acute thrombocytosis, renal, gastrointestinal, genitourinary, hepatic, osteoarticular, cutaneous (rash, angioedema with eosinophilia), and ocular involvement (including vasculitis).

Patients carry *Mycoplasma pneumoniae* in their throats for up to 7 months following infection.
- *Mycoplasma pneumoniae* infection is implicated in the etiology of recurrent tonsillitis and asthma.

### This disease is endemic or potentially endemic to all countries.

**Prevalence surveys:**
11% of winter respiratory tract infections in an outpatient setting (1998 publication)

**Notable outbreaks:**
1971 (publication year) - An outbreak of *Mycoplasma pneumoniae* atypical pneumonia was reported.
1988 (publication year) - An outbreak (125 cases) involved two kibbutzim.\textsuperscript{42}
2006 (publication year) - An outbreak (41 cases) was reported among military trainees.\textsuperscript{43}

References

10. Medicina (Kaunas) 2010 ;46(5):360-3.
39. Allergy 2010 Nov 18;
Myiasis

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>PARASITE - Insecta (Diptera) larvae</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Mammal</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>Biting arthropod</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Fly eggs deposited by biting arthropod</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>1w - 3m</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Identification of extracted maggot.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Removal of maggot</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>As for adult</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Pruritic or painful draining nodule; fever and eosinophilia may be present; instances of brain, eye, middle ear and other deep infestations are described.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Calliphora, Chrysomya, Chrysomyia, Cochliomyia, Cordylobia, Cuterebrosis, Dermatobia, Furuncular myiasis, Gasterophilus, Hypoderma, Lucilia, Lund’s fly, Maggot infestation, Megaselia, Musca, Muscina, Oedemagenia, Oestrus larvae, Ophthalmomyiasis, Rectal myiasis, Sarcophaga, Screw worm, Urinary myiasis, Vaginal myiasis, Wohlfarthia. ICD9: 134.0 ICD10: B87</td>
</tr>
</tbody>
</table>

**Clinical**

Myiasis may be primary (active invasion) or secondary (colonization of wound).  
- Primary furuncular myiasis is usually characterized by one or more erythematous, painful "pustules" having a central perforation.  
  - Eosinophilia may be present.  
- Other clinical forms include ophthalmomyiasis (migrating larvae in the conjunctival sac), pharyngeal, nasal, urinary, vaginal, tracheopulmonary and rectal infestation.  
- Larvae may rarely invade the paranasal sinuses and even cause eosinophilic meningitis.  
- Penile myiasis may mimic a sexually transmitted disease

This disease is endemic or potentially endemic to all countries.

**Myiasis in Israel**

Imported cases of furuncular myiasis due to *Dermatobia hominis* are common.

Oral myiasis due to *Wohlfahrtia magnifica* has been reported.

**References**

Necrotizing skin/soft tissue infx.

**Agent**  
BACTERIUM. *Streptococcus pyogenes, Clostridium perfringens*, mixed anaerobic and/or gram-negative bacilli

**Reservoir**  
Human

**Vector**  
None

**Vehicle**  
Endogenous

**Incubation Period**  
Variable

**Diagnostic Tests**  
Clinical features. Smear and culture (including anaerobic culture) of exudate.

**Typical Adult Therapy**  
Debridement and parenteral antibiotics directed by smear and culture results. Hyperbaric oxygen in more severe infections

**Typical Pediatric Therapy**  
As for adult

**Clinical Hints**  
At least 7 syndromes in this category: most characterized by local pain and swelling, skin discoloration or edema, gas formation, foul odor and variable degrees of systemic toxicity.

**Synonyms**  
Anaerobic cellulitis, Chancrum oris, Clostridial cellulitis, Clostridium novyi, Fasciitis, Fournier's gangrene, Gangrenous cellulitis, Gangrenous stomatitis, Invasive group A strep. Infections, Meleneey's synergistic gangrene, Necrotizing fasciitis, Noma, Streptococcal fasciitis, Synergistic necrotizing cellulitis.  
ICD9: 686.8,528.1  
ICD10: M72.6,A69.0

**Clinical**

Infections often begin in areas of minor trauma or loss of dermal integrity (as in varicella), and may spread within hours to involve large areas and endanger life.  

**Clinical forms of necrotizing skin and soft tissue infection (in alphabetical order):**

**Clostridial cellulitis** usually follows local trauma or surgery, and has a gradual onset following an incubation period of 3 or more days.  
- There is minimal pain and discoloration, with moderate swelling.  
- A thin, occasionally foul and dark colored exudate is noted and copious gas is present.  
- Systemic signs are minimal.

**Clostridial myonecrosis** is discussed elsewhere in this module but is distinguishable from the above syndromes by its severity, prominent systemic toxicity and the presence of overt muscle involvement.

**Fournier's gangrene** is a form of necrotizing fasciitis which involves the scrotum and penis.  
- Most patients are over the age of 50 • diabetic, alcoholic or suffering from rectal cancer.  
- The lesion is markedly destructive and mutilating, and typically due to a mixed flora of anaerobic and facultative or aerobic gram negative bacilli.  
- Fournier's gangrene may occasionally complicate varicella  
- The case fatality rate for Fournier's gangrene is over 20%  

**Gangrenous stomatitis** (chancrum oris, Noma) is a mutilating condition of the skin and soft tissues of the face which affects primarily immune-suppressed and malnourished children.  
- Most patients are under the age of 6 years.  
- The disease usually begins as a painful red or purple intraoral lesion, which rapidly spreads to destroy surrounding bone and soft tissues of the mouth and face.  
- The case-fatality rate is 70% to 90%.

**Infected vascular gangrene** is a complication of peripheral vascular insufficiency and has a gradual onset beginning 5 or more days after the initiating event.  
- Onset is gradual, and pain may vary from absent to prominent.  
- The area is discolored and painful, and associated with foul malodorous gas and involvement of underlying muscle.  
- Systemic signs are minimal.
Meleney’s gangrene (progressive bacterial synergistic gangrene) usually involves sites of fistulae, retention sutures or draining empyema.  
- The infection begins 1 to 2 weeks following surgery, and is characterized by erythema and moderate swelling, with minimal crepitus.

Necrotizing fasciitis is typically associated with diabetes mellitus or recent abdominal surgery.  
- Following an incubation period of 1 to 4 days, the patient becomes increasingly ill, with moderate local pain and gas formation, and a foul seropurulent discharge.  
- Pain may be severe, and areas of erythema and necrosis are evident.  
- Relatively high mortality rates are associated with necrotizing fasciitis caused by *Aeromonas* or *Vibrio* species.

Non-clostridial anaerobic cellulitis is usually associated with diabetes mellitus or a preexisting local infection.  
- Onset may be gradual or rapid, with moderate swelling, dark pus, minimal discoloration and copious foul-smelling gas.  
- Pain is minimal, and the patient is moderately ill.

Synergistic necrotizing cellulitis is associated with diabetes, renal disease, obesity or preexisting perirectal infection.  
- The incubation period varies from 3 to 14 days, and onset is acute.  
- Swelling may be marked, and associated with intense local pain, foul ‘dishwater’ pus and small amounts of gas.  
- Moderate muscle involvement and marked systemic disease are present.  

This disease is endemic or potentially endemic to all countries.

**Necrotizing skin/soft tissue infx. in Israel**

258 cases of invasive soft tissue infection due to group A streptococci were identified during 1997 to 1998.

**References**

Neutropenic typhlitis

**Agent**

BACTERIUM. *Clostridium septicum* (occasionally *Clostridium tertium*, *Clostridium sporogenes*, *Clostridium sordellii* or *Clostridium tertium*)

**Reservoir**

Human

**Vector**

None

**Vehicle**

Endogenous

**Incubation Period**

Unknown

**Diagnostic Tests**

Typical findings in the setting of neutropenia. Ultrasonography may be helpful.

**Typical Adult Therapy**

Broad spectrum antimicrobial coverage, which should include clostridia and Pseudomonas aeruginosa. Role of surgery is controversial

**Typical Pediatric Therapy**

Broad spectrum antimicrobial coverage, which should include clostridia and Pseudomonas aeruginosa. Role of surgery is controversial

**Clinical Hints**

Fever, abdominal pain, diarrhea (occasionally bloody) and right lower quadrant signs in a neutropenic (leukemic, etc) patient; may spread hematogenously to extremities; case-fatality rate 50% to 75%.

**Synonyms**

Neutropenic enterocolitis.

ICD9: 540.0

ICD10: A04.8

---

**Clinical**

Neutropenic typhlitis is clinically similar to acute appendicitis, but limited to patients with severe neutropenia. 1-3

**This disease is endemic or potentially endemic to all countries.**

**Neutropenic typhlitis in Israel**

Sporadic cases are reported. 4 5

**Prevalence surveys:**

5% of children with cancer treated at a single institution in central Israel (1995 to 2005) 6

**References**

Nocardiosis

Agent | BACTERIUM. Actinomycetes, Nocardia spp. An aerobic gram positive bacillus (acid-fast using special technique)
Reservoir | Soil
Vector | None
Vehicle | Air  Dust  Wound  Contact
Incubation Period | ? days to weeks
Diagnostic Tests | Culture and gram stain of exudates, sputa, tissue specimens. Advise laboratory when Nocardia suspected.
Typical Adult Therapy | Sulfamethoxazole/trimethoprim - dosage and duration of therapy appropriate to clinical severity
Typical Pediatric Therapy | As for adult
Clinical Hints | Pneumonia, lung abscess, brain abscess, or other chronic suppurative infection; often in the setting of immune suppression.
Synonyms | Nocardia, Nocardiose.
ICD9: 039
ICD10: A43

Clinical

Nocardiosis may present as an acute or chronic suppurative infection with a tendency to remission and exacerbation. 1
• Infections are most common among immunocompromized patients. 2 3
• The most common presentation is pneumonia.
• Brain abscesses account for 33% of cases.
• Infection of virtually any other organ may occur.

Nocardiosis may mimic tuberculosis, particularly in the setting of HIV infection. 4
• Nodular lymphadenitis, seen with Nocardia brasiliensis infection, may mimic nocardiosis. 5

The ecology and phenotypic characteristics of Nocardia species 6 are discussed in the Microbiology module.

This disease is endemic or potentially endemic to all countries.

References
**Old World phleboviruses**

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>VIRUS - RNA. Bunyaviridae, Phlebovirus: Sandfly fever virus (at least three types) Dabie Mountain virus (tentative designation)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Fly (Phlebotomus) ? Rodent</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>Fly (sandfly = Phlebotomus papatasi for Naples and Sicilian; P. perfiliei for Naples) Vector for Dabie Mountain virus not established</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>3d - 4d (range 2d - 9d)</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Supportive</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>As for adult</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Myalgia, eye pain, arthralgia, vomiting, facial flush and leukopenia; gastrointestinal symptoms common in Dabie Mountain virus. Disease is most common during summer in temperate regions; fever resolves within 5 days; fatality and sequelae are not reported.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Dabie Mountain virus, Grenada virus, Karimabad, Naples sandfly fever, Pappataci fever, Phlebotomus fever, Salehabad, Sandfly fever, Toscana.</td>
</tr>
</tbody>
</table>

**Clinical**

Most infections are characterized by abrupt onset of fever, frontal headache, generalized myalgia, back pain, conjunctivitis, eye pain, photophobia and prominent neutropenia.

- Vomiting, vertigo and stiff neck have been described in some cases.
- Patients recover completely within one to two weeks
- No fatal cases have been reported.

Toscana virus infections usually present as self-limited febrile illness without neurological manifestations.
- Rare instances of neurological residua have been reported following Toscana virus infection.

Dabie Mountain virus infection is characterized by high fever and gastrointestinal symptoms. Bleeding and high case fatality rates have been reported.

**This disease is endemic or potentially endemic to 53 countries.**

**Old World phleboviruses in Israel**

Sandfly fever has not been reported in Israel since 1948.

**Seroprevalence surveys:**

- 2.8% of adults ages 18 to 20, and 30.8% ages 40 to 55 are seropositive toward Sandfly Naples virus.
- 23.7% of adults ages 40 to 55 are seropositive towards Sandfly Sicilian virus (1999 publication)

**References**

### Onchocerciasis

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>PARASITE - Nematoda. Phasmidea, Filariae: Onchocerca volvulus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>Fly (black fly = Simulium)</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>12m - 18m</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Identification of microfilariae in skin snips or on ophthalmoscopy. Nucleic acid amplification.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Excision of nodules. Ivermectin 150ug/kg PO once. Repeat every 6 months Doxycycline 100 mg PO daily for 6 weeks prior to Ivermectin improves cure rate If eye involved, administer corticosteroid for several days prior to Ivermectin.</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>Excision of nodules. Ivermectin 150ug/kg PO once. Repeat every 6 months Age &gt; 8 years: Doxycycline, as for adult</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Macular, papular or dyschromic skin lesions; pruritus; lymphadenopathy; keratitis or uveitis; eosinophilia; firm nodules over bony prominences; adult worms may survive for 15 years in the human host.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Aswad, Craw-craw, Dipetalonema arbuta, Dipetalonema sprenti, Erysipelas de la Costa, Flussblindheit, Jur blindness, Lichenified onchodermatitis, Nakalanga syndrome, Onchocerca cervicalis, Onchocerca dewittei, Onchocerca guttata, Onchocerca jakutensis, Onchocerca lupi, Onchocerca reticulata, Onchocerca volvulus, Onchozerkose, River blindness, Robles' disease, Sowda. ICD9: 125.3 ICD10: B73</td>
</tr>
</tbody>
</table>

### Clinical

**WHO Case definition for surveillance:**
- In an endemic area, a person with fibrous nodules in subcutaneous tissues.
- Laboratory criteria for confirmation • one or more of the following
  - Presence of microfilariae in skin snips taken from the iliac crest
  - Presence of adult worms in excised nodules
  - Presence of typical ocular manifestations, such as slit-lamp observations of microfilariae in the cornea, the anterior chamber, or the vitreous body
- **Case classification**
  - Suspected: A case that meets the clinical case definition.
  - Probable: Not applicable.
  - Confirmed: A suspected case that is laboratory-confirmed.

W.H.O. recognizes five forms of skin disease for purposes of survey and control:
- acute papular onchodermatitis
- chronic papular onchodermatitis
- lichenified onchodermatitis
- atrophy
- depigmentation

Dermal onchocerciasis may mimic dracunculiasis.1

The microfilariae of Onchocerca migrate throughout the body and give rise to visual impairment (punctate keratitis)2, rashes, intense pruritis and depigmentation of the skin3; lymphadenitis; "hanging groin" and elephantiasis of the genitals.4

- Rare instance of eosinophilic meningitis have been reported.5

Onchocerciasis has been implicated in the etiology of Nakalanga syndrome (hyposexual dwarfism) in Sudan; and sowda (a form of endemic filarial limb dermatosis with adenopathy) on the Arabian Peninsula.6

- It has been suggested that sowda may be caused by a zoonotic species rather than Onchocerca volvulus.

There is extensive evidence that endosymbiont bacteria (Wolbachia spp.) are necessary for the development of filarial larvae, and fertility of adult parasites.7-9

---

1. Infectious Diseases of Israel - 2011 edition
2. WHO Case definition for surveillance:
3. W.H.O. recognizes five forms of skin disease for purposes of survey and control:
4. Dermal onchocerciasis may mimic dracunculiasis.
5. The microfilariae of Onchocerca migrate throughout the body and give rise to visual impairment (punctate keratitis), rashes, intense pruritis and depigmentation of the skin; lymphadenitis; “hanging groin” and elephantiasis of the genitals.
6. Rare instance of eosinophilic meningitis have been reported.
7. Onchocerciasis has been implicated in the etiology of Nakalanga syndrome (hyposexual dwarfism) in Sudan; and sowda (a form of endemic filarial limb dermatosis with adenopathy) on the Arabian Peninsula.
8. It has been suggested that sowda may be caused by a zoonotic species rather than Onchocerca volvulus.
9. There is extensive evidence that endosymbiont bacteria (Wolbachia spp.) are necessary for the development of filarial larvae, and fertility of adult parasites.
Onchocerciasis in Israel

Several imported cases have been described, notably among immigrants from the Kuwara highlands of northwestern Ethiopia. 13-16

References

Opisthorchiasis

Agent
PARASITE - Platyhelminthes, Trematoda. Plagiorchiida, Opisthorchiidae: Opisthorchis felineus, O. guayaquilensis, O. viverrini

Reservoir
Cat  Civet  Dog  Other fish-eating mammal  Snail (Bythinia)

Vector
None

Vehicle
Fresh-water fish

Incubation Period
21d - 28d (range 7d - years)

Diagnostic Tests
Identification of ova in stool or duodenal aspirate.

Typical Adult Therapy
Praziquantel  25 mg/kg TID X 2d

Typical Pediatric Therapy
As for adult

Clinical Hints
Right upper quadrant abdominal pain, hepatomegaly, cholangitis and eosinophilia; initial symptoms appear 3 to 4 weeks after ingestion of undercooked fresh water fish; high association with cholangiocarcinoma.

Synonyms
Amphimerus, Cat liver fluke, Centrocestus, Opisthorchis, Opisthorchis felenius, Opisthorchis guayaquilensis, Opisthorchis viverrini, Siberian river fluke.

ICD9: 121.0
ICD10: B66.0

Clinical

Most infections are asymptomatic. 1

• Some patients experience mild dyspepsia, abdominal pain or diarrhea. 2

• Chronic infestations may be more clinically overt, and associated with hepatomegaly or malnutrition. 3 4

• Rare instances of cholangitis 5, cholecystitis, and cholangiocarcinoma are encountered. 6 7

• Chronic opisthorchiasis may increase the severity of asthma 8

• Signs of infection may mimic those of primary biliary cirrhosis 9

Infections due to Opisthorchis felineus may present with an acute illness resembling the Katayama fever of schistosomiasis (fever, facial edema, lymphadenopathy, arthralgias, rash, and eosinophilia).

• Chronic forms of O. felineus may involve the pancreatic ducts in addition to the biliary tract.

This disease is endemic or potentially endemic to 17 countries. Although Opisthorchiasis is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

Opisthorchiasis in Israel

Prevalence surveys:
51.6% of Thai workers in Israel (Opisthorchis viverrini, 1994 publication) 10

Notable outbreaks:
2004 (publication year) - An outbreak (4 cases, two symptomatic) in Holon was caused by ingestion of contaminated carp imported from Siberia. 11

References

**Orbital and eye infections**

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM OR FUNGUS. <em>Streptococcus pyogenes</em>, oral anaerobes, Aspergillus spp., facultative gram-negative bacilli, et al</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Endogenous Introduced flora (trauma, surgery)</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Trauma Surgery Contiguous (sinusitis) Hematogenous</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Variable</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Imaging techniques (CT or MRI). Culture of aspirates or surgical material.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Local and systemic antimicrobial agents appropriate for species and severity</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Proptosis, chemosis, extraocular palsy, or hypopyon associated with sinusitis, bacteremia, eye trauma or surgery. Involves the eye (endophthalmitis); periosteum (peri orbital infection); orbit (orbital cellulitis); orbit + eye (panophthalmitis).</td>
</tr>
</tbody>
</table>
| Synonyms               | Bacterial keratitis, Ceratite, Cheratite, Endophthalmitis, Eye infection, Keratite, Keratitis, Orbital infection, Panophthalmitis, Queratitis.  
ICD9: 360.0  
ICD10: H05.0 |

**Clinical**

**Endophthalmitis** involves the ocular cavity and adjacent structures.  
- Infection may occur in the setting of endocarditis or other bacteremic infections, or follow surgery or penetrating trauma.  
- The onset of fungal endophthalmitis is more gradual than infection due to bacteria.  
- Several species of parasites (ie, Toxoplasma, Toxocara, Onchocerca, etc) and viruses (CMV, Herpes simplex, measles) may also infect a variety of orbital structures, and are discussed elsewhere in this module.

**Panophthalmitis** involves all ocular tissue layers, including the episclera.  
- Pain on eye movement is prominent.

**Orbital cellulitis** is an acute infection of the orbital contents.  
- Infection can easily spread to the cavernous sinuses.  
- The most common sources for infection are the paranasal sinuses (most commonly ethmoid in children).  
- Fever, lid edema, orbital pain, proptosis and limited motion of the globe are important symptoms.

**Keratitis** can be caused by viruses (Herpes simplex, zoster, smallpox), bacteria, fungi, protozoa (*Acanthamoeba*) or helminths (*Onchocerca volvulus*)  
- Microbial keratitis complicating orthokeratology is mainly caused by *P. aeruginosa* or *Acanthamoeba*.

This disease is endemic or potentially endemic to all countries.

**References**

Clinical

Human infection is milder than that of sheep, and usually limited to indolent vesicles and pustules on the hands. 1, 2
• Pustules may attain a size of 1 to 2 cm, and are often associated with low-grade fever and regional lymphadenitis.
• Lesions heal over a period of 2 to 6 weeks, without scarring.
• Bullous lesions 3, secondary bacterial infection, disseminated orf and erythema multiforme have been described in some cases.

This disease is endemic or potentially endemic to all countries.

Orf in Israel

Sporadic cases are reported in humans 4, 5 and animals. 6-8

Notable outbreaks:
   2001 (publication year) - An outbreak of contagious ecthyma was reported among camels. 9

References

Ornithosis

Agent | BACTERIUM. Chlamydiaceae, *Chlamydiae*, Chlamydophila [Chlamydia] psittaci
---|---
Reservoir | Parakeet Parrot Pigeon Turkey Duck Cat Sheep Goat Cattle Dog
Vector | None
Vehicle | Bird droppings Dust Air Aerosol from cat [rare]
Incubation Period | 7d - 14d (range 4d - 28d)
Diagnostic Tests | Serology. Culture (available in special laboratories) rarely indicated.
Typical Adult Therapy | *Doxycycline* 100 mg PO BID X 10d. Alternatives: *Erythromycin* 500 mg PO QID X 10d. *Azithromycin* 1 g, then 0.5 g daily. *Clarithromycin* 0.5 g BID
Typical Pediatric Therapy | Age < 8 years: *Erythromycin* 10 mg/kg QID X 10d Age >=8 years: *Doxycycline* 100 mg PO BID X 10d.
Clinical Hints | Headache, myalgia and pneumonia, often with relative bradycardia, hepatomegaly or splenomegaly; onset 1 to 4 weeks following contact with pigeons, psittacine birds or domestic fowl; case-fatality rate without treatment = 20%.
Synonyms | Chlamyphila abortus, Chlamyphila psittaci, Ornithose, Papegojsjuka, Parrot fever, Psitacosis, Psittacosis, Psittakose.

Clinical

Onset may be insidious or abrupt, and the illness may subclinical, or take the form of nonspecific fever and malaise, pharyngitis, hepatosplenomegaly, and adenopathy. ¹
- Bradycardia and splenomegaly may suggest typhoid at this stage.

A more common presentation consists of atypical pneumonia, with nonproductive cough, fever, headache and pulmonary infiltrates. ² ³
- Additional findings may include photophobia, tinnitus, ataxia, deafness, anorexia, vomiting, abdominal pain ⁴, diarrhea, constipation, hemoptyisis, epistaxis, arthralgia, and rash (Horder’s spots) reminiscent of the rose spots of typhoid. ⁵
- Fever, pharyngitis, rales and hepatomegaly are noted in over 50% of cases.

Complications include pericarditis, myocarditis, and "culture-negative" endocarditis, ARDS ⁶, overt hepatitis, hemolytic anemia, DIC, reactive arthritis, cranial nerve palsy, cerebellar dysfunction, transverse myelitis, meningitis, encephalitis and seizures, thrombophlebitis, pancreatitis and thyroiditis.
- Rare instances of abortion have been reported.

*Chlamyphila abortus*, a related species which affects goats, cattle and sheep, had been associated with rare instances of abortion, stillbirth and even maternal death in humans.

This disease is endemic or potentially endemic to all countries.

Ornithosis in Israel

99 cases were reported during 1976 to 1983; 37 in 1987.

Notable outbreaks:
- 1988 (publication year) - Outbreaks (30 cases total) in eight families were related to contact with two sick birds. ⁷ ⁸

References


© 2011 GIDEON Informatics, Inc. www.gideononline.com All Rights Reserved.
Osteomyelitis

**Agent**  | BACTERIUM OR FUNGUS. *Staphylococcus aureus*, facultative gram-negative bacilli, *Candida albicans*, etc.
---|---
**Reservoir**  | Endogenous Introduced flora (trauma, surgery)
**Vector**  | None
**Vehicle**  | Trauma Hematogenous Extension from other focus
**Incubation Period**  | Variable
**Diagnostic Tests**  | Radiography, including bone scan. Culture of biopsy material.
**Typical Adult Therapy**  | Systemic antimicrobial agent(s) appropriate to known or suspected pathogen. Surgery as indicated
**Typical Pediatric Therapy**  | As for adult
**Clinical Hints**  | Limb pain or gait disturbance; obscure fever; prior skin infection; may be hematogenous, or arise from contiguous (soft tissue, joint) infection; X-ray changes are not apparent for at least 10 days in acute infection.
**Synonyms**  | Osteomielite, Osteomielitis, Osteomyelite, Paravertebral abscess.

**ICD9**: 015,730.9  
**ICD10**: M86

**Clinical**

Osteomyelitis is a self-defined condition characterized by infection of one or more bones.  
• Signs and symptoms vary widely, and reflect associated underlying conditions, infecting species and location of the infection.  

**Etiological associations:**
• Animal bite: *Pasteurella multocida*
• Diabetes and vascular insufficiency: Usually mixed infection (*Staphylococcus aureus*, *Staphylococcus epidermidis*, Gram-negative bacilli, Anaerobes)
• Hematogenous: Usually single organism (*Staphylococcus aureus*, Enterobacteriaceae)
• Injecting drug user: staphylococci, Gram-negative bacilli, *Candida* spp.
• Secondary to contiguous infection: Often mixed infection (*Staphylococcus aureus*, Gram-negative bacilli)
• Sickle cell anemia: *Staphylococcus aureus*, *Salmonella* spp.

**This disease is endemic or potentially endemic to all countries.**

**References**

# Otitis media

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM OR VIRUS. <em>Haemophilus influenzae</em> &amp; <em>Streptococcus pneumoniae</em> in most acute cases; RSV, Parainfluenza, et al</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>None</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Variable</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Clinical findings. Culture of middle ear fluid if available.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Antimicrobial agent directed at likely pathogens</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Vaccine</td>
<td><em>Pneumococcal conjugate</em></td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Acute bacterial otitis media often represents the final stage in a complex of anatomic, allergic or viral disorders of the upper airways; recurrent or resistant infections may require surgical intervention.</td>
</tr>
</tbody>
</table>
| Synonyms       | Otitis media aguda.  
ICD9: 382.0  
ICD10: H65,H66                                                                 |

## Clinical

Signs and symptoms of otitis media consist of local pain and tenderness, with or without fever and signs of sepsis.  

*This disease is endemic or potentially endemic to all countries.*

### References

# Paragonimiasis

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human Dog Cat Pig Wild carnivore, Snail (Semisulcospira, Thiara, etc)</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Fresh-water crab (at least 8 species) Crayfish (Cambaroides)</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>6w - 6m</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Identification of ova in sputum or stool. Serologic and skin tests are available.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td><strong>Praziquantel</strong> 25 mg/kg TID X 2d. OR <strong>Bithionol</strong> 40 mg/kg every other day X 10 doses. OR <strong>Triclabendazole</strong> 10 mg/kg/d X 2</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Pulmonary infection with bloody or &quot;rusty&quot; sputum, central nervous system disease (eg, meningitis or seizures) and eosinophilia; subcutaneous nodules occasionally observed; parasite may survive for decades in human host.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Alaria, Endemic hemoptysis, Lung fluke, Oriental lung fluke, Paragonimus, Poikilorchis, Pulmonary distomiasis. ICD9: 121.2 ICD10: B66.4</td>
</tr>
</tbody>
</table>

## Clinical

The acute phase of parasitic invasion and migration is accompanied by diarrhea, abdominal pain, fever, urticaria, hepatosplenomegaly, wheezing, cough, pleuritic pain, and eosinophilia or hypereosinophilia. Later, pulmonary manifestations include cough, expectoration of discolored sputum, hemoptysis, and chest roentgenographic abnormalities. Pulmonary infection may mimic lung cancer, both clinically and radiologically. Paragonimiasis is a common cause of persistent pleural effusion in endemic regions; such collections may suggest the diagnosis of chylothorax. Extrapulmonary infection may involve the brain (less than 1% of cases), subcutaneous tissues (most commonly the trunk and thighs) or other organs. Subcutaneous disease is found in 10% of patients with *P. westermani* infection, and 20% to 60% of those with *P. skrjabini* (*P. szechuanensis*) infection.

*This disease is endemic or potentially endemic to 47 countries.* Although Paragonimiasis is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

## Paragonimiasis in Israel

*Paragonimus kellicotti* infection has been reported in a dog (1997 publication).

**Prevalence surveys:**

1% of Thai workers in Israel (1994 publication)

## References

15. Harefuah 1994 May 1;126(9):507-9, 563.
Parainfluenza virus infection

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Droplet</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>3d - 8d</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Upper respiratory infection - often croup or laryngitis. The disease is most common during infancy; older children develop a 'cold-like' illness; the infection is complicated by pneumonia in 7% to 17% of cases.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Parainfluenza, Sendai. ICD9: 078.89,480.2 ICD10: J12.2</td>
</tr>
</tbody>
</table>

Clinical

Clinical forms of Parainfluenza virus infection include 'the common cold,' otitis media, croup (acute laryngotracheobronchitis) 1, 'flu-like illness' 2, bronchiolitis 3 and pneumonia.

This disease is endemic or potentially endemic to all countries.

Parainfluenza virus infection in Israel

Prevalence surveys:

- 2.9% of children below age 5 years with community-acquired alveolar pneumonia (Beer Sheva, 2009 publication) 4
- 1.1% of patients hospitalized with lower respiratory tract infections (Beer Sheva, winter seasons, 2004 to 2006) 5

References

Parvovirus B19 infection

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - DNA. Parvoviridae, Parvovirinae: Erythrovirus B19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Droplet</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>4d - 14d (range 3d - 21d)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Serology. Nucleic acid amplification (testing should be reserved for the rare instance of complicated infection).</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Erythema infectiosum (erythema of cheeks; lacelike or morbilliform rash on extremities); febrile polyarthritis, or bone marrow aplasia/hypoplasia may be present.</td>
</tr>
<tr>
<td>ICD9</td>
<td>057.0</td>
</tr>
<tr>
<td>ICD10</td>
<td>B08.3</td>
</tr>
</tbody>
</table>

Clinical

Acute infection:
Erythema infectiosum is a mild childhood illness characterized by a facial rash ("slapped cheek" appearance), and a reticulated or lacelike rash on the trunk and extremities. 1
- Localized and generalized petechial rash may occur in some cases. 2-7
- Reappearance of the rash may occur for several weeks following nonspecific stimuli such as change in temperature, sunlight, and emotional stress.
- The patient is otherwise well at rash onset but often gives a history of a systemic prodrome lasting 1 to 4 days.
- In some outbreaks, pruritus has been a common clinical feature. 8
- Rubella-like, morbilliform 9 , vesicular and purpuric 10 rashes have also been reported.
- Asymptomatic infection has been reported in approximately 20% of children and adults.
- Severe infection, including instances of heart failure, have been reported. 11
- Co-infection with parvovirus and other hepatitis viruses may result in fulminant hepatic failure 12

Joint manifestations:
In some outbreaks, arthralgias and arthritis have been commonly reported. 13
- Infection may produce a symmetrical peripheral polyarthropathy.
- The hands are most frequently affected, followed by the knees and wrists.
- Symptoms are usually self-limited but may persist for several months.
- Joint symptoms, more common in adults, are encountered in approximately 20% of cases 14 and may occur as the sole manifestation of infection.

Instances of seizure, coma, encephalitic ataxia or chorea 15 16 , meningoencephalitis 17 , autonomic or sensory neuropathy 18 , cranial nerve palsy 19 , myocarditis 20 21 , severe endothelialitis (Degos-like syndrome) 22 and hepatitis have been reported. 23 24
- Sequelae remain in 22% of patients with neurological involvement 25
- A distinct form of Parvovirus infection known as "papular-purpuric gloves and socks syndrome" is characterized by fever and edematous rash, often associated with conjunctivitis and arthritis 26
- Additional complications include glomerulonephritis 27 , Melkersson-Rosenthal syndrome and hemophagocytic lymphohistiocytosis 28 29
- Hepatic dysfunction may be present in some cases. 30

Parvovirus B19 infection and hematological disease:
Parvovirus B19 is the primary etiologic agent causing Transient Aplastic Crisis (TAC) in patients with chronic hemolytic anemias (e.g., sickle cell disease, hemoglobin SC disease, hereditary spherocytosis, alpha-thalassemia, and autoimmune
hemolytic anemia) and occasionally follows anemia due to blood loss. • Patients with TAC typically present with pallor, weakness, and lethargy and may report a nonspecific prodromal illness during the preceding 1 to 7 days. • Few patients with TAC report a rash. • In the acute phase, patients usually have a moderate to severe anemia with absence of reticulocytes; and bone marrow examination shows a hypoplastic or an aplastic erythroid series with a normal myeloid series. • Recovery is indicated by a return of reticulocytes in the peripheral smear approximately 7 to 10 days after their disappearance. • TAC may require transfusion and hospitalization and can be fatal if not treated promptly.

A false positive serological reaction toward Epstein-Barr virus has been reported in Parvovirus B19 infection.

A Parvovirus B19-related severe chronic anemia associated with red cell aplasia has been described in transplant recipients, patients on maintenance chemotherapy for acute lymphocytic leukemia, patients with congenital immunodeficiencies, and patients with human immunodeficiency virus (HIV)-related immunodeficiency.

Infection of the intestinal mucosa may produce symptoms of inflammatory bowel disease.

**Intrapartum infections:**

Intrauterine infections can lead to specific or permanent organ defects in the fetus (e.g. heart anomalies, eye diseases, micrognathy, chronic anemia, myocarditis, hepatitis, meconium peritonitis and central nervous system anomalies). • Thrombocytopenia is reported in 46% of cases • Rare cases of transient neonatal leukoerythroblastosis have been reported • In most reported B19 infections occurring during pregnancy, the fetus has not been adversely affected; however, in some cases B19 infection has been associated with fetal death. • The risk of fetal death attributable to maternal parvovirus infection is estimated at less than 10%. • Fetal death most commonly occurs from the 10th through the 20th weeks of pregnancy. • Although maternal infection appears to be common in late pregnancy, hydrops is relatively rare.

A related member of the family Parvovirinae, Human Bocavirus, is discussed under 'Respiratory viruses • miscellaneous'.

**This disease is endemic or potentially endemic to all countries.**

**Parvovirus B19 infection in Israel**

**Prevalence surveys:**

- 27% of children hospitalized with acute exanthema, 9% with acute arthropathy, 10% with fever >1 week, and 44% with transient pancytopenia or aplastic anemia (2002 to 2004)
- 22% of hospitalized children ages 1.5 to 9 years (2002 to 2004)

**References**

2. Pediatrics 2010 Mar 1;
18. Brain Dev 2010 Apr 13;
### Pediculosis

**Agent**
PARASITE - Insecta. Anoplura: Pediculus humanus, Phthirus pubis.

**Reservoir**
Human

**Vector**
Louse

**Vehicle**
Contact

**Incubation Period**
7d

**Diagnostic Tests**
Identification of adults and "nits."

**Typical Adult Therapy**
Permethrin 1%; or malathion 0.5%; or lindane OR Ivermectin 200 mcg/kg PO

**Typical Pediatric Therapy**
Permethrin 1%; or malathion 0.5%; or lindane OR Ivermectin 200 mcg/kg PO (> 15 kg body weight)

**Clinical Hints**
Pruritus in the setting of poor personal hygiene; adults or nits may be visible; note that the body louse (*Pediculus humanus* var. corporis; not the head louse) transmits diseases such as epidemic typhus, trench fever and relapsing fever.

**Synonyms**
Crab louse, Lausebefall, Pediculose, Pediculus capitus, Pediculus corporis, Pedikulose, Phthirus pubis, Pidocci.

ICD9: 132
ICD10: B85

---

**Clinical**

Most louse infestations are asymptomatic, with only 15% to 36% of patients complaining of pruritis.

- The principal clinical finding consists of presence of the lice themselves, and their eggs ('nits').

**This disease is endemic or potentially endemic to all countries.**

### Pediculosis in Israel

65.1% of Ethiopian immigrants were found to be infested by head lice and 65.1% by body lice.

