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# **INFECTIOUS DISEASES OF UKRAINE**

**STEPHEN BERGER, MD**  
2022 EDITION

Infectious Diseases of Ukraine - 2022 edition

Stephen Berger, MD

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#### **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, Creutzfeldt-Jakob disease, Human papillomavirus 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 Infectious Diseases are not covered: Paronychia, Otitis externa, etc.

## Introduction: The GIDEON e-book series

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*Infectious Diseases of Ukraine* is one in a series of GIDEON [ebooks](#) which summarize the status of Infectious diseases, Drugs, Vaccines and Pathogens in every country of the world.

Chapters are arranged alphabetically, by disease name. Each section is divided into three sub-sections:

1. Descriptive epidemiology
2. Status of the disease in Ukraine
3. References

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

<b>Agent</b>	Classification (e.g., virus, parasite) and taxonomic designation.
<b>Reservoir</b>	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.
<b>Vector</b>	An arthropod or other living carrier which transports an infectious agent from an infected organism or reservoir to a susceptible individual or immediate surroundings.
<b>Vehicle</b>	The mode of transmission for an infectious agent. This generally implies a passive and inanimate (i.e., non-vector) mode.

A chapter outlining the routine vaccination schedule of Ukraine follows the diseases chapters.

### Content

There are 364 generic infectious diseases in the world today. 217 of these are endemic, or potentially endemic, to Ukraine. A number of other diseases are not relevant to Ukraine 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 Ukraine.

### Sources

Data are based on the GIDEON web application ([www.gideononline.com](http://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.

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 Ukraine.

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](mailto:ebook@gideononline.com)

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\* Not endemic. Imported, expatriate or other context reported.

<sup>+</sup> Country specific note exists for disease

## Acanthocephalan infections

<b>Agent</b>	PARASITE - Archiacanthocephala. Moniliformida: <i>Moniliformis moniliformis</i> , Oligocanthorhynchida: <i>Macracanthorhynchus hirudinaceus</i> .
<b>Reservoir</b>	Pig ( <i>Macracanthorhynchus</i> ), rat and fox ( <i>Moniliformis</i> ), Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Insect ingestion
<b>Incubation Period</b>	Unknown - presumed 15 to 40 days
<b>Diagnostic Tests</b>	Identification of worm in stool:  Moniliformis moniliformis adult: female - 10 to 30 cm; male - 4 to 5 cm  Macracanthorhynchus hirudinaceus adult: female - 5.6 to 35.1 cm; male 5.2 to 8.9 cm
<b>Typical Adult Therapy</b>	Infection is usually self-limited. <a href="#">Pyrantel pamoate</a> has been used against <i>Moniliformis moniliformis</i> - 11 mg/kg PO - repeat once in 2 weeks  <a href="#">Levamisole</a> (3 mg/kg/day for 3 days) OR <a href="#">Mebendazole</a> (100 mg PO BID X3 days, repeated after one week) have been used successfully <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	Infection is usually self-limited. <a href="#">Pyrantel pamoate</a> has been used against <i>Moniliformis moniliformis</i> - 11 mg/kg PO - repeat once in 2 weeks  <a href="#">Levamisole</a> (3 mg/kg/day for 3 days) OR <a href="#">Mebendazole</a> (100 mg PO BID X3 days, repeated after one week) have been used successfully
<b>Clinical Hints</b>	- Most infections are characterized by asymptomatic passage of a worm - In some cases, only vague complaints such as 'periumbilical discomfort' and 'giddiness' have been described
<b>Synonyms</b>	Corynosoma, Macracanthorhynchus, Moniliform acanthocephalan, Moniliformis moniliformis, Negi nagi. ICD9: 128.9 ICD10: B83.8

## Acanthocephalan infections in Ukraine

2005 - *Macracanthorhynchus hirudinaceus* was identified in wild boar (*Sus scrofa*).<sup>4</sup>

### References

1. Ann Saudi Med 2006 Jul-Aug;26(4):321-4.
2. Korean J Parasitol 2007 Jun ;45(2):145-8.
3. Cochrane Database Syst Rev 2021 Dec 09;12:CD015374.
4. J Helminthol 2021 Dec 13;95:e73.