### References

Pentastomiasis - Linguatula

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Pentastomid worm. Linguatula serrata</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Herbivore</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Meat (liver or lymph nodes of sheep/goat)</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Identification of larvae in nasal discharge.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>No specific therapy available</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Pharyngeal or otic itching, cough, rhinitis or nasopharyngitis which follows ingestion of undercooked liver.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Halzoun, Linguatula, Marrara syndrome.</td>
</tr>
<tr>
<td></td>
<td>ICD9: 128.8</td>
</tr>
<tr>
<td></td>
<td>ICD10: B83.8</td>
</tr>
</tbody>
</table>

**Clinical**

Infestation ("halzoun" or "marrara syndrome") is associated with pain and itching in the throat or ear, lacrimation, cough, hemoptysis, rhinorrhea or hoarseness.\(^1\)\(^2\)

- Complications include respiratory obstruction, epistaxis, facial paralysis or involvement of the eye.

**This disease is endemic or potentially endemic to 184 countries.**

### Pentastomiasis - Linguatula in Israel

A case report of ocular linguatulosis in an Arab child was published in 1987.\(^3\)

**References**

### Pericarditis - bacterial

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM. <em>Streptococcus pneumoniae, Staphylococcus aureus</em>, et al</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Endogenous</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>Variable</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Ultrasonography and cardiac imaging techniques. Culture of pericardial fluid (include mycobacterial culture).</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Antimicrobial agent(s) appropriate to known or anticipated pathogen. Drainage as indicated</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>As for adult</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Fever, chest pain and dyspnea; patients are acutely ill and have overt signs such as venous distention, and an enlarged cardiac 'shadow'; concurrent pneumonia or upper respiratory infection may be present; case-fatality rate = 20%</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Bacterial pericarditis, Pericardite. ICD9: 074.23,074.2,115.03,420 ICD10: I30</td>
</tr>
</tbody>
</table>

### Clinical

Viral pericarditis often follows a prodrome of upper respiratory infection.
- Typical findings include fever and chest pain. ¹ ²
- The pain may be pleuritic or positional (ie, exacerbated by bending forward) and associated with signs and symptoms of congestive heart failure.
- Concurrent myocarditis, pneumonia or pleuritis are often present.

**This disease is endemic or potentially endemic to all countries.**

### References

**Perinephric abscess**

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM OR FUNGUS. <em>Escherichia coli</em>, other facultative gram negative bacilli, <em>Candida albicans</em>, et al</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>None</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Variable</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Urine and blood culture. Renal imaging (CT, etc).</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Antimicrobial agent(s) appropriate to known or anticipated pathogen. Surgery as indicated</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Unexplained fever, leukocytosis and flank pain; patients are typically over age 50, often diabetic; consider in the patient with nonresponsive 'pyelonephritis' or a renal mass (by examination or x-ray).</td>
</tr>
<tr>
<td>Synonyms</td>
<td></td>
</tr>
</tbody>
</table>

**Clinical**

Symptoms may be overt or subtle, and limited to unexplained fever; indeed, 33% of such lesions are first diagnosed at autopsy.
- Typical patients are female and over the age of 50. 1-3
- Diabetes and evidence for preceding or current urinary tract infection or bacteremia (including endocarditis) may be present.

**This disease is endemic or potentially endemic to all countries.**

**References**

# Perirectal abscess

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM. Various (often mixed anaerobic and aerobic flora)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Endogenous</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>Variable</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Culture of drainage material.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Surgical drainage and antibiotics effective against fecal flora</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>As for adult</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Anal or perianal pain with fever and a tender mass suggest this diagnosis; granulocytopenic patients commonly develop small, soft and less overt abscesses - often due to <em>Pseudomonas aeruginosa</em>.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td></td>
</tr>
</tbody>
</table>

## Clinical

Perirectal abscess is a self-defined illness usually associated with overt local pain, swelling, tenderness and fluctuance. 1

- Abscesses in neutropenic patients are often more subtle, and may present as unexplained fever without marked local findings.

**This disease is endemic or potentially endemic to all countries.**

## References

Peritonitis - bacterial

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Various (often mixed anaerobic and aerobic flora)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Endogenous</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Variable</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Culture of blood and peritoneal fluid. Peritoneal fluid cell count may also be useful.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Antimicrobial agent(s) appropriate to known or anticipated pathogens. Surgery as indicated</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Abdominal pain and tenderness, vomiting, absent bowel sounds, guarding and rebound; diarrhea may be present in children; search for cause: visceral infection or perforation, trauma, underlying cirrhosis (spontaneous peritonitis) etc.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Acute peritonitis, Bacterial peritonitis, Peritonite.</td>
</tr>
<tr>
<td></td>
<td>ICD9: 567</td>
</tr>
<tr>
<td></td>
<td>ICD10: K65</td>
</tr>
</tbody>
</table>

Clinical

Bacterial peritonitis following trauma, infection or perforation of an abdominal viscus is usually overt clinically.  

Spontaneous bacterial peritonitis is somewhat more subtle, and should be suspected when unexplained deterioration occurs in a patient with ascites or chronic liver disease.  
• As many as 30% of patients are asymptomatic, and the remainder present with fever, chills, abdominal pain, diarrhea, increasing ascites, encephalopathy or renal dysfunction.
• Abdominal tenderness, guarding and hypotension may be present.
• Bacteremia is a poor prognostic factor in these patients.

This disease is endemic or potentially endemic to all countries.

References

**Pertussis**

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. <em>Bordetella pertussis</em> An aerobic gram-negative coccobacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Air Infected secretions</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>7d - 10d (range 5d - 21d)</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Respiratory precautions. <em>Erythromycin</em> 500 mg QID X 10d. Alternatives: <em>Azithromycin</em>, <em>Clarithromycin</em></td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Respiratory precautions: <em>Erythromycin</em> 10 mg/kg QID X 10d. Alternatives: <em>Azithromycin</em>, <em>Clarithromycin</em></td>
</tr>
<tr>
<td>Vaccines</td>
<td>DTap DTP</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Coryza, paroxysmal cough, occasional pneumonia or otitis; lymphocytosis; most often diagnosed in young children; epistaxis and subconjunctival hemorrhage often noted; seizures (below age 2); case-fatality rate = 0.5%.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Bordetella holmesii, Bordetella parapertussis, Bordetella pertussis, Coqueluche, Keuchhusten, Kikhosta, Kikhoste, Kinkhoest, Parapertussis, Pertosse, Syndrome coqueluchoide, Tos convulsa, Tos farina, Tosse convulsa, Tussis convulsa, Whooping cough.</td>
</tr>
</tbody>
</table>

**Clinical**

**WHO Case definition for surveillance:**

Clinical case definition
- A person with a cough lasting at least 2 weeks with at least one of the following:
  - paroxysms (i.e. fits) of coughing
  - inspiratory whooping
  - post-tussive vomiting (i.e. vomiting immediately after coughing)
  - without other apparent cause

Laboratory criteria for diagnosis
- Isolation of *Bordetella pertussis*, or
- Detection of genomic sequences by polymerase chain reaction (PCR)

Case classification
- Suspected: A case that meets the clinical case definition.
- Confirmed: A person with a cough that is laboratory-confirmed.

**Acute illness:**

Following an incubation period of 7 to 10 days (range 6 to 20) the patient develops coryza and cough (the catarrhal stage).
- After one to two weeks, the cough progresses into the paroxysmal stage.
- Post-tussive vomiting is common, and young children and older infants may exhibit an inspiratory "whoop."
- Among infants younger than six months, apnea is common and the whoop may be absent.
- The paroxysmal stage lasts three to four weeks (range one to six).
- The convalescent stage lasts for two to four weeks.

**Complications:**

Infants are at increased risk of complications from pertussis, while pertussis among adolescents and adults tends to be milder and may be limited to a persistent cough.

- Over 70% of infants younger than 6 months require hospitalization.
- Complications of pertussis can include secondary bacterial pneumonia (the most common cause of death in pertussis), seizures and encephalopathy.
- Other, less serious complications include otitis media and dehydration.
- Severe coughing can lead to pneumothorax, epistaxis, subdural hematoma, hernia, and rectal prolapse.
- Pertussis in adults is often characterized by unexplained prolonged cough.
- Pertussis-RSV infection is common.
• Rare cases of hemolytic-uremic syndrome have been ascribed to pertussis 9 10
• Human Bocavirus infection may mimic the symptoms of pertussis 11

Parapertussis is caused by *Bordetella parapertussis*, and shares many of the clinical features of pertussis.
• 70% of infections are asymptomatic.

This disease is endemic or potentially endemic to all countries.

**Pertussis in Israel**

Routine immunization was introduced in 1957.
- Tdap-IPV was vaccination of elementary school students was introduced in 2005.

**Vaccine Schedule:**
- DTaP - 2, 4, 6 months; 1 year
- Tdap-IPV - second year of elementary school
- HepA - 18, 24 months
- HepB - birth; 1, 6 months
- Hib - 2, 4, 6 months; 1 year
- IPV - 2, 4, 12 months; 7 years
- MMR - 12 months; 6 years
- Td - 8-9, 13-14 years
- Varicella - 12 months and 6-7 years

**Prevalence surveys:**
- 7% of winter respiratory tract infections in an outpatient setting (1998 publication) 12
- 15% of infants <1 year admitted to a pediatric ICU in southern Israel (2007 publication) 13
- 0.6% of children ages <= 2 years hospitalized with acute bronchiolitis (as sole pathogen, 2005 to 2006) 14

**Seroprevalence surveys:**
- 58.6% of military recruits. Pertussis is a common cause of persistent cough among Israeli soldiers (2005 publication) 15
Notes:
1. Pertussis has been a reportable disease since 1951.
2. During 1961 to 1966, only cases in the age group 0 to 4 years were reportable.
3. Serosurveys suggested a rate of 2,448 per 100,000 during 2000 to 2001, as opposed to the officially reported disease rate of 5.6 per 100,000. 16
4. 1,736 cases were reported in Jerusalem during 1990 to 2009 - rates per 100,000 = 2.6 in 1990, 10 in 2000, 28.8 in 2006, 22 in 2008 and 15.7 in 2009. 17

Notes:
1. 38 deaths were ascribed to pertussis during 1951 to 1952
Notable outbreaks:
- 1991 - An outbreak (91 cases) was reported on a kibbutz. 18
- 2001 - An outbreak (75 cases) was reported in a military unit. 19
- 2010 (publication year) - An outbreak was reported in a daycare center for children. 20

UNRWA, West Bank and Gaza:

The population administered by UNRWA is given DTP at ages 2, 3, 4, and 15 months; with DT at age 6 years.
In the West Bank and Gaza, routine vaccination (DTP) is administered at ages 2, 4, 6 and 12 months.
Graph: West Bank and Gaza. Pertussis, cases - GIDEON

© 2011 - GIDEON Informatics Inc - www.gideononline.com

References

16. Vaccine 2010 Mar 9;
17. Vaccine 2010 Nov 2;
Pharyngeal & cervical space infx.

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. <em>Streptococcus pyogenes</em>, mixed oral anaerobes, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Endogenous</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Variable</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Careful examination of region and X-ray (or CT scan). Smear and culture of pus if available.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Surgical drainage and parenteral antibiotics effective against oral flora</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Fever, painful swelling and displacement of the tongue, fauces and other intraoral structures; dysphagia, dyspnea or jugular phlebitis may ensue in more virulent infections.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Cervical space infection, Lemmier's syndrome, Ludwig's angina, Post-anginal septicemia, Quinsy. ICD9: 682.0,682.1 ICD10: J36,J39.0,J39.1</td>
</tr>
</tbody>
</table>

Clinical

Signs and symptoms reflect the site of infection: ¹
- masticator, buccal, canine or parotid spaces
- submandibular, submaxillary and submandibular spaces (Ludwig's angina)
- lateral pharyngeal, retropharyngeal or paratracheal spaces
- peritonsillar tissues (quinsy)
- jugular vein (post-anginal septicemia = Lemmierre's syndrome) ² ³

**Lemmierre's syndrome** is a potentially fatal infection caused by *Fusobacterium necrophorum*.
- The condition is most common among young healthy persons and typically begins with pharyngotonsillitis which spreads to the parapharyngeal spaces to produce septic phlebitis of the internal jugular vein. ⁴-⁶
- Submandibular edema and tenderness along the sternocleidomastoid muscle are noted, usually unilaterally.
- After one to two weeks, the patient develops multiple metastatic abscesses of the lungs, muscles ⁷, bones, joints ³ or rarely, brain.
- Hyperbilirubinemia and mild disseminated intravascular coagulation may be present.
- The case-fatality rate is 4% to 33%, even with appropriate antimicrobial therapy.

This disease is endemic or potentially endemic to all countries.

References

### Pharyngitis - bacterial

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM. Most often <em>Streptococcus pyogenes</em>; Str. groups B, C, F and G are occasionally isolated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Droplet Rarely food</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>1d - 5d</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Throat swab for culture or antigen detection (group A <em>Streptococcus</em>) ASLO titer may not indicate current infection</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Penicillin G or Penicillin V or other antistreptococcal antibiotic to maintain serum level for 10 days</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>As for adult</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Purulent pharyngitis and cervical lymphadenopathy usually indicate streptococcal etiology; however, viruses (mononucleosis, enteroviruses) and other bacteria (gonorrhea, diphtheria) should also be considered.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Acute pharyngitis, Bacterial pharyngitis, Mal di gola batterica, Oral thrush, Streptococcal pharyngitis, Tonsillitis - bacterial, Vincent's angina.</td>
</tr>
</tbody>
</table>

### Clinical

This is a self-defined condition characterized by erythema and pain in the pharynx, often associated with fever, dysphagia and upper respiratory tract infection.  

This disease is endemic or potentially endemic to all countries.

### Pharyngitis - bacterial in Israel

#### Notable outbreaks:
1. 1976 (publication year) - An outbreak of food-borne streptococcal pharyngitis was reported.  
2. 1982 (publication year) - An outbreak of presumed food-borne group A streptococcal pharyngitis was reported at a military training base.  
3. 1983 - An outbreak (50 cases) of food-borne group G streptococcal pharyngitis was reported at a military camp.  
4. 1987 to 1988 - An outbreak (200 cases, approximate) of streptococcal pharyngitis was reported on a kibbutz.  
5. 1988 - An outbreak of presumed food-borne group A streptococcal pharyngitis was reported at a military base.  
6. 1992 - An outbreak (197 cases) of food-borne group A streptococcal pharyngitis was reported at an Air Force base.  
7. 1994 (publication year) - An outbreak (75 cases) of group A streptococcal pharyngitis was reported among soldiers.  
8. 2003 - An outbreak (212 cases) of food-borne group A streptococcal pharyngitis was reported among workers at a factory.  
9. 2003 - An outbreak (83 cases) of group A streptococcal pharyngitis at a high tech company was associated with eating corn.  

### References

Pityriasis rosea

Agent: UNKNOWN. Human herpesvirus 7 has been implicated
Reservoir: Unknown
Vector: Unknown
Vehicle: Unknown
Incubation Period: Unknown
Diagnostic Tests: Clinical features.
Typical Adult Therapy: Supportive; ultraviolet B exposure is suggested
Typical Pediatric Therapy: As for adult
Clinical Hints: 3 to 8 week illness; herald patch followed by crops of salmon-colored macules and papules; pruritus; systemic symptoms rare.

Clinical

Pityriasis rosea is a mild exanthem characterized by oval or round macules or papules which evolve following the appearance of a "herald patch" (80% of cases).
• Fine desquamation and pruritus are common.
• Rarely, the condition may recur. ¹
• In Black patients, Pityriasis rosea may present with facial and scalp involvement, post-inflammatory disorders of pigmentation and papular lesions. ²
• The disease should be distinguished from secondary syphilis • the latter characterized by prominent lymphadenopathy; lack of pruritis and herald patch; and accompanying fever and systemic signs. ³

This disease is endemic or potentially endemic to all countries.

References

## Plague

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. <em>Yersinia pestis</em> A facultative gram-negative bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Rodent  Rabbit  Cat  Wild carnivore</td>
</tr>
<tr>
<td>Vector</td>
<td>Flea (Pulex; Xenopsylla)</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Air Contact</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>2d - 7d (range 1d - 14d)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Culture (blood, sputum, pus). Fluorescent (DFA) staining of pus. Nucleic acid amplification.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Strict isolation. Gentamicin 2 mg/kg IV loading dose, then 1.7 mg/kg Q8h. OR Streptomycin 15 mg/kg q12h X 10d. OR Doxycycline 100 mg PO BID X 10d. OR Chloramphenicol 20 mg/kg PO QID</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Gentamicin 2 mg/kg IV loading dose, then 1.7 mg/kg Q8h OR Streptomycin 10 mg/kg q8h X 10d. OR Chloramphenicol 15 mg/kg PO QID X 10d</td>
</tr>
<tr>
<td>Vaccine</td>
<td>Plague</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Suppurative lymphadenitis; septicemia; hemorrhagic pneumonia; history of animal contact in many cases; case-fatality rates for bubonic plague without therapy are 50% to 60%.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Black death, Black plague, Bubonic plague, Glandular plague, Hemorrhagic plague, Peste, Pneumonic plague, Saint Roch's disease, Yersinia pestis.</td>
</tr>
<tr>
<td>ICD9:</td>
<td>020</td>
</tr>
<tr>
<td>ICD10:</td>
<td>A20</td>
</tr>
</tbody>
</table>

### WHO Case definition for surveillance:
Disease characterized by rapid onset of fever, chills, headache, severe malaise, prostration, with
- bubonic form: extreme painful swelling of lymph nodes (buboes)
- pneumonic form: cough with blood-stained sputum, chest pain, difficult breathing
- Note: Both forms can progress to a septicemic form with toxemia: sepsis without evident buboes rarely occurs.

Laboratory criteria for diagnosis
- Isolation of *Yersinia pestis* in cultures from buboes, blood, CSF or sputum or
- Passive hemagglutination (PHA) test, demonstrating an at least fourfold change in antibody titer, specific for F1 antigen of *Y. pestis*, as determined by the hemagglutination inhibition test (HI) in paired sera.

Case classification
- Suspected: A case compatible with the clinical description. May or may not be supported by laboratory finding of Gram stain negative bipolar cocccobacilli in clinical material (bubo aspirate, sputum, tissue, blood).
- Probable: A suspected case with Positive direct fluorescent antibody (FA) test for *Y. pestis* in clinical specimen; or passive hemagglutination test, with antibody titer of at least 1:10, specific for the F1 antigen of *Y. pestis* as determined by the hemagglutination inhibition test (HI); or epidemiological link with a confirmed case.
- Confirmed: A suspected or probable case that is laboratory-confirmed.

### Symptoms:
The initial features of plague are nonspecific and include fever, chills, myalgias, pharyngitis, headache.
- Regional lymph nodes are enlarged, painful and extremely tender.
- Additional features, notably in patients with septicemic or pneumonic plague include nausea, vomiting, diarrhea, hematemesis, hematochezia, cough with hemoptysis, dyspnea and signs of meningitis.

### Signs:
The physical examination reveals fever, tachycardia, tachypnea, and hypotension.
- Buboes are usually inguinal (60% to 90%), axillary (30%), cervical (10%), or epitrochlear (10%).
- Femoral nodes are involved more frequently than inguinal nodes.
- Nodes are typically no larger than 5 cm, extremely tender, erythematous, and surrounded by a boggy hemorrhagic area.
- A maculopapular lesion may be found at the site of the flea bite.
- Acral cyanosis, ecchymosis, petechiae, and digital gangrene are seen in patients with septicemic plague.
- Signs of septic shock or DIC may also be present.

### Plague pneumonia:
Primary plague pneumonia follows an incubation period of 1 to 3 days, with sudden onset of fever, chills, headache and
malaise. 
- Cough is prominent, with copious sputum production, chest pain and dyspnea.
- Profuse hemoptysis is common.
- Physical examination reveals rales and diffuse areas of dullness to percussion.
- Untreated plague pneumonia is virtually always fatal.

Rare instances of gastrointestinal plague have been associated with ingestion of contaminated meat.

**This disease is endemic or potentially endemic to 38 countries.** Although Plague is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

**Plague in Israel**

287 cases (94 fatal) were reported during the twentieth century - with outbreaks in 1914 (Jaffa); 1921 to 1924 (Haifa and Jaffa); and 1941 to 1947 (Tel Aviv, Afula, Haifa and Jaffa - 198 cases, 65 fatal).

![Graph: Israel. Plague, cases - GIDEON](image)

**Notable outbreaks:**
- 1941 - An outbreak (10 cases) was reported in Haifa.
- 1943 to 1943 - An outbreak (15 cases, 9 fatal) was reported in Jaffa.

**References**

2. ProMED <promedmail.org> archive: 20060528.1500
4. ProMED <promedmail.org> archive: 20060614.1650
Plesiomonas infection

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Plesiomonas shigelloides A facultative gram-negative bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Fish Animal Soil Reptile Bird</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Water Food</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>1d - 2d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Stool culture - alert laboratory when this organism is suspected.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Stool precautions. Antimicrobial agent per in-vitro susceptibility (Ciprofloxacin considered 'drug of choice')</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Stool precautions. Antimicrobial agent per in-vitro susceptibility. Fluid replacement</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Fever, abdominal pain, vomiting and severe diarrhea; symptoms often persist for 2 to 4 weeks; follows ingestion of shellfish or recent travel to developing countries in many cases.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Plesiomonas shigelloides. ICD9: 008.8 ICD10: A04.8</td>
</tr>
</tbody>
</table>

Clinical

The infection is characterized by a self-limited diarrhea, often with blood or mucus in stool.1
- Watery diarrhea is most common; however, a cholera-like illness with as many 30 bowel movements per day may occur.
- Associated abdominal pain may mimic that of appendicitis, including enlargement of peritoneal lymph nodes.2
- Fecal leukocytes are present.
- As many as 30% of cases continue for over four weeks, and symptoms may persist for as long as 3 months.
- Rare instances of fatal meningitis and septicemia3-13 have been reported, as have proctitis14, cellulitis and dermal abscesses15, pneumonia16, pleural effusion17, osteomyelitis18, cholecystitis19, peritonitis2021, salpingitis22, epididymo-orchitis23, pancreatitis24, splenic abscess25 and endophthalmitis.26
- 21 cases of Plesiomonas septicemia had been reported as of 1996.27

This disease is endemic or potentially endemic to all countries.

Plesiomonas infection in Israel

Prevalence surveys:
1.3% of childhood diarrhea in Gaza (2006 to 2007)28

References

12. Heart Lung 2009 Sep 10;
Pleurodynia

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - RNA. Picornaviridae: Coxsackievirus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Air  Fecal-oral  Fomite</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>3d - 5d</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Sore throat followed by pleuritic chest pain - a late summer illness in temperate regions; pain is often recurrent and appears in 'waves' - local pressure on affected area may elicit identical pain; usually resolves within one week.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Balme disease, Bamie disease, Bornholm disease, Devil's grip, Drangedal disease, Epidemic benign dry pleurisy, Epidemic myalgia, Sylvest's disease. ICD9: 074.1 ICD10: B33.0</td>
</tr>
</tbody>
</table>

Clinical

Pleurodynia is characterized by a prodrome of upper respiratory tract infection, followed by abrupt onset of pleuritic chest pain. ¹
• The pain may be severe and lead to a misdiagnosis of myocardial infarction.
• Some patients present with abdominal pain suggestive of peritonitis.
• Important diagnostic features include appearance of cases in clusters (often in late summer to autumn) and lack of leucocytosis or other findings suggestive of pneumonia or peritonitis.

This disease is endemic or potentially endemic to all countries.

Pleurodynia in Israel

**Notable outbreaks:**
1975 - An outbreak (148 cases) of Coxsackievirus B1 infections on a kibbutz were characterized by fever, gastrointestinal and upper respiratory symptoms, pleurodynia and myocarditis. ²

References

# Pneumocystis pneumonia

**Agent**
FUNGUS. Ascomycota ?, Archiascomycetes, Pneumocystidales: Pneumocystis jiroveci (now separate from Pneumocystis carinii)

**Reservoir**
Human

**Vector**
None

**Vehicle**
? Air

**Incubation Period**
4d - 8w

**Diagnostic Tests**
Identification of organisms in induced sputum, bronchial washings, tissue. Serology. Nucleic acid amplification.

**Typical Adult Therapy**
Therapy: **Sulfamethoxazole/trimethoprim** 25 mg/5 mg/kg QID X 14d. OR **Pentamidine** 4 mg/kg/d X 14d. OR **Dapsone + Trimethoprim.** OR **Atovaquone** OR **Primaquine + Clindamycin** Prophylaxis - similar, but at altered dosage. **Dapsone** also used.

**Typical Pediatric Therapy**
Therapy: **Sulfamethoxazole/trimethoprim** 25 mg/5 mg/kg QID X 14d. OR **Pentamidine** 4 mg/kg/d X 14d. OR **Dapsone + Trimethoprim.** OR **Atovaquone** OR **Primaquine + Clindamycin** Prophylaxis - similar, but at altered dosage.

**Clinical Hints**
Dyspnea, hypoxia and interstitial pneumonia; usually encountered in the setting of severe immune suppression (AIDS, leukemia, etc); roentgenographic findings (typically bilateral alveolar pattern) may follow symptoms only after several days.

**Synonyms**
PCP, Pneumocystis carinii, Pneumocystis jiroveci.
ICD9: 136.3
ICD10: B59

---

## Clinical

*P. jiroveci* infection often presents as a self-limiting upper respiratory tract infection in infants, predominantly in the age group 1.5 to 4 months of age.

The major presenting symptoms are shortness of breath, fever, and a nonproductive cough. ¹
- Sputum production, hemoptysis and chest pain are rarely encountered. ²
- Tachypnea and tachycardia are usually prominent
- Children may demonstrate cyanosis, flaring of the nasal alae, and intercostal retractions.

Lung auscultation is usually not helpful, with rales present in only 1/3 of adults with this disease.
- The x-ray usually shows bilateral diffuse infiltrates extending from the perihilar region. ³
- Other findings can unilateral infiltrates, nodules, cavities, pneumatoceles, hilar lymphadenopathy and pleural effusion.
- Patients receiving aerosolized pentamidine as prophylaxis have an increased incidence of apical infiltrates and pneumothorax.
- Impaired oxygenation is common.

Extrapulmonary infection by *P. jiroveci* may occur in as many as 3% of infected patients and is reported as an unexpected finding at autopsy.
- The main sites of involvement are lymph nodes, spleen, liver, bone marrow, gastrointestinal tract, eyes ⁴, thyroid, adrenal glands, and kidneys.
- The clinical correlate of these findings is rapidly progressive multisystem disease, an enlarging thyroid mass, pancytopenia, retinal infiltrates, pleural effusion, splenic lesions, and calcifications in the spleen, liver, adrenal, or kidney.

This disease is endemic or potentially endemic to all countries.

## References

## Pneumonia - bacterial

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. <em>Streptococcus pneumoniae</em>, Klebsiella pneumoniae ssp pneumoniae, other aerobic and facultative gram negative bacilli, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Droplet Endogenous infection</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>1d - 3d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Culture of sputum, blood. Analyze (&quot;grade&quot;) sputum cytology to assess significance of culture.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Antimicrobial agent(s) appropriate to known or suspected pathogen</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Vaccine</td>
<td>Pneumococcal</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Rigors (&quot;shaking chills&quot;), pleuritic pain, hemoptysis, lobar infiltrate and leukocytosis; empyema and lung abscess suggest etiology other than pneumococcus; foul sputum with mixed flora may herald anaerobic (aspiration) pneumonia.</td>
</tr>
</tbody>
</table>

### Clinical

The designation "Pneumonia • bacterial" in this module is generic, and includes a large variety of etiological agents and anatomical presentations (ie, empyema, lung abscess, lobar• vs. broncho-pneumonia, etc.)

- The clinical features of bacterial pneumonia are largely determined by the infecting species and clinical setting. 1-4
- All forms are characterized by fever, chest pain, productive cough, and physical or roentgenographic evidence for pulmonary consolidation.

#### Etiological associations:
- AIDS: *Pneumocystis jiroveci*, Mycobacteria (non-tuberculous), Tuberculosis, Nocardiosis, Cryptococcus, Cytomegalovirus
- Animal contact: Q-fever, Ornithosis
- Aspiration: Oral Anaerobes; if nosocomial, Enterobacteriaceae, *Acinetobacter, Pseudomonas*
- Cystic fibrosis (Fibrocystic disease) • *Burkholderia cepacia*
- Drowning ("near-drowning"): *Pseudoallescheria boydii*
- Endocarditis: *Staphylococcus aureus*
- Immunosuppression: Aspergillosis, Cryptococcus, Nocardiosis, *Pneumocystis jiroveci*, Cytomegalovirus
- Infant: see Respiratory syncytial virus, Parainfluenza virus, Respiratory viruses • misc.
- Influenza: Influenza virus, *Streptococcus pneumoniae, Staphylococcus aureus*
- Myeloma: *Staphylococcus pneumoniae*
- Nosocomial pneumonia: Enterobacteriaceae, *Acinetobacter, Pseudomonas, Staphylococcus aureus*
- Pulmonary alveolar proteinosis: *Nocardia*
- Traveler or tourist: Histoplasmosis, Legionellosis, Melioidosis

### This disease is endemic or potentially endemic to all countries.

### Pneumonia - bacterial in Israel
References

**Poliomyelitis**

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - RNA. Picornaviridae, Picomavirus: Polio virus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Fecal-oral Dairy products Food Water Fly</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>7d - 14d (range 3d - 35d)</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Stool precautions; supportive</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Vaccines</td>
<td>Poliomyelitis - injectable Poliomyelitis - oral</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Sore throat, headache, vomiting and myalgia followed by flaccid paralysis; meningeal involvement in 1% of cases - paralysis in only 0.1%. paralysis tends to be more extensive in adult patients.</td>
</tr>
</tbody>
</table>

**ICD9:** 045  
**ICD10:** A80

**Clinical**

**CDC (The United States Centers for Disease Control) case definition for surveillance:**

For surveillance purposes, the CDC (The United States Centers for Disease Control) case definition of paralytic poliomyelitis requires, "Acute onset of a flaccid paralysis 1 of one or more limbs with decreased or absent tendon reflexes in the affected limbs, without other apparent cause, and without sensory or cognitive loss."

- A 'confirmed case' requires persistence of the neurological deficit 60 days after onset of initial symptoms, fatal illness or unknown follow-up status.

The WHO Case definition for surveillance includes any child under fifteen years of age with acute, flaccid paralysis or any person with paralytic illness at any age when poliomyelitis is suspected.

Poliomyelitis is typically a late summer illness in temperate climates, and often begins as a mild upper respiratory tract infection.

- In some cases, the disease follows vaccination (live vaccine) or recent contact with a vaccinee.
- Patients have been known to excrete virus for as long as ten years following an episode of poliomyelitis
- Antecedent injection in a given site may precipitate paralytic poliomyelitis in the same limb.

90% to 95% of poliomyelitis infections are asymptomatic.

- Symptoms include fever, sore throat, headache, vomiting and still neck.
- Paralysis is typically asymmetrical, and most often involves the lower extremities.
- Bulbar paralysis or encephalitis may occur in patients in the absence of limb paralysis.
- 4% to 8% experience minor symptoms, and 1% to 2% develop paralysis.
- Paralysis is most common in the very young and very old, following minor blunt trauma to a limb, and among persons who had undergone tonsillectomy.
- The case/fatality rate for paralytic poliomyelitis in 2% to 10%.

**This disease is endemic or potentially endemic to 87 countries.** Although Poliomyelitis is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

**Poliomyelitis in Israel**

Routine use of Salk vaccine was introduced in 1957, and replaced by Sabin vaccine in 1961.  
- OPV was previously administered at 4, 6, 12 months; 6, 13 years
- OPV was discontinued in 2005.

**Vaccine Schedule:**
- DTaP - 2, 4, 6 months; 1 year
- Tdap-IPV - second year of elementary school
- HepA - 18, 24 months
- HepB - birth; 1, 6 months
- Hib - 2, 4, 6 months; 1 year
- IPV - 2, 4, 12 months; 7 years
- MMR - 12 months; 6 years
- Td - 8-9, 13-14 years
- Varicella - 12 months and 6-7 years

Seroprevalence surveys:
- 90% toward type 1, 84% type 2 and 79% type 2 (kibbutz residents, 1980 to 1981)  
- 98.7% toward type 1, 99.6% toward type 2 and 96.4% toward type 3 (Army recruits, 1997)  
- 99.3% toward type 1, 98.6% toward type 2 and 99.3% toward type 3 (foreign workers, 2005 publication)
Notes:
1. Poliomyelitis has been a reportable disease since 1951.
2. Type 1 virus has predominated during years of high incidence.
3. 2,539 cases of paralytic disease were reported during the epidemic of 1950 to 1951.  
4. A total of 4,700 cases were reported during 1950 to 1954, with 760 deaths and 3,200 cases of permanent paralysis.
5. Also see reference 16

Individual years:
1988 - Included 12 cases from Or Akiva. A subsequent mass vaccination program resulted in virtually 100% coverage (94% to 100% for children) - see references below.
1995 - Two suspect cases (including a single case of vaccine-associated disease = the ninth such case since 1972) were reported.
Notes:
1. 10 deaths were ascribed to poliomyelitis during 1925 to 1929; 12 during 1930 to 1934; 12 during 1935 to 1939; 13 during 1940 to 1944; 5 during 1945 to 1948.

Notable outbreaks:
- 1950 to 1951 - An outbreak (2,444 cases, 26 fatal) was reported.  17-20
- 1958 - An outbreak (633 cases) was reported.  21  22
- 1961 (publication year) - An outbreak was reported.  23
- 1988 - An outbreak (16 cases, including 12 in Or Akiva) was reported. A subsequent mass vaccination program resulted in virtually 100% coverage (94% to 100% for children).  24-34

UNRWA, West Bank and Gaza:
The population administered by UNRWA is given OPV at birth; and ages 2, 3, 4, 9 and 15 months.
The population of the Gaza Strip and West Bank is given OPV at ages 2, 4, 6 and 12 months; and 6 years; or IPV at ages 1 and 2 months.

Epidemics were reported from the Gaza Strip in 1974 and 1976, with attack rates of 18 per 100,000. Over 220 cases were reported from Judea, Samaria and the Gaza Strip during 1984 to 1990.
Notes:
1. 320 cases were reported during 1973 to 1977; 77 during 1978 to 1982; 13 during 1983 to 1987.
Notable outbreaks:
1974 to 1976 - Outbreaks (152 cases in two outbreaks) were reported in Gaza. 39 40

References
### Protothecosis and chlorellosis

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>ALGA. <em>Prototheca wickerhamii</em>; rarely <em>Pr. zopfii</em>, <em>Pr. cutis</em> Achloric algae <em>Chlorella spp.</em> contain chloroplasts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>A rare animal pathogen (cat, dog, cattle). <em>Chlorella spp.</em> are reported to infect domestic and wild mammals.</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Water, Sewage, Food, Local trauma</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>Unknown</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Culture on fungal media. Biopsy. Nucleic acid amplification.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Surgical excision. There are anecdotal reports of successful therapy with <em>Amphotericin B</em>, <em>Ketoconazole</em> and <em>Itraconazole</em> (latter 200 mg/day X 2 months) or <em>voriconazole</em></td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>As for adult (<em>Itraconazole</em> 2 mg/kg/day X 2 months)</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>May follow immune suppression or skin trauma; dermal papules, plaques, eczematoid or ulcerated lesions; olecranon bursitis; systemic infection also reported.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Chlorellosis, Prototheca, Protothecosis.</td>
</tr>
<tr>
<td><strong>ICD9:</strong></td>
<td>136.8</td>
</tr>
<tr>
<td><strong>ICD10:</strong></td>
<td>B99</td>
</tr>
</tbody>
</table>

### Clinical

Four forms of disease are reported:
- cutaneous infection
- olecranon bursitis
- disseminated
- onychomycosis 1 2

The incubation period of protothecosis is unknown; however, infections which have followed trauma have appeared after approximately two weeks. 3
- Most cases presented as a single painless, slowly progressive, well-circumscribed plaque or papulonodular skin lesion that may become eczematoid or ulcerated. 4 5
- Soft tissue lesions favor the olecranon bursa; sites of minor trauma or corticosteroid injection; or surgical wounds which have been exposed to soil or water. 6 7
- Lesions enlarge gradually over weeks to months, with no tendency for healing.
- Other presentations have included tenosynovitis 8; algemia complicating immune-suppression 9; nasopharyngeal ulcerated lesion followed prolonged intubation, and infection of ambulatory peritoneal catheters.
- Skin lesions in HIV-infected patients are similar to those of healthy patients.
- Peritonitis due to *P. wickerhamii* has been reported in peritoneal dialysis patients. 10

A single case of *Chlorella* wound infection has been reported. 11

### References

Pseudocowpox

Agent | VIRUS - DNA. Poxviridae, Parapoxvirus: Pseudocowpox virus
Reservoir | Cattle
Vector | None
Vehicle | Contact
Incubation Period | 5d - 14d
Typical Adult Therapy | Supportive
Typical Pediatric Therapy | As for adult
Clinical Hints | Umbilicated nodule on the hand following contact with cattle; mild regional lymphadenopathy.
Synonyms | Bovine papular stomatitis, Farmyard pox, Milker's nodule, Sealpox.
ICD9: 051.1
ICD10: B08.0

Clinical

Pseudocowpox is mild and self-limited and characterized by a red-to-blue dermal nodule associated with minimal lymphadenopathy.¹

This disease is endemic or potentially endemic to all countries.