## Actinomycosis

<b>Agent</b>	BACTERIUM. Actinomycetes, <i>Actinomyces</i> spp. Anaerobic gram-positive bacillus
<b>Reservoir</b>	Human (oral, fecal and vaginal flora)
<b>Vector</b>	None
<b>Vehicle</b>	Endogenous
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Gram stain and bacteriological culture using strict anaerobic technique. Growth is apparent in 3-7 days.
<b>Typical Adult Therapy</b>	<b>Penicillin G</b> 18 to 24 million units/day X 2 to 6w Then <b>Penicillin V</b> 2 to 4 Grams daily X 6 to 12 months  Alternatives: <a href="#">Doxycycline</a> , <a href="#">Ceftriaxone</a> , <a href="#">Erythromycin</a> Excision/drainage <sup>1</sup>
<b>Typical Pediatric Therapy</b>	<b>Penicillin G</b> 100,000 units/kg/day X 2 to 6 weeks Then <b>Penicillin V</b> 25,000 units/day X 6-12m  Alternatives: <a href="#">Ceftriaxone</a> , <a href="#">Erythromycin</a> Excision/drainage
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Mandibular osteomyelitis with fistulae (sulfur granules) in the setting of poor dental hygiene</li> <li>- Pelvic abscesses in a women with intra-uterine device</li> <li>- Fever, right lower quadrant mass and fistulae</li> <li>- Suppurative pleuropulmonary infection with fistulae</li> </ul>
<b>Synonyms</b>	Actinomyces, Aktinomykose, Lumpy jaw. ICD9: 039. ICD10: A42

### References

1. [BMJ 2011 Oct 11;343:d6099.](#)



## Adenovirus infection

<b>Agent</b>	VIRUS - DNA. Adenoviridae, Adenovirus Enteric strains are classified in genus Mastadenovirus
<b>Reservoir</b>	Human, Non-human primates, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Droplet, Water, Respiratory of pharyngeal acquisition
<b>Incubation Period</b>	4d - 12d
<b>Diagnostic Tests</b>	Viral culture/serology or antigen assay. Direct fluorescence of secretions. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Enteric/secretion precautions. <a href="#">Cidofovir</a> and <a href="#">Brincidofovir</a> have been used in some cases. Symptomatic therapy <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Vaccine</b>	<a href="#">Adenovirus vaccine</a>
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Generally, an uncomplicated illness lasting 3 to 5 days</li> <li>- Atypical pneumonia, upper respiratory infection, tracheitis, bronchiolitis</li> <li>- Keratoconjunctivitis with preauricular adenopathy</li> <li>- Gastroenteritis or hemorrhagic cystitis</li> </ul>
<b>Synonyms</b>	Adenovirus gastroenteritis, Epidemic keratoconjunctivitis, Pharyngoconjunctival fever. ICD9: 047.9,077.1,077.2,008.62,480.0 ICD10: A08.2,B30.1,B34.0,J12.0

### Adenovirus infection in Ukraine

#### Prevalence surveys

Years	Region	Study Group	%	Notes
2009		children	4	Rotavirus-negative fecal specimens from children below age 5 years
2018 - 2020	Kyiv	children - respiratory	13.4	Survey of children with acute respiratory infection <sup>4</sup>

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1. [Biol Blood Marrow Transplant 2017 Mar ;23\(3\):512-521.](#)
2. [Bone Marrow Transplant 2003 Mar ;31\(6\):481-6.](#)
3. [Pediatr Infect Dis J 2020 May 12;](#)
4. [Wiad Lek 2021 ;74\(6\):1389-1395.](#)

## Aeromonas and marine Vibrio infx.

<b>Agent</b>	BACTERIUM. <i>Aeromonas hydrophila</i> , <i>Vibrio vulnificus</i> , et al Facultative gram-negative bacilli
<b>Reservoir</b>	Salt or brackish water, Fish
<b>Vector</b>	None
<b>Vehicle</b>	Water, Shellfish, Contact
<b>Incubation Period</b>	Range 2d - 7d
<b>Diagnostic Tests</b>	Culture. Notify laboratory if these organisms are suspected in stool.
<b>Typical Adult Therapy</b>	Fluoroquinolone, third generation cephalosporin or <a href="#">Sulfamethoxazole / Trimethoprim</a> . <a href="#">Doxycycline</a> + <a href="#">Ciprofloxacin</a> or <a href="#">Ceftriaxone</a> for necrotizing infection. Other antimicrobial agent as determined by susceptibility testing <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Sulfamethoxazole / Trimethoprim</a> . Or other antimicrobial agent as determined by susceptibility testing
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Disease follows marine injury or ingestion of raw oysters / contaminated fresh or brackish water</li> <li>- Diarrhea, fever, vomiting or sepsis</li> <li>- Fecal leukocytes present</li> <li>- Severe or fatal in immunosuppressed or alcoholic patients</li> </ul>
<b>Synonyms</b>	Aeromonas, Aeromonas hydrophila, Vibrio alginolyticus, Vibrio mimicus, Vibrio vulnificus. ICD9: 005.81,027.9 ICD10: A48.8

### References

1. [Clin Infect Dis 2014 Jul 15;59\(2\):e10-52.](#)
2. [Antimicrob Agents Chemother 2012 Feb ;56\(2\):1110-2.](#)

## Amoeba - free living

<b>Agent</b>	PARASITE - Protozoa. Centramoebida, Acanthamoebidae: <i>Acanthamoeba</i> and <i>Balamuthia</i> Schizopyrenida, Vahlkampfiidae: <i>Naegleria</i>
<b>Reservoir</b>	Water, Soil
<b>Vector</b>	None
<b>Vehicle</b>	Water (diving, swimming), Contact
<b>Incubation Period</b>	5d - 6d (range 2d - 14d) Granulomatous ? to 2m
<b>Diagnostic Tests</b>	Wet preparation. Specialized cultures. Serology available in reference centers.
<b>Typical Adult Therapy</b>	CNS <i>Naegleria</i> : <b>Amphotericin B</b> to 1.5 mg/kg/d IV + 1.5 mg intrathecal. X 8 days + <b>Fluconazole</b> 10 mg/kg/day PO + <b>Rifampin</b> 10 mg/kg/day PO + <b>Azithromycin</b> 10 mg/kg/day PO + <b>Miltefosine</b> 50 mg TID PO + dexamethasone.  <i>Acanthamoeba</i> : <b>Pentamidine</b> , <b>Amphotericin B</b> , <b>Flucytosine</b> , <b>Rifampin</b> , <b>Itraconazole</b>  <b>Miltefosine</b> used in some cases of <i>Acanthamoeba</i> / <i>Balamuthia</i> infection <sup>1 2 3 4</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Severe, progressive meningoencephalitis ( <i>Naegleria</i> , <i>Acanthamoeba</i> or <i>Balamuthia</i> ) after swimming or diving in fresh water - Keratitis ( <i>Acanthamoeba</i> ), associated with contaminated solutions used to clean contact lenses
<b>Synonyms</b>	Acanthamoben, Acanthamoeba, Allovahlkampfia, Amebic keratitis, Balamuthia, Balmuthia, Dictyostelium, Free-living amoeba, Leptomyxid amoeba, Naegleria, Paravahlkampfia, Primary amebic meningoencephalitis, Sappinia, Vahlkampfia. ICD9: 136.2 ICD10: B60.1,B60.2

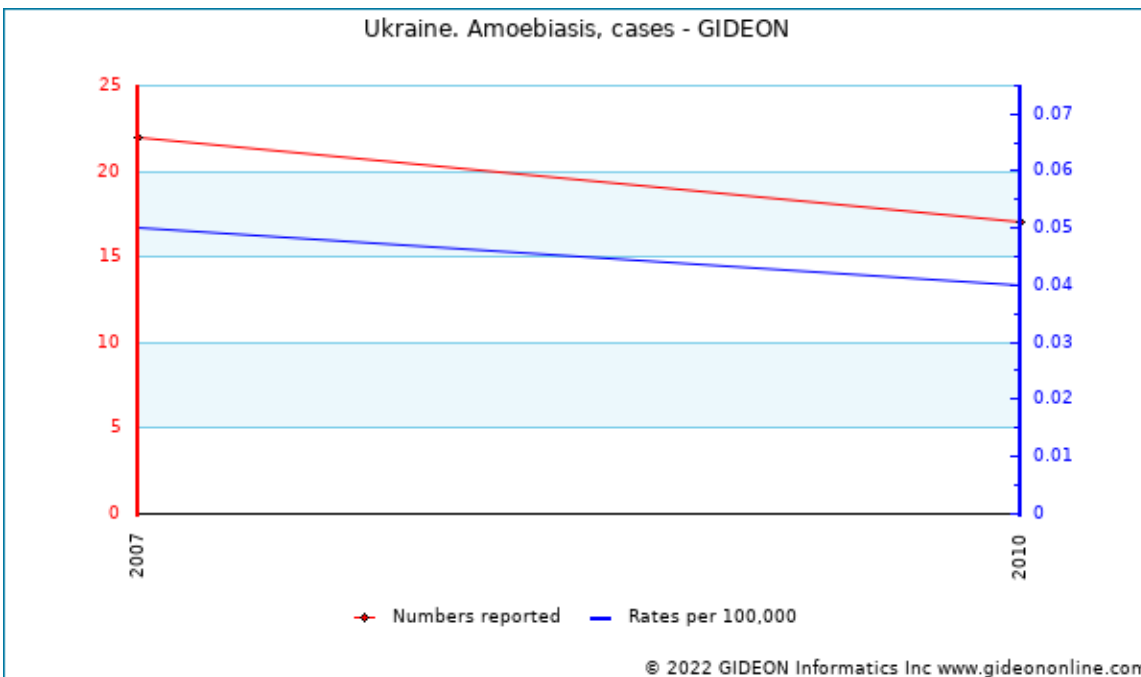
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1. [Pediatrics 2015 Mar ;135\(3\):e744-8.](#)
2. [Clin Microbiol Rev 2003 Apr ;16\(2\):273-307.](#)
3. [Emerg Infect Dis 2008 Nov ;14\(11\):1743-6.](#)
4. [Eye \(Lond\) 2021 Sep 21;](#)