Pseudocowpox in Israel

Milkers' nodules were first described in Israel in 1936.

References

Clinical

**Impetigo** is characterized by multiple superficial lesions caused by group A-hemolytic streptococci and/or *Staphylococcus aureus*.  
- The lesions consist of pustules that rupture and form a characteristic honey-colored crust.  
- Lesions caused by staphylococci are associated with tense, clear bullae (bullous impetigo).  
- Ecthyma is a variant of impetigo that usually presents as punched-out ulcers on the lower extremities.  
- Streptococcal impetigo is most common among children 2 to 5 years of age, and epidemics may occur in settings of poor hygiene, lower socioeconomic status or tropical climates.  
- The most important complication of impetigo is poststreptococcal glomerulonephritis.

**Folliculitis** is most often caused by *Staphylococcus aureus*.  
- Blockage of sebaceous glands may result in sebaceous cysts, which may present as extensive abscesses or become secondarily infected.  
- Infection of specialized sweat glands (hidradenitis suppurativa) occur in the axillae.  
- Chronic folliculitis is a hallmark of acne vulgaris, in which normal flora (e.g., *Propionibacterium acnes*) may play a role.  
- Diffuse folliculitis may herald infection by *Pseudomonas aeruginosa* or *Aeromonas hydrophila*, in waters that are insufficiently chlorinated and maintained at temperatures above 37 C. Although such Infection is usually self-limited, bacteremia and septic shock have been reported.

**Erysipelas** is caused by *Streptococcus pyogenes* and is characterized by abrupt onset of "fiery-red" superficial swelling of the face or extremities.  
- The lesion is typically recognized by the presence of well-defined indurated margins, particularly along the nasolabial fold; rapid progression; and intense pain.  
- Flaccid bullae may develop on the second or third day of illness; but extension to deeper soft tissues is rare.  
- Desquamation occurs between the fifth and tenth days of illness.

**Cellulitis** is characterized by local pain, erythema, swelling, and heat.  
- Cellulitis may be caused by any of a wide variety of bacteria or yeasts; however, *S. aureus* or *S. pyogenes* are most often implicated.  
- A history of preceding trauma, insect bite, needle insertion or surgery is often present.  
- Cultures of biopsy specimens or aspirates are positive in only 20% of cases.  
- Infection by *S. aureus* often spreads out from a localized infection (abscess, folliculitis) or foreign body.  
- Streptococcal cellulitis tends to be more diffuse and rapid in onset, and associated with lymphangitis and fever.  
- Streptococci also cause recurrent cellulitis in the setting of lymphedema resulting from elephantiasis or lymph node damage.  
- Recurrent staphylococcal cutaneous infections are encountered in patients with "Job's syndrome" (eosinophilia and elevated serum levels of IgE); and nasal carriers of staphylococci.
Cellulitis associated with animal bites is commonly caused by Pasteurella multocida, Staphylococcus intermedius and Capnocytophaga canimorsus (formerly DF-2) and is discussed separately in this module under 'Pasteurellosis, etc.'

- Human bites contain a variety of anaerobic organisms (Fusobacterium, Bacteroides), aerobic and anaerobic streptococci, and Eikenella corrodens.
- *Aeromonas hydrophila* causes an aggressive form of cellulitis following minor trauma in marine environments.
- *P. aeruginosa* is the most common cause of ecthyma gangrenosum and infection following penetrating injuries to the foot.
- Gram-negative bacillary cellulitis, (including *P. aeruginosa* infection) is common among hospitalized, immunocompromised patients.

**This disease is endemic or potentially endemic to all countries.**

Pyodermas (impetigo, abscess, etc) in Israel

**Notable outbreaks:**
2004 to 2005 - Outbreaks (128 cases in 4 outbreaks) of ecthyma among military personnel were associated with a single clone of *Streptococcus pyogenes*.  

**References**

## Pyomyositis

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM. Usually <em>Staphylococcus aureus</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Hematogenous</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>Variable</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Ultrasonography or CT scan.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Antibiotic directed at confirmed or suspected pathogen (usually <em>Staphylococcus aureus</em>); drainage</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>As for adult</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Pain, swelling and &quot;woody&quot; induration of a large muscle (usually lower limb or trunk) associated with fever and leukocytosis; often follows trauma to the involved region; lymphadenopathy uncommon; leucocytosis in most cases.</td>
</tr>
</tbody>
</table>
| **Synonyms** | Tropical pyomyositis. 
ICD9: 040.81 
ICD10: M60.0 |

## Clinical

The initiating lesion may be overt blunt or penetrating trauma; however, some cases may represent complications of viral or parasitic myositis.  
- An increasing percentage of reported patients have been HIV-positive.  
- 20 to 50% of patients with pyomyositis recall recent blunt trauma or vigorous exercise involving the area of infection; and most infections involve a single muscle or muscle group.  
- Rare cases of pyomyositis have been associated with spinal epidural abscess or Lemmiere's syndrome.  
- The major muscles of the lower extremities and trunk muscles are most often infected; however, virtually any muscle can be involved.  

Onset is often subacute with fever, swelling with or without erythema, mild pain and minimal tenderness.  
- The involved area is indurated or has a wooden consistency.  
- 10 to 21 or more days later, the patient complains of fever, with muscle tenderness and swelling.  
- Overlying skin is intact and warm, usually without erythema.  
- There is no regional lymphadenitis.  
- At this point, pus can be aspirated from the involved muscle.  
- Eventually, manifestations of sepsis appear, with local erythema, tenderness and fluctuance.  
- Additional symptoms may reflect compression of contiguous structures.  
- Acute, rapidly progressive and fatal infections are also encountered.  

Leukocytosis is present.  
- Eosinophilia suggests a diagnosis of ‘tropical myositis’ but is thought to represent the presence of concurrent parasitic infection.  

The clinical features of pyomyositis may mimic those of leptospirosis.  

### This disease is endemic or potentially endemic to all countries.

### References

Q-fever

Agent: BACTERIUM. Coxiella burnetii Intracellular organism related to Rickettsiae

Reservoir: Cattle, Sheep, Goat, Bird, Fish, Rodent, Rabbit, Tick, Bandicoot, Marsupial, Dog, Cat

Vector: None

Vehicle: Air, Dust, Infected secretions, Dairy products

Incubation Period: 18d - 21d (range 4d - 40d)


Typical Adult Therapy: Doxycycline 100 mg BID X 2w OR Fluoroquinolone Add Hydroxychloroquine 600 mg per day if endocarditis

Typical Pediatric Therapy: Age < 8 years: Erythromycin 10 mg/kg QID X 2 weeks Age >= 8 years: Doxycycline 100 mg BID X 2 weeks

Vaccine: Q fever

Clinical Hints: Headache, myalgia, cough and hepatic dysfunction; hepatosplenomegaly, 'F.U.O.' and endocarditis encountered; proximity to farming or animals during 2 to 4 weeks preceding illness; most infections resolve in 1 to 2 weeks; case-fatality rate = 1.5%.

Synonyms: Balkan grippe, Coxiella burnetii, Febbre australiana, Febre Q, Nine Mile fever, Q-Fieber, Q-koorts, Query fever, Red River fever.

ICD9: 083.0
ICD10: A78

Clinical

The typical clinical presentation of Q-fever (pneumonia vs. hepatitis) seems to vary from region to region. 1 2

Q-fever is often asymptomatic or mistaken for an acute viral illness.
- Q-fever may be mistaken for Legionnaires’ disease. 3
- After an incubation period of 2 to 3 weeks, the patients develops fever, headache, and myalgias. 4
- Cough is present in 25% to 70%, and hepatosplenomegaly in 30% to 50%.
- An evanescent rash may appear in 5% of cases.
- The blood CRP is elevated; however leukocytosis is present in only 20% of cases. 5 Acute thrombocytosis may also be encountered. 6

The frequency of pneumonitis is highly variable (10% to 60%) 7 8; and clinical and radiological features are non-specific. 9-11
- Additional complications have included acute acalculous cholecystitis and acute hemophagocytic syndrome. 12
- Neurological complications may include encephalitis, brachial plexopathy 13, status epilepticus and pseudotumor cerebri 14
- Several cases of Q-fever uveitis have been reported. 15

Occasionally, the illness may be prolonged, with severe pneumonitis 16 17 and hepatic involvement. 18 19
- Chronic fatigue is also common following Q-fever. 20
- Although the acute disease is usually self-limited, Q-fever endocarditis may occasionally develop 3 to 20 years following the acute infection and is often fatal. 21 22
- Pericarditis 23-26, myocarditis 27 28, optic neuritis 29, uveitis 30-32, and cholecystitis are encountered. 33-35
- Over 80% of patients with Q-fever endocarditis have a history of underlying valvular disease.
- Pediatric Q fever may mimic Kawasaki disease 36

This disease is endemic or potentially endemic to all countries.

Q-fever in Israel
Notes:
1. Q-fever has been a reportable disease since 1961.
2. 35 cases of Q-fever endocarditis were identified through active case-finding for the period 1983 to 1992.
3. The mean age of hospitalized patients is 42.7 years, with a male/ female ratio of 1.6/1.
4. Nine cases of Q-fever endocarditis were reported from a Jerusalem hospital during a 19-year period.  
   Individual years:
   1992 - Although only two cases were reported, 109 cases were confirmed by the Central Laboratory.
As of 2007, Israel was the only country which routinely vaccinated small ruminants is Israel (26 957 vaccinations in 2007).

**Notable outbreaks:**

1949 - An outbreak (75 cases) was reported in the region of Haifa.

1999 - An outbreak (16 cases) was reported among employees in a Jerusalem hospital kitchen - source unknown.

2000 (publication year) - An outbreak (4 cases) was reported among Israelis on safari in Kenya.

2001 - An outbreak (21 cases) was reported in a suburb of Haifa.

2005 - An outbreak (144 cases confirmed) in a school in Tel Aviv may have been caused by aerosolized material originating from an infected cat. The group included 9 exchange students from Belgium.

**West Bank and Gaza:**

No cases were reported between 1999 and 2004

**References**

29. Int J Infect Dis 2010 Jun 2;
34. Vector Borne Zoonotic Dis 2009 Sep 2;
38. ProMED <promedmail.org> archive: 20080902.3352
44. Curr Infect Dis 2010 Apr 23;
45. ProMED <promedmail.org> archive: 20050814.2378
### Rabies

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - RNA. Rhabdoviridae, Mononegavirales, Lyssavirus: Rabies virus. Other human Lyssaviruses = Mokola, Duvenhage, European Bat (EBL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Dog  Fox  Skunk  Jackal  Wolf  Cat  Raccoon  Mongoose  Bat  Rarely rodent or Rabbit</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Saliva  Bite  Transplants  Air (bat aerosol)</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>1m - 3m (range 4d to 19 years !)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Viral culture &amp; direct immunofluorescence of saliva, CSF, corneal smears. Serology. Nucleic acid amplification.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Strict isolation; supportive. See Vaccines module for pre- and post-exposure schedules</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Vaccines</td>
<td>Rabies  Rabies immune globulin</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Follows animal bite (rarely lick) - often after months: agitation, confusion, seizures, painful spasms of respiratory muscles, progressive paralysis, coma and death; case-fatality rate &gt; 99%.</td>
</tr>
</tbody>
</table>

### Clinical

**WHO Case definition for surveillance:**
- An acute neurological syndrome (encephalitis) dominated by forms of hyperactivity (furious rabies) or paralytic syndromes (dumb rabies) that progresses towards coma and death, usually by respiratory failure, within 7 to 10 days after the first symptom if no intensive care is instituted.
- Bites or scratches from a suspected animal can usually be traced back in the patient medical history.
- The incubation period may vary from days to years but usually falls between 30 and 90 days.

**Laboratory criteria for diagnosis**
- One or more of the following:
  - Detection of rabies viral antigens by direct fluorescent antibody (FA) in clinical specimens, preferably brain tissue (collected post mortem).
  - Detection by FA on skin or corneal smear (collected ante mortem).
  - FA positive after inoculation of brain tissue, saliva or CSF in cell culture, in mice or in suckling mice.
  - Detectable rabies-neutralizing antibody titer in the CSF of an unvaccinated person.
  - Identification of viral antigens by PCR on fixed tissue collected post mortem or in a clinical specimen (brain tissue or skin, cornea or saliva).
  - Isolation of rabies virus from clinical specimens and confirmation of rabies viral antigens by direct fluorescent antibody testing.

**Case classification**
- **Rabies:**
  - Suspected: A case that is compatible with the clinical description.
  - Probable: A suspected case plus history of contact with suspected rabid animal.
  - Confirmed: A suspected case that is laboratory-confirmed.
- **Rabies exposure:**
  - Possibly exposed: A person who had close contact (usually a bite or scratch) with a rabies-susceptible animal in (or originating from) a rabies-infected area.
  - Exposed: A person who had a close contact (usually a bite or scratch) with a laboratory-confirmed rabid animal.

The initial symptoms of rabies are often limited to low grade fever and pain or paresthesia at the site of inoculation.
- Progressive encephalitis then ensues.
- "Furious rabies" is characterized by hyperactivity, fluctuating level of consciousness, aerophobia and hydrophobia.
- Bizarre behavior and lack of focal neurological signs are typical.
- Hydrophobia may manifest as 'jerky' inspiratory spasms progressing to opisthotonus, generalized seizures or cardiorespiratory arrest.
• Similar reactions may be elicited by fanning the patient ("aerophobia").
• Paralytic ("dumb") rabies is characterized by progressive flaccid paralysis, with fasciculation and pain in the affected muscles.
• Minor sensory disturbances may be present. Such patients may survive for as long as one month, ultimately dying of bulbar and respiratory paralysis.
• Rare instances of survival have been documented. \(^3\)\(^-\)\(^10\)
• In Africa, rabies is often mis-diagnosed as cerebral malaria.

**This disease is endemic or potentially endemic to 150 countries.**

### Rabies in Israel

![Graph: Israel. Rabies, cases - GIDEON](image)

**Graph: Israel. Rabies, cases**

**Notes:**
1. 89 cases of human rabies were reported during 1921 to 1948.
2. 23 cases were reported during 1948 to 1957 (14 of these from dogs and 5 from Jackals)
   Individual years:
   - 1960 - Case reported in the Negev.
   - 1996 - A single autochthonous case following the bite of an unidentified animal.\(^{11}\)\(^\,\)\(^{12}\)
   - 1997 - Two unrelated autochthonous cases were reported - both had been 'scratched' by unidentified animals.\(^{13}\)\(^\,\)\(^{14}\)
   - 2003 - A single autochthonous case was reported in the Negev following the bite of a rabid cat.\(^{15}\)
The risk of rabies among Israelis traveling overseas for >= 1 month is estimated at 2.66 per 1,000 travelers per month (2004).

Notes:
1. 1952 to 1957 - 765 rabid animals were reported.
2. 1958 to 1963 - 221 rabid animals were reported.
3. 1978 to 1983 - 95 rabid animals were reported.
4. 1982 to 1989 - 215 rabid animals were reported (52 of these in 1989).
5. 1997 to 2006 - 41 rabid animals were reported in border areas - 32 of these along the border with Jordan.
Individual years:
- 1999 - Included 21 ruminants.
- 2004 - A rabid jackal was identified in the area of Ramat Hasharon.
- 2009 - 36 rabid animals were reported during January to October - including 22 dogs. \(^{17}\) \(^{18}\)
- 2010 - 17 rabid animals were reported during January to March - including 10 dogs. \(^{19}\) \(^{20}\); 53 rabid animals to December, including 23 dogs \(^{21}\)

Reservoirs:
- Dogs accounted for 72% of animal rabies during 1948 to 1957, and 19.4% during 1958 to 1966.
- Since 1956, red foxes (Vulpes vulpes) and, to a lesser extent, golden jackals (Canis aureus), have been the primary vectors maintaining endemic wildlife rabies in Israel.
- Foxes accounted for 46% of rabid animals in 1991; and foxes and jackals accounted for 61% in 1993. Foxes predominated among rabid animals reported during 1979 to 2000. \(^{22}\)
- Rabies was eradicated from northern Israel following implementation of the fox-targeted oral vaccination programme in 1998. Stray dogs then emerged as the principal reservoir in this area during 2004 to 2007. \(^{24}\)
- No infections have been found among bats to date.
- Infected mongooses, badgers and stone martens are occasionally trapped.

Notes:
1. Clusters of fox rabies are periodically registered in the areas of Beer-Sheva, Arad, Jerusalem and Nazareth.
West Bank and Gaza:

References

7. ProMED <promedmail.org> archive: 20081114.3599
8. ProMED <promedmail.org> archive: 20081122.3689
9. ProMED <promedmail.org> archive: 20090214.0638
10. ProMED <promedmail.org> archive: 20090919.3292
12. ProMED <promedmail.org> archive: 19980113.0093
14. ProMED <promedmail.org> archive: 19980115.0109
15. ProMED <promedmail.org> archive: 20040110.0108
17. ProMED <promedmail.org> archive: 20090827.3020
18. ProMED <promedmail.org> archive: 20091018.3583
19. ProMED <promedmail.org> archive: 20100326.0962
20. ProMED <promedmail.org> archive: 20100401.1039
21. ProMED <promedmail.org> archive: 20101231.4607
23. ProMED <promedmail.org> archive: 20091018.3583
### Rat bite fever - spirillary

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. <em>Spirillum minus</em> An aerobic gram-negative spirochete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Rat, Mouse, Cat</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Bite</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>7d - 21d (range 5d - 40d)</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td><em>Amoxicillin/clavulanate</em> 875/125 mg PO BID X 7d. OR <em>Procaine Penicillin G</em> 600,000u IM q12h X 7d. OR <em>Doxycycline</em> 200 mg BID X 7d</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td><em>Amoxicillin/clavulanate</em> 10 mg/kg PO BID X 7d OR <em>Procaine Penicillin G</em> 25,000u/kg IM q12h X 7d</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Lymphadenopathy, myalgia, maculopapular rash and recurrent fever beginning 1 to 3 weeks after rat bite; infection resolves after 3 to 6 days; case-fatality rate = 6%.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Sodoku, Spirillosis, Spirillum minor, Spirillum minus. ICD9: 026.0 ICD10: A25.0</td>
</tr>
</tbody>
</table>

### Clinical

Most patients present with a recent rat bite wound, which may later form an ulcer with local swelling, pain and skin changes.
- Regional lymphatics and lymph nodes are enlarged and tender.
- Fever rises to as high as 40°C, with accompanying rigors.
- After 3 days, fever ends in 'crisis,' followed by a quiescent interval of 5 to 10 days.
- One or more relapses follow, and are associated with a purple papular exanthem on the chest and arms.
- Additional findings include generalized hyperreflexia, arthralgia, myalgia and hyperesthesia.
- The fatality rate without treatment is 10%.

Features which may distinguish spirillary [S] from streptobacillary [B] rat bite fever include the following: 1, 2

- incubation: S up to 30 days, B up to 10 days
- bite wound: S may produce a chancre, B heals promptly
- relapses: S regular, B intermittent
- rash: S generalized macular, B macular, pustular or petechial
- arthritis: S rare, B common 3

### This disease is endemic or potentially endemic to all countries.

### References

Rat bite fever - streptobacillary

Agent | BACTERIUM. *Streptobacillus moniliformis* A facultative gram-negative bacillus
Reservoir | Rat, Squirrel, Weasel, Turkey
Vector | None
Vehicle | Infected secretions, bite, dairy products
Incubation Period | 3d - 10d (range 1d - 22d)
Diagnostic Tests | Culture of blood or joint fluid. Nucleic acid amplification.
Typical Adult Therapy | Amoxicillin/clavulanate 875/125 mg PO BID X 7d. OR Doxycycline 100 mg PO BID X 7d
Typical Pediatric Therapy | Amoxicillin/clavulanate 10 mg/kg TID X 7d. OR (if age > 8 years) Doxycycline 2 mg/kg PO BID X 7 days (maximum 200 mg/day)
Clinical Hints | Headache, myalgia, maculopapular rash and arthralgia or arthritis; history of a rat bite during the preceding 1 to 3 weeks in most cases; case-fatality rate = 10%.
Synonyms | Haverhill fever, Streptobacillosis, *Streptobacillus moniliformis*. ICD9: 026.1 ICD10: A25.1

**Clinical**

Most patients present with a recent rat bite wound, which may later form an ulcer with local swelling, pain and skin changes. 1
- Symptoms include fever, prostration, marked myalgia and muscle tenderness, headache and a generalized morbilliform rash • most marked on the hands and feet. 2
- Generalized lymphadenopathy is present, and migratory arthropathy is often present.
- Fever resides in 5 to 10 days, but may relapse repeatedly over a period of weeks to months.

One or more relapses follow, and are associated with a purple papular exanthem on the chest and arms.
- Additional findings include generalized hyperreflexia, migratory polyarthralgia (over 50% of cases), myalgia and hyperesthesia.
- Arthritis affects more than one joint in 83.3% of patients, involving the knee in most. 3
- Rare instances of endocarditis 4, 5, psoas abscess and spondylodiscitis have been reported. 6

The fatality rate without treatment is 10%, and results from endocarditis or multiple visceral abscesses.

Features which may distinguish spirillary [S] from streptobacillary [B] rat bite fever include the following: 7 8
- Incubation - S up to 30 days, B up to 10 days
- Bite wound - S may produce a chancre, B heals promptly
- Relapses - S regular, B intermittent
- Rash - S generalized macular, B macular, pustular or petechial
- Arthritis - S rare, B common 9

This disease is endemic or potentially endemic to all countries.

**References**


© 2011 GIDEON Informatics, Inc. www.gideononline.com All Rights Reserved. Page 352 of 500
Relapsing fever

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Borrelia spp. A microaerophilic spirochete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human, Tick, Rodent</td>
</tr>
<tr>
<td>Vector</td>
<td>Tick (Ornithodoros), louse (Pediculus)</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Blood products</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>7d - 8d (range 2d - 18d)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Examination of blood smears (thick and thin smears). Some species (B. hermsii) may grow in BSK II medium.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Doxycycline 100 mg PO BID X 7d. OR Erythromycin 500 mg QID X 7d</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Chloramphenicol 12.5 mg/kg PO QID X 7d. OR Erythromycin 10 mg/kg QID X 7d</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Headache, myalgia, hepatosplenomegaly, rash and relapsing illness; louse-borne (vs. tick borne) characterized by higher case fatality rate, fewer relapses and higher incidence of hepatosplenomegaly, jaundice and neurological complications.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Bilious typhoid, Borrelia turicatae, Borreliosis, Famine fever, Febbre recidiva, Febbre ricorrente, Febris recurrens, Fieber ricorrente, Lauteruckfallfieber, Mianeh fever, Ruckfall fieber, Tilbakefallsfieber, Vagabond fever, Yellow famine fever, Yellow plague.</td>
</tr>
<tr>
<td>ICD9</td>
<td>087.9, 087.0, 087.1</td>
</tr>
<tr>
<td>ICD10</td>
<td>A68</td>
</tr>
</tbody>
</table>

Clinical

The clinical manifestations of louse-borne and tick-borne relapsing fevers are similar. 
- Louse-borne disease is characterized by a longer incubation period, longer febrile periods and afebrile intervals, and fewer relapses.
- Both types have an acute onset of high fever with rigors, headache, myalgia, arthralgia, photophobia and cough.
- In Africa, tick-borne relapsing fever is often mis-diagnosed as malaria.

Physical findings often include conjunctivitis, petechiae, and abdominal tenderness with hepatomegaly and splenomegaly.
- Nuchal rigidity, pulmonary rales, lymphadenopathy, jaundice and ARDS are occasionally encountered.
- Hemorrhagic phenomena are common but rarely severe.
- Iritis and iridocyclitis may lead to permanent impairment of vision. Uveitis is also described.
- A petechial, macular, or papular rash over the trunk may be noted toward the end of the illness.
- As many as 30% of patients develop neurological findings such as coma, cranial nerve palsies, hemiplegia, meningitis, and seizures.
- Rare instances of acute respiratory distress syndrome have been reported.
- Deaths are ascribed to myocarditis with associated arrhythmias, cerebral hemorrhage or hepatic failure.
- "Tropical thrombophlebitis" has been associated with outbreaks of relapsing fever in South Africa.

This disease is endemic or potentially endemic to 118 countries.

Relapsing fever in Israel

Tick-borne infection is due to Borrelia persica, and is most often acquired in caves and bunkers.

Most cases among civilians are reported from the central region, and most cases in military personnel from the south.
Graph: Israel. Relapsing fever, cases

Notes:
1. Relapsing fever has been officially reportable since 1951.
2. Two fatal cases (1973 and 1976) were reported during 1954 to 2000.
3. The mean rate among military personnel is 6.4 per 100,000 per year (1983 to 2003).

An American tourist acquired relapsing fever in Israel (1988 publication).

The local vector, *Ornithodoros tholozani* is widely distributed in the northern highlands, coastal plain and Negev desert.
- Approximately 10% of caves in Israel are infested.

**Notable outbreaks:**
- 2000 - An outbreak (9 cases, 5 confirmed) was reported among soldiers in the Negev.

**References**

14. ProMED <promedmail.org> archive: 20000423.0602
Respiratory syncytial virus infection

Agent | VIRUS - RNA. Paramyxoviridae, Pneumovirinae: Human respiratory syncytial virus
---|---
Reservoir | Human
Vector | None
Vehicle | Droplet  
Infected secretions (hands)
Incubation Period | 2d - 8d
Diagnostic Tests | Viral culture or DFA (nasal and other respiratory secretions). Serology. Nucleic acid amplification.
Typical Adult Therapy | Ribavirin aerosol 20 mg/ml for 12h/d X 3 to 5d [severe infections]. Effectiveness not proven
Typical Pediatric Therapy | As for adult
Vaccine | RSV immune globulin
Clinical Hints | Rhinorrhea, cough, wheezing, bronchiolitis and respiratory distress; encountered primarily in infancy.
Synonyms | Chimpanzee coryza agent, Respiratory syncytial virus, RSV.
ICD9: 079.6,480.1
ICD10: B97.4,J12.1

Clinical

RSV infections are manifested as:
• lower respiratory tract disease (pneumonia, bronchiolitis, tracheobronchitis)
• or upper respiratory tract illness, often accompanied by fever and otitis media.¹

Asymptomatic infection is rare.
• Pneumonia or bronchiolitis occurs in 30% to 71% of patients (89% among closed populations of infants).
• Croup accounts for only 5% to 10% of cases.
• Wheezing², rhonchi, rales, and pulmonary infiltrates are encountered with bronchiolitis as well as pneumonia.³
• Bronchiolitis is characterized by wheezing and hyperaeration of the lung.

Lower respiratory tract infection is heralded by nasal congestion and often pharyngitis.
• Fever occurs in young children, with temperatures ranging from 38 to 40°C.
• Fever is present for 2 to 4 days; however, the extent and duration of the fever does not correlate with the severity of the disease.
• Fever is frequently absent at the time of admission to the hospital.
• Cough is often a predominant sign.
• The cough may be paroxysmal and associated with vomiting, but without the "whoop" typical of pertussis.
• Laryngitis and hoarseness are not common.

Dyspnea, increased respiratory rate, and retractions of the intercostal muscles are common.
• In bronchiolitis, expiration is prolonged, and the respiratory rate may be remarkably elevated.⁴
• Intercostal retractions are also prominent in bronchiolitis.
• On auscultation, the infant may have crackles and wheezing, which may be present intermittently and may fluctuate in intensity.
• Cyanosis is rare, despite hypoxemia. In most infants, the duration of illness is 7 to 21 days, and hospitalization, if required, averages 3 to 7 days.
• Thrombocytosis is common among children hospitalized with RSV bronchiolitis.⁵
• The severity and / or duration of RSV bronchiolitis is exacerbated by concomitant human metapneumovirus infection.⁶-⁹
• RSV infection accounts for approximately 5% of bronchiolitis obliterans in children (Beijing, 2001 to 2007) ¹⁰
• Infection in premature infants may result in long term effects on airway function.¹¹

Otitis media is a common complication of RSV infection in young children.¹²-¹⁴
• Encephalopathy and seizures have also been reported.¹⁵ ¹⁶
• Repeated or secondary infections occurring after the first 3 years of life are most commonly manifested as an upper respiratory tract illness or tracheobronchitis.
• Young adults may present with flu-like illness, pneumonia, chronic cough suggestive of tracheobronchitis or bronchitis, and
occasionally with otitis.  

- Infection among the elderly is often nosocomially acquired, and may result in pneumonia in 5% to 50% of the cases, with a fatal outcome in up to 20%.
- Additional extrapulmonary manifestations of RSV infection include myocarditis, supraventricular tachycardia, ventricular tachycardias, seizures, focal neurological abnormalities, hyponatremia and hepatitis.

Signs and symptoms of Human Metapneumovirus (hMPV) infection are similar to those of Respiratory syncytial virus infection, and coinfection by these two agents may be particularly severe.

- Clinical signs of Human Bocavirus infection are also similar to those of Respiratory syncytial virus infection; however, hypoxia, and neutrophilia may be more common in Human Bocavirus infection.
- Superinfection of RSV by Staphylococcus aureus, Bordetella pertussis and other bacteria is not unusual.

This disease is endemic or potentially endemic to all countries.

Respiratory syncytial virus infection in Israel

Annual outbreaks were reported during 1996 to 2001, with peak rates during January to March.

The incidence of RSV infection among children below age 12 months is 10 per 1,000 child years (Negev region, 1987).

105 cases (5 fatal) were treated in pediatric intensive care units for RSV bronchiolitis during November 2000 to March 2001.

Prevalence surveys:
- 23.1% of children below age 5 years with community-acquired alveolar pneumonia (Beer Sheva, 2009 publication)
- 69% of children below age 2 years hospitalized for bronchiolitis in southern Israel (1993 publication)
- 76% of children ages <= 2 years hospitalized with acute bronchiolitis (as sole pathogen, 2005 to 2006)
- 75% of children ages <= 2 years hospitalized with acute bronchiolitis (2005 to 2006)
- 7% to 9% of pediatric hospital admissions (Jerusalem, 2002 to 2005)
- 4.9% of patients hospitalized with lower respiratory tract infections (Beer Sheva, winter seasons, 2004 to 2006)

Seroprevalence surveys:
- 27% of healthy infants aged 6 to 12 months are seropositive, 37% children ages 1 to 2 years, 54% ages 2 to 4 years, 78% adults above age 20 years (1984 publication)

Notable outbreaks:
- 1984 (publication year) - An outbreak of Respiratory syncytial virus infection was reported in a neonatal intensive care unit.
- 1993 to 1994 - An outbreak of RSV bronchiolitis was reported in northern Israel.

References

32. J Pediatr 2009 Sep 25;.
34. Pediatr Infect Dis J 2009 Nov 23;.
**Respiratory viruses - miscellaneous**

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - RNA and DNA Pneumovirinae: Human Metapneumovirus Coronaviridae: New Haven Coronavirus, HKU1 Parvovirinae: Human Bocavirus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Droplet  Infected secretions (on hands)</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>NA</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>NA</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Rhinorrhea, cough, wheezing, bronchiolitis and respiratory distress; encountered primarily in infancy.</td>
</tr>
<tr>
<td>ICD9:</td>
<td>079.89</td>
</tr>
<tr>
<td>ICD10:</td>
<td>B34.2, J12.8</td>
</tr>
</tbody>
</table>

**Clinical**

For a comprehensive review of newer respiratory viral infections, see [1]

**Human Metapneumovirus:**

Signs and symptoms of Human Metapneumovirus (hMPV) infection are similar to those of Respiratory syncytial virus infection [2][3], and coinfection by these two agents may be relatively severe and/or prolonged. [4][8]

- Findings include either lower respiratory tract disease (pneumonia, bronchiolitis, tracheobronchitis) or upper respiratory tract illness, often accompanied by fever and otitis media. [9][10]
- Asymptomatic infection is reported. [11][12]
- Wheezing, rhonchi, rales, and pulmonary infiltrates are encountered with bronchiolitis, hyperaeration and pneumonia. [13]
- Apnea has been reported in newborn infants. [14]
- hMPV has been recovered from the middle ear in patients with otitis media. [15] and is associated with 6% of otitis media cases in children. [16]
- Central nervous system disease has been reported, ranging from febrile seizures to fatal encephalitis. [17][18]
- Reinfection is common. [19][21]
- Although infection in adults is usually mild or asymptomatic [22], severe disease is reported in elderly adults with underlying disease. [23]

**New Haven coronavirus:**

New Haven coronavirus infection is characterized by fever, cough and rhinorrhea. [24][25]

- Tachypnea, hypoxia and pulmonary infiltrates may be present.
- The agent has also been identified as a common cause for croup. [26]

**Coronavirus infections:**

HKU1 (HCoV-HKU1), a human coronavirus, was isolated in Hong Kong in 2005, from two adult patients with pneumonia. [27]

- An additional 6 cases in Hong Kong were characterized by gastroenteritis, fever, otitis and febrile seizures.
- Human Coronavirus OC43 infection is associated with fever, rhinitis, pharyngitis, laryngitis, otitis, bronchitis, bronchiolitis or pneumonia. [28]

**Human Bocavirus:**

Human Bocavirus is a common cause of lower respiratory tract infection in children. [29][30]

- Bocavirus infections, including cases of severe pneumonia, have also been reported in adults. [31]
Respiratory viruses - miscellaneous in Israel

• Patients are often co-infected by Respiratory syncytial virus, Adenovirus, Influenza virus, Human metapneumovirus or other pathogens.
• Clinical presentation may include fever, cough, rhinorrhea, conjunctivitis, wheezing, respiratory distress, pneumonia or pleural effusion.
• Human Bocavirus infection may mimic the symptoms of pertussis.
• Clinical signs are also similar to those of Respiratory syncytial virus infection; however, hypoxia, and neutrophilia may be more common in Human Bocavirus infection.
• Disseminated Bocavirus infection, including diarrhea and viremia, has been reported in a stem cell transplant patient.

Other viruses:
Although Rhinovirus infection is usually associated with the common cold, infection may be associated with severe lower respiratory tract infections, and outbreaks of major and even fatal disease have been reported in chronic care facilities.

Melaka virus, a bat-associated Reovirus, has been identified as a cause of fever and acute respiratory tract infection in Malaysia.

Saffold Cardiovirus, a member of the Picornaviridae, has been associated with cases of upper respiratory tract infection in children.

• Human infection by an additional Cardiovirus, Encephalomyocarditis Virus, have been characterized by fever, headache, nausea and dyspnea. (2009 publication)

This disease is endemic or potentially endemic to all countries.

Respiratory viruses - miscellaneous in Israel

Prevalence surveys:
Human metapneumovirus (hMPV) was found in 13% of children hospitalized for lower respiratory tract infection (2006 publication).

hMPV was found in 10.8% of hospitalized children below age 5 years submitted for viral testing (2002 to 2003).
hMPV was found in 8.3% of children below age 5 years with community-acquired alveolar pneumonia. Respiratory syncytial virus 23.1%, Adenovirus 3.4% and Parainfluenzavirus 2.9% (Beer Sheva, 2009 publication).

hMPV was found in 0.9% of patients hospitalized with lower respiratory tract infections, RSV 4.9%, Adenovirus 0.7%, Parainfluenza virus 1.1%, Coronavirus NL63 1.1%, 22E 2.0%, OC43 6.5% and HKU1 0.9% (Beer Sheva, winter seasons, 2004 to 2006).

hMPV was found in 2.1% of children ages <= 2 years hospitalized with acute bronchiolitis, Human Bocavirus (HBoV) 0.6%, Adenovirus 0.2% (as sole pathogen, 2005 to 2006).

HBoV was found in 10.3% of children below age 10 hospitalized for respiratory infection. 70.3% of these patients were coinfected with Adenovirus.

HBoV was found in 11.3% of children below age 10 hospitalized for respiratory infection (2006).

Seroprevalence surveys:
13% of healthy children in southern Israel were seropositive toward human metapneumovirus (hMPV) by age 7 months, 23% by age 13 months, and 55% by age 24 months (2003 publication).

References

26. ProMED <promedmail.org> archive: 20050825.2512
30. ProMED <promedmail.org> archive: 20050824.2494
34. Eur J Pediatr 2010 Apr 10;
36. Pediatr Infect Dis J 2009 Mar 2;
41. ProMED <promedmail.org> archive: 20070626.2063
47. J Pediatr 2009 Sep 25;
49. Pediatr Infect Dis J 2009 Nov 23;
Reye's syndrome

<table>
<thead>
<tr>
<th>Agent</th>
<th>UNKNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Unknown</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Unknown</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Clinical diagnosis.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Electrolyte &amp; glucose management, ? enemas, ? dialysis</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Vomiting, lethargy, coma, seizures, hepatomegaly, hypoglycemia and elevated blood ammonia concentration; usually anicteric; follows viral infection; aspirin ingestion is often implicated.</td>
</tr>
</tbody>
</table>
| Synonyms    | Reye syndrome.  
ICD9: 331.81  
ICD10: G93.7 |

**Clinical**

Signs and symptoms of Reye's syndrome include protracted vomiting and encephalopathy, in the absence of fever or jaundice.  

- Hepatomegaly is present in 50% of cases.  
- Twelve hours to 3 weeks following an antecedent viral illness, the patient develops vomiting and lethargy, followed by restlessness, irritability, combativeness, disorientation, delirium, tachycardia, hyperventilation, dilated pupils with sluggish response, hyperreflexia, positive Babinski sign, and appropriate response to noxious stimuli.

Diarrhea and hyperventilation are often the first signs in children below age 2 years.  
- Later, obtundation, coma and decorticate rigidity are associated with inappropriate response to noxious stimuli.  
- Coma deepens, and the patient is found to have fixed and dilated pupils, loss of oculovestibular reflexes and dysconjugate gaze with caloric stimulation.  
- Seizures ensue, with flaccid paralysis, absent deep tendon reflexes, lack of pupillary response and respiratory arrest.

Similar disease (Reye-like syndrome) is caused by inborn errors of metabolism, hypoglycemia, hypoketonemia, elevated ammonia, and organic aciduria.  
- A case of encephalopathy and hepatic failure • similar to Reye’s syndrome • was related to Bacillus cereus food poisoning.  

This disease is endemic or potentially endemic to all countries.

**References**

4. Brain Dev 2009 Sep 29;
## Rheumatic fever

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. <em>Streptococcus pyogenes</em> A facultative gram-positive coccus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Droplet</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>1w - 5w</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Clinical diagnosis.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive; salicylates</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Migratory arthritis, fever, carditis, chorea, subcutaneous nodules, erythema marginatum and leukocytosis; follows overt pharyngitis after 1 to 5 weeks in most cases; acute attack persists for approximately 3 months.</td>
</tr>
</tbody>
</table>
| Synonyms | Febbre reumatica.  
ICD9: 390,391  
ICD10: I00,I01,I02 |

### Clinical

**Case definition for surveillance:**
The CDC (The United States Centers for Disease Control) case definition for surveillance requires evidence for preceding group A streptococcal infection (culture, serology) in addition to two major clinical criteria; or one major and two minor criteria, as follows:

**Major clinical criteria:**
- carditis
- polyarthritis
- chorea
- subcutaneous nodules
- erythema marginatum

**Minor criteria:**
- previous rheumatic fever or rheumatic heart disease
- arthralgia
- fever
- elevation of erythrocyte sedimentation rate [ESR]
- positive C-reactive protein
- leucocytosis
- prolongation of the P-R interval on electrocardiogram.

**This disease is endemic or potentially endemic to all countries.**

### Rheumatic fever in Israel
Notes:
1. 222 cases were reported in Southern Israel during 1974 to 1983; 144 during 1977 to 1987 (6.5 per 100,000 in 1977 and 0.8 per 100,000 in 1987).
2. 44 cases were reported in Nazareth during 1988 to 1997 (5 per 100,000 per year).
3. 180 cases were identified in the Jerusalem area during 1985 to 2002 - 24 with Sydenham's chorea.
4. 44 cases were identified among health fund recipients in the Central district during 2000 to 2005 - 3.2 per 100,000 persons aged 0 to 30 years.
Graph: West Bank and Gaza. Rheumatic fever, cases - GIDEON

References

**Rhinoscleroma and ozena**

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Klebsiella pneumoniae ssp ozaenae and Klebsiella pneumoniae ssp rhinoscleromatis Facultative gram-negative bacilli</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Infected secretions</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Culture. Biopsy. Advise laboratory when this diagnosis is suspected.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Rhinoscleroma: Streptomycin, often with systemic or topical Rifampin - for 3 to 6 weeks; fluoroquinolones also appear to be effective. Ozena: Ciprofloxacin or Sulfamethoxazole/trimethoprim for 3 months</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Rhinorrhea associated with a painless intranasal mass; may extend to sinuses or ears.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Klebsiella pneumoniae ssp ozaenae, Ozena, Rhinoscleroma. ICD9: 040.1 ICD10: J31.0</td>
</tr>
</tbody>
</table>

**Clinical**

The nose is involved in over 90% of cases of rhinoscleroma.
- Findings include fetid discharge, a crusting granulomatous mass and cicatization. 1 2
- The pharynx is involved in 15% to 40%, the larynx in 2% to 2%, the tracheobronchial tree in 15% 3 and the paranasal sinuses in 2% to 25%. 4
- Rare instances of laryngeal stenosis resulting from rhinoscleroma are reported. 5
- Standard therapy consists of streptomycin in combination with topical or systemic rifampicin, for at least 3 to 6 weeks.
- Recent studies suggest that fluoroquinolones are also effective.

Ozena (primary atrophic rhinitis) is characterized by progressive atrophy of the nasal mucosa and underlying bone.
- Findings include foul-smelling, thick, dry crusts and greatly enlarged nasal cavities. 6
- Laryngeal involvement has been reported. 7
- Ozena may be associated with tracheobronchopathia osteochondroplastica 8
- Rare instances of disseminated systemic infection are reported. 9

This disease is endemic or potentially endemic to all countries.

**Rhinoscleroma and ozena in Israel**

Sporadic cases of rhinoscleroma have been reported. 10-12

Two cases of rhinoscleroma were reported in Gaza (1976 publication) 13

**References**

5. Acta Otorrinolaringol Esp 2010 Jan 19;
Rhodococcus equi infection

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Rhodococcus equi An aerobic gram-positive coccobacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Farm animal Farm soil</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>? Inhalation Contact Ingestion</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Culture of blood, body fluids and secretions. Advise laboratory when these organisms are suspected.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Vancomycin 500 mg q8h. Alternatives: Erythromycin, Gentamicin, Rifampin</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Vancomycin 10 mg/kg q6h. Alternatives: Erythromycin, Gentamicin, Rifampin</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Most often encountered as pleuropulmonary infection in an immune-suppressed patient; history of contact with farm or farm animals in 40% of cases.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Rhodococcus. ICD9: 027.9 ICD10: A92.8</td>
</tr>
</tbody>
</table>

Clinical

The clinical features of *Rhodococcus equi* disease are largely determined by the site of infection and clinical substrate in which it occurs.  
- 49% of patients are HIV-positive.
- Pulmonary infection predominates among HIV-positive patients.
- Extrapulmonary disease (abscesses, septicemia, eye or wound infection, etc) is most common in immunocompetent individuals.

This disease is endemic or potentially endemic to all countries.

References

Rickettsia felis infection

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Rickettsia felis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Opossum (Didelphis marsupialis) ? Flying squirrel Raccoon Flea ? Dog</td>
</tr>
<tr>
<td>Vector</td>
<td>Flea (cat flea = Ctenocephalides felis). Organism has also been found in Pulex irritans</td>
</tr>
<tr>
<td>Vehicle</td>
<td>None</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Serology (IFA). Nucleic acid amplification. Note that Weil-Felix reaction may be positive (OX-19).</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Doxycycline 100 mg PO BID X 3 to 5d. OR Chloramphenicol 500 mg PO QID X 3 to 5d</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Doxycycline 2 mg/kg PO BID X 3 to 5d (maximum 200 mg/day). OR Chloramphenicol 10 mg/kg PO QID X 3 to 5d</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Fever, headache and myalgia; macular rash present in 20% of patients; history of recent contact with opossum; disease mimics endemic typhus.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>California pseudotyphus, Cat flea typhus, ELB agent. ICD9: 081.1 ICD10: A79.8</td>
</tr>
</tbody>
</table>

Clinical

The features of Rickettsia felis infection are similar to those of endemic typhus.
- Headache and myalgia predominate.
- The rash is often macular and most prominent on the trunk and abdomen.
- Often the rash is nonspecific, and may be lacking in 50% of patients.
- Major complications are rare.
- The severity of infection has been associated with old age, delayed diagnosis, hepatic and renal dysfunction, central nervous system abnormalities, and pulmonary compromise.
- As many as 4% of hospitalized patients die.

This disease is endemic or potentially endemic to 32 countries.

Rickettsia felis infection in Israel

Rickettsia felis has been identified in cat fleas (Ctenocephalides felis) collected from dogs in Israel. 1 2

References

Rickettsia sibirica mongolotimonae infection

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Rickettsia sibirica mongolotimonae</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Unknown</td>
</tr>
<tr>
<td>Vector</td>
<td>Tick</td>
</tr>
<tr>
<td>Vehicle</td>
<td>None</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>3d - 6d</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td><strong>Doxycycline</strong> 100 mg PO BID X 3 to 5d. OR <strong>Chloramphenicol</strong> 500 mg PO QID X 3 to 5d</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td><strong>Doxycycline</strong> 2 mg/kg PO BID X 3 to 5d (maximum 200 mg/day). OR <strong>Chloramphenicol</strong> 10 mg/kg PO QID X 3 to 5d</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Fever, maculopapular rash, and one or more dermal eschars; lymphadenopathy and lymphangitis are common; may be a history of tick bite.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Lymphangitis-associated rickettsiosis, Rickettsia mongolotimonae, Rickettsia sibirica mongolotimonae. ICD9: 082.2 ICD10: A77.8</td>
</tr>
</tbody>
</table>

**Clinical**

*Rickettsia sibirica mongolotimonae* infection is characterized by fever, headache, myalgia and a maculopapular rash.¹

- Most cases to date have occurred in the spring, and over 50% recalled a recent tick bite.
- A dermal eschar is present in 89% of cases, and multiple eschars in 22%.
- 55% of patients present with enlarged painful lymph nodes, and 44% with lymphangitis • a unique finding for rickettsial infection.
- A case of retinal vasculitis has been documented.²
- No fatal cases have been reported.

**This disease is endemic or potentially endemic to 11 countries.**

**Rickettsia sibirica mongolotimonae infection in Israel**

*Rickettsia sibirica mongolotimonae* has been identified in a tick (*Hyalomma* sp., 2010 publication)³

**References**

Rift Valley fever

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - RNA. Bunyaviridae, Phlebovirus: Rift Valley fever virus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Sheep Ruminant</td>
</tr>
<tr>
<td>Vector</td>
<td>Mosquito (Culex, Aedes, Anopheles, Eretmapodites, Mansonia, Culicoides, Coquillettidia spp.)</td>
</tr>
<tr>
<td>Vehicle</td>
<td>None</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>3d - 5d (range 2d - 7d)</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive. Animal studies suggest a possible role for Ribavirin.</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Vaccine</td>
<td>Rift Valley fever</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Headache, myalgia, photophobia, arthralgia and a maculopapular rash; occasional jaundice and retinitis; history of contact with sheep or cattle during the preceding week may be elicited; case fatality rate = 0.1%.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Arumowot, Enzootic hepatitis, Gabek Forest, Gordil, Riftvalleykoorts, Zinga. ICD9: 066.3 ICD10: A92.4</td>
</tr>
</tbody>
</table>

Clinical

Disease is heralded by a 'flu-like' illness with sudden onset of fever, headache, myalgia and back pain.  
- Following an incubation period of 2 to 6 days, the patient may develop a mild, flu-like illness which may mimic dengue fever or viral meningitis.
- A characteristic syndrome consists of fever, large-joint arthralgia, and gastrointestinal complaints followed by jaundice, right upper-quadrant pain, and delirium, often coinciding with hemorrhagic manifestations.
- Nuchal rigidity, arthralgia, myalgia and photophobia may be present.
- Retinitis occurs in 15% of patients, and is characterized by macular, paramacular, and/or extramacular lesions, often occurring bilaterally. Hemorrhage and edema are often present, and vasculitis, vascular occlusion and optic atrophy are also observed.

Complications include hemorrhagic fever on the second to fourth day of illness; or retinal hemorrhage or meningoencephalitis appearing after the first week.
- Hemorrhagic phenomena and fatal encephalitis have been observed in approximately 1% to 2% of patients during epidemics and account for much of the mortality.
- Renal dysfunction is encountered in 60% of cases.
- The case-fatality rate in epidemics is usually below 1%.

This disease is endemic or potentially endemic to 34 countries. Although Rift Valley fever is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

Rift Valley fever in Israel

Rift Valley fever became a notifiable disease in Israel in 2001.

No cases were reported between 1975 and 2008

References

**Roseola or human herpesvirus 6**

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - DNA. Herpesviridae, Betaherpesvirinae, Roseolovirus: Herpesvirus 6 (Herpesvirus 7 is also implicated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Droplet, Contact</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>10d - 15d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Viral isolation and serologic tests rarely indicated. Nucleic acid amplification has been used</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive Gancyclovir has been used in unusual and severe cases.</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>High fever followed by sudden defervescence and fleeting rash; most patients are below the age of 2 years; only 10% to 20% of herpesvirus 6 infections are associated with a rash.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Dreitagefieber, Exanthem criticum, Exanthem subitum, Herpesvirus 6, HHV-6, Pseudorubella, Roseola, Roseola infantilis, Roseola subitum, Sixth disease, Zahorsky's disease.</td>
</tr>
</tbody>
</table>

**Clinical**

Roseola typically is characterized by high fever (often to 40°C) lasting from three to seven days, followed by rapid defervescence and a characteristic pink rash. ¹ ²

- The rash is maculopapular or erythematous, beginning on the trunk and spreading to the neck and extremities. ³
- Skin lesions are discrete, not pruritic, blanch on pressure and fade within 3 to 48 hours.

Diarrhea, cough and irritability are common, and seizures may rarely occur in individual cases. ⁴

- HHV-6 infection accounts for 10% to 20% of febrile seizures in children below the age of two years. ⁵
- Other findings may include bulging anterior fontanel, Nagayama spots (erythematous papules on the soft palate and uvula), periorbital edema, inflamed tympanic membranes, cervical, post auricular, and post occipital lymphadenopathy, splenomegaly, meningitis with radiculitis, encephalopathy or encephalitis ⁷⁻¹⁵, arthropathy (4.3% of cases) ¹⁶, uveitis ¹⁷, corneal inflammation ¹⁸ and conjunctival injection.
- Rare instances of purpura fulminans have been reported. ¹⁹

Reactivation and severe disease have been encountered in bone-marrow, solid organ transplant and other immune-deficient patients. ²⁰⁻²³

- HHV-6-associated pleurisy has been reported following stem-cell transplantation (2007 publication) ²⁴
- Fatal hepatitis and myocarditis has been reported in immunocompetent adults. ²⁵

**This disease is endemic or potentially endemic to all countries.**

**References**

Rotavirus infection

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - RNA. Reoviridae: Rotavirus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Fecal-oral Water</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>12h - 3d</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Stool precautions; supportive</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Vaccine</td>
<td>Typhoid - oral</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Vomiting, diarrhea and mild fever: the illness lasts approximately 1 week, and is most severe in infancy; fatal cases are associated with dehydration and electrolyte imbalance.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Rotavirus. ICD9: 008.61 ICD10: A08.0</td>
</tr>
</tbody>
</table>

Clinical

Infants and young children present with fever, vomiting, diarrhea, and occasionally dehydration.  
- Most hospitalized patients had experienced fever and vomiting for 2 to 3 days, and diarrhea for 4 to 5 days.  
- The diarrhea is watery without blood or mucus.  
- Leukocytes are detected in the stool in a small percentage of patients.  
- Approximately 36% of episodes are characterized by 'dehydrating diarrhea.'  
- Viremia is present in over 50% of patients with Rotavirus diarrhea.  
- Asymptomatic infection is common.  

Infection in immunodeficient children may persist for weeks to months.  

Rotavirus infection is not unusual in adults.  

Complications:  
- Rotavirus infection increases the risk of bacteremia in children with nontyphoid Salmonella gastroenteritis  
- Rare instances of toxic megacolon have been reported.  
- Although intestinal intussusception may occur in some cases, a causal role for Rotavirus infection (ie, as opposed to Rotavirus vaccine) is not established.  
- Central nervous system dysfunction may complicate Rotavirus infection, in the form of seizures, cerebellitis, encephalopathy and death.  
- Some reports have linked Rotavirus infections with instances of aseptic meningitis, necrotizing enterocolitis, myositis, liver abscess, pancreatitis, pneumonia, Kawasaki’s disease, acute hemorrhagic edema, sudden infant death syndrome and Crohn’s disease.  

This disease is endemic or potentially endemic to all countries.

Rotavirus infection in Israel

Time and Place:  
Rotavirus infection is the second most common cause of diarrhea, accounting for 8.5% of cases (17% of pediatric cases).  
- Highest disease rates are reported during November to January.  
- An estimated 4,099 children below age 5 years (5.7 per 1,000) are hospitalized for Rotavirus gastroenteritis yearly.  
- Rotavirus infection accounts for 1% of pediatric hospital admissions (2009 publication).
**Prevalence surveys:**
- 14% of pediatric diarrhea in the Negev region (1990 publication)  
- 28% of diarrhea among children below age 5 in Gaza (2008 publication)  
- 29.1% of hospitalizations for gastroenteritis among children below age 5 years (northern Israel, 2007 to 2008)  
- 49% of children below age 3 years with acute gastrointestinal symptoms (2010 publication)

Antibody is present in 62% of the population.

10% of infants in Gaza experience Rotavirus diarrhea during the first year of life.

**Notable outbreaks:**
- 1986 (publication year) - An outbreak (32 cases) of Rotavirus infection was reported on a kibbutz in southern Israel.
- 1988 (publication year) - Outbreaks (23 and 45 cases) were reported on a single kibbutz.
- 1988 (publication year) - An outbreak was reported in a day care center.
- 1994 (publication year) - An outbreak was reported in a pediatric ward.

**References**

4. Am J Epidemiol 2010 Apr 14;
13. Am Pediatr (Barc) 2010 Jul 6;
15. Brain Dev 2010 May 24;
17. Eur J Pediatr 2010 May 12;
<table>
<thead>
<tr>
<th>Rubella</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agent</strong></td>
</tr>
<tr>
<td><strong>Reservoir</strong></td>
</tr>
<tr>
<td><strong>Vector</strong></td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
</tr>
<tr>
<td><strong>Vaccines</strong></td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
</tr>
</tbody>
</table>

### Clinical

**CDC (The United States Centers for Disease Control) case definition for surveillance:**
For surveillance purposes, the CDC (The United States Centers for Disease Control) case definition of rubella requires, "An illness that has all of the following characteristics:
- acute onset of generalized maculopapular rash
- temperature >37.2 C if measured
- arthralgia/arthritis, lymphadenopathy, or conjunctivitis"  

A "confirmed" case requires either laboratory confirmation or epidemiological link to a laboratory-confirmed case.
- Atypical features may be seen in adults with rubella; ie, hepatitis, conjunctival hemorrhage, uveitis, and a high incidence of polyarthritis.
- Rare instances of acute hepatic failure are reported.

Congenital rubella should be suspected if any of the following is present in a newborn infant:
- cataracts (45% of cases), congenital glaucoma, pigmentary retinopathy
- congenital heart disease (70%, most commonly patent ductus arteriosus or pulmonary artery stenosis) Both anomalies may appear concurrently in up to 50% of cases
- hearing loss (35% to 60%)
- purpura
- splenomegaly
- jaundice
- microcephaly, mental retardation, meningoencephalitis
- radiolucent bone disease
- doudenal stenosis

The chance of fetal defects from a viremic mother is 40% to 90% during the first trimester.
- Infection also increases the risk for spontaneous abortion and miscarriage by 50%.
- The rate of congenital rubella syndrome during epidemics is 0.5 to 2.2 per 1,000 live births.
- 60% of children with CRS have hearing impairment, 45% congenital heart disease, 27% microcephaly, 25% cataracts, 23% low birth weight (< 2,500 grams), 17% purpura, 19% hepatosplenomegaly, 13% mental retardation and 10% meningoencephalitis.
Rubella virus has been implicated in the etiology of Fuchs heterochromic iridocyclitis. 13

**This disease is endemic or potentially endemic to all countries.**

**Rubella in Israel**

**Vaccine Schedule:**
- DTaP - 2, 4, 6 months; 1 year
- Tdap-IPV - second year of elementary school
- HepA - 18, 24 months
- HepB - birth; 1, 6 months
- Hib - 2, 4, 6 months; 1 year
- IPV - 2, 4, 12 months; 7 years
- MMR - 12 months; 6 years
- Td - 8-9, 13-14 years
- Varicella - 12 months and 6-7 years

Vaccination of girls was introduced in 1973, extended to women of childbearing age in 1980, and replaced by universal use of MMR in 1988. 14

Seroprevalence surveys:
- 75% of pregnant women at the onset of an epidemic, and 84% following the epidemic (1972) 15
- 84.6% of women of childbearing age in 1980, 93% in 1988, 90.4% during 1991 to 1992, 93.1% during 1993 to 1994 16
- 93.2% ages 2 to 14 years; 90.2% ages 15 to 39 years; 95.0% of women of childbearing age (1996 to 2003) 17
- 21.9% of babies born following an epidemic in 1972 18
- 93.1% of women of childbearing age in 1994.
- 98.1% of female military recruits in 1987; 90.8% in 1999 19
- 85.3% of males ages 1 to 4, 83.9% ages 5 to 9, 85.3% ages 10 to 14, 70.6% ages 15 to 19, 84.7% ages 20 to 39, 90.5% ages 40 to 65 (1998)
- 83.0% of females ages 1 to 4, 82.6% ages 5 to 9, 91.2% ages 10 to 14, 94.9% ages 15 to 19, 93.1% ages 20 to 39, 88.9% ages 40 to 65 (1998)
Notes:
1. Rubella has been officially reportable since 1971.
Notes:
1. One death (in 1987) was ascribed to congenital rubella during 1986 to 1995.

Notable outbreaks:
- 1972 - An outbreak (3,150 cases per 100,000 population, estimated) was reported.\textsuperscript{20-23}
- 1978 to 1979 - An outbreak of rubella resulted in 45 cases of CRS.\textsuperscript{24}
- 2000 - An outbreak was reported among military personnel.\textsuperscript{25}

West Bank and Gaza:
; 59 in 1999; 9 in 2002; 5 in 2003

Notes:
1. MMR is administered at age 15 months. Females are vaccinated at the age of 12 years.

References

11. Semin Fetal Neonatal Med 2007 Mar 1;
Salmonellosis

**Agent**
BACTERIUM. Salmonella A facultative gram-negative bacillus

**Reservoir**
Mammal  Bird  Reptile

**Vector**
None

**Vehicle**
Food  Milk  Eggs  Poultry  Shellfish  Meat  Vegetables  Fruit  Fecal-oral Fly

**Incubation Period**
12h - 36h (range 6h - 5d)

**Diagnostic Tests**
Culture (stool, blood, infected tissue). Serology.

**Typical Adult Therapy**
Stool precautions. Therapy not indicated for uncomplicated diarrhea; if necessary, treat per antibiogram

**Typical Pediatric Therapy**
As for adult

**Clinical Hints**
Fever, chills & watery diarrhea 12 to 24 hours after ingestion of eggs, meat, poultry; fecal leucocytes present; fever resolves in 2 days; but diarrhea persists for up to 7 days (occasionally weeks).

**Synonyms**
Salmonellosen, Salmonellosi.
ICD9: 003
ICD10: A02

---

**Clinical**

**WHO Case definition for surveillance:**
An illness with the following symptoms: diarrhea, abdominal cramps, fever, vomiting and malaise.
Laboratory criteria for confirmation
- Isolation of *Salmonella* spp. from the stool or blood of a patient.
Case classification
- Suspected: An individual showing one or more of the clinical features.
- Confirmed: A suspected case with laboratory confirmation.

**Acute infection:**
*Salmonella* gastroenteritis is usually indistinguishable from that caused by other bacterial and viral pathogens. ¹
- Nausea, vomiting, and diarrhea begin 6 to 48 hours following ingestion of contaminated food or water.
- Abdominal cramps and fever as high as 39°C are common.
- The diarrhea is usually characterized as loose, non-bloody stools of moderate volume.
- Voluminous diarrhea, bloody stools, and tenesmus may also occur.

The infection is usually self-limited.
- Fever resolves within 3 days, and diarrhea resolves within 3 to 7 days.
- Stool cultures may remain positive for 4 to 5 weeks after infection, and carriage may persist for as long as one year in fewer than 1% of cases. ²
- Antibiotic treatment is reserved for unusual and complicated infections: septicemia, neonates, immunosuppressed patients, etc.

**Complications:**
The spectrum of extraintestinal salmonellosis is similar to that of other gram-negative bacterial infections: osteomyelitis ³-⁷, meningitis ⁸-¹⁰, endocarditis ¹¹-¹³, etc.
- Endovascular infections are particularly common, and may result in aneurysms of the aorta and other large vessels. ¹⁴ ¹⁵
- *Salmonella* osteomyelitis is common in children with underlying hemoglobinopathies. Pyomyositis has also been reported in such cases. ¹⁶
- Septicemia is often described in patients with schistosomiasis ¹⁷-²¹, lymphoma, lupus erythematosus ²², bartonellosis, malaria and hepatic cirrhosis.
- Rotavirus infection increases the risk of bacteremia in children with nontyphoid *Salmonella* gastroenteritis ²³
- Elderly patients are at risk for complicated or fatal infection. ²⁴
- Reactive arthritis has been reported in as many as 16.8% of cases ²⁵-²⁷
- The risk for reactive arthritis following *Salmonella* infection ²⁸ was 1.4/100,00 cases (United States, 2002 to 2004) ²⁹
- There is evidence that salmonellosis may increase the risk for later development of inflammatory bowel disease. ³⁰
This disease is endemic or potentially endemic to all countries.

Salmonellosis in Israel

Notes:
1. Salmonellosis has been a reportable disease since 1954.
2. *Salmonella* was the second most common cause of bacterial diarrhea in Israel prior to 1991; rates of Campylobacteriosis, Salmonellosis and Shigellosis have been similar since that year.

During 1990 to 2008, *Salmonella* accounted for 34.4% of enteric infections in Jerusalem - with rates of 74.2 per 100,000 in 1990, 199.6 per 100,000 in 1995 and 39.4 per 100,000 in 2008. 31

Prevalence surveys:
- 20% of diarrhea outbreaks.
- 31% of food poisoning cases reported during 1990 to 1999.
- 4% of diarrhea among children on a communal settlement (1998 to 1992) 32
- 2.1% of outpatient diarrhea among children below age 17 years (2010 publication) 33
- 34.4% of bacterial enteric infections in Jerusalem (1990 to 2008) 34
Notes:
**Other species - percent of total isolates.**

During 1996 to 2006, serotypes Enteritidis, Virchow and Typhimurium accounted for 66.3% of *Salmonella* isolates.  

1. 1992 - 10.3% *S. blockley*  
2. 1993 - 21.9% *S. virchow*.  
3. 1994 - 2,200 isolates of *Salmonella agona* related to a food snack outbreak. *S. agona* was the most common species, accounting for 36.7% of human isolates that year. *S. virchow* 15.9%.  
4. 1995 - 19.5% *S. agona*.  
5. 1996 - 15.4% *S. virchow*, 11.1% *S. hadar*.  
6. 1997 - 10.8% *S. virchow*, 13.3% *S. hadar*.  
7. 1998 - 12.8% *S. virchow*, 16.3% *S. hadar*.  
8. 1999 - 12.2% *S. virchow*, 14.9% *S. hadar*.  
9. 2000 - 22.2% *S. virchow*, 11.4% *S. hadar*.  
10. 2001 - 17.61% *S. virchow*, 7.80% *S. hadar*.  
11. 2008 - 17% *S. infantis* - the most common strain isolated from human sources.  

**Notable outbreaks:**

1982 (publication year) - An outbreak of hospital-acquired salmonellosis was reported.  
1983 to 1984 - An outbreak (200 cases) of *Salmonella typhimurium* PT R-9 infection was reported on two adjacent pediatric wards.  
1995 - An outbreak (27 cases in the U.K.) of *Salmonella agona* infection was caused by a savoury snack imported from Israel.  
1999 - An outbreak (60 cases or more, 1 fatal) was associated with a mourning gathering in Kiryat Malachi.  
2001 - An outbreak (25 cases) of *S. typhimurium* DT 104 infection among foreign workers was associated with consumption of raw beef.  
2005 (publication year) - An outbreak (43 cases) of *Salmonella enteritidis* infection among first graders in Or Akiva, Hadera was caused by contaminated cream cake.  
2007 - An outbreak (63 cases) of *Salmonella* senftenberg infection in England and Wales (51 cases), Denmark (11) and the Netherlands (2) was ascribed to contaminated basil imported from Israel. Subsequent testing of local batches of basil failed to demonstrate the organism.  
2009 (publication year) - An outbreak (75 cases) of *Salmonella enterica* serovar *enteritidis* infection was associated with a banqueting hall in Jerusalem.  

**West Bank and Gaza:**
Prevalence surveys:

- 2% of diarrhea in children less than 5 years of age. (Gaza, 2007 publication) 54
- 1.8% of diarrhea in children (Gaza, 1999 to 2006) 55
- 4% of childhood diarrhea (Gaza, 2006 to 2007) 56
- 2% of diarrhea among children below age 5 (Gaza, 2008 publication) 57

References

4. Orthopedics 2009 Sep;32(9).
46. ProMED <promedmail.org> archive: 19990902.1543.
47. Harefuah 2005 Jan;144(1):8-10, 72, 71.
51. ProMED <promedmail.org> archive: 20070605.1819.
55. IS CHEST J 2007 Sep;17(4):296-301.
Sarcocystosis

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Protozoa. Sporozoa, Coccidea, Eimeriida: Sarcocystis bovihominis or S. suihominis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Cattle Pig</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Meat Water</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>9d - 39d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Identification of cysts in stool.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Diarrhea and abdominal pain of varying severity; muscle pain and eosinophilia occasionally encountered.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Isospora hominis, Sarcocystiasis, Sarcocystis, Sarcosporidiosis. ICD9: 136.5 ICD10: A07.8</td>
</tr>
</tbody>
</table>

Clinical

Human infection follows ingestion of undercooked beef or pork.
- Clinical features are limited to abdominal pain, vomiting, moderate diarrhea or asymptomatic infection of muscle. ¹ ²
- Rare instances of myositis ³ with eosinophilia have also been reported.

This disease is endemic or potentially endemic to all countries.

References

Clinical Scabies

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Arthropod. Arachnid, Acarina (Mite), Sarcoptiae: Sarcoptes [Acarus] scabiei</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>Mite</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Contact, including Sexual contact</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>3d - 42d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Identification of mites in skin scrapings.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Permethrin 5%. OR Lindane. OR Crotamiton 10% OR Ivermectin 150 to 200 ug/kg PO as single dose</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Permethrin 5%. OR Lindane. OR Crotamiton 10% OR Ivermectin 200 mcg/kg PO (&gt; 15 kg body weight)</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Intensely pruritic papules, vesicles and burrows - interdigital webs, wrists, elbows, axillae, perineal region, buttocks, penis; pruritus most intense at night; severe psoriaform infestation (Norwegian scabies) noted in debilitated patients.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Cheyletiella, Cheyletiella infestation, Escabiose, Escabiosis, Histiostomatid mites, Kratze, Mange, Ornithonyssus, Pyemotes, Sarcoptes scabiei, Sarna, Scabbia, Scabies, Tropical rat mite. ICD9: 133 ICD10: B86</td>
</tr>
</tbody>
</table>

Clinical

The lesions of scabies are usually symmetrical.
• Typical sites include the interdigital webs, buttocks, penis, scrotum, breasts and nipples, axillae and flexor surfaces of the wrists.¹
• Pruritis is often worse at night.
• Skin lesions consist of burrows, papules or vesicles.²
• Exaggerated eczematous patches ('crusted', or Norwegian scabies)³ ⁴ may be encountered • notably in institutions for Down's syndrome and leprosy.⁵
• Lesions in children are atypical and tend to involve the buttocks and perineum.⁶
• Complications include secondary infection and acute glomerulonephritis.

Otoacariasis due to Histiostomatid mites has been reported in Saudi Arabia.⁷

This disease is endemic or potentially endemic to all countries.

Scabies in Israel

Rates among military personnel are highest during winter.⁸
- Outbreaks of scabies occurred among military personnel during 1969 to 1973, and 1985 to 1986.⁹

Prevalence surveys:
10% of Ethiopian immigrants (1993 publication)¹⁰

Notable outbreaks:
1976 (publication year) - An outbreak (225 cases) was reported in a single village in the western Galilee.¹¹
Graph: West Bank and Gaza. Scabies, cases - GIDEON

References

# Scarlet fever

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. <em>Streptococcus pyogenes</em> A facultative gram-positive coccus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Infected secretions Occasionally food</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>1d - 4d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Typical clinical features associated with group A streptococcal pharyngitis.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Benzathine Penicillin G 1.2 million units IM as single dose</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Benzathine Penicillin G : Weight &lt;14kg: 300,000 units IM Weight 14 to 28kg: 600,000 units IM Weight &gt;28kg: 1.2 million units IM</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Overt pharyngitis followed within 24 to 48 hrs by florid erythematous rash.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Escarlatina, Lanhousha, Scarlattina, Scharlach. ICD9: 034.1 ICD10: A38</td>
</tr>
</tbody>
</table>

## Clinical

Signs of streptococcal pharyngitis (fever, pharyngeal exudate and pain) are followed by the appearance of a rash within 12 to 24 hours.

- The exanthem appears initially on the trunk and spreads rapidly over the body to finally involve the extremities. ¹
- The exanthem has the texture of sandpaper, and blanches with pressure.
- Pruritis may be present.
- Facial flushing and circumoral pallor are characteristic.

The patient appears ill, with fever, tachycardia, pharyngitis, tender adenopathy and palatal petechiae.
- Within a few days, the rash becomes more intense along skin folds, producing lines of confluent petechiae (Pastia sign).
- The rash begins to fade within 3 to 4 days, with desquamation evident over the face, palms and fingers.
- Skin peeling may persist for as long as a month.

During the first 2 days of illness, the tongue has a white coat through which the red and edematous papillae project ('white strawberry tongue').
- The tongue later desquamates and becomes markedly reddened ('red strawberry tongue').

This disease is endemic or potentially endemic to all countries.

## Scarlet fever in Israel

556 cases (0 fatal) were reported in 1944, and 478 (1 fatal) in 1945.

3,432 cases were reported during 1955 to 1956.

The reported annual rate during the 1970's was 15 to 40 per 100,000.

Mandatory reporting was discontinued after 1977.

**West Bank and Gaza:**
References


© 2011 GIDEON Informatics Inc - www.gideononline.com All Rights Reserved.
Schistosomiasis - haematobium

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Platyhelminthes, Trematoda. Strigeida, Schistosomatidae: Schistosoma haematobium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Snail (Bulinus, Planorbium, Ferrissia) Rarely baboon or monkey</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Water (skin contact)</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>2w - 6w</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Praziquantel 20 mg/kg PO BID X 1 day</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Early urticaria, fever and eosinophilia; later, dysuria, hematuria and obstructive nephropathy; often complicated by bladder cancer in advanced cases; parasite may survive for decades in human host.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Bilharziasis, urinary, Egyptian hematuria, Katayama fever [1], Schistosoma haematobium, Schistosomal hematuria, Schistosomiasis, Vesicle bilharziasis. ICD9: 120.0 ICD10: B65.0</td>
</tr>
</tbody>
</table>

Clinical

**WHO Case definition for surveillance:**

- **Endemic areas** (moderate or high prevalence)
  - Suspected: Not applicable.
  - Probable: Not applicable.
  - Confirmed: A person with visible hematuria or with positive reagent strip for hematuria or with eggs of *S. haematobium* in urine (microscope).

- **Non-endemic areas and areas of low prevalence**
  - Suspected: A person with visible hematuria or with positive reagent strip for hematuria.
  - Probable: Not applicable.
  - Confirmed: A person with eggs of *S. haematobium* in urine (microscope).

The clinical features caused by *Schistosoma* species infecting man are similar [1], and will be discussed together.

**Acute infection:**

Within 24 hours of penetration by cercariae, the patient develops a pruritic papular skin rash known as swimmer's itch. [The more overt form of Cercarial dermatitis associated with avian schistosomes is discussed elsewhere in this module.]

- One to two months after exposure, an overt systemic illness known as Katayama fever (named for Katayama district, Hiroshima, Japan) begins, heralded by acute onset of fever, chills, diaphoresis, headache, and cough. [2]

  - The liver, spleen, and lymph nodes are enlarged, and eosinophilia is present.
  - Rare instances of myocarditis have been reported during acute schistosomiasis. [3] [4]
  - Although deaths have been described at this point (notably in *S. japonicum* infection) these findings subside within a few weeks in most cases.

**Chronic schistosomiasis:**

The likelihood of progression to chronic schistosomiasis is related to the extent of infestation.