## Amoebiasis

<b>Agent</b>	PARASITE - Protozoa. Sarcomastigota, Entamoebidea: <i>Entamoeba histolytica</i> (must be distinguished from non-invasive, <i>Entamoeba dispar</i> )
<b>Reservoir</b>	Human
<b>Vector</b>	Fly (Musca) - occasionally
<b>Vehicle</b>	Food, Water, Sexual contact, Fly
<b>Incubation Period</b>	1w - 3w (range 3d - 90d)
<b>Diagnostic Tests</b>	Fresh stool/aspirate for microscopy. Stool antigen assay. Stool PCR. Note: serological tests usually negative.
<b>Typical Adult Therapy</b>	<a href="#">Tinidazole</a> 2 G PO X 5d OR <a href="#">Metronidazole</a> 500 mg TID X 7-10d Follow with: <a href="#">Paromomycin</a> 500 mg PO TID X 7d <sup>1</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Tinidazole</a> 50 mg/kg/d PO X 5d OR <a href="#">Metronidazole</a> 15 mg/kg TID PO X 10d Follow with: <a href="#">Paromomycin</a> 10 mg/kg PO TID X 7d
<b>Clinical Hints</b>	- Dysentery, abdominal pain, tenesmus. - Unlike shigellosis, hyperemia of the rectal mucosa and fecal pus are absent. - Liver abscess and dysentery rarely coexist in a given patient
<b>Synonyms</b>	Amebiasis, Amebiasis intestinal, Amebic colitis, Amebic dysentery, Amoebenruhr, Entamoeba bangladeshi, Entamoeba gingivalis, Entamoeba hartmanni, Entamoeba moshkovskii. ICD9: 006.0,006.1,006.2 ICD10: A06.0,A06.1,A06.2

### Amoebiasis in Ukraine



Graph: Ukraine. Amoebiasis, cases

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1. [Cochrane Database Syst Rev 2009 Apr 15;\(2\):CD006085.](#)

## Amoebic abscess

<b>Agent</b>	PARASITE - Protozoa. Sarcomastigota, Entamoebidea: <i>Entamoeba histolytica</i> (must be distinguished from non-invasive, <i>Entamoeba dispar</i> )
<b>Reservoir</b>	Human
<b>Vector</b>	Fly (Musca) - occasionally
<b>Vehicle</b>	Food, Water, Sexual contact, Fly
<b>Incubation Period</b>	2w - 6m (rarely years; 95% within 6m)
<b>Diagnostic Tests</b>	Imaging. Serology. Nucleic acid amplification. Note: Amoebae are usually not present in stool at this stage.
<b>Typical Adult Therapy</b>	<a href="#">Tinidazole</a> 2 G X 5d OR <a href="#">Metronidazole</a> 750 mg PO TID X 10d <sup>1</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Metronidazole</a> 15 mg/kg TID X 10d OR <a href="#">Tinidazole</a> 15 to 20 mg/kg TID X 5d
<b>Clinical Hints</b>	- Fever, local pain and weight loss - Concurrent amoebic colitis is usually not present. - Typically a single abscess in the right hepatic lobe (bacterial abscesses may be multiple)
<b>Synonyms</b>	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

### Amoebic abscess in Ukraine

Epidemiological data regarding Amoebic abscess are included in the notes for Amoebiasis.