- Chronic schistosomiasis caused by *S. mansoni*, *S. japonicum*, or *S. mekongi* is characterized by fatigue, abdominal pain and intermittent diarrhea or dysentery.
- Blood loss from intestinal ulcerations may lead to moderate anemia.
- In *S. mansoni*, *S. japonicum*, and *S. mekongi* infections, ova remain in the venous portal circulation and are carried to the liver where they produce granulomata and fibrosis [5], and block portal blood flow.
- Colonic polyposis is has been associated with infection by *S. mansoni*, *S. japonicum*, and *S. intercalatum*. [6]
- Retroperitoneal fibrosis has been reported with *S. japonicum* infection. [7]
- Portal hypertension and portosystemic collateral circulation result.
- Although liver function tests remain normal for a long time, hepatosplenomegaly and variceal hemorrhage develop.
- The spleen is firm and may reach massive size.
- Fatal hematemeses is unusual.
- Laboratory tests reveal moderate eosinophilia and anemia related to blood loss and hypersplenism.
- Eventually, hepatic function deteriorates, with late ascites and jaundice.
In *S. haematobium* infection, ova are located in the bladder and ureters, leading to granuloma formation, inflammation, hematuria, ureteral obstruction, secondary infection and often carcinoma of the bladder.\(^8\)\(^-\)\(^10\) Ova are also commonly present in the seminal vesicles and prostate.\(^11\)

- Areas of chronic inflammation, fibrous tissue and calcifications ("sandy patches") in the genital mucosa and bladder contain ova, and are considered pathognomonic for *S. haematobium* infection.\(^12\)
- Genital lesions may present a risk factor for acquisition of HIV infection.\(^13\)
- Terminal hematuria and dysuria are common symptoms.
- Although best known for damage to the urinary bladder and ureters, the female genitalia are involved in 50% to 70% of women with *S. haematobium* infection\(^14\) resulting in vaginal deformities and fistulae, hypogonadism, ectopic pregnancy, miscarriage and malignancy.\(^15\)\(^-\)\(^17\) *Schistosoma mansoni* is implicated in the etiology of appendicitis in endemic areas\(^18\); and may also involve the fallopian tubes\(^19\) or cause ovarian pseudotumor\(^20\) and acute abdomen associated with granulomatous peritonitis.\(^21\)
- Reinfection or inadequately treated infection may lead to extra-anogenital bilharziasis cutanea tarda. Lesion may typically complicate pre-existing skin conditions.\(^22\)
- Proctitis is occasionally encountered.\(^23\)

*S. intercalatum* infection is characterized by abdominal pain and bloody diarrhea.

*S. mekongi* is an important cause of hepatomegaly in endemic areas.

**Complications:**

The following are some of the many complications described in chronic schistosomiasis.

- Pulmonary schistosomiasis is manifested by symptoms and signs of right ventricular congestion related to blockage of pulmonary capillaries by ova in the course of hepatosplenic schistosomiasis.\(^24\)\(^25\)
- Central nervous system schistosomiasis is manifested as delirium, coma, seizures, dysphasia, visual impairment, ataxia, a cerebral mass, generalized encephalopathy or focal epilepsy (notably in *S. japonicum* infection).\(^26\)
- Granulomata of *S. haematobium* and *S. mansoni* may involve the spinal cord (most commonly the cauda equina or conus medularis), producing transverse myelitis.\(^27\)\(^-\)\(^31\) *Schistosoma mansoni* infection may occasionally involve the bladder, mimicking *S. haematobium* infection or malignancy.\(^32\) *S. mansoni* infection has been implicated in cases of colo-rectal cancer.\(^33\)
- *Salmonella* bacteremia is often reported among persons with hepatosplenic schistosomiasis.\(^34\)\(^-\)\(^38\)

**This disease is endemic or potentially endemic to 58 countries.** Although Schistosomiasis - haematobium is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

**Schistosomiasis - haematobium in Israel**

97 cases were reported among school children in 1955.
- No cases of endemic disease have been reported since 1955.\(^39\)

Sporadic importations are encountered, often among Israelis returning from Malawi.\(^40\)
References

20. Arch Gynecol Obstet 2009 Apr 24;
29. J Infect 2009 Dec 22;
43. ProMED <promedmail.org> archive: 20070904.2912
**Schistosomiasis - mansoni**

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Platyhelminthes, Trematoda. Strigeida, Schistosomatidae: Schistosoma mansoni</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Snail (Biomphalaria) Dog Cat Pig Cattle Rodent Horse Non-human primate</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Water (skin contact)</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>2w - 6w</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Identification of ova in stool or biopsy specimens. Serology. Antigen detection.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Praziquantel 20 mg/kg PO BID X one day OR Oxamniquine 15 mg PO X one dose</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Praziquantel 20 mg/kg PO BID X one day OR Oxamniquine 10 mg PO BID X one day</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Early urticaria, fever and eosinophilia; later, hepatosplenomegaly and portal hypertension; parasite may survive for decades in human host.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Bilharziasis, intestinal, Katayama fever [3], Schistosoma mansoni. ICD9: 120.1 ICD10: B65.1</td>
</tr>
</tbody>
</table>

**Clinical**

**WHO Case definition for surveillance (all forms of intestinal schistosomiasis):**
Endemic areas (moderate or high prevalence)
- Suspected: A person with chronic or recurrent intestinal symptoms (blood in stool, bloody diarrhea, diarrhea, abdominal pains) or, at a later stage, hepatosplenomegaly.
- Probable: A person who meets the criteria for presumptive treatment, according to the locally applicable diagnostic algorithms.
- Confirmed: A person with eggs of *S. mansoni*, or *S. japonicum/mekongi* in stools (microscope).

Non-endemic areas and areas of low prevalence
- Suspected: A person with chronic or recurrent intestinal symptoms (blood in stool, bloody diarrhea, diarrhea, abdominal pains) or, at a later stage, hepatosplenomegaly.
- Probable: Not applicable.
- Confirmed: A person with eggs of *S. mansoni* or *S. japonicum* in stools (microscope). A person with positive reaction to immunoblot test.

The clinical features caused by *Schistosoma* species infecting man are similar, will be discussed together.

**Acute infection:**
Within 24 hours of penetration by cercariae, the patient develops a pruritic papular skin rash known as swimmer’s itch. [The more overt form of Cercarial dermatitis associated with avian schistosomes is discussed elsewhere in this module.]
- One to two months after exposure, an overt systemic illness known as Katayama fever (named for Katayama district, Hiroshima, Japan) begins, heralded by acute onset of fever, chills, diaphoresis, headache, and cough.
- The liver, spleen, and lymph nodes are enlarged, and eosinophilia is present.
- Although deaths have been described at this point (notably in *S. japonicum* infection) these findings subside within a few weeks in most cases.

**Chronic schistosomiasis:**
The likelihood of progression to chronic schistosomiasis is related to the extent of infestation.
- Chronic schistosomiasis caused by *S. mansoni*, *S. japonicum*, or *S. mekongi* is characterized by fatigue, abdominal pain and intermittent diarrhea or dysentery.
- Colonic polyposis is has been associated with infection by *S. mansoni*, *S. japonicum*, and *S. intercalatum*.
- Retroperitoneal fibrosis has been reported with *S. japonicum* infection.
- Blood loss from intestinal ulcerations may lead to moderate anemia.
- In *S. mansoni*, *S. japonicum*, and *S. mekongi* infections, ova remain in the venous portal circulation and are carried to the liver where they produce granulomata and fibrosis, and block portal blood flow.
- Portal hypertension and portosystemic collateral circulation result.
- Although liver function tests remain normal for a long time, hepatosplenomegaly and variceal hemorrhage develop.
- The spleen is firm and may reach massive size.
- Fatal hematemeses is unusual.
- Laboratory tests reveal moderate eosinophilia and anemia related to blood loss and hypersplenism.
• Eventually, hepatic function deteriorates, with late ascites and jaundice.

In *S. haematobium* infection, ova are located in the bladder and ureters, leading to granuloma formation, inflammation, hematuria, ureteral obstruction, secondary infection and often carcinoma of the bladder. 6-8 Ova are also commonly present in the seminal vesicles and prostate. 9
• Terminal hematuria and dysuria are common symptoms.

*S. intercalatum* infection is characterized by abdominal pain and bloody diarrhea.

*S. mekongi* is an important cause of hepatomegaly in endemic areas.

**Complications:**

The following are some of the many complications described in chronic schistosomiasis.
• Pulmonary schistosomiasis is manifested by symptoms and signs of right ventricular congestion related to blockage of pulmonary capillaries by ova in the course of hepatosplenic schistosomiasis. 10 11
• Central nervous system schistosomiasis is manifested as delirium, coma, seizures, dysphasia, visual impairment, ataxia, a cerebral mass, generalized encephalopathy or focal epilepsy (notably in *S. japonicum* infection). 12
• Granulomata of *S. haematobium* and *S. mansoni* may involve the spinal cord (most commonly the cauda equina or conus medularis) , producing transverse myelitis. 13-17 *Schistosoma mansoni* infection may occasionally involve the bladder, mimicking *S. haematobium* infection or malignancy. 18 *S. mansoni* infection has been implicated in cases of colo-rectal cancer. 19
• Although best known for damage to the urinary bladder and ureters, the female genitalia are involved in 50% to 70% of women with *S. haematobium* infection • resulting in vaginal deformities and fistulae 20 , hypogonadism, ectopic pregnancy, miscarriage and malignancy. 21-23 *Schistosoma mansoni* is implicated in the etiology of appendicitis in endemic areas 24 ; and may also involve the fallopian tubes 25 or cause ovarian pseudotumor 26 and acute abdomen associated with granulomatous peritonitis. 27
• *Salmonella* bacteremia is often reported among persons with hepatosplenic schistosomiasis. 28-32

**This disease is endemic or potentially endemic to 59 countries.** Although Schistosomiasis - mansoni is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

**Schistosomiasis - mansoni in Israel**

19 cases of autochthonous infection were reported among school children in 1951
- Autochthonous disease has not been reported since 1951. 33
- Schistosomiasis was common among immigrants from Yemen 34 , and more recently Ethiopia. 35
- 46.6% of Ethiopian immigrants were found to be infested. 36
References

15. J Infect 2009 Dec 22;
26. Arch Gynecol Obstet 2009 Apr 24;
40. ProMED <promedmail.org> archive: 20070904.2912
**Schistosomiasis - mekongi**

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Platyhelminthes, Trematoda. Strigeida, Schistosomatidae: Schistosoma mekongi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Snail Neotricula (Tricula) aperta Dog</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Water</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>2w - 6w</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Identification of ova in stool or biopsy specimens. Serology. Antigen detection.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Praziquantel 20 mg/kg PO TID X 1 day</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Early urticaria, fever and eosinophilia; later, hepatosplenomegaly and portal hypertension; parasite may survive for decades in human host.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Schistosoma mekongi. ICD9: 120.8 ICD10: B65.8</td>
</tr>
</tbody>
</table>

### Clinical

**WHO Case definition for surveillance (all forms of intestinal schistosomiasis):**

Endemic areas (moderate or high prevalence)
- **Suspected**: A person with chronic or recurrent intestinal symptoms (blood in stool, bloody diarrhea, diarrhea, abdominal pains) or, at a later stage, hepatosplenomegaly.
- **Probable**: A person who meets the criteria for presumptive treatment, according to the locally applicable diagnostic algorithms.
- **Confirmed**: A person with eggs of *S. mansoni*, or *S. japonicum/mekongi* in stools (microscope).

Non-endemic areas and areas of low prevalence
- **Suspected**: A person with chronic or recurrent intestinal symptoms (blood in stool, bloody diarrhea, diarrhea, abdominal pains) or, at a later stage, hepatosplenomegaly.
- **Probable**: Not applicable.
- **Confirmed**: A person with eggs of *S. mansoni* or *S. japonicum* in stools (microscope). A person with positive reaction to immunoblot test.

The clinical features caused by *Schistosoma* species infecting man are similar, will be discussed together.

**Acute infection:**

Within 24 hours of penetration by cercariae, the patient develops a pruritic papular skin rash known as swimmer’s itch. [The more overt form of Cercarial dermatitis associated with avian schistosomes is discussed elsewhere in this module.]
- One to two months after exposure, an overt systemic illness known as Katayama fever (named for Katayama district, Hiroshima, Japan) begins, heralded by acute onset of fever, chills, diaphoresis, headache, and cough.
- The liver, spleen, and lymph nodes are enlarged, and eosinophilia is present.
- Although deaths have been described at this point (notably in *S. japonicum* infection) these findings subside within a few weeks in most cases.

**Chronic schistosomiasis:**

The likelihood of progression to chronic schistosomiasis is related to the extent of infestation.
- Chronic schistosomiasis caused by *S. mansoni*, *S. japonicum*, or *S. mekongi* is characterized by fatigue, abdominal pain and intermittent diarrhea or dysentery.
- Blood loss from intestinal ulcerations may lead to moderate anemia.
- In *S. mansoni*, *S. japonicum*, and *S. mekongi* infections, ova remain in the venous portal circulation and are carried to the liver where they produce granulomata and fibrosis, and block portal blood flow.
- Colon polypsis is has been associated with infection by *S. mansoni*, *S. japonicum*, and *S. intercalatum*.
- Retroperitoneal fibrosis has been reported with *S. japonicum* infection.
- Portal hypertension and portosystemic collateral circulation result.
- Although liver function tests remain normal for a long time, hepatosplenomegaly and variceal hemorrhage develop.
- The spleen is firm and may reach massive size.
- Fatal hematemesis is unusual.
- Laboratory tests reveal moderate eosinophilia and anemia related to blood loss and hypersplenism.
Eventually, hepatic function deteriorates, with late ascites and jaundice.

In *S. haematobium* infection, ova are located in the bladder and ureters, leading to granuloma formation, inflammation, hematuria, ureteral obstruction, secondary infection and often carcinoma of the bladder. Ova are also commonly present in the seminal vesicles and prostate.

Terminal hematuria and dysuria are common symptoms.

*S. intercalatum* infection is characterized by abdominal pain and bloody diarrhea. *S. mekongi* is an important cause of hepatomegaly in endemic areas.

### Complications:

The following are some of the many complications described in chronic schistosomiasis:

- Pulmonary schistosomiasis is manifested by symptoms and signs of right ventricular congestion related to blockage of pulmonary capillaries by ova in the course of hepatosplenic schistosomiasis.
- Central nervous system schistosomiasis is manifested as delirium, coma, seizures, dysphasia, visual impairment, ataxia, a cerebral mass, generalized encephalopathy or focal epilepsy (notably in *S. japonicum* infection).
- Granulomata of *S. haematobium* and *S. mansoni* may involve the spinal cord (most commonly the cauda equina or conus medularis), producing transverse myelitis.
- *Schistosoma mansoni* infection may occasionally involve the bladder, mimicking *S. haematobium* infection or malignancy.
- Although best known for damage to the urinary bladder and ureters, the female genitalia are involved in 50% to 70% of women with *S. haematobium* infection; resulting in vaginal deformities and fistulae, hypogonadism, ectopic pregnancy, miscarriage and malignancy.
- *Schistosoma mansoni* is implicated in the etiology of appendicitis in endemic areas; and may also involve the fallopian tubes or cause ovarian pseudotumor and acute abdomen associated with granulomatous peritonitis.
- *Salmonella* bacteremia is often reported among persons with hepato-splenic schistosomiasis.

This disease is endemic or potentially endemic to 4 countries. Although Schistosomiasis - mekongi is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

### Schistosomiasis - mekongi in Israel

One case of presumed *Schistosoma mekongi* infection was reported during 1993 to 2005, in a returning traveler.

12 Israelis acquired probable *Schistosoma mekongi* infection in Laos during 2003 to 2007.

#### References

26. Arch Gynecol Obstet 2009 Apr 24;
<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM or FUNGUS. Gram positive cocci most common; gram negative bacilli, gonococci, mycobacteria, fungi, et al</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Endogenous</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>Variable</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Smear and culture of joint fluid. Cytological and chemical analysis of joint fluid also useful.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Antimicrobial agent(s) directed at known or likely pathogen</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>As for adult</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Fever (60% to 80%) associated with swelling, erythema and tenderness (usually single joint, most commonly a knee; elbow or ankle in child); mean fluid leucocyte count in acute bacterial forms = 50,000 / cu mm.</td>
</tr>
</tbody>
</table>

**Clinical**

Most cases present with fever, malaise and local findings of warmth, swelling and decreased range of motion.  
- Lack of erythema and local warmth are not uncommon.  
- The most commonly involved joints are the knee and hip, followed by the shoulder and ankle.  
- Non-gonococcal arthritis is mono-articular in 80% to 90% of cases.  
- Infection of the costochondral, sternoclavicular and sacroiliac joints is common in intravenous drug users.

Synovial fluid demonstrates low viscosity and turbidity.  
- Leucocyte counts usually exceed 50,000 per cu mm.  
- Note that leucocytosis, low glucose and high lactate levels are also encountered in some non-infectious forms of arthritis.  
- Gram stains are positive in 50% of cases, and cultures in 90%.

**Etiological associations:**  
- Adult below age 30: *Neisseria gonorrhoeae* (often monoarticular involving knee)  
- Associated rash: Lyme disease, gonococcemia (often monoarticular, involving knee)  
- Child below age 5 years: *Haemophilus influenzae, Staphylococcus aureus, Streptococcus* spp.  
- Chronic arthritis: Tuberculosis, Mycobacteria • nontuberculous, Sporotrichosis and other fungi  
- Hematogenous infection: *Staphylococcus aureus, Streptococcus pyogenes*  
- Injecting drug user: *Pseudomonas aeruginosa* (often sternoclavicular or sacroiliac)  
- Traumatic injury to joint: *Staphylococcus aureus, Enterobacteriaceae, Pseudomonas aeruginosa*

**This disease is endemic or potentially endemic to all countries.**

**References**

## Septicemia - bacterial

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. <em>Escherichia coli</em>, <em>Staphylococcus aureus</em>, facultative gram negative bacilli, et al</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Endogenous</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Variable</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Culture of blood and sepsis source.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Antimicrobial agent(s) directed at known or likely pathogen</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Fever, rigors, leukocytosis, tachypnea, mental changes; hypotension, acidosis and bleeding diathesis herald septic shock; further signs (eg, urinary infection, phlebitis, etc) may point to the source of infection .</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Sepsis, Septicaemia, Septicemia, Septicemie, Septikemie, Setticemia. ICD9: 036.2,036.3,038</td>
</tr>
<tr>
<td></td>
<td>ICD10: A40,A41</td>
</tr>
</tbody>
</table>

**Clinical**

Bacterial septicemia is defined as the presence of signs and symptoms related to bacteremia. ¹
- The clinical spectrum and severity of disease are largely determined by the infecting species, underlying diseases and source of infection.
- Most patients present with fever, tachycardia and leucocytosis, in addition to signs and symptoms referable to a primary infectious focus (eg, urinary tract, abdominal infection, endocarditis, etc).

*This disease is endemic or potentially endemic to all countries.*

**Septicemia - bacterial in Israel**
Graph: Israel. Septicemia, cases - GIDEON

Notes:
1. Septicemia has been a reportable disease since 1978.

Graph: Israel. Septicemia, deaths - GIDEON
References

# Shigellosis

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM: <em>Shigella sonnei</em>, <em>Shigella flexneri</em>, <em>Shigella boydii</em> or <em>Shigella dysenteriae</em></th>
<th>A facultative gram-negative bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
<td>Non-human primate</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Vehicle</td>
<td>Fecal-oral, Water, Dairy products, Fomite, Fly, Vegetables</td>
<td></td>
</tr>
<tr>
<td>Incubation Period</td>
<td>48h - 72h (range 7h - 1w)</td>
<td></td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Stool culture.</td>
<td></td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Stool precautions. Choice of antimicrobial agent based on regional susceptibility patterns. Continue treatment for five days</td>
<td></td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
<td></td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Watery or bloody diarrhea, tenesmus, abdominal pain and headache; colonic hyperemia and abundant fecal leucocytes are present; usually resolves in 3 days (may persist for up to 14); case fatality rate = 1%.</td>
<td></td>
</tr>
<tr>
<td>Synonyms</td>
<td>Bacillaire dysenterie, Bacillary dysentery, Dissenteria bacterica, Dysenteria bacillaris, Leptospierekrankung, Ruhr, Shigella, Shigellose, Shigelose, Ubertragbare Ruhr. ICD9: 004 ICD10: A03</td>
<td></td>
</tr>
</tbody>
</table>

## Clinical

### Acute infection:
Approximately 50% of infections are limited to transient fever or self-limited diarrhea.
- 50% of patients progress to bloody diarrhea and dysentery.  
- Fever may rise rapidly to 40°C, and febrile seizures are common in children.
- Seizures rarely recur or result in neurological sequelae.
- Dysentery is characterized by passage of 10 to 30 small-volume stools consisting of blood, mucus, and pus.
- Abdominal cramps and tenesmus are noted, and straining may lead to rectal prolapse, notably in young children.
- On endoscopy, the colonic mucosa is hemorrhagic, with mucous discharge and focal ulcerations. Most lesions are in the distal colon.

### Complications:
Patients with mild disease generally recover without specific therapy in two to seven days.
- Severe shigellosis can progress to toxic dilatation or perforation of the colon, which may be fatal.
- Mild dehydration is common, and protein-losing enteropathy can occur with severe disease.
- Complications are most commonly described in developing countries and are related both to the relative prevalence of *S. dysenteriae* type 1 and *S. flexneri*, and the poor nutritional state of the local populations.
- *Shigella* bacteremia is not uncommon, and is associated with increased mortality, particularly among infants below one year of age and persons with protein-energy malnutrition.
- Hemolytic-uremic syndrome (HUS) may complicate shigellosis due to *S. dysenteriae* type 1, and usually develops toward the end of the first week of shigellosis.
- Profound hyponatremia and hypoglycemia may occur.
- Other complications include encephalopathy, seizures, altered consciousness, and bizarre posturing, pneumonia, meningitis, vaginitis, keratoconjunctivitis, pneumonia and “rose spots.”
- Reiter's syndrome is seen in patients having histocompatibility antigen HLA-B27.
- Reactive arthritis follows 7% to 10% of *Shigella* infections.

This disease is endemic or potentially endemic to all countries.

## Shigellosis in Israel
Notes:
1. Shigellosis has been a reportable disease since 1951.
2. Children ages 1 to 4 account for over 50% of cases.
3. Review of cases reported during 1986 to 1995 - see reference 13

During 1990 to 2008, *Shigella* accounted for 47.4% of enteric infections in Jerusalem - with rates 19.7 per 100,000 to 252.8 per 100,000. 14
- Biennial outbreaks of shigellosis are reported among religious communities in Bnei Beraq (1998 to 2006). 15

0.13% to 1.52% of soldiers develop shigellosis during basic training (1993 to 1997) - 50% *S. flexneri* and 50% *S. sonnei*. 16
- 170 outbreaks of shigellosis were reported in the Israeli Defense Force during 1988 to 2002 - 72 *S. sonnei* and 58 *S. flexneri*. 16

Prevalence surveys:
- 7.1% of outpatient diarrhea among children below age 17 years (2010 publication) 17
- 11% of all food-related illness reported during 1990 to 1999
- 10% of diarrhea among children on a communal settlement (1998 to 1992) 18
- 6.9% of Ethiopian immigrants hospitalized in Israel (1986 publication) 19
Notes:
1. In 1970, the most common isolate was *Shigella flexneri*.
2. The most common species during 1970 to 1995 was *S. sonnei*.

31,319 *Shigella* isolates were submitted to the National *Shigella* Reference Center during 1990 to 1996 - 15,287 were identified as *Shigella sonnei*, 1,833 as *Shigella flexneri*, 327 as *Shigella boydii* and 127 as *Shigella dysenteriae* 20

- *Shigella flexneri*, *S. dysenteriae* and *S. boydii* account for approximately 50% of isolates in the Arab population.
Notes:
1. 19 outbreaks of shigellosis (1,236 cases) were reported in 1977.
Notable outbreaks:

1984 (publication year) - An outbreak in an ultra-orthodox Jewish community was caused by contaminated vegetables.  

1985 - An outbreak (9,595 cases) in the Haifa area was caused by contamination of drinking water by sewage.  

1991 (publication year) - An outbreak of *Shigella sonnei* gastroenteritis was ascribed to contaminated water.  

2002 - An outbreak (94 cases) of nalidixic acid-resistant *Shigella sonnei* was reported among children.  

2010 - An outbreak (17 cases) of shigellosis was reported in a village in Haifa district.

West Bank and Gaza:
Prevalence surveys:
6% of diarrhea in children less than 5 years of age. (Gaza, 2007 publication)  
0.8% of diarrhea in children - the predominant species was drug-resistant S. flexneri (Gaza, 1999 to 2006)  
47.4% of bacterial enteric infections in Jerusalem (1990 to 2008)  
6% of diarrhea among children below age 5 in Gaza (2008 publication)  
6.7% of childhood diarrhea in Gaza (2006 to 2007)  

Notable outbreaks:
1998 - An outbreak (500 cases or more) in a refugee camp near Nablus was ascribed to 'spoiled food.'

References

29. ProMED <promedmail.org> archive: 20100205.0387
31. J Gastroenterol Hepatol 2007 Sep 14;
34. Indian J Pediatr 2010 Oct 6;
35. ProMED <promedmail.org> archive: 19980831.1752
### Sindbis

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - RNA. Togaviridae, Alphavirus: Sindbis virus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Wild bird</td>
</tr>
<tr>
<td>Vector</td>
<td>Mosquito (Culex univittatus and Cx. tritaeniorhyncus)</td>
</tr>
<tr>
<td>Vehicle</td>
<td>None</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>3d - 6d</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Fever, myalgia, arthritis and a papular-to-vesicular rash; arthralgias may persist for more than three years; fatality not reported.</td>
</tr>
</tbody>
</table>
| Synonyms           | Babanki, Whataroa.  
ICD9: 078.89  
ICD10: A92.8 |

### Clinical

Sindbis virus infection is a self-limited febrile illness associated with myalgia and diffuse papular or vesicular rash (typically of the plantar region).  
- Arthralgia is common, and may be severe.  
- Fever and rash persist for 2 to 3 weeks; and arthralgias for months, or even years.  
- No deaths have been reported.

Infection by a related agent, Babanki virus, is characterized by fever, rash and arthralgia.

**This disease is endemic or potentially endemic to 33 countries.**

### References

Sinusitis

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM. Various (Haemophilus influenzae &amp; Streptococcus pneumoniae in most acute cases)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>Variable</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Imaging techniques. Culture of sinus drainage.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Antimicrobial agent(s) directed at likely pathogens. Drainage as indicated</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>As for adult</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Sinusitis often follows upper respiration infections; headache, fever and local tenderness are common, however the precise presentation varies with patient age and anatomic localization.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Acute sinusitis, Mastoidite, Mastoiditis, Rhinosinusitis, Sinusite. ICD9: 473.9,383.0,461 ICD10: H70,J01</td>
</tr>
</tbody>
</table>

**Clinical**

Acute community-acquired bacterial sinusitis is usually superimposed on preexisting viral sinusitis.
- In most cases, it is not possible to distinguish between viral and bacterial infections.
- Sneezing, nasal discharge and obstruction, facial pressure and headache are common in both conditions.\(^1\)
- Fever of 38C or more, facial pain, and erythema occur may occasionally herald bacterial infections.
- The nasal discharge may be colored in both viral and bacterial sinusitis.
- Cough and hyposmia may also be present.

Sinusitis following dental infection is associated with molar pain and a foul breath odor.
- Sphenoid sinusitis is associated with severe frontal, temporal, or retroorbital headache that radiates to the occipital region; and hypesthesia or hyperesthesia of the ophthalmic or maxillary dermatomes of the fifth cranial nerve.
- Lethargy and findings suggestive of cavernous sinus or cortical vein thrombosis, orbital cellulitis or orbital abscess may also be present.
- In severe cases of frontal sinusitis, pus may collect under the periosteum of the frontal bone resulting in a 'Pott puffy tumor.'

Rare instances of toxic shock syndrome have followed sinusitis.\(^2\)

**This disease is endemic or potentially endemic to all countries.**

**References**

### Smallpox

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>VIRUS - DNA. Poxviridae, Orthopoxvirus: Variola virus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Contact, Infected secretions, Fomite</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>7d - 17d</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Isolation; supportive. Cidofovir is effective in vitro</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>As for adult</td>
</tr>
<tr>
<td><strong>Vaccine</strong></td>
<td>Smallpox</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Fever, myalgia, headache, pustular or hemorrhagic rash; disease resolves in 2 to 3 weeks; case-fatality rate = 25% for severe form (variola major) and 1% for minor form; last naturally-acquired case reported in Somalia in 1977.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Alastrim, Eczema vaccinatum, Kopper, Smallpox, Vailo, Variola, Variola minor, Varioloid.</td>
</tr>
</tbody>
</table>

#### Clinical

**Acute infection:**

12 to 14 days after exposure (range 7 to 17 days), the patient experiences a 2 to 3 day prodrome of high fever, malaise, prostration and severe headache and backache.

- This "preeruptive stage" is followed by the appearance of a maculopapular rash (i.e., eruptive stage) that progresses to papules within one to two days.
- Vesicles appear on the fourth or fifth day; pustules by the seventh day; and scab lesions on the fourteenth day.
- The rash first appears on the oral mucosa, face, and forearms; and then spreads to the trunk and legs.
- The palms and soles may also be involved.
- Skin lesions are deeply embedded in the dermis and feel like firm round objects in the skin.
- As the lesions heal, the scabs separate and pitted scarring gradually develops.
- Patients are most infectious during the first week of the rash when the oral mucosa lesions ulcerate and release large amounts of virus into the saliva.
- A patient is no longer infectious after all scabs have separated (3 to 4 weeks after the onset of the rash).
- Rare instances of bone involvement (osteomyelitis variolosa) are described.
- During the smallpox era, overall mortality rates were approximately 30%.

Other less common but more severe forms of smallpox include
- a) flat-type smallpox (mortality rate over 96%) characterized by severe toxemia and flat, velvety, confluent lesions that did not progress to the pustular stage or scaring
- b) hemorrhagic smallpox, characterized by severe prodromal symptoms, toxemia, and a hemorrhagic rash.

**Hemorrhagic smallpox** is uniformly fatal and occur among all ages and in both sexes, but pregnant women appear to be unusually susceptible.

- Illness usually begins with a somewhat shorter incubation period and is characterized by high fever and pain in the head, back, and abdomen.
- Soon thereafter, a dusky erythema develops, followed by petechiae and frank hemorrhages into the skin and mucous membranes.
- Death usually occurs by the fifth or sixth day after onset of rash.

**Variola minor** is generally less severe, with fewer constitutional symptoms and a more sparse rash.

- A milder form of disease is also seen among those who have residual immunity from previous vaccination.
- In partially immune persons, the rash tends to be atypical and more scant and the evolution of the lesions more rapid.

Disseminated herpes simplex in patients with eczema (Eczema herpeticum) may resemble smallpox.
This disease is not currently endemic to any country. Although Smallpox is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

**Smallpox in Israel**

![Graph: Israel. Smallpox, cases](image)

Notes:

- Individual years:
  - 1921 - Cases in Ramla and Hebron
  - 1922 - Most cases in Hebron and Jerusalem
  - 1923 - Cases in Tiberias and Majdal
  - 1924 - Cases in Jaffa, Zemach and Huleh
  - 1926 - Cases in Hebron and Tiberias
  - 1927 - Case in Jerusalem
  - 1933 - Cases in Majdal and Gaza
  - 1934 - Cases in Haifa, Baisan and Beer Sheva
  - 1942 - Cases in Tel Aviv, Haifa and Beer Sheva
  - 1943 - Cases in Tulkarem
  - 1944 - Cases in Jaffa, Tel Aviv, Ramleh, Majdal and Haifa
  - 1948 - Cases in Nazareth
  - 1949 - Cases in Jerusalem\(^7\), Tel Aviv and Beit Zefafa
  - 1950 - Cases in the northern region and Jerusalem

76 deaths were ascribed to smallpox during 1921 to 1944.
- Seven fatal cases were reported in Jerusalem in 1949.

A mass vaccination campaign was carried out in 1949; and no cases have been reported since 1950.\(^8\)

Routine vaccination was introduced in 1918, and discontinued in 1979.
- Routine vaccination of military personnel was discontinued in 1997.
- Selective vaccination of health care workers was initiated in 2002, in view of possible bioterrorism.

**References**

2. Wkly Epidemiol Rec 2001 Nov 2;76(44):337-44.
5. Rheumatol Int 2009 Dec 12;
**Sporotrichosis**

<table>
<thead>
<tr>
<th>Agent</th>
<th>FUNGUS. Ascomycota, Euascomycetes, Ophiostomatales: Sporothrix schenckii, S. brasiliensis and S. globosa A dimorphic dematiaceous fungus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Soil, Vegetation, Wood</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Trauma, Contact, Air (rare)</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>1w - 3m</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Fungal culture. Serologic tests available in some centers.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Itraconazole 100 to 200 mg PO daily X 3 to 6 months. OR Fluconazole 400 mg PO daily X 6 months. OR Potassium iodide 1 to 5 ml PO TID X 3 to 6 months</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Itraconazole 2 mg/kg PO daily X 3 to 6 months. OR Fluconazole 3 mg/kg PO daily X 6 months.</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Draining nodules which follow lymphatics; acquired from contact with flowers, thorns, trees or other plant material; eye, brain, testis, bone and other tissues may be involved.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Schenck's disease, Sporothrix brasiliensis, Sporothrix globosa, Sporothrix schenckii, Sporotrichose. ICD9: 117.1 ICD10: B42</td>
</tr>
</tbody>
</table>

**Clinical**

**Clinical forms of sporotrichosis:**

**Cutaneous sporotrichosis** begins as a painless erythematous papule which enlarges and suppurates, without systemic symptoms.  
- Multiple lesions may spread along lymphatic channels.  
- Occasionally only a single lesion appears, and may persist for decades.  
- Bilateral infection may occur.  
- Hematogenous infection of multiple skin sites has also been described.  
- In some cases, ulcers appear on multiple body sites.

**Nodular lymphadenitis** is also seen in *Nocardia brasiliensis* infection, tularemia, *Mycobacterium marinum* infection, and infections caused by *Leishmania panamensis/guyanensis*.  
- Lesions of sporotrichosis may rarely mimic those of pyoderma gangrenosum.

**Pulmonary sporotrichosis** characteristically presents as a single upper lobe cavity associated with cough and low-grade fever.  
- Multifocal lung lesions have also been reported.

**Osteoarticular sporotrichosis** is characterized by infection of a large peripheral joint  
- Hip and shoulder involvement is not encountered.  
- Most patients are afebrile when first seen.  
- Occasionally, the infection presents as tenosynovitis, usually of the wrist or ankle.

**Other forms** include conjunctival infection, hematogenous endophthalmitis, brain abscess, soft tissue mass, meningitis, orchitis, etc.

**This disease is endemic or potentially endemic to all countries.**

**Sporotrichosis in Israel**

Three cases of subcutaneous sporotrichosis had been reported to 1976, and the organism was isolated from soil at the time.
References

11. Cornea 2010 Mar 23;
13. J Neurol Neurosurg Psychiatry 2010 Apr 14;
### Spotted fevers - Old World

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Rickettsia conorii subsp. Conorii R. aeschlimannii, R. helvetica, R. massiliae, R. monacensis, R. slovaca</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Dog, Rodent, Tick</td>
</tr>
<tr>
<td>Vector</td>
<td>Tick (Rhipicephalus sanguineus)</td>
</tr>
<tr>
<td>Vehicle</td>
<td>None</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>6d - 7d (range 3d - 18d)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Serology. Demonstration of rickettsiae by immunofluorescence or culture. Nucleic acid amplification.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Doxycycline 100 mg PO BID X 3 to 5d OR Chloramphenicol 500 mg PO QID X 3 to 5d</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Doxycycline 2 mg/kg PO BID X 3 to 5d (maximum 200 mg/day). OR Chloramphenicol 10 mg/kg PO QID X 3 to 5d</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Headache, myalgia, maculopapular rash; an eschar may be identifiable; patient may recall tick bite or dog contact during the preceding 1 to 3 weeks; untreated disease resolves within two weeks; case-fatality rates of 2% to 3% are reported.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Boutonneuse fever, Candidatus Rickettsia kellyi, DEBONEL, Febre escaro-nodular, Febre escaronodular, Indian tick typhus, Kenya tick typhus, Marseilles fever, Mediterranean spotted fever, R. aeschlimannii, Rickettsia aeschlimannii, Rickettsia conorii subsp conorii, Rickettsia conorii subsp indica, Rickettsia helvetica, Rickettsia massiliae, Rickettsia monacensis, Rickettsia raoultii, Rickettsia slovaca, Thai spotted fever, TIBOLA, Tick-borne lymphadenopathy.</td>
</tr>
</tbody>
</table>

### Clinical

The clinical features of Mediterranean spotted fever (MSM) are similar to those of Rocky Mountain spotted fever (q.v.); however, an eschar ("tache noire") and diffuse distribution of the rash characterize MSM. 
- Hepatomegaly, elevation of serum transaminase levels and splenomegaly are common. 
- Complications may include meningitis with CSF pleocytosis (either lymphocytic or polymorphonuclear), encephalitis, renal failure, myocarditis, bleeding diatheses, splenic rupture, hemophagocytic syndrome and retinitis. 
- There is evidence that Israeli spotted fever is more virulent than Mediterranean spotted fever. 

Spotted fever in India differs from the Mediterranean form in that the rash is often purpuric, and an inoculation eschar at the bite site is rarely found. 
- The clinical course is mild to moderately severe. 

A syndrome of Dermacentor-borne necrosis with erythema and painful lymphadenopathy (DEBONEL) described in Spain has been ascribed to possible infection by *Rickettsia slovaca*. 
- This syndrome appears to be identical to Tick-borne lymphadenopathy (TIBOLA), reported in Hungary. 
- Clinical features may include fever, dermal eschar, lymphadenopathy, facial edema, rash, headache, asthenia and alopecia. 

*Rickettsia helvetica* has been implicated in cases of mild flu-like illness (myalgia, arthralgia, headache, conjunctivitis) without rash, in Denmark, Italy, France and Thailand; and in myocarditis reported from Sweden. 

*Rickettsia monacensis* infection has been associated with headache, joint pain, a nonpruritic, disseminated maculopapular rash of the trunk and lower extremities, including palms and soles. 
- An inoculation site eschar is not reported. 

This disease is endemic or potentially endemic to 103 countries.

### Spotted fevers - Old World in Israel

Mediterranean spotted fever and Israeli spotted fever are clinically similar; however, an eschar ("tache noire") is unusual in the Israeli variety. 
- Since statistics for "spotted fever" include both diseases, the precise incidence for the individual diseases is unknown.
**Time and Place:**
The first case of human infection was reported in 1943.
- Highest rates are recorded along the Mediterranean coast, in the areas of Netanya and Hadera.\(^{15}\)\(^{16}\)
- During 1997 to 1999, 41% of cases were reported from the Hadera district, 16% from the Beer Sheva district and 14% from the Sharon district.
- Case clusters are occasionally encountered.\(^{17}\)

Only 32.2% of cases are clinically-apparent.

---

Notes:
1. Spotted fever has been reportable since 1971.
Notes:
1. 31 fatal cases were reported during 1971 to 1997 - most patients above age 60.

Vectors:
The principal vector is the dog tick, *Rhipicephalus sanguineus*.
- *Rh. turanicus* has been implicated in the southern region.

Jackals as well as dogs are implicated as reservoirs.

*Rickettsia massiliae* has been identified in a ticks (*Rhipicephalus sanguineus* and *Rh. turanicus*, 2010 publication)
- *Rickettsia conorii israelensis* has been detected in *Rh. sanguineus*.

Prevalence surveys:
- 20% of dogs tested during the 1980’s
- 58% of dogs with suspected tick-borne disease toward *Rickettsia conorii*, and 28% toward *Rickettsia conorii* subsp. Israelensis (1998 publication)
- 7.3% of questing *Rhipicephalus sanguineus* and 2.2% of *Rh. turanicus* in the area of Kibbutz Ze’elim and Re’im (1989 to 1990)

Seroprevalence surveys:
- 10% of humans and 81% of dogs in rural endemic areas (2007 publication)
- 7.1% of dog owners and 1.4% of non dog owners in Ze’elim (1993 publication)

Notable outbreaks:
- 1973 (publication year) - An outbreak (13 cases) of tick typhus was reported in the coastal plain region.
- 1999 (publication year) - An outbreak (3 cases) was reported among members of a family.

References
2. BMC Infect Dis 2006 ;6:60.
5. Rev Neurol (Paris) 2010 Aug 24;
# Staphylococcal food poisoning

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM. <em>Staphylococcus aureus</em> exotoxins</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human (nares, hands) Occasionally cattle (udder)</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Food (creams, gravies, sauces)</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>2h - 4h (range 30 min - 9h)</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Identification of bacterium in food.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Supportive</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>As for adult</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>'Explosive' diarrhea and vomiting; usually no fever; no fecal leucocytes; onset 1 to 6 hours after food; resolves within 1 to 2 days; fatality is rare.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Staphylococcus aureus food poisoning. ICD9: 005.0 ICD10: A05.0</td>
</tr>
</tbody>
</table>

## Clinical

Usually symptoms start within several hours of ingestion of potentially contaminated foods
- Illness is heralded by nausea, vomiting and intestinal cramping, followed by urgency and profuse watery non-bloody diarrhea.
- Symptoms resolve within 12 to 24 hours.
- Multiple family members or patrons of the same eating establishment may be affected.
- The presence of both explosive diarrhea and vomiting, lack of fever and short incubation period are helpful in distinguishing this entity from other forms of food poisoning.

**This disease is endemic or potentially endemic to all countries.**

## Staphylococcal food poisoning in Israel
Notes:
1. Staphylococcal food poisoning accounted for 18% of all food-related outbreaks reported during 1990 to 1992; and 15% of all food-related illness during 1990 to 1999.
Staphylococcal scalded skin syndrome

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. <em>Staphylococcus aureus</em> phage group 2 A facultative gram-positive coccus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Direct contact; infected secretions</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>1d - 4d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Typical clinical features; Recovery of <em>S. aureus</em> from localized wound or blood; skin biopsy may be helpful</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Fluid replacement (as for burn); Intravenous <em>Nafcillin</em> or <em>Oxacillin</em>, in addition to application of anti-staphylococcal drug to local source infection; <em>Vancomycin</em> if MRSA</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Fluid replacement (as for thermal burn); Intravenous <em>Nafcillin</em> or <em>Oxacillin</em>, in addition to application of anti-staphylococcal drug to local source infection; <em>Vancomycin</em> if MRSA</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Acute, generalized exfoliative dermatitis which occurs primarily in infants and young children; a pre-existing localized skin infection is present in most - but not all - cases.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Lyell disease, Ritter disease, Ritter von Ritterschein disease, Scalded skin syndrome, SSSS. ICD9: 695.81 ICD10: L00</td>
</tr>
</tbody>
</table>

**Clinical**

Staphylococcal scalded skin syndrome (SSSS) is characterized by diffuse erythematous cellulitis followed by extensive skin exfoliation. 1 2

- Generalized erythema and then bulla formation with separation of the skin at the granular cell layer. 3 4
- A warm, 'sandpaper' erythema with accentuation in the flexor creases may mimic scarlet fever; while the presence of flaccid bullae and Nikolsky sign may suggest pemphigus. 5
- Skin biopsy can be used to differential SSSS from Toxic epidermal necrolysis. 6
- Facial edema and perioral crusting are often present.

Dehydration may indicate fluid loss (as in thermal burns)

- Complete recovery occurs in most cases, within one to two weeks. 7
- The case-fatality rate in uncomplicated SSSS is less than 2%.
- Rare instances of recurrence have been reported 8
- Staphylococcal septicemia complicates SSSS in a minority of cases.

**This disease is endemic or potentially endemic to all countries.**

**References**

### Streptococcus suis infection

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM. <em>Streptococcus suis I</em> and <em>Streptococcus suis II</em> A facultative gram-positive coccus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Pig</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Air, Secretions, Meat, Local wounds</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>Unknown. Probably hours to few days</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Culture of blood, tissue, body fluids</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Systemic antibiotic. Usually susceptible in vitro to Penicillin, Amoxicillin, Chloramphenicol and Gentamicin</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>Systemic antibiotic</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Severe multisystem disease, hemorrhagic diatheses, deafness or meningitis appearing hours to a few days after contact with pigs or pig products.</td>
</tr>
</tbody>
</table>

#### Clinical

**Demography:**
- Virtually all patients have been farmers and butchers, of whom 80 percent were men.
- Most had been involved in butchering sick pigs or selling the pork.
- Over 40 percent of the patients were in the age group 50 to 60 years, and none were children.  

**Signs and symptoms:**
- Clinical features of *Streptococcus suis II* infection include high fever, malaise, nausea and vomiting • followed by meningitis, subcutaneous hemorrhage, multi-organ failure (hepatic, renal, pulmonary, cardiac) and coma in severe cases.  

  - Toxic shock syndrome is common.  
  - Sensorineural hearing loss is often present.  
  - Peritonitis, endocarditis, mycotic aortic aneurysm, rhabdomyolysis, spondylodiscitis, salcromiiitis, monoarthritis, endophthalmitis, and cranial nerve palsy have been reported.  
  - Persons with occupational exposure may exhibit asymptomatic seropositivity toward *S. suis*.  
  - Relapses of meningitis may occur.  

This disease is endemic or potentially endemic to 227 countries.

#### References

1. ProMED <promedmail.org> archive: 20050816.2399  
3. ProMED <promedmail.org> archive: 20050804.2271  
10. Surg Infect (Larchmt) 2009 Oct 1;  
18. ProMED <promedmail.org> archive: 20070823.2756  
# Strongyloidiasis

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Nematoda. Phasmidea: Strongyloides stercoralis (Strongyloides fulleborni is occasionally implicated in systemic disease)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human ? Dog Monkey (for Strongyloides fulleborni)</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Skin contact Soil Feces Autoinfection Sexual contact (rare)</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>14d - 30d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Identification of larvae (or ova, for Strongyloides fulleborni) in stool or duodenal aspirate</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Ivermectin 200 micrograms/kg/d PO daily X 2d OR Thiabendazole 25 mg/kg BID (max 3g) X 2d OR Albendazole 400 mg/d X 3d (7 days for hyperinfection syndrome)</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Ivermectin 200 micrograms/kg/d PO daily X 2d OR Thiabendazole 25 mg/kg BID (max 3g) X 2d. OR Albendazole 200 mg/d X 3d (7 days for hyperinfection syndrome)</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Diarrhea, gluteal or perineal pruritus and rash; eosinophilia often present; widespread dissemination encountered among immune-suppressed patients because of uncontrolled autoinfection (case-fatality rate for this complication = 80%).</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Anguilluliasis, Anguillulosis, Cochin China gastroenteritis, Diploscapter, Halicephalobus, Halicephalobus, Larva currens, Leptodera intestinals, Leptodera stercoralis, Micronema, Pseudorhabdis stercoralis, Rhabditis stercoralis, Rhabdonema intestinal, Rhabdonema stercoralis, Strongyloides fulleborni, Strongyloides stercoralis, Strongylodose, Threadworm, Turbatrix. ICD9: 127.2 ICD10: B78</td>
</tr>
</tbody>
</table>

## Clinical

### Gastrointestinal strongyloidiasis:
The symptoms of strongyloidiasis reflect invasion of the skin, larval migration of larvae intestinal penetration.
- Approximately one third of patients are asymptomatic.
- Dermal and pulmonary symptoms resemble those of hookworm, pruritic papular or linear urticarial rash (larva currens) and a Loeffler-like syndrome.
- Intestinal penetration is characterized by abdominal pain, mucous diarrhea and eosinophilia.
- Vomiting, weight loss, protein-losing enteropathy and inappropriate ADH excretion are occasionally encountered.
- Intestinal obstruction has been reported.
- Findings in colonic infection may mimic those of ulcerative colitis.

### Generalized strongyloidiasis:
5 to 22% of patients develop a generalized or localized urticarial rash beginning in the anal region and extending to the buttocks, abdomen, and thighs.
- Extraintestinal infection may involve a wide variety of organs.
- Autoinfection is characterized by massive larval invasion of the lungs and other organs.
- Massive systemic strongyloidiasis occurs in patients with lymphoma, leukemia and AIDS; and during high-dose therapy with corticosteroids.
- Findings include generalized abdominal pain, concurrent gram-negative bacillary septicemia (55% of cases), bilateral diffuse pulmonary infiltrates and ileus.
- Hyperinfection may mimic acute exacerbation of COPD.
- Eosinophilia may be present or absent at this stage; and rare instances of eosinophilic meningitis have been reported.
- An outbreak of hyperinfection strongyloidiasis has been reported among immune-suppressed renal transplant recipients.
- Strongyloides stercoralis is the only helminth responsible for disseminated infection in immunocompromised patients.

### Strongyloides fulleborni infection is usually asymptomatic.

**Strongyloides fulleborni kellyi** infection is most common among infants, and consist of abdominal distention, mild diarrhea and protein-losing enteropathy.
- Respiratory distress may occur, and is associated with a characteristic high-pitched cry.
This disease is endemic or potentially endemic to all countries.

Strongyloidiasis in Israel

The parasite is commonly identified, and cases of fatal dissemination have been reported in immune-suppressed patients. 20
21

Prevalence surveys:
4.5% of Ethiopian immigrants (1991 publication) 22
1% of diarrhea among children below age 5 in Gaza (2008 publication) 23

Four cases (3 fatal) of Strongyloides hyperinfection among Ethiopian immigrants were treated at a hospital. (2009 publication). 24

References
3. Hautarzt 2010 Oct 22;

© 2011 GIDEON Informatics, Inc. www.gideononline.com All Rights Reserved.
Subdural empyema

### Agent
BACTERIUM. *Haemophilus influenzae*, oral anaerobes, streptococci, et al

### Reservoir
Human

### Vector
None

### Vehicle
Endogenous

### Incubation Period
Variable

### Diagnostic Tests
Imaging techniques (CT scan, etc).

### Typical Adult Therapy
Antimicrobial agent(s) directed at known or likely pathogen

### Typical Pediatric Therapy
As for adult

### Clinical Hints
Fever, severe headache, vomiting, and signs of meningeal irritation and increased cerebrospinal fluid pressure; may follow head trauma, meningitis, otitis or sinusitis; case-fatality rate 15% (alert) to 60% (comatose).

### Synonyms
Most patients present with headache, meningismus, decreased mental status and hemiparesis.  
- In 60 to 90% of cases, sinusitis or otitis is present.
- Extension of the infection into the subdural space is heralded by fever, focal and later generalized headache, vomiting, and meningismus.  
  - 50% of patients exhibit altered mental function.
  - Focal neurological signs appear within 24 to 48 hours, and rapidly progress to hemispheric dysfunction with hemiparesis and hemisensory deficit.
  - Seizures, usually focal, occur in 50% of cases, and papilledema in less than 50%.
  - Signs of increased intracranial pressure appear, leading to cerebral herniation and death.
  - Chronic and even sterile subdural collections are also encountered, often following antibiotic therapy.

This disease is endemic or potentially endemic to all countries.

### References
Suppurative parotitis

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Most commonly <strong>Staphylococcus aureus</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Endogenous</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Clinical features (local swelling and purulent discharge from salivary ducts). Stain and culture of discharge.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Surgical drainage and aggressive parenteral antistaphylococcal therapy</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Consider when confronted by unexplained fever in the setting of malnutrition, dehydration and obtundation; local swelling and discharge of pus from salivary duct are diagnostic.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Parotitis, bacterial. ICD9: 527.2 ICD10: K11.3</td>
</tr>
</tbody>
</table>

**Clinical**

Suppurative parotitis is characterized by the sudden onset of firm, erythematous swelling of the pre• and post auricular areas, extending to the angle of the mandible. 1

• Marked pain and tenderness is accompanied by high fever, chills and marked toxicity.
• Pus may be seen exiting from the parotid duct.
• Progression of the disease can result in massive swelling of the neck, respiratory obstruction, septicemia, fistula formation 2 and osteomyelitis of the adjacent facial bones.
• The condition should be suspected in any patient with unexplained or prolonged fever.

**This disease is endemic or potentially endemic to all countries.**

**References**

Syphilis

Agent | BACTERIUM. *Treponema pallidum* subsp. pallidum A microaerophilic gram-negative spirochete
---|---
Reservoir | Human
Vector | None
Vehicle | Sexual contact Infected secretions
Incubation Period | 2w - 4w (range 10d - >8w)
Diagnostic Tests | Dark field microscopy (chancre). VDRL confirmed by antitreponemal test (FTA, MHTP). Nucleic acid amplification.
Typical Adult Therapy | Primary, secondary or early (< 1 year) latent: Benzathine *Penicillin G* 2.4 million units IM Other stages: Repeat dosage at one and two weeks Alternatives: Tetracycline, Ceftriaxone
Typical Pediatric Therapy | Primary, secondary or early (< 1 year) latent: Benzathine *Penicillin G* : Weight <14 kg: 600,000u IM Weight 14 to 28 kg: 1,200,000u IM Other stages: Repeat dosage at one and two weeks
Clinical Hints | Firm, painless chancre (primary syphilis); later fever, papulosquamous rash and multisystem infection (secondary syphilis); late lesions of brain, aorta, bone or other organs (tertiary syphilis).
Synonyms | Canton rash, Chinese ulcer, Christian disease, French disease, German sickness, Harde sjanker, Lues, Neopolitan itch, Polish sickness, Sifilide, Sifilis, Spanish pockes, Syfilis, Treponema pallidum.
ICD9: 090,091,092,093,094,095,096,097
ICD10: A50,A51,A52,A53

Clinical

**WHO Case definition for surveillance:**
The signs and symptoms of syphilis are multiple.
• The primary stage usually, but not necessarily, involves ulceration of the external genital organs and local lymphadenopathy; secondary and tertiary syphilis show mainly dermatological and systemic manifestations. For surveillance purposes, only confirmed cases will be considered.

Confirmed case
• A person with a confirmed positive serology for syphilis (Rapid Plasma Reagin (RPR) or VDRL confirmed by TPHA (*Treponema pallidum* hemagglutination antibodies) or FTA (fluorescent treponemal antibody absorption)).

Case classification
• Congenital syphilis: An infant with a positive serology, whether or not the mother had a positive serology during pregnancy.
• Acquired syphilis: All others.

Additional notes:
• The prevalence rate among pregnant women in developing countries varies between 3% and 19%. Maternal syphilis is associated with congenital syphilis (one third of births from such pregnancies), and with spontaneous abortion and stillbirth.
• Because the primary lesion is often painless and secondary syphilis is usually not diagnosed, women are mainly identified through serological screening.

Syphilis is a chronic disease with a waxing and waning course; and is reported from all countries.
• Transmission is mainly by sexual contact.
• Primary, secondary, and early latent syphilis are potentially infectious.

**Stages of syphilis:**
• Primary syphilis is characterized by a painless chancre at the site of inoculation. ¹ Penile swelling without an overt chancre has also been reported. ²
• The secondary stage is characterized by a generalized (rarely localized ³ non-pruritic polymorphic ⁴-⁶ or papulonecrotic ⁷ rash , lymphadenopathy, and systemic manifestations. Moist flat genital or mucosal lesions (condyloma lata) may be evident. ⁸
• An asymptomatic latent period follows, which for epidemiological purposes is divided into early (<1 year) and late (>1 year) stages.
• The tertiary stage is the most destructive and is marked by cardiovascular ⁹ and neurological sequelae ¹⁰-¹³ , and gummatous involvement of any organ system. ¹⁴
• As of 2009, the world’s literature contained 165 reports of cerebral syphilitic gummata • 64% in men and 66% located on the cerebral convexities. ¹⁵
• Syphilitic uveitis may present in the absence or other clinical manifestations of syphilis. ¹⁶ Eye disease may also present
as posterior placoid chorioretinitis. 17 143 cases of syphilitic uveitis were reported in the English Language literature during 1984 to 2008. 18

Congenital infection is reminiscent of secondary syphilis, and may be associated with deformation of teeth, bones and other structures.

Acquired syphilis in patients with HIV infection is characterized by severe and accelerated infection, often with overt meningitis, hepatitis, lues maligna (a florid papulopustular rash) 19 and other forms of systemic involvement. 20-28

- The presence of concurrent syphilis does not affect the progression of AIDS. 29

This disease is endemic or potentially endemic to all countries.

Syphilis in Israel

© 2011 - GIDEON Informatics Inc - www.gideononline.com
Graph: Israel. Syphilis, cases
Notes:
1. The peak reporting year was 1948, with a disease rate of 6.9 per 100,000.
2. 3,321 cases of primary and secondary syphilis were reported nationwide during 1929 to 1932.
3. 93 cases of primary and secondary syphilis were reported among the Jewish population of Jerusalem during 1936 to 1937.
4. Syphilis has been officially reportable since 1951.
5. Cases during 1951 to 1962 reported only for the Jewish population.
   Individual years:
   2004 - 0.7 per 100,000 in Haifa District³⁰
Seroprevalence surveys:
2.6% of CSW in the Tel Aviv region (VDRL >= 1:4)
1.3% of brothel-based CSW in Tel Aviv (2008 publication) ³¹
14.2% of HIV-positive patients (2000 to 2005) ³²

Notes:
1. Cases during 1951 to 1962 reported only for the Jewish population.
Graph: Israel. Syphilis - congenital, deaths

Graph: Israel. Syphilis - late and latent, cases - GIDEON

Notes:
1. Late and latent syphilis cases are officially reported as "Syphilis, other." Since 1991, reports of congenital syphilis have also been included in "Syphilis, other."

Graph: Israel. Syphilis - other forms, deaths - GIDEON

West Bank and Gaza:
No cases were reported between 1999 and 2003

References

28. Clin Rheumatol 2011 Jan 7;
## Taeniasis

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>PARASITE - Platyhelminthes, Cestoda. Cyclophyllidea, Taeniidae: Taenia solium &amp; T. saginata (other species occasionally encountered)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Cattle  Pig</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Meat</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>6w - 14w</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Identification of ova or proglottids in feces.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Praziquantel 10 mg/kg PO as single dose OR Niclosamide 2 g PO once</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>Praziquantel 10 mg/kg PO as single dose OR Niclosamide 50 mg/kg PO once</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Vomiting and weight loss; often symptomatic or first appreciated due to passage of proglottids or 'tape' segments; parasite may survive for over 25 years in the human intestine.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Bandwurmer [Taenia], Drepanidotaenia, Gordiid worm, Hair snake, Mesocestoides, Raillietina, Taenia longihamatus, Taenia saginata, Taenia solium, Taenia taeniaformis, Taeniarhynchiasis, Tapeworm (pork or beef), Tenia. ICD9: 123.0,123.2 ICD10: B68</td>
</tr>
</tbody>
</table>

### Clinical

Most infestations are subclinical.

Symptomatic taeniasis may be associated with nausea, vomiting, epigastric fullness, weight loss or diarrhea. ¹
- *Taenia saginata* often becomes apparent when motile proglottids are passed through the anus; however, this is uncommon with *T. solium* infestations.
- Eosinophilia is not a prominent finding.
- Rare complications include appendicitis, cholangitis, pancreatitis or intestinal obstruction. ²
- The major complication of *T. solium* infection, Cysticercosis, is discussed separately in this module.

This disease is endemic or potentially endemic to all countries.

### Taeniasis in Israel

0.26% of slaughtered cattle were found to have cysticercosis bovum in 1990.

**Prevalence surveys:**
- 3.2% of Thai workers in Israel (1994 publication) ³
Notes:
1. Three cases of *T. solium* infestation were reported in 2002; 0 in 2003.
2. Three cases of *T. saginata* infestation were reported in 2002; 2 in 2003.

References

3. Harefuah 1994 May 1;126(9):507-9, 563.
Tetanus

**Agent**
BACTERIUM. *Clostridium tetani* An anaerobic gram-positive bacillus

**Reservoir**
Animal feces Soil

**Vector**
None

**Vehicle**
Injury

**Incubation Period**
6d - 8d (range 1d - 90d)

**Diagnostic Tests**
Isolation of C. tetani from wound is rarely helpful. Serology (specimen taken before administration of antitoxin).

**Typical Adult Therapy**
Human antitoxin (see Vaccine module). *Metronidazole* (2 g daily) or *Penicillin G* (24 million u daily) or *Doxycycline* (200 mg daily). Diazepam (30 to 240 mg daily). Tracheostomy, hyperalimentation

**Typical Pediatric Therapy**
Human antitoxin (see Vaccine module). *Metronidazole* (30 mg/kg daily); or *Penicillin G* (300,000 units/kilo daily). Diazepam. Tracheostomy, hyperalimentation

**Vaccines**
DT DTaP DTP Td Tetanus immune globulin Tetanus

**Clinical Hints**
Trismus, facial spasm, opisthotonus, tachycardia and recurrent tonic spasms of skeletal muscle; sensorium is clear; disease may persist for 4 to 6 weeks; case fatality rate = 10% to 40%.

**Synonyms**
Lockjaw, Starrkrampf, Stelkramp, Tetano, Tetanos. ICD9: 037,771.3 ICD10: A33,A34,A35

### Clinical

Tetanus may present in any of four clinical forms: generalized, localized, cephalic, and neonatal. 

- In general, shorter incubation periods are associated with a worse prognosis.
- Certain portals of entry (compound fractures) and underlying conditions (heroin addiction) are also associated with poorer prognoses.
- A series of 11 cases of tetanus related to tungiasis (25% of all tetanus cases) was reported by a single hospital in Brazzaville over an 11-month period (1989 publication).
- An outbreak of 12 cases of tetanus in Argentina was reported among elderly women treated with sheep cell therapy (1996).
- Tetanus has been reported following a snake bite (2007 publication)
- An attack of tetanus does not result in immunity. Therefore, recurrent tetanus is possible, unless the patient is given a series of toxoid following recovery.

**Generalized tetanus**, the most common form, begins with trismus ("lockjaw") and risus sardonicus (increased tone in the orbicularis oris).
- Abdominal wall rigidity may be present.
- The generalized spasm consists of opisthotonic posturing with flexion of the arms and extension of the legs.
- The patient does not lose consciousness, and experiences severe pain during these spasms.
- Spasms often are triggered by sensory stimuli.
- Respiration may be compromised by upper airway obstruction, or by participation of the diaphragm in the general muscular contraction.
- Autonomic dysfunction, usually occurring after several days of symptoms, is currently the leading cause of death in tetanus.
- Complications of tetanus include rhabdomyolysis and renal failure.
- The illness can progress for two weeks, while the severity of illness may be decreased by partial immunity.
- Recovery takes an additional month, but is complete unless complications supervene.
- Lower motor neuron dysfunction may appear after the spasms remit, and persist for several additional weeks.
- Case-fatality rates of 10% to 50% are reported, but may be as high as 70% in Africa.
- The differential diagnosis of tetanus includes strychnine poisoning and neuromyotonia (Isaac's syndrome).

**Localized tetanus** presents as rigidity of the muscles associated with the site of inoculation.
• Initial symptomatology may be limited to back pain.
• The illness may be mild and persistent, and tends to resolve spontaneously.
• Weakness and diminished muscle tone are often present in the most involved muscle.
• Localized tetanus is often a prodrome of generalized tetanus.

**Cephalic tetanus** is a form of localized disease affecting the cranial nerve musculature.
• Facial nerve weakness, is often apparent, and extraocular muscle involvement is occasionally noted.

**Neonatal tetanus** follows infection of the umbilical stump, most commonly as a result of a failure of aseptic technique following delivery of non-immune mothers.
• The condition usually manifests with generalized weakness and failure to nurse; followed by rigidity and spasms.
• The mortality rate exceeds 90%, and psychomotor retardation is common among survivors.
• Poor prognostic factors include age younger than 10 days, symptoms present for fewer than 5 days before presentation to hospital, fever, and the presence of risus sardonicus or fever.
• Apnea is the leading cause of death in the first week of disease, and sepsis in the second week.
• Bacterial infection of the umbilical stump leads to sepsis in almost half of babies with neonatal tetanus.

The WHO Case definition for surveillance of neonatal tetanus is as follows:
• Suspected case: Any neonatal death between 3-28 days of age in which the cause of death is unknown; or any neonate reported as having suffered from neonatal tetanus between 3-28 days of age and not investigated.
• Confirmed case: Any neonate with a normal ability to suck and cry during the first two days of life, and who between 3 and 28 days of age cannot suck normally, and becomes stiff or has convulsions (i.e. jerking of the muscles) or both.
• Hospital-reported cases of neonatal tetanus are considered confirmed.
• The diagnosis is purely clinical and does not depend upon laboratory or bacteriological confirmation.

**This disease is endemic or potentially endemic to all countries.**

**Tetanus in Israel**

Routine immunization was introduced in 1955; and replaced by DPT in 1957.
- Tdap-IPV was vaccination of elementary school students was introduced in 2005.

**Vaccine Schedule:**
- DTaP - 2, 4, 6 months; 1 year
- TdA-IPV - second year of elementary school
- HepA - 18, 24 months
- HepB - birth; 1, 6 months
- Hib - 2, 4, 6 months; 1 year
- IPV - 2, 4, 12 months; 7 years
- MMR - 12 months; 6 years
- Td - 8-9, 13-14 years
- Varicella - 12 months and 6-7 years
Israel. Tetanus - WHO-UNICEF est. vaccine (DTP3 %) coverage - GIDEON

© 2011 - GIDEON Informatics Inc - www.gideononline.com
Graph: Israel. Tetanus - WHO-UNICEF est. vaccine (DTP3 %) coverage

Israel. Tetanus, cases - GIDEON

© 2011 - GIDEON Informatics Inc - www.gideononline.com
Graph: Israel. Tetanus, cases

Notes:
1. Tetanus has been a reportable disease since 1951.
2. Since 1991, reports for tetanus have included cases of neonatal tetanus.
Notes:
1. The case-fatality rate tetanus was 37.6% during 1950 to 1958, and 55.2% during 1967 to 1977.

Notes:
1. Neonatal tetanus has been a reportable disease since 1954.
2. Neonatal tetanus accounted for 50% of tetanus cases in pre-1967 Israel and Gaza, and 62.4% in Judea and Samaria.
UNRWA, West Bank and Gaza:

The population administered by UNRWA is given DTP at ages 2, 3, 4, and 15 months; with DT at age 6 years.
In the West Bank and Gaza, routine vaccination (DTP) is administered at ages 2, 4, 6 and 12 months. DT is given at ages 6 and 15 years.
West Bank and Gaza. Tetanus - estimated TT2plus % coverage - GIDEON

Year

© 2011 - GIDEON Informatics Inc - www.gideononline.com

Graph: West Bank and Gaza. Estimated TT2plus % coverage

West Bank and Gaza. Tetanus, cases - GIDEON

© 2011 - GIDEON Informatics Inc - www.gideononline.com

Graph: West Bank and Gaza. Tetanus, cases
References

## Thelaziasis

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>PARASITE - Nematoda. Phasmidea: Thelazia callipaeda [rarely T. californiensis]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Dog  Rabbit  Deer  Cat</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>Fly (? Musca and Fannia species)</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>not known</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Identification of parasite.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Extraction of parasite</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>As for adult</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Conjunctivitis and lacrimation associated with the sensation of an ocular foreign body.</td>
</tr>
</tbody>
</table>
| **Synonyms** | Conjunctival spirurosis, Oriental eye worm, Rictularia, Thelazia californiensis, Thelazia callipaeda.  
ICD9: 372.15  
ICD10: B83.8 |

### Clinical

The signs and symptoms of Thelaziasis are related to the presence of a worm in the conjunctival sac, and consist of pain, lacrimation and a foreign body sensation.  

This disease is endemic or potentially endemic to all countries.

### References

## Toxic shock syndrome

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. <em>Staphylococcus aureus</em>, <em>Streptococcus pyogenes</em>, et al - (toxins) Facultative gram-positive cocci</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Tampon (occasionally bandage, etc) which induces toxinois</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Isolation of toxigenic <em>Staphylococcus aureus</em>. Toxin assay available in specialized laboratories.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>The role of topical (eg, vaginal) and systemic antistaphylococcal antibiotics is unclear</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>The role of topical (eg, vaginal) and systemic antistaphylococcal antibiotics is unclear</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Fever (&gt;38.9), hypotension (&lt;90 mm Hg) and dermal erythema with desquamation; respiratory, cardiac or other disease present; most cases associated with 'super absorbent' tampon use or staphylococcal wound infection; case-fatality rate = 5% to 10%.</td>
</tr>
<tr>
<td>Synonyms</td>
<td><em>Streptococcal toxic shock syndrome</em>, TSS. ICD9: 040.82 ICD10: A48.3</td>
</tr>
</tbody>
</table>

## Clinical

**CDC (The United States Centers for Disease Control) case definition for surveillance:**

For surveillance purposes, the CDC (The United States Centers for Disease Control) case definition of toxic shock syndrome ¹ requires an illness with the following clinical manifestations:

1. fever at least 38.9 °C
2. diffuse macular erythema ²
3. desquamation 1 to 2 weeks after onset of illness (particularly of the palms and soles)
4. hypotension (less than 90 mm Hg for adults, or less than fifth percentile if below age 16 years • or orthostatic hypotension)
5. multisystem involvement, consisting of three or more of the following: acute vomiting or diarrhea; myalgia and elevation of creatine phosphokinase levels; vaginal, oropharyngeal or conjunctival hyperemia; elevation of blood urea nitrogen or creatine to at least twice normal, or sterile pyuria; elevation of serum bilirubin or aminotransferase levels to at least twice normal; platelet count < 100,000/ cu mm; disorientation or alteration in consciousness unrelated to fever and hypotension
6. laboratory examination
   • negative cultures of blood, throat or cerebrospinal fluid (however, *S. aureus* may be present in blood)
   • negative tests for measles, leptospirosis or rickettsiosis

A probable case requires at least five of the above clinical findings. A confirmed case requires all six clinical findings (unless the patient dies before desquamation can occur).

The case definition for *Streptococcal toxic shock syndrome* ³ ⁴ includes isolation of *Streptococcus pyogenes* in addition to:

1. hypotension as above
2. multiorgan involvement characterized by at least two of the following (defined above)
   • renal impairment
   • coagulopathy
   • hepatic dysfunction
   • acute respiratory distress syndrome
   • a generalized erythematous macular rash which may desquamate
   • soft tissue necrosis (fasciitis, myositis, gangrene)

**This disease is endemic or potentially endemic to all countries.**
Toxic shock syndrome in Israel

The first case report of toxic shock syndrome in Israel was published in 1983.  

References

Toxocariasis

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Nematoda. Phasmidea: Toxocara cati and canis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Cat, Dog, Mouse</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Soil ingestion</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>1w - 2y</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Identification of larvae in tissue. Serology.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Albendazole 400 mg BID X 5d. OR Mebendazole 100 to 200 mg PO bid X 5 days Add corticosteroids if eye, brain, heart or lung involvement is present.</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Cough, myalgia, seizures, urticaria, hepatomegaly, pulmonary infiltrates or retrobulbar lesion; marked eosinophilia often present; symptoms resolve after several weeks, but eosinophilia may persist for years.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Ascaris suum, Toxocara canis, Toxocara cati, Toxocarose, Visceral larva migrans. ICD9: 128.0 ICD10: B83.0</td>
</tr>
</tbody>
</table>

**Clinical**

Most infections present in children below the age of 5 years, and are asymptomatic or mild.

Overt disease is characterized by fever, cough, wheezing, eosinophilia, myalgia, tender hepatomegaly and abdominal pain.

- A tender nodular rash may be present on the trunk and legs.
- Chronic urticaria, chronic pruritus, relapsing eosinophilic cellulitis and eczema are also reported.
- Myocarditis, pericarditis, pulmonary infiltrates, acute respiratory distress syndrome, seizures, nephritis, encephalopathy, spinal involvement (usually cervical or thoracic) including transverse myelitis, eosinophilic meningitis, eosinophilic pleural effusion, eosinophilic ascites and renal dysfunction have been described in heavy infections.
- Ocular toxocariasis usually presents in children ages 5 to 10 years, and is characterized by formation of a retinal granuloma at or near the macula, resulting in strabismus, iridocyclitis, glaucoma, papillitis or visual loss.
- Toxocariasis has been identified as a cause of chronic cough in childhood and of diminished lung function (FEV-1) at any age.

_Ascaris suum_, a parasite of pigs, has been reported to cause rare cases of myelitis, encephalopathy, eosinophilic pneumonia and focal liver lesions in humans.

- _A. suum_ has been implicated in cases of eosinophilic colitis and intestinal obstruction.

**This disease is endemic or potentially endemic to all countries.**

**Toxocariasis in Israel**

Sporadic cases are reported.

**Prevalence surveys:**
- 18% of dogs and 10% of cats in the Tel Aviv area during the 1980’s
- 3% of dogs in Beer Sheba (1984 publication)

14 seropositive patients were reported by the Central Laboratory in 2001.

**Seroprevalence surveys:**
- 8.5% of institutionalized mentally-retarded adults (1992 publication)
References

8. Eur J Radiol 2009 May 15;
# Toxoplasmosis

## Agent
PARASITE - Protozoa. Sporozoa, Coccidea, Eimeriida: Toxoplasma gondii

## Reservoir
Rodent Pig Cattle Sheep Chicken Bird Cat Marsupial (kangaroo)

## Vector
None

## Vehicle
Transplacental Meat ingestion Soil ingestion Water or milk (rare) Fly

## Incubation Period
1w - 3w (range 5d - 21d)

## Diagnostic Tests
Serology. Cultivation or identification of organisms per specialized laboratories. Nucleic acid amplification.

## Typical Adult Therapy
**Pyrimethamine** 25 mg/d + **Sulfonamides** 100 mg/kg (max 6g)/d X 4w - give with folic acid. Alternatives: **Clindamycin**, **Azithromycin**, **Dapsone**. **Spiramycin** (in pregnancy) 4g/d X 4w

## Typical Pediatric Therapy
**Pyrimethamine** 2 mg/kg/d X 3d, then 1 mg/kg/d + **Sulfonamides** 100 mg/kg/d X 4w - give with folic acid. Alternatives: **Clindamycin**, **Azithromycin**, **Dapsone**.

## Clinical Hints
Fever, lymphadenopathy and hepatic dysfunction; chorioretinitis; cerebral cysts (patients with AIDS); congenital hydrocephalus, mental retardation or blindness.

## Synonyms
Toxoplasma, Toxoplasmose, Toxoplasmosi.
ICD9: 130
ICD10: B58

---

**Acquired toxoplasmosis:**
The clinical features of acquired toxoplasmosis can range from subclinical infection to lymphadenopathy (the most common presentation) to fatal, fulminant disease.
- In healthy adults, infection is usually subclinical, or mimics infectious mononucleosis; however, pharyngitis, posterior and posterior cervical lymphadenopathy are unusual in toxoplasmosis.
- In immunocompromised hosts, toxoplasmosis may mimic other opportunistic infections, such as tuberculosis or infection with *P. jiroveci* (formerly *P. carinii*). 1
- In patients with AIDS, CNS involvement is the most common manifestation, followed by pulmonary disease. 2

**Congenital toxoplasmosis:**
The rate and severity of congenital toxoplasmosis are largely related to gestational age at the time of infection. 3 4
- The brain and eyes are often affected, presenting as chorioretinitis, hydrocephalus, intracranial calcifications, and seizures. 5
- 97% of children infected during the first trimester of pregnancy and having normal antenatal ultrasounds are asymptomatic or only slightly affected. 6

**Ocular toxoplasmosis:**
Ocular toxoplasmosis occurs from reactivation of cysts in the retina.
- Focal necrotizing retinitis is characteristic lesion, and approximately 35% of all cases of retinochoroiditis can be attributed to toxoplasmosis. 7
- Risk factors for early (first two years of life) retinochoroiditis include a delay of >8 weeks between maternal seroconversion and the beginning of treatment, female gender, and the presence of cerebral calcifications. 8
- The incidence and severity of ocular toxoplasmosis varies from country to country. 9

**CNS toxoplasmosis:**
The manifestations of CNS toxoplasmosis in the immunocompromised patient range from an insidious process evolving over several weeks to acute onset of a confusional state.
- Signs may be focal or symmetrical.
- *T. gondii* has a predilection to localize in the basal ganglia and brain stem, producing extrapyramidal symptoms resembling those of Parkinson's disease.
- A normal CT scan does not rule out cerebral toxoplasmosis. MRI is the imaging modality of choice 10
- Nonfocal evidence of neurological dysfunction may include generalized weakness, headache, confusion, lethargy, alteration of mental status, personality changes, and coma.
- Infection in transplant recipients is often diffuse and disseminated.
- In patients with underlying malignancy (e.g. Hodgkin’s disease), the presentation is evenly distributed between focal and
Toxoplasmosis in Israel

**Toxoplasmosis and AIDS:**
Patients with AIDS tend to present subacutely with nonspecific symptoms such as neuropsychiatric complaints, headache, fever, weight loss, disorientation, confusion, and lethargy evolving over 2 to 8 weeks.
- Later findings include evidence of focal CNS mass lesions, ataxia, aphasia, hemiparesis, visual field loss, vomiting, confusion, dementia, stupor and seizures.  
- Toxoplasmosis presenting as a subcutaneous mass in an HIV-positive patient has been reported.  
- Primary cerebral lymphoma in AIDS patients may be mistaken for Toxoplasmosis.

This disease is endemic or potentially endemic to all countries.

**Toxoplasmosis in Israel**

**Seroprevalence surveys:**
- Highest seropositivity rates are found among native-born non-Jews and Jews of North African or Asian extraction.
- 30% of adults, during the 1960's.
- 29% of healthy women (1970 to 1973, Tel Aviv area)
- 22.2% of kibbutz members and 55.8% of Arab villagers in northern Israel (1993 publication)
- 34% of Ethiopian immigrants (1993 publication)
- 21% of pregnant women (1993 publication)
- 27.9% of pregnant women in Hebron (2005)
- 29% of healthy persons in the Tel Mond region (1993 publication)
- 39.0% of domestic cats and 14.2% of stray cats (Jerusalem, 2004 publication)
- 47% of commercial chickens (2004 publication)
- 4% of wild pigeons (2009 publication)

**Notable outbreaks:**
- 2008 (publication year) - An outbreak (19 cases) of toxoplasmosis among captive squirrel monkeys (Saimiri sciureus) was ascribed to contaminated feed.

**West Bank and Gaza:**

![Graph: West Bank and Gaza. Toxoplasmosis, cases - GIDEON](image-url)
References

12. Diagn Cytopathol 2009 Dec;11;
13. Brain Tumor Pathol 2011 Jan;
21. Vet Parasitol 2009 Jul 2;
Trachoma

Agent
BACTERIUM. Chlamydia trachomatis, type A

Reservoir
Human

Vector
Fly

Vehicle
Infected secretions Fly Fomite

Incubation Period
5d - 12d

Diagnostic Tests
Culture or direct immunofluorescence of secretions. Serology. Nucleic acid amplification.

Typical Adult Therapy
Azithromycin 20 mg/kg as single dose. OR Doxycycline 100 mg/day PO X 14 days. Also administer topical Tetracycline

Typical Pediatric Therapy
Erythromycin 10 mg/kg PO QID X 4w. Also administer topical Tetracycline

Clinical Hints
Keratoconjunctivitis with palpebral scarring and pannus formation; 0.5% of infections result in blindness.

Synonyms
Egyptian ophthalmia, Granular conjunctivitis, Kornerkrankheit, Trachom, Tracoma.

ICD9: 076
ICD10: A71

Clinical

Early symptoms include erythema and swelling of both bulbar and palpebral conjunctivae, associated with a watery or purulent discharge. Additional findings may include preauricular lymphadenopathy and rhinitis.

Examination reveals follicular hypertrophy and conjunctival scarring. Corneal scars (Herbert's pits), punctate keratitis and pannus formation may also be present. As scarring progresses, the eyelashes deviate (entropion) and may produce additional trauma and ulceration of the conjunctivae.

Reinfection and bacterial superinfection are common.

Trachoma may be differentiated from inclusion conjunctivitis by the presence of corneal scarring and a preference of the latter for the upper tarsal conjunctivae.

This disease is endemic or potentially endemic to all countries.

Trachoma in Israel

Chronology:
1918 - 34% of children in 'Hadassah' schools suffered from trachoma; with rates as high as 78% among children in Tiberius.
1927 - 50% to 70% of Arab school children were found to be infected
1942 - 2.1% of persons in Safad were found to be infected; and 0.46% in the Upper Galilee.
1949 to 1950 - 46% of immigrants arriving from Libya were infected; 22.5% from Tunisia; 17.1% from Egypt; 15.4% from Iraq; 13% from Morocco; 11.3% from Iran.
1937 - Rates among Arab settlements in the Jerusalem area were in 9.9% - decreasing to 2.7% in 1959.
1980 - 6.4% of children in eastern Jerusalem were found to have trachoma

No autochthonous cases have been reported in Israel since 1978.

Infection is common in the West Bank and Gaza Strip.

References
5. Invest Ophthalmol Vis Sci 2010 Dec 22;
Trichinosis

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Wild carnivore Omnivore Marine mammal</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Meat ingestion</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>10d - 20d (range 1w - 10w)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Identification of larvae in tissue. Serology.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Albendazole 400 mg PO BID X 14d. OR Mebendazole 200 to 400 mg PO tid X 3 days, then 400 to 500 mg PO. tid X 10 days. Give with prednisone 50 mg PO daily X 3 to 5 days (then 'taper' dosage)</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Albendazole 7 mg/kg BID X 14 d. OR Mebendazole 200 to 400 mg PO tid X 3 days, then 400 to 500 mg PO. tid X 10 days. Give with prednisone 50 mg PO daily X 3 to 5 days (then 'taper' dosage)</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Early diarrhea and vomiting; subsequent myalgia, facial edema and eosinophilia; onset 1 to 4 weeks following ingestion of undercooked meat (usually pork); symptoms may persist for two months; case-fatality rate for symptomatic infection = 2%.</td>
</tr>
</tbody>
</table>
| Synonyms | Trichinellose, Trichinelliosis, Trichinose, Trikinose, Triquiniase, Triqunosis.  
ICD9: 124  
ICD10: B75 |

Clinical

The great majority of infections are subclinical.
- The development of symptoms depends on the number of larvae ingested.

**Signs and symptoms:**
During the first week of illness, the patient may diarrhea, abdominal pain and vomiting.  
1-3  
- Symptoms associated with larval invasion appear during the second week and include fever, periorbital edema, subconjunctival hemorrhages and chemosis.  
4  
- Myositis is also common, and often appears in the extraocular muscles, progressing to involve the masseters, neck muscles, limb and lumbar muscles.  
- Additional symptoms may include headache, cough, dyspnea, hoarseness and dysphagia.  
- Occasionally, a macular or petechial rash, or retinal or subungual splinter hemorrhages are seen.  
- Laboratory studies may reveal marked eosinophilia, hypoalbuminemia, decreased erythrocyte sedimentation rate, proteinuria or hematuria.  
- Rare instances of renal dysfunction 5, encephalitis 6 and eosinophilic meningitis have been reported.  
7

**Clinical course:**
- Systemic symptoms usually peak 2 to 3 weeks after infection and then slowly subside; however, weakness may persist for weeks.  
- A number of clinical findings may persist for several months: hypocalcemia, hypomagnesemia, fatigue, myalgia (notably in the legs), cardiovascular disorders, neurological, psychiatric, and allergic illnesses.  
8  
- Deaths are ascribed to myocarditis 9, encephalitis or pneumonia.

This disease is endemic or potentially endemic to all countries.

**Trichinosis in Israel**

Rare autochthonous infections are acquired from wild boar from the upper and western Galilee and the Carmel Hills.  
- 3% to 4% of wild pigs are infested in most areas of Israel, 10% in the Golan Heights.  

No infections have been found in domestic pigs since 1948.

One outbreak (11 cases) was reported in 1999; 1 (13 cases) in 2000.  
- Six outbreaks (120 cases) were reported among foreign workers during 1998 to 2002 - all from the meat of wild pigs.
Five seropositive patients were reported by the Central Laboratory in 2001 - all foreign workers.

**Notable outbreaks:**
- 1982 - An outbreak (1,000 cases or more) was reported in the southern region - including six cases hospitalized in Israel.
- 1992 (publication year) - An outbreak associated with consumption of wild boar meat involved members of a family.
- 2002 - An outbreak (30 cases, 0 fatal) was reported among Thai workers in the Hadera sub-district who had ingested the meat of a wild pig.

**West Bank and Gaza:**

No cases were reported in 2003; 0 in 2004.

**References**

5. Foodborne Pathog Dis 2010 Oct 29;
6. Foodborne Pathog Dis 2010 Dec 27;
Clinical

10% to 50% of infections are asymptomatic.
- Symptoms often begin or worsen during the menstrual period.
- Infection is usually characterized by vaginal discharge and vulvovaginal irritation.  
- Dysuria may be present, and dyspareunia is common.
- As many as two thirds of infected women complain of a disagreeable odor.
- Abdominal discomfort is present in 5% to 12%.

Examination reveals a copious loose discharge that pools in the posterior vaginal fornix.
- The discharge is yellow or green in 5% to 40%, and bubbles are observed in the discharge in 10% to 33%.
- The material has a pH above 4.5 in 66% to 91% of cases.
- Endocervical disease is not caused by T. vaginalis.
- Punctate hemorrhages (colpitis macularis or "strawberry cervix") are seen on colposcopically in 45% of infected women, but in only 2% by visual inspection alone.
- Parasites can be recovered from the urethra and paraurethral glands in more than 95% of the women, and may explain the association of the infection with urinary frequency and dysuria.

Reported complications of trichomonal vaginitis include vulvar ulceration, and vaginitis emphysematosa • the presence gas-filled blebs in the vaginal wall.
- Gestational trichomiasis may be associated with premature labor and low birth weight, postabortal infection or premature rupture of the membranes.
- Spread of trichomonads beyond the lower urogenital tract is extremely rare.
- Sporadic cases of neonatal pneumonia due to Trichomonas vaginalis are reported.

Trichomiasis has been associated with endometritis, adnexitis, pyosalpinx, infertility, preterm birth, low birth weight, bacterial vaginosis, and increased risk of cervical cancer, HPV, and HIV infection.
- In men, its complications include urethritis, prostatitis, epididymitis, and infertility through interference with sperm function.

Most men carrying trichomonads are asymptomatic; however, the organism is implicated in 5% to 15% of patients with nongonococcal urethritis.
- The discharge from trichomonal urethritis is usually milder than that seen with other infections.
- Epididymitis, superficial penile ulcerations (often beneath the prepuce) and prostatitis are also described.

This disease is endemic or potentially endemic to all countries.
Trichomoniasis in Israel

Prevalence surveys:

8.1% of vaginitis (2003 publication) 8

References

Clinical Trichostrongyliasis

Agent
PARASITE - Nematoda. Phasmidea: Trichostrongylus colubriformis, T. orientalis, T. probolurus

Reservoir
Herbivore

Vector
None

Vehicle
Water Food Vegetation

Incubation Period
21d

Diagnostic Tests
Identification of ova in stool or duodenal aspirate.

Typical Adult Therapy
Albendazole 400 mg PO X 1. OR Pyrantel pamoate 11 mg/kg (max 1g) PO once. OR Mebendazole 100 mg PO BID X 7d

Typical Pediatric Therapy
As for adult

Clinical Hints
Diarrhea, abdominal pain and weight loss; eosinophilia is often present; infestation may persist for years; fatality and sequelae are not reported.

Synonyms
Haemonchus, Marshallagia, Ostertagia, Trichostrongylus.
ICD9: 127.6
ICD10: B81.2

Clinical

Most infections are asymptomatic, or characterized by mild nonspecific abdominal symptoms.
- Heavy infections may result in episodic diarrhea, abdominal pain and weight loss.  
- Rare instances of cholecystitis are reported.

This disease is endemic or potentially endemic to 37 countries.

Trichostrongyliasis in Israel

The presence of Trichostrongyliasis in Israel was first reported in a 1951 publication.  

A case series (94 cases) from south Tel Aviv was published in 1972.  
- Trichostrongyliasis was identified among immigrants from Iraq, Syria and Turkey - and was also found among their children.

Trichostrongylus colubriformis has been identified in small mammals in Israel (1975 publication)

Prevalence surveys:
1.5% of stool samples examined in Tel Aviv (1968 publication)
1% of Thai workers in Israel (1994 publication)

References
5. Harefuah 1994 May 1;126(9):507-9, 563.
Clinical Trichuriasis

Agent | PARASITE - Nematoda. Adenophorea: Trichuris trichiura
Reservoir | Human
Vector | None
Vehicle | Soil ingestion Sexual contact (rare) Fly
Incubation Period | 2m - 2y
Diagnostic Tests | Stool microscopy or visualization of adult worms (adults are approximately 3 cm long).
Typical Adult Therapy | Mebendazole 100 mg PO BID X 3d. OR Albendazole 400 mg PO daily X 3 to 7 days OR Ivermectin 200 mg/kg PO daily X 3 days
Typical Pediatric Therapy | Mebendazole 100 mg PO BID X 3d (>age 2). OR Albendazole 400 mg PO X 3 to 7 days OR Ivermectin 200 mg/kg PO daily X 3 days
Clinical Hints | Abdominal pain, bloody diarrhea, rectal prolapse or intestinal obstruction are occasionally encountered; the parasite may survive for as long as five years in the human host.
Synonyms | Trichocephaliasis, Trichuris trichiura, Tricuriasis, Whipworm.

ICD9: 127.3
ICD10: B79

Clinical

The vast majority of infections are asymptomatic. 1
• Symptoms are aggravated by concurrent shigellosis, balantidiasis or amebiasis.
• Heavy infestations are characterized by dysentery or rectal prolapse. 2 3
• Infants may develop hypoproteinemia, anemia, mental retardation and digital clubbing. 4

This disease is endemic or potentially endemic to all countries.

Trichuriasis in Israel

Prevalence surveys:
31.5% of the population of Jerusalem (40.9% of adults in the city) in 1921; 14% in 1948; 4.7% during the 1950's; 0.7% in 1957.
1% of Thai workers in Israel (1994 publication) 5
1.6% of children in Khan Younis (Gaza, 2004 publication) 6
19.2% of Ethiopian immigrants (1991 publication) 7

References
4. Gastrointest Endosc 2009 Oct 29;
5. Harefuah 1994 May 1;126(9):507-9, 563.
<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>PARASITE - Protozoa. Neozoa, Euglenozoa, Kinetoplastidea. Flagellate: Trypanosoma [Trypanozoon] brucei gambiense and T. b. rhodesiense</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human, Deer, Wild carnivore, Cattle</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>Fly (Glossina = tsetse fly)</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>3d - 21d (acute illness)</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Identification of protozoa in CSF, blood, lymph node aspirate. Serology. Nucleic acid amplification.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Early: Pentamidine 4 mg/kg IM qod X 10 doses. OR Suramin 1g IV days 1, 3, 7, 14, 21 (after test dose 100 mg) OR Efornithine (gambiense only) 100 mg q6h IV X 14 d; then 75 mg/kg PO X 21-30 d. Late + CNS disease: Melarsoprol</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>Early: Pentamidine 4 mg/kg IM qod X 10 doses. OR Suramin 20 mg/kg IV days 1, 3, 7, 14, 21 (after test dose 20 mg) Late + CNS: Melarsoprol</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Chancer, myalgia, arthralgia, lymphadenopathy and recurrent fever; later mental changes, sensory disorders and heart failure; disease due to Trypanosoma brucei rhodesiense is more rapid and virulent than that due to T. b. gambiense.</td>
</tr>
</tbody>
</table>

**Clinical**

**WHO Case definition for surveillance:**
- In the early stages, a painful chancre, which originates as a papule and evolves into a nodule may be found at the primary site of tsetse fly bite.
- There may be fever, intense headache, insomnia, painless lymphadenopathy, anemia, local edema and rash. In the later stage, there is cachexia, somnolence and signs of central nervous system involvement.
- The disease may run a protracted course of several years in the case of Trypanosoma brucei gambiense. In case of T. b. rhodesiense, the disease has a rapid and acute evolution.
- Both diseases are always fatal without treatment.
- The painful chancre is very rare in T. b. gambiense infection.

Laboratory criteria for diagnosis
- Presumptive: serological: card agglutination trypanosomiasis test (CATT) for T. b. gambiense only or immunofluorescent assay (IFA) for T. b. rhodesiense mainly and possibly for T. b. gambiense.
- Confirmative: parasitological: detection (microscopy) of trypanosomes in blood, lymph nodes aspirates or CSF.

Case classification
- Suspected: A case that is compatible with the clinical description and/or a history of exposure.
- Probable: A case with a positive serology with or without clinical symptoms in persons without previous history of trypanosomiasis diagnosis or treatment.
- Confirmed: A case with positive parasitology, with or without clinical symptoms.

Notes:
- In the early stage or even early in the late stage of the disease there are often no clinical signs or symptoms which can be associated with the disease.
- Suspicion is then based on local risk of contracting the disease and local disease historical background.
- Confirmed positive healthy carriers are a major public health risk. As a reservoir of parasites, they disseminate the disease, and must be treated as soon as possible.

**Acute trypanosomiasis:**
The initial sign of African trypanosomiasis in a chancre which develops at the site of inoculation, 1 to 2 weeks following the bite of a tsetse fly.
- The chancre may reach a diameter of several centimeters, and be associated with regional adenopathy, but resolves over several weeks.
- In most cases, the chancre is noted by neither the patient nor the clinician.
- Fever appears weeks to months following inoculation, and is characteristically intermittent.
- Lymphadenopathy is a fairly constant feature of west African trypanosomiasis.
• The nodes are discrete, movable, rubbery, and nontender.
• Supraclavicular and cervical nodes are often visibly discernible, and enlargement of the nodes of the posterior cervical triangle ("Winterbottom's sign") is common in the west African form.
• Additional findings at this point may include hepatosplenomegaly; edema of the face, hands and feet; pruritis; an irregular circinate, 5 to 10 cm rash on the trunk, shoulders, buttocks and thighs; headache, asthenia, weight loss, arthralgias, and tachycardia.

**Trypanosoma brucei gambiense infection:**
In the West African form, the meningoencephalitic stage may develop months or even years after the initial infection.
• Findings include irritability, personality changes, indifference, apathy, daytime somnolence (often with insomnia at night), slurred speech, choreiform movements of the trunk, neck, and extremities, tremors of the tongue and fingers, ataxia, and muscular fasciculations.
• CSF cell counts above 5 per cu mm are considered indicative of brain involvement.
• The final phase of the CNS disease is progression to coma and death.

**Trypanosoma brucei rhodesiense infection:**
The East African form tends to follow a more acute course, with an incubation of a few weeks to several weeks.
• Intermittent fever, headache, myalgia, and rash develop early; while lymphadenitis is not a prominent feature.
• Persistent tachycardia is common, and some patients die of arrhythmias, congestive heart failure or pericarditis before the onset of neurological disease.
• If untreated, the East African form is fatal within weeks to months.

**This disease is endemic or potentially endemic to 36 countries.** Although Trypanosomiasis - African is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

### Trypanosomiasis - African in Israel

In 2009, an Israeli tourist acquired trypanosomiasis in Tanzania.

### References

**Clinical**

**Tuberculosis**

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. Actinomycetes, <em>Mycobacterium tuberculosis</em> An aerobic acid-fast bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human  Cattle</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Air  Dairy products</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>4w - 12w (primary infection)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Microscopy. Culture. Nucleic acid amplification. Inform laboratory when this diagnosis is suspected.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Respiratory isolation. Typical pulmonary infection is treated with 6 months of Isoniazid, Rifampin &amp; Pyrazinamide</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Vaccine</td>
<td>BCG</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Cough, &quot;night sweats&quot; and weight loss; often presents as prolonged fever (FUO) or infection of bone, meninges, kidneys or other organs; most infections represent reactivation of old foci in lungs, brain, bone, kidneys etc.</td>
</tr>
</tbody>
</table>

**WHO Case definition for surveillance:**
Pulmonary tuberculosis, sputum smear positive (PTB+)
- Tuberculosis in a patient with at least two initial sputum smear examinations (direct smear microscopy) positive for Acid-Fast Bacilli (AFB), or
- Tuberculosis in a patient with one sputum examination positive for acid fast bacilli and radiographic abnormalities consistent with active pulmonary tuberculosis as determined by the treating medical officer, or
- Tuberculosis in a patient with one sputum specimen positive for acid-fast bacilli and at least one sputum that is culture positive for acid-fast bacilli.

Pulmonary tuberculosis, sputum smear negative (PTB-)
Tuberculosis in a patient with symptoms suggestive of tuberculosis and having one of the following:
- Three sputum specimens negative for acid-fast bacilli
- Radiographic abnormalities consistent with pulmonary tuberculosis and a lack of clinical response to one week of a broad-spectrum antibiotic
- Decision by a physician to treat with a full curative course of antituberculous chemotherapy

Pulmonary tuberculosis, sputum smear negative, culture positive
- Tuberculosis in a patient with symptoms suggestive of tuberculosis and having sputum smear negative for acid-fast bacilli and at least one sputum that is culture positive for *M. tuberculosis* complex

Extra-pulmonary tuberculosis
- Tuberculosis of organs other than lungs: pleura, lymph nodes, abdomen, genito-urinary tract, skin, joints and bones, tuberculous meningitis, etc.
- Diagnosis should be based on one culture positive specimen from an extra-pulmonary site, or histological or strong clinical evidence consistent with active extra-pulmonary tuberculosis, followed by a decision by a medical officer to treat with a full course of anti-tuberculous therapy
- Any patient diagnosed with both pulmonary and extra-pulmonary tuberculosis should be classified as a case of pulmonary tuberculosis

The clinical features of tuberculosis are protean, and largely determined by the site of infection and clinical substrate.
- Most infections represent reactivation of a dormant focus in a lung, with resultant chronic fever, weight loss, nocturnal diaphoresis, productive cough and typical roentgenographic findings.¹
- Reactivation of an extrapulmonary focus (kidney, bone, central nervous system²³, skin⁴, gastrointestinal⁵⁻⁸ and hepatobiliary system⁹, eyes¹⁰¹¹, skeletal muscle¹²⁻¹⁴, reproductive tract¹⁵, breast¹⁶¹⁷, etc) will result in signs referable to the infected organ.
- The extent and severity of disease are influenced by patient age, nutrition, immune function¹⁸¹⁹, and many other
Tuberculosis in Israel

Factors which are beyond the scope of this module.

- Nocardiosis may mimic tuberculosis, particularly in the setting of HIV infection.  
- The appearance of a miliary infiltrate in Chlamydia pneumoniae infection may suggest a diagnosis of tuberculosis.  
- Spinal histoplasmosis may mimic tuberculosis spondylodiscitis; and gastrointestinal histoplasmosis may mimic abdominal tuberculosis.
- The clinical features of melioidosis are similar to those of tuberculosis: prolonged fever, weight loss, latency with reactivation, upper-lobe infiltrates, etc.
- Tularemia and leprosy may manifest as lymphadenopathy mimicking tuberculosis.

This disease is endemic or potentially endemic to all countries.

Tuberculosis in Israel

Routine BCG vaccination was introduced in 1955; and abandoned for Israeli infants in 1982, and for children in 1987.

- Tuberculosis - WHO-UNICEF est. % BCG coverage was 75 in 1980; 70 in 1981; 68 in 1982.

12,232 cases of tuberculosis and 3,901 tuberculosis deaths were reported during 1921 to 1938.
- The peak reporting year was 1953 (95.3 cases per 100,000).

61% of tuberculosis cases reported during 1954 to 1959 were below the age of 29.
- Over 50% of cases reported during 1953 to 1989 were above the age of 65.

86% of reported tuberculosis is pulmonary infection.

Tuberculosis has been a reportable disease since 1952.

Notes:
1. Tuberculosis was diagnosed in 5.3% of Ethiopian immigrants hospitalized in Israel (1986 publication)  
2. 55% of patients reported in 1991 were immigrants from Ethiopia and 4% immigrants from the former Soviet Union  
3. 56.8% of cases reported in 1992 were immigrants from Ethiopia and the former Soviet Union  
4. 11.3% of patients reported in 1995 were immigrants from Ethiopia and 17% from the former Soviet Union  
5. During 1989 to 1996, rates among immigrants from the former Soviet Union were 38 to 172 per 100,000; 500 to 3,000 per 100,000 among Ethiopian immigrants.
15 cases of combined AIDS and tuberculosis were reported during 1990 to 1993.
- 8.8% of patients hospitalized for tuberculosis during 2000 to 2006 were HIV-positive - 61.2% of the latter immigrants from Ethiopia and 20.4% from the former Soviet Union.
Notes:
1. Also see reference 30

Resistance to one or more drugs increased from 12.6% of strains in 1992, to 23% of strains in 1995. 
- During 2003 to 2007, 5% of MDR TB isolates were found to be XDR. 31

**Notable outbreaks:**
- 1998 to 1999 - An outbreak (6 cases) was associated with a boarding school. 32

**UNRWA, West Bank and Gaza:**

BCG is administered to the population administered by UNRWA; and to "some regions of the West Bank and Gaza Strip"
An outbreak (225 cases, 1 fatal) of BCG complications was reported in Gaza in 2001, and controlled by reverting to a less virulent vaccine lot.
No cases were reported between and
Notable outbreaks:
1987 to 1996 - Outbreaks (39 cases) of tuberculosis were reported in a psychiatric hospital. 33

References
1. Acad Emerg Med 2000 Sep ;7(9):1056-60.
Tularemia

Agent
BACTERIUM. *Francisella tularensis* An aerobic gram-negative bacillus

Reservoir
Rabbit  Hare  Muskrat  Beaver  Tick  Wild bird

Vector
Fly (deer fly = Chrysops)  Ticks and Mosquitoes also implicated

Vehicle
Bite  Contact  Meat  Eye inoculation  Air  Dust  Water

Incubation Period
3d - 5d (range 1d - 14d)

Diagnostic Tests
Culture or direct fluorescent staining of exudates. Serology. Nucleic acid amplification.

Typical Adult Therapy
*Gentamicin* or *tobramycin* 1.7 mg/kg q8h X 14d. Add *Chloramphenicol* if evidence for central nervous system infection.

Typical Pediatric Therapy
*Gentamicin* or *tobramycin* 1.7 mg/kg q8h X 10d. Add *Chloramphenicol* if evidence for central nervous system infection.

Vaccine
Tularemia

Clinical Hints
Fever, dermal eschar, lymphadenopathy, myalgia and diarrhea; may present as overwhelming septicemia or pneumonia; history of contact with small mammals (usually rabbits); case-fatality rate = 1% (treated) to 6% (untreated).

Synonyms

ICD9: 021  
ICD10: A21

Clinical

Infection is subclinical in approximately 8% of cases.
- In general, tularemia cases tend to be more severe in North America than in other parts of the world, possibly because type A strains of *F. tularensis* are present in North America but not elsewhere. (Type A strains are characterized by their ability to ferment glycerol and possession of the enzyme citrulline ureidase).

**Ulceroglandular tularemia** (60% of total cases) is characterized by an ulcerating papule or pustule having a necrotic center and chronic, painful, suppurative lymphadenopathy.  
- Additional findings include fever, headache, rigors and myalgia.
- Nodular lymphadenitis occurs, and may mimic nocardiosis or tuberculosis.

**Respiratory tularemia** (10% of cases) presents as pneumonia with pleurisy, cavitation, abscess formation, hilar adenopathy or consolidation.
- Pneumonia due to hematogenous dissemination occurs in 10% to 15% of ulceroglandular tularemia cases and 30% to 80% of typhoid cases, but primary tularemic pneumonia is believed to be rare.
- The case-fatality rate for pulmonary tularemia is over 30%.

**Typhoidal tularemia** (10% of cases) is characterized by septicemic illness with rigors, myalgia, arthralgia, fever, prostration and weight loss.
- Splenomegaly and an exanthem may be present.
- Vesicular skin lesions may mimic those of herpes simplex.
- Rare instances of meningitis are reported.

**Oculoglandular tularemia** (1% of cases) is characterized by photophobia, conjunctivitis (which may be ulcerative) and regional lymphadenopathy.

Pharyngitis, intestinal hemorrhage or peritonitis may follow ingestion of infected meat.

This disease is endemic or potentially endemic to 46 countries. Although Tularemia is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.
Tularemia in Israel

Tularemia has never been reported in Israel.

References

Clinical Tungiasis

<table>
<thead>
<tr>
<th>Agent</th>
<th>PARASITE - Insecta Siphonaptera (Flea), Tungidae: Tunga penetrans and T. trimamillata (&quot;sand fleas&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Pig, Dog, Various other mammals</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Contact</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>8d - 12d</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Identification of parasite.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Extraction of parasite</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Painful papule or nodule, usually on the feet - may be multiple; begins 1 to 2 weeks after walking on dry soil; secondary infections and tetanus are described.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Bicho de pe, Chica, Chigger, Chigoe flea, Jigger, Nigua, Puce-chique, Tu, Tunga penetrans, Tunga trimamillata, Tungosis.</td>
</tr>
</tbody>
</table>

ICD9: 134.1  
ICD10: B88.1

Clinical

Virtually all infestations are limited to the foot, notably the interdigital and periungual regions.  
- Ectopic infections are occasionally noted on the hands, elbows, thighs or gluteal region and even the eyelids.  
- Irritation begins 8 to 12 days following infection, and is manifested as a small 'pit' which evolves into a circular ulcer associated with pain, edema, erythema and pruritis.  
- On dermoscopy, circumferential rings may be evident surrounding a central black lesion, the 'radial crown' sign.  
- Secondary bacterial infection, thrombophlebitis or even tetanus may follow.  
- Most infestations are characterized by 2 to 3 fleas, although hundreds may be present.  
- Severe disease may be characterized by deep ulcerations, necrosis leading to denudation of underlying bone, and auto-amputation of digits.  
- Ectopic infection (hands, elbows, knees, neck, anus and genitals) is encountered, often in small children.  
- Studies in an endemic region of Brazil revealed 17 lesions (maximum 98) per patient, and almost all had nail deformation and edema.  
- Nail loss (46%), pain and fissures (70%), digit deformation (25%), abscesses (42%), and walking difficulty (59%) were common. (Brazil, 2007 publication)  

A series of 11 cases of tetanus related to tungiasis (25% of all tetanus cases) was reported by a single hospital in Brazzaville over an 11-month period (1989 publication).  
- Tungiasis is implicated in the etiology of 10% of tetanus cases in Sao Paulo, Brazil (2001 publication).  

This disease is endemic or potentially endemic to 88 countries. Although Tungiasis is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

Tungiasis in Israel

Sporadic imported cases are encountered.  

References

**Typhoid and enteric fever**

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM. <em>Salmonella serotype Typhi</em> (other <em>Salmonella</em> species cause ‘paratyphoid’ fever) A facultative gram-negative bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Fecal-oral  Food, Fly  Water</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>15d - 21d (range 5d - 34d)</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Culture (blood, urine, sputum culture). Stool usually negative unless late untreated infection). Serology.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Ceftriaxone 2 g IV q12h to q 24h X 5 to 7d. OR Ciprofloxacin 750 mg PO (400 mg IV) Q12h X 2w. OR Azithromycin 1 gram PO on day 1; then 500 mg days 2 to 7. Add corticosteroids if evidence of shock or decreased mental status.</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>Ceftriaxone 50 to 80 mg/kg IV daily X 5 to 7d. OR Azithromycin 15 mg/kg PO on day 1; then 7.5 mg/kg on days 2 to 7.</td>
</tr>
<tr>
<td><strong>Vaccines</strong></td>
<td>Typhoid - injectable  Typhoid - oral</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Transient diarrhea followed by fever, splenomegaly, obtundation, rose spots (during second week of illness); leukopenia and relative bradycardia often observed; case fatality rate = 0.8% (treated) to 15% (untreated).</td>
</tr>
</tbody>
</table>
| **Synonyms** | Abdominal typhus, Abdominaltyphus, Buiktyphus, Enteric fever, Febbre tifoide, Fieber tifoidea, Fiebre tifoidea, Paratifoidea, Paratyfus, Paratyphoid, Salmonella serotype Typhi, Tyfoid, Typhoid, Typhoide.  
ICD9: 002  
ICD10: A01 |

**Clinical**

Enteric fever is a defined syndrome of systemic illness associated with *Salmonella* infection.
- Enteric fever caused by *S. typhi* is referred to as “typhoid fever,” and that caused by *S. paratyphi*, is referred to as "paratyphoid fever."
- Symptoms are often nonspecific and insidious in onset.
- The differential diagnosis of fever, abdominal pain with hepatosplenomegalgy also includes malaria, amebic liver abscess, brucellosis, visceral leishmaniasis, and dengue fever.
- The clinical features of scrub typhus and melioidosis may also mimic those of enteric fever.

**Acute illness:**
Following an incubation period of 5 to 21 days, an initial enterocolitis may develops without associated fever.
- Constipation is present in 10 to 40% of patients; abdominal pain 20 to 40%; hepatosplenomegalgy in 50%.
- Such symptoms as chills, diaphoresis, headache, anorexia, cough, sore throat, vertigo and myalgia often precede the onset of fever.
- Psychosis or confusion (“muttering delirium”) occur in 5 to 10%; and seizures and coma in less than 1%.
- Patients appear acutely ill.
- Cervical lymphadenopathy develops in some patients, and pulmonary disease is rare at this stage.
- 3% have signs and symptoms of cholecystitis, and jaundice is reported in as many as 12% of cases.
- Instances of "typhoid hepatitis" appear to represent super-infection by hepatitis virus, rather than a complication of typhoid fever.

**Course of illness and complications:**
Symptoms resolve by the fourth week of infection without antimicrobial therapy.
- Weight loss, and debilitation may persist for months, and 10% of patients will experience a relapse.
- Relapse is more common among antibiotic-treated than non-treated patients.
- Intestinal perforation is characterized by recurrent fever, abdominal pain, intestinal hemorrhage and tachycardia occurring in the 3rd to 4th week of illness. 65.7% of perforations are solitary and involved the anti-mesenteric border of the terminal ileum.
- 70% of pregnancies will end in miscarriage when complicated by untreated typhoid.
- Rare instances of acalculous cholecystitis, pancreatitis, rhabdomyositis, renal failure, genital ulceration,
spondylitis/spondylodiscitis, and ectopic abscesses have been reported in typhoid patients.

- The case-fatality rate is 10% to 15%
- Long-term carriage is associated with an increased incidence of cancers of the gallbladder, pancreas, colo-rectum and lung.

Laboratory findings include leukopenia (albeit an initial leucocytosis is common), thrombocytopenia, coagulopathy and hepatic dysfunction.

- The most sensitive laboratory test for enteric fever is blood culture.
- Serum transaminase elevations appear to reflect myopathy rather than hepatic disease in most cases.

**This disease is endemic or potentially endemic to all countries.**

**Typhoid and enteric fever in Israel**

![Graph: Israel. Typhoid and paratyphoid, cases - GIDEON](image-url)
Notes:
1. Typhoid has been officially notifiable since 1951.
2. 12,691 cases of typhoid were reported during 1928 to 1937.
3. The mean infection rate was 42.8 per 100,000 per year during 1950 to 1954; 13.9 per 100,000 during 1960 to 1964; 5.0 per 100,000 during 1970 to 1974; 2.3 per 100,000 during 1980-1984.
4. 206 outbreaks were investigated during 1964 to 1975.
5. Typhoid was diagnosed in 121 (1.1%) of Ethiopian immigrants to Israel during 1984 to 1985. 22 9.9% of Ethiopian immigrants hospitalized in Israel (1986 publication). 23
Notes:
1. 1,972 Israelis died of typhoid during 1936 to 1947; 124 during 1950 to 1964.

Notable outbreaks:
1985 - An outbreak (77 cases) of typhoid in Haifa was caused by contaminated water. 24-26
2009 to 2010 - An outbreak (40 cases) of typhoid fever was reported in the Russian Far East, among Israeli tourists who had acquired the infection in Nepal. 27 28

Graph: Israel. Paratyphoid, cases - GIDEON

© 2011 - GIDEON Informatics Inc - www.gideononline.com
Graph: Israel. Paratyphoid, cases

Notes:
1. Paratyphoid has been officially reportable since 1951.
2. Ten Israeli tourists returned from India with paratyphoid (Salmonella paratyphi A infection) in 2004. 29
136 cases of enteric fever were confirmed during 1995 to 2003 - 57.4% acquired abroad. All cases in the Arab population were locally-acquired and caused by *Salmonella typhi*.

**West Bank and Gaza:**

The graph shows the increase in cases of typhoid and paratyphoid in the West Bank and Gaza over the years 2000 to 2003.
References

27. ProMED <promedmail.org> archive: 20100111.0125
28. ProMED <promedmail.org> archive: 20100113.0156
29. ProMED <promedmail.org> archive: 20041019.2840
# Typhus - endemic

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM. Rickettsia typhi</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Rat</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>Flea (Xenopsylla or Nosopsyllus spp.)</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>10d - 12d (range 4d - 18d)</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Serology. Identification of rickettsiae in smear or culture of skin lesions. Nucleic acid amplification.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Doxycycline 100 mg BID X 3 to 5d</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>Doxycycline 2 mg/kg BID X 3 to 5d (maximum 200 mg/day); or Chloramphenicol 12.5 mg/kg QID X 3 to 5d</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Fever, headache and myalgia; truncal maculopapular rash (present in 60%) appears on days 3 to 5 and persists for 4 to 8 days; fever resolves after 12 to 16 days; case fatality rate (untreated) = 2%.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Endemic typhus, Murine typhus, Rickettsia typhi, Ship typhus, Tifo murino, Tifus pulgas, Vlektyphus.</td>
</tr>
</tbody>
</table>

## Clinical

The features of endemic typhus are similar to those of epidemic typhus, but less severe.  
- Headache and myalgia predominate.  
- The rash is nonspecific and may be lacking in 50% of patients.  
- Major complications are rare.  
- The severity of infection has been associated with old age, delayed diagnosis, hepatic and renal dysfunction, central nervous system abnormalities, and pulmonary compromise.  
- Ocular complications include uveitis, retinal hemorrhage, choroidal dots, papilledema and optic neuritis  
- Rare instances of splenic infarction have been reported.  
- As many as 4% of hospitalized patients die.

**This disease is endemic or potentially endemic to all countries.**

## Typhus - endemic in Israel

### Time and Place:
- Murine typhus is thought to have been introduced into Israel during the 1920's by British troops.  
- Highest rates occur during July to November.  
- The male/female ratio is 2.1.  
- Most cases since 1953 have occurred in the areas of Tel Aviv and Haifa.  
- High rates are also noted among Bedouin in the Southern region.  

### Prevalence surveys:
- 13.8% of undifferentiated febrile illness among Bedouin children in southern Israel (2006 publication)  

---

© 2011 GIDEON Informatics, Inc.  www.gideononline.com All Rights Reserved.
Notes:
1. Endemic typhus has been a reportable disease since 1951.
2. 406 cases were reported during 1991 to 2001.

West Bank and Gaza:
736 cases of "Rickettsial disease (OX19-positive)" were reported in 2002; 1,012 in 2003

References

**Typhus - epidemic**

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM. Rickettsia prowazekii</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Human ? Flying squirrel</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>Louse (Pediculus) ? Squirrel flea</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>10d - 14d (range 5d - 23d)</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Serology. Identification of rickettsiae in smear or culture of skin lesions. Nucleic acid amplification.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Doxycycline 100 mg PO BID X 3 to 5d. OR Chloramphenicol 500 mg QID X 3 to 5d</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>Doxycycline 2 mg/kg PO BID X 3 to 5d (maximum 200 mg/day). OR Chloramphenicol 10 mg/kg PO QID X 3 to 5d</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Fever, headache and myalgia; truncal maculopapular rash appears on days 4 to 7; encephalopathy or myocarditis may ensue; fever resolves after 2 weeks, but convalescence is prolonged; case-fatality rate (untreated) = 10% to 20%.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Camp fever, Epidemic typhus, Jail fever, Red louse disease, Rickettsia prowazekii, Ship fever, Shop typhus, Sutama, Sylvatic epidemic typhus, Tifus piojos, Tobardillo. ICD9: 080 ICD10: A75.0</td>
</tr>
</tbody>
</table>

**Clinical**

Typhus is characterized by the sudden onset of headache, chills, prostration, vomiting, high fever, coughing, severe myalgia and shin pain.  
- Conjunctival suffusion, splenomegaly and cerebral obtundation are common.  
- A macular eruption appears on the second to sixth day, initially on the upper trunk, with spread to the entire body except the face, palms and soles.  
  - The rash may later become petechial or necrotic.  
  - No rash is noted in as many as 30% of cases.  

Meningoencephalitis occurs in as many as 50% of severe cases.  
- Other complications include secondary bacterial infection, peripheral gangrene and myocarditis.  
- The case-fatality rate among untreated patients is 10% to 15%.  

Important clinical features which distinguish epidemic typhus from malaria and typhoid are lack of splenomegaly, rigors and diarrhea.

Recurrdescent typhus (Brill-Zinsser disease) may present years after the initial episode, and is characterized by classic features of epidemic typhus with a milder clinical course.

**This disease is endemic or potentially endemic to 63 countries.** Although Typhus - epidemic is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

**Typhus - epidemic in Israel**
References

Urinary tract infection

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM OR FUNGUS. <em>Escherichia coli</em>, other facultative gram negative bacilli, enterococci, et al</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Human</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Endogenous</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Variable</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Urine culture and leucocyte count.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Antimicrobial agent(s) directed at known or likely pathogen</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Fever, dysuria, frequency, flank pain and vomiting; infection in children or men and infection which relapses in women may warrant radiological studies to rule out underlying obstruction or calculus.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Cistite, Cistitis, Cystite, Cystitis, Pielite, Pielitis, Pielonefrite, Pielonefritis, Prostatite, Pyelitis, Pyelonephrite, Pyelonephritis, Trigonitis, Tubulointerstitial nephritis, Urethritis, Uretrite, Zystitis. ICD9: 791.9,136.9,599.0,590,601.0 ICD10: N10,N30,N41</td>
</tr>
</tbody>
</table>

Clinical

Young children often exhibit nonspecific signs such as fever, poor feeding and vomiting.
- Abdominal pain may be present.
- After early childhood, dysuria, urgency, and frequency are generally present in UTI.
- Adult women with cystitis have frequent and urgency, often with lower abdominal or lower back pain.
- The urine may be foul smelling or turbid and is often bloody.
- Onset of symptoms is usually abrupt.
- Some infections progress to upper tract involvement, with fever, rigors, nausea, vomiting, abdominal and flank pain.
- Classical signs of 'upper' vs. 'lower' UTI are often misleading and do not necessarily point to the location of infection.

In the elderly, UTIs are often asymptomatic or manifest by nonspecific signs.
- Frequency, urgency, nocturia, and incontinence in this age group may also mimic other disorders in this age group.
- Infection associated with neurogenic bladders and indwelling catheters may not necessarily present with localizing symptoms.

Acute uncomplicated cystitis is most common in young women but may also be seen in men, children or the elderly. ¹
- Typical symptoms include dysuria, frequency, urgency, and suprapubic or pelvic pain. ²
- Suprapubic tenderness is present in 10 to 20 percent, and gross hematuria in 20 to 30 percent.
- Approximately ten percent of patients with symptoms of acute cystitis will be found to have occult infection of the upper urinary tract.
- Bacterial vaginosis may predispose to urinary tract infection ³

Acute pyelonephritis presents with flank, low back, or abdominal pain, in addition to fever, rigors, sweats, headache, nausea, vomiting, malaise, and prostration. ⁴
- Antecedent or concomitant symptoms of cystitis may or may not be present.
- Fever and flank pain are relatively specific indicators of renal infection.
- A minority of patients with pyelonephritis develop septicemia, or necrotizing renal or perinephric abscesses.
- The latter are often associated with urinary tract obstruction or diabetes [see Perinephric abscess].

All urinary infections in males should be considered complicated until proven otherwise, and prompt a careful search for anatomical or functional abnormality of the urinary tract.

Comprehensive reviews of prostatitis. ⁵ ⁶

This disease is endemic or potentially endemic to all countries.
References

6. BMC Infect Dis 2008;8:12.
## Clinical

### Acute infection:
The predominant features of varicella are fever, cough, malaise, lymphadenopathy and a generalized pruritic vesicular rash typically consisting of 250 to 500 lesions.
- The rash generally begins on the scalp and proceeds to the trunk and extremities, with most lesions on the trunk.
- Skin lesions are initially maculopapular, progressing to vesicles on an erythematous base.  
- Atypical varicella, including lesions on palms and soles, may mimic monkeypox in endemic areas.

### Complications:
Complications include hepatitis, encephalitis (notably involving the cerebellum), arthritis, secondary bacterial infections, Reye's syndrome, facial nerve palsy, meningitis, pancreatitis, pneumonia, empyema, spontaneous pneumothorax, myocarditis, atrioventricular block, hemorrhagic pericarditis, optic neuritis, acute retinal necrosis, necrotizing scleritis, purpura fulminans, idiopathic thrombocytopenic purpura and hemophagocytic lymphohistiocytosis.
- Necrotizing fasciitis or Fournier's gangrene may occasionally complicate varicella.
- Post varicella cerebral infarction has been described in young, previously healthy children within a few months of VZV infection and is characterized by middle cerebral artery territory infarction and proximal MCA disease. A similar condition has been reported in immunocompromised patients following herpes zoster involving the ophthalmic branch of the trigeminal nerve as well as in the context of primary varicella complicated by granulomatous angiitis. Extra-cranial vascular thrombosis of large or small vessels has also been reported.
- Immunocompromised individuals, neonates, infants, adolescents and adults are at risk of severe illness and complications.
- VZ virus infection can be a presenting symptom of hyperparathyroidism and occurs twice as often in persons with hypercalcemia than age-matched controls.
- Use of nonsteroidal anti-inflammatory drugs during primary varicella, has been implicated as a risk factor for subsequent occurrence of streptococcal necrotizing fasciitis.

### Perinatal infection:
Newborn infants whose mothers had onset of varicella within 5 days before delivery or within the 48 hours after delivery are at risk for neonatal varicella.
- Neonatal varicella carries a case-fatality rate as high as 30%.
- Maternal infection during the first 20 weeks of pregnancy carries a risk (0.4% to 2.0%) of congenital varicella,
Varicella in Israel

**Vaccine Schedule:**
- DTaP - 2, 4, 6 months; 1 year
- Tdap-IPV - second year of elementary school
- HepA - 18, 24 months
- HepB - birth; 1, 6 months
- Hib - 2, 4, 6 months; 1 year
- IPV - 2, 4, 12 months; 7 years
- MMR - 12 months; 6 years
- Td - 8-9, 13-14 years
- Varicella - 12 months and 6-7 years

Introduction of vaccination in 2000 was followed in an estimated 60% reduction in varicella hospitalizations as of 2003.  

© 2011 GIDEON Informatics Inc - www.gideononline.com

Graph: Israel. Varicella, cases - GIDEON
21 cases of varicella pneumonia were reported from southern Israel during 1995 to 2008. \(^{41}\)

**Seroprevalence surveys:**
- 98% of non-vaccinated Army recruits (1985, 1988, 1992) \(^{42}\)
- 77% of the population (1997 to 1998) \(^{43}\)
- 98.5% of health care workers in northern Israel (2008 publication) \(^{44}\)
- 68.9% at age 4, 94.4% at age 7, and 96.6% at age 12 years (2000 to 2001, prior to introduction of vaccine) \(^{45}\)
- 50% by age of 3 years (2000 to 2001) \(^{46}\)

**West Bank and Gaza:**
References

4. Bone Marrow Transplant 2009 Mar 23;
17. Pediatr Infect Dis J 2010 Nov 11;
19. Pediatr Cardiol 2010 Jan 20;
22. Medicine (Baltimore) 2008 May ;87(3):167-76.
27. Acta Paediatr 2010 Apr 27;
35. Bone Marrow Transplant 2009 Mar 23;
38. Semin Fetal Neonatal Med 2008 Dec 17;
40. Hum Vaccin 2009 Mar 18,5(3).
# Vibrio parahaemolyticus infection

<table>
<thead>
<tr>
<th><strong>Agent</strong></th>
<th>BACTERIUM <em>Vibrio parahaemolyticus</em> A facultative gram-negative bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reservoir</strong></td>
<td>Marine water Seafood Fish</td>
</tr>
<tr>
<td><strong>Vector</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>Seafood</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>10h - 20h (range 2h - 4d)</td>
</tr>
<tr>
<td><strong>Diagnostic Tests</strong></td>
<td>Stool culture - alert laboratory when this organism is suspected.</td>
</tr>
<tr>
<td><strong>Typical Adult Therapy</strong></td>
<td>Supportive</td>
</tr>
<tr>
<td><strong>Typical Pediatric Therapy</strong></td>
<td>As for adult</td>
</tr>
<tr>
<td><strong>Clinical Hints</strong></td>
<td>Vomiting and explosive diarrhea, 4 to 24 hours following ingestion of seafood (often steamed crabs); diarrhea may persist for 7 to 10 days; case fatality rate = 0.1%.</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td><em>Vibrio parahaemolyticus</em>. ICD9: 005.4 ICD10: A05.3</td>
</tr>
</tbody>
</table>

## Clinical

Symptoms usually begin within 10 to 20 hours after ingestion of seafood, and persist for 2 to 10 days.
- Illness is characterized by vomiting (50%), abdominal pain and watery or explosive diarrhea.
- Fever is noted in 25% of patients.
- Dysentery has been described in some cases. ¹

Rare instances of bacteremia and extra-intestinal infection are reported. ²⁻⁴

**This disease is endemic or potentially endemic to all countries.**

## Vibrio parahaemolyticus infection in Israel

### Prevalence surveys:

0.004% of stool specimens

## References

**West Nile fever**

<table>
<thead>
<tr>
<th>Agent</th>
<th>VIRUS - RNA. Flaviridae, Flavivirus: West Nile virus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Bird  Horse  Bat  ? Tick</td>
</tr>
<tr>
<td>Vector</td>
<td>Mosquito (Culex univittatus. Cu. pipiens, Cu. vishnui, Cu. neavei, Coquillettidia, Aedes and Anopheles spp.)</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Blood  transmission [rare]</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>3d - 6d (range 1d - 7d)</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Supportive</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>As for adult</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Myalgia, arthralgia, lymphadenopathy, headache, conjunctivitis and a macular rash; sporadic instances of encephalitis, meningitis and myocarditis are reported; illness resolves within one week in most cases.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Bagaza, Fiebre del Oeste del Nilo, Lourdige, Near Eastern equine encephalitis, Ntaya, Usutu, WNF. ICD9: 066.4  ICD10: A92.3</td>
</tr>
</tbody>
</table>

**Clinical**

**Acute infection:**
West Nile fever in humans usually is a minor influenza-like illness, characterized by an abrupt onset of moderate to high fever lasting 3 to 5 days.
- The fever is occasionally biphasic, and may be accompanied by rigors.
- Additional findings include frontal headache, sore throat, backache, myalgia, arthralgia, fatigue, conjunctivitis and retrobulbar pain.1
  - A maculopapular or roseolar rash2 3 appears in approximately 50% of cases, spreading from the trunk to the extremities and head.
  - Lymphadenopathy, anorexia, nausea, abdominal pain, diarrhea, and respiratory symptoms are also encountered.

**Neuroinvasive disease:**
Occasionally (<15% of cases), acute aseptic meningitis or encephalitis occurs, associated with neck stiffness, vomiting, confusion, disturbed consciousness, somnolence, tremor of extremities, abnormal reflexes, convulsions, pareses, and coma.4 5
- Such patients may then develop anterior myelitis and acute flaccid paralysis, reminiscent of poliomyelitis or Guillain-Barre syndrome.6 8
- Focal encephalitis with seizures may mimic herpes simplex encephalitis.9 10
- Risk factors for neuroinvasive disease include age >45 years, male sex, hypertension and diabetes mellitus.11
- Multifocal chorioretinitis is common among patients with neuroinvasive disease.12-17

Hepatosplenomegaly, hepatitis, pancreatitis18 19, myocarditis19 and hemorrhagic fever have been reported.20

Prolonged convalescence (up to one year) may follow recovery from encephalitis; and myalgia, confusion and lightheadedness may persist beyond this period.21-24
- Recovery is complete (less rapid in adults than in children, often accompanied by long-term myalgias and weakness), and permanent sequelae have not been reported.
- Prolonged depression persists in as many as 31% of patients following recovery.25 26
- Most fatal cases occur in patients older than 50 years.27

**Laboratory findings:**
Laboratory findings consist of a slightly increased sedimentation rate and mild leukocytosis.
- Profound and prolonged lymphocytopenia is reported in some cases.28
- Cerebrospinal fluid in patients with central nervous system involvement is clear, with moderate pleocytosis and elevated protein.
- A distinctive CSF plasmacytosis may be present.
West Nile fever in Israel

The virus can be recovered from the blood for up to 10 days in immunocompetent febrile patients, and as late as 22 to 28 days after infection in immunocompromised patients. Peak viremia occurs 4 to 8 days postinfection.

*Ntaya virus*, a related flavivirus, has been associated with febrile illness and neurological findings. 29

This disease is endemic or potentially endemic to 84 countries.

Notes:
1. Epidemics of West Nile fever were reported during 1950 to 1954; and in 1957.
2. Peak rates are reported during August to September.
3. 61 cases were registered during 1975 to 1980.
4. West Nile fever has been a reportable disease in Israel since 2000.
5. Review of the history of West Nile fever in Israel (2001 publication) - see reference 30

Individual years:
2000 - Included 326 hospitalized cases.
2006 - January to November
Seroprevalence surveys:
7% ages 18 to 19 (1997)
14.8% of Army reserve personnel - 45% in the age group 40 to 50 (1989)
7.0% of adults ages 18 to 20, and 41.9% ages 40 to 55 (1999 publication) 31
13.5% of persons in central Israel and 7% in the south (2000) 32

Exported cases:
2001 - A patient in the Netherlands developed West Nile fever following a trip to Israel. 33 34
2003 (publication year) - Cases acquired in Israel and Canada were reported in Denmark. 35
2010 - Two Dutch travelers acquired West Nile fever in Israel. 36 37

Notable outbreaks:
1950’s - An outbreak (123 cases, 10 with meningitis) was reported in Maayan Zvi. Two separate outbreaks in senior citizen homes involved 121 cases. 38
1956 - An outbreak among military personnel was reported from the central region.
1957 - An outbreak (419 patients hospitalized) included 15 cases of neurological disease and four deaths. 39
1980 - An outbreak (32 cases, one with neurological disease) was reported among military personnel near Beer Sheva.
1997 - Infection was identified in 4 flocks of geese.
1998 - 15 outbreaks were reported among geese.
1998 - Serum antibody was demonstrated in horses; and in migrating white storks (Ciconia ciconia) which settled in Eilat.
1999 - 11 outbreaks were reported among geese.
1999 - 8,000 geese were destroyed in the Yizre’el and Ramala districts when the virus was discovered in commercial flocks. 48 The viral strain found in these geese was virtually identical to that responsible for an outbreak in New York City during 1999.
2000 - A flock of 8,803 geese in nine flocks died or were destroyed due to the infection - including one flock of 3,500 geese.
2000 - 13 seropositive horses (two fatal) and 720 seropositive cattle (in 24 herds) were identified. 49
2007 - 13 infected horses were reported, most in the northern and central regions. 50

Vectors:
- The principal vector is *Cx. perexiguus*; additional vectors include *Culex pипiens*, *Cx. antennatus*, *Anopheles coustani* and *Aedes caspius*.  
51 - The virus has also been confirmed in *Cx. antennatus* and *Cx. poicilipes*.

- Argasid ticks (*Argas arboresus*) may be involved in transmission among birds.  
52

References

37. ProMED <promedmail.org> archive: 20100827.3049
48. ProMED <promedmail.org> archive: 19991123.2076
50. ProMED <promedmail.org> archive: 20070925.3176
Whipple's disease

### Agent
BACTERIUM. Actinomycetes, *Tropheryma whipplei* A gram positive bacillus

### Reservoir
Unknown

### Vector
None

### Vehicle
None

### Incubation Period
Unknown

### Diagnostic Tests

### Typical Adult Therapy
- **Ceftriaxone** 2.0 g IV daily X 14 days. OR
- **Penicillin G** 6 to 324 million units daily + + **streptomycin** 1 g daily X 14d. Then: **Sulfamethoxazole/trimethoprim** 800/160 mg PO BID X 1 year. OR **Doxycycline** 100 mg PO BID X 1 year

### Typical Pediatric Therapy
This disease is not described in children

### Clinical Hints
A chronic multisystem disorder characterized by weight loss, diarrhea, abdominal and joint pain; dermal hyperpigmentation, fever and lymphadenopathy often present; PAS-positive macrophages present in intestinal biopsy material.

### Synonyms
Intestinal lipodystrophy, Lipophagic granulomatosis, Mesenteric chyladenectasis, Steatorrhea arthropericarditica, *Tropheryma whipplei*.

ICD9: 040.2
ICD10: K90.8

### Clinical
The typical patient has a history of recurrent arthralgia or arthritis involving multiple joints for several years.

- Joint complaints precede systemic and gastrointestinal disease in approximately one-third of patients, and may persist for years in the absence of diarrhea.
- Infection of prosthetic joints has been reported.
- Diarrhea, low-grade fever and weight loss are characteristic, and hyperpigmentation is present in 50% of patients.
- Generalized lymphadenopathy is common.

As many as one third of the patients develop cardiac involvement characterized by the presence of systolic murmurs, a pericardial friction rub, congestive heart failure, and nonspecific electrocardiographic changes.

- The most common pathological changes are endocarditis with negative blood cultures, presenting with thickened and deformed mitral or aortic valves.
- 30 to 40% of patients develop pleuritic chest pain, chronic nonproductive cough, and dyspnea.
- The chest X-ray may show a pleural effusion or pulmonary infiltrates.

Recurrence of symptoms following therapy may represent an immune reconstitution syndrome.

*Tropheryma whipplei* was isolated from 6.4% of blood specimens from febrile patients with cough (Senegal, 2008 to 2009)

Other features of Whipple's disease include personality changes or dementia, hypersomnia, amnesic syndrome, peripheral or cranial nerve neuropathy, cerebral pseudotumor, chronic headache, endocarditis, pericarditis, pneumonia, subcutaneous nodules, anemia, myoclonus, ataxia, chorioretinitis, vitritis, uveitis, salcroiliitis and spondylitis, hypoalbuminemia and hypokalemia.

This disease is endemic or potentially endemic to all countries.

### References
27. Medicine (Baltimore) 2008 May;87(3):167-76.
Yellow fever

Agent | VIRUS - RNA. Flaviridae, Flavivirus: Yellow fever virus
Reservoir | Human Mosquito Monkey Marsupial
Vector | Mosquito - Stegomyia (Aedes), Haemagogus, Sabethes
Vehicle | None
Incubation Period | 3d - 6d (range 2.5d - 14d)
Typical Adult Therapy | Supportive
Typical Pediatric Therapy | As for adult
Vaccine | Yellow fever
Clinical Hints | Headache, backache, vomiting, myalgias, jaundice, hemorrhagic diathesis, relative bradycardia and leukopenia; illness is often biphasic; 10% to 60% die within 7 days of onset.
Synonyms | Bulan fever, Febbre gialla, Febre amarela, Fever of Fernando Po, Fever of the blight of Benin, Fiebre amarilla, Fievre jaune, Gelbfieber, Gele koorts, Gul feber, Gula febern, Inflammatory fever, Kendal's disease, Magdalena fever, Maladie de Siam, Pest of Havana, Stranger's fever.

ICD9: 060
ICD10: A95

Clinical

WHO Case definition for surveillance: 

Clinical description
- Characterized by acute onset of fever followed by jaundice within 2 weeks of onset of first symptoms.
- Hemorrhagic manifestations and signs of renal failure may occur.

Laboratory criteria for diagnosis
- Isolation of yellow fever virus, or
- Presence of yellow fever specific IgM or a four-fold or greater rise in serum IgG levels in paired sera (acute and convalescent) or
- Positive post-mortem liver histopathology or detection of yellow fever antigen in tissues by immunohistochemistry or
- Detection of yellow fever virus genomic sequences in blood or organs by PCR

Case classification
- Suspected: A case that is compatible with the clinical description.
- Probable: A suspected case with presence of yellow fever IgM antibody (in the absence of vaccination within 30 days); or positive postmortem liver histopathology; or an epidemiological link to a confirmed case or outbreak.
- Confirmed: A probable case; and a fourfold or greater increased in antibody titers; or presence of yellow fever neutralization antibody; or detection of yellow fever virus, viral genome or antigen in blood or tissues.

The clinical presentation of yellow fever can range from a self-limited flu-like illness to overwhelming hemorrhagic fever, with a case-fatality rate of 50%. 
- As many as 50% of infections may be clinically inapparent.

Infection is heralded by abrupt onset of fever, headache, and myalgias associated with conjunctival injection, facial flushing, relative bradycardia (Faget's sign) and leukopenia.
- Although most cases do not progress beyond this stage, a remission of fever for a few hours to several days may be followed by high fever, headache, lumbosacral pain, nausea, vomiting, abdominal pain, and somnolence.
- At this stage, the patient exhibits icteric hepatitis and a hemorrhagic diathesis with prominent bleeding from the gastrointestinal tract, epistaxis, bleeding gums, and petechial and purpuric hemorrhages.
- Weakness, prostration, protracted vomiting and albuminuria are prominent.
- Deepening jaundice and elevations in serum transaminase levels continue for several days, accompanied by azotemia and progressive oliguria.
- Direct bilirubin levels rise to 5 to 10 mg/dl, while alkaline phosphatase levels are only slightly raised.
- Eventually, hypotension, shock, and metabolic acidosis develop, compounded by myocardial dysfunction and arrhythmias.
- Additional findings may include acute tubular necrosis, confusion, seizures, and coma.
- CSF examination reveals an elevated protein level without pleocytosis.
- Death usually occurs within 7 to 10 days after onset.
This disease is endemic or potentially endemic to 47 countries. Although Yellow fever is not endemic to Israel, imported, expatriate or other presentations of the disease have been associated with this country.

Yellow fever in Israel

Yellow fever does not occur in Israel.

Imported cases have not been reported.

Proof of vaccination is NOT required for travelers arriving from infected areas or countries.

References

**Yersiniosis**

<table>
<thead>
<tr>
<th>Agent</th>
<th>BACTERIUM. <em>Yersinia enterocolitica</em> and <em>Yersinia pseudotuberculosis</em> A facultative gram-negative bacillus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Pig, Rodent, Rabbit, Sheep, Goat, Cattle, Horse, Dog, Cat, Bat</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>4d - 7d (range 1d - 11d)</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Culture stool, blood. Alert laboratory when these organisms are suspected.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Stool precautions; diarrhea is self-limited. If severe disease - <strong>Ciprofloxacin</strong> 500 mg BID X 5 to 7d. OR <strong>Sulfamethoxazole/trimethoprim</strong></td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Stool precautions; diarrhea is self-limited. If severe disease - <strong>Sulfamethoxazole/trimethoprim</strong> 20 mg-4 mg/kg BID X 5 to 7d</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Fever, diarrhea, right lower quadrant pain; fecal leucocytes present; may be associated with rheumatologic manifestations such as erythema multiforme, Reiter's syndrome and chronic arthritis.</td>
</tr>
<tr>
<td>Synonyms</td>
<td><em>Yersinia enterocolitica</em>, <em>Yersinia pseudotuberculosis</em>, Yersiniose. ICD9: 008.44 ICD10: A04.6, A28.2</td>
</tr>
</tbody>
</table>

**Clinical**

*Yersinia enterocolitica* infection typically presents as febrile diarrhea, and occasionally bloody diarrhea.

- Lower abdominal pain without diarrhea occurs in over 15% of cases, and may mimic acute appendicitis. ¹⁻⁴
- Pharyngitis is common ⁵; and metastatic infection of bone, spleen, meninges or other organs may occur. ⁶⁻⁸
- Chronic arthritis, erythema nodosum, Reiter’s syndrome ⁹, glomerulonephritis and carditis are also encountered.
- Reactive arthritis has been reported in over 20% of cases ¹⁰ ¹¹

*Yersinia enterocolitica* is one of at least a dozen *Yersinia* species encountered in humans. See the Microbiology module for further details.

**This disease is endemic or potentially endemic to all countries.**

**Yersiniosis in Israel**

*Yersinia enterocolitica* was first isolated in this country in 1977, and accounts for less than 0.01% of stool isolates in Israel.

A series of 16 cases of *Yersinia enterocolitica* infection among children below age 12 years was reported from Gaza during 2006 to 2007. ¹²

Mesenteric lymphadenitis due to *Yersinia pseudotuberculosis* has been reported. ¹³

*Yersinia pseudotuberculosis* was isolated from 9 dairy cows with mastitis, including 6 cases on one farm (2007 publication) ¹⁴

- *Yersinia pseudotuberculosis* had been previously isolated from a Palm dove (*Streptopelia senegalensis*) in Nir Banim. ¹⁵

**Prevalence surveys:**

- 2.7% of childhood diarrhea in Gaza (2006 to 2007) ¹⁶

**References**

12. Int J Infect Dis 2010 Dec 3;
**Zygomycosis**

<table>
<thead>
<tr>
<th>Agent</th>
<th>FUNGUS. Zygomycota, Zygomycetes, Mucorales: Mucor spp., Rhizopus spp., Lichtheimia (formerly Absidia) spp, Saksenaea spp, et al</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Saprophytes</td>
</tr>
<tr>
<td>Vector</td>
<td>None</td>
</tr>
<tr>
<td>Vehicle</td>
<td>Air, Bandages, Contact</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Variable</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Fungal smear and culture.</td>
</tr>
<tr>
<td>Typical Adult Therapy</td>
<td>Amphotericin B to maximum dose 0.8 mg/kg/d; and to total dose of 3g. Excision as indicated</td>
</tr>
<tr>
<td>Typical Pediatric Therapy</td>
<td>Amphotericin B max dose 0.8 mg/kg/d; and to total dose of 40 mg/kg. Excision as indicated</td>
</tr>
<tr>
<td>Clinical Hints</td>
<td>Periorbital pain, sinusitis, and palatal, nasal or cerebral infarcts; occurs in the setting of preexisting acidosis (diabetes, uremia); pulmonary infection may complicate leukemia.</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Absidia, Actinomucor, Apophysomyces, Cokeromyces, Cunninghamella, Hormographiella, Lichtheimia, Lichtheimia, Mucor, Mucormycosis, Mycocladus, Phycomycosis, Rhizomucor, Rhizopus, Saksenaea, Syncephalastrum.</td>
</tr>
<tr>
<td>ICD9:</td>
<td>117.7</td>
</tr>
<tr>
<td>ICD10:</td>
<td>B46</td>
</tr>
</tbody>
</table>

**Clinical**

Infection is most commonly associated with hyperglycemia, metabolic (diabetic, uremic) acidosis, corticosteroid therapy and neutropenia, transplantation, heroin injection or administration of desferoxamine.  
- Major risk factors identified in children are neutropenia, diabetes mellitus, and prematurity.  
- Virtually any organ can be involved; however, most infections involve the paranasal sinuses and contiguous structures (orbit, cavernous sinus, cranial nerves, cerebral arteries), lungs, skin and gastrointestinal tract.

Disease manifestations reflect the mode of transmission, with rhinocerebral and pulmonary diseases being most common.  
- Cutaneous, gastrointestinal, and allergic diseases are also seen.  
- The Mucorales are associated with blood vessel invasion, often leading to thrombosis, infarction and tissue destruction.  
- Rare cases of sinusitis have been ascribed to *Actinomucor elegans*.  
- Dissemination is common.  
- Therapy must be started early and consists of antifungal drugs, surgical intervention, and reversal

**Rhinocerebral zygomycosis** initially manifests with headache (often unilateral), fever, facial pain, diplopia, lacrimation, and nasal stuffiness.  
- As the infection spreads, necrotic lesions appear in the turbinates, nose, paranasal skin or hard palate.  
- Chemosis, proptosis, and external ophthalmoplegia may occur.  
- Cranial nerve abnormalities are common (nerves II through VII, IX, and X), and blindness may ensue following invasion of the cavernous sinus, ophthalmic artery, and orbit.  
- Hemiparesis, seizures, or monocular blindness suggest advanced disease.  
- Invasion of the internal carotid artery in the cavernous sinus can occur, with metastatic lesions in the frontoparietal cortex and deepening coma.

**Pulmonary zygomycosis** presents with nonspecific symptoms such as fever, cough and dyspnea.  
- Hemoptysis may occur with vascular invasion.  
- Radiological findings include segmental consolidation which progresses to contiguous areas of the lung and may cavitate.  
- In 74% of pulmonary zygomycosis cases, the infection is limited to the lung.

**Gastrointestinal zygomycosis** usually affects patients with severe malnutrition, and may involve the stomach, ileum, and colon.  
- Clinical findings mimic intra-abdominal abscess.  
- The diagnosis is often made at autopsy.

**Renal zygomycosis** may mimic malignancy.
59 case reports (38 fatal) of neonatal zygomycosis had been published to July 2007 • 77% premature infants, 54% gastrointestinal and 36% dermal. 17

Zygomycosis has a poor prognosis, with a mortality rate of 44%. 18

This disease is endemic or potentially endemic to all countries.

References

About GIDEON

GIDEON Informatics produces the GIDEON web application and the GIDEON ebooks series.

GIDEON online
GIDEON online is the world's premier global infectious disease knowledge management tool. GIDEON (Global Infectious Diseases and Epidemiology Online Network) is an easy to use, interactive and comprehensive web based tool that helps overcome information overload, save time and access a vast knowledge database. GIDEON is used for diagnosis and reference in the fields of Tropical and Infectious Diseases, Epidemiology, Microbiology, Antimicrobial Therapy and Occupational Toxicology.

Content
GIDEON is made up of three modules, which are updated continually: Infectious Diseases, Microbiology and Toxicology. The Infectious Diseases module encompasses 347 diseases, 231 countries, and 500+ anti-infective drugs and vaccines. Microbiology includes over 1,500 microbial taxa; and Toxicology, over 3,000 agents and 205 diseases. GIDEON's worldwide data sources access the entire world's literature and adhere to the standards of Evidence Based Medicine. Over 18,000 notes outline the status of specific infections within each country. Also featured are over 33,000 images, graphs, and interactive maps and more than 150,000 linked references.

Users
GIDEON is used in hospitals, universities (colleges and medical schools), private practice, Public Health departments and Military installations - by physicians (emergency room, infectious diseases, pediatrics and hospitalists), teachers, clinical microbiologists and health professionals. It is an ideal teaching tool for health care students, residents and fellows.

Accuracy
The Infectious Diseases Diagnosis module has been tested in a blinded multi-center field trial of 495 patients. The correct diagnosis was displayed in over 94% of cases, and was listed first in over 75%. GIDEON has been reviewed in numerous journals and is continually updated daily to maintain content and accuracy.

GIDEON ebooks
GIDEON ebooks complement the GIDEON web application by expanding easy access to the GIDEON's vast content without a subscription or continual internet access. Ebooks can be downloaded to a variety of devices and can be read anywhere. These ebooks summarize the status of individual infectious diseases, in every country of the world.

To learn more about GIDEON online, visit www.gideononline.com and follow our blog at www.gideononline.com/blog. For the latest list of GIDEON ebooks, visit www.gideononline.com/ebooks