### References

1. [J Trop Med Hyg 1978 Jan ;81\(1\):16-9.](#)

## Anaplasmosis

<b>Agent</b>	BACTERIUM. Anaplasmataceae <i>Anaplasma phagocytophilum</i> . ( <i>E. phagocytophila</i> , <i>E. equi</i> "HE agent" merged into this species) Intracellular <i>Rickettsia</i> -like
<b>Reservoir</b>	Rodent, Rabbit, Deer, Tick, Primate, Cattle, Horse, Goat, Sheep, Zoonotic
<b>Vector</b>	Tick ( <i>Ixodes scapularis</i> , <i>Ix. pacificus</i> , <i>Ix. ricinus</i> )
<b>Vehicle</b>	Blood or secretions (rare)
<b>Incubation Period</b>	Unknown; mean 8d
<b>Diagnostic Tests</b>	Intraleucocytic inclusions ('morulae') seen in blood smear. Serology. Nucleic acid amplification/
<b>Typical Adult Therapy</b>	<a href="#">Doxycycline</a> 100 mg PO BID X 4 to 5 days OR <a href="#">Rifampin</a> 300 mg PO BID X 5 to 7 days <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	Above age 8 years: <a href="#">Doxycycline</a> 2 mg/kg PO BID X 4 to 5 days OR <a href="#">Rifampin</a> 10 mg/kg/day PO BID X 5 to 7 days  Below age 8 years: <a href="#">Tetracycline</a> 25 mg/kg/d PO QID X 4 to 5 days OR <a href="#">Rifampin</a> 10 mg/kg/day PO BID X 5 to 7 days
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Fever, headache and myalgia following tick bite or exposure</li> <li>- Arthralgia or macular rash may be present</li> <li>- Leukopenia, thrombocytopenia or hepatic dysfunction are common</li> <li>- Inclusions may be seen in granulocytes</li> <li>- Case-fatality rate is 5%</li> </ul>
<b>Synonyms</b>	<i>Anaplasma capra</i> , <i>Anaplasma ovis</i> , <i>Anaplasma phagocytophilum</i> , <i>Anaplasma platys</i> , Anaplasmosis - human granulocytic, Ehrlichia equi, Ehrlichia ewingii, Ehrlichia microti, Ehrlichia phagocytophila, Ehrlichiosis - human granulocytic, Human granulocytic anaplasmosis, Human granulocytic ehrlichiosis. ICD9: 082.4 ICD10: B28.8

## Anaplasmosis in Ukraine

### Prevalence surveys

Years	Region	Study Group	%	Notes
2016*	Multiple locations	horses	1.4	1.4% of horses from Ukraine, Poland and Slovakia <sup>3</sup>
2015*	Western Region	patients - fever	33.7	33.7% of patients with undiagnosed febrile illness in western Ukraine <sup>4</sup>
2006	Kharkiv	ticks	3.6	3.6% of <i>Ixodes ricinus</i> in Kharkiv region <sup>5</sup>
2009 - 2014	Western Region	ticks	15.9-27.4	27.4% / 15.9% ( <i>Ixodes ricinus</i> / <i>Dermacentor reticularis</i> ) <sup>6</sup>
2009 - 2012	Chernobyl	ticks	25.36	25.36% of <i>Dermacentor reticularis</i> in Chernobyl exclusion zone <sup>7</sup>
2015*	Western Region	ticks	12	12.0% of <i>Ixodes ricinus</i> in western Ukraine <sup>8</sup>
2016*	Kiev	ticks	5.2	Survey of <i>Ixodes ricinus</i> ticks in urban parks <sup>9</sup>
2017	Ternopil	ticks	29.1	29.1% of <i>Ixodes</i> ticks <sup>10</sup>
2018	Multiple locations	ticks	3-10	10% / 3% of <i>Ixodes ricinus</i> / <i>Dermacentor reticulatus</i> ticks <sup>11</sup>

\* indicates publication year (not necessarily year of survey)

### Seroprevalence surveys

Years	Region	Study Group	%	Notes
2015*	Western Region	general population	28.6	28.6% of individuals in western Ukraine <sup>12</sup>

\* indicates publication year (not necessarily year of survey)

- 2010 - *Anaplasma phagocytophilum* was found dog ticks in Kiev. <sup>13</sup>

## References

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2. JAMA 2016 Apr 26;315(16):1767-77.
3. Vet Parasitol 2016 Jan 15;215:35-7.
4. Lik Sprava 2015 Oct-Dec;(7-8):167-71.
5. Clin Microbiol Infect 2009 Dec ;15 Suppl 2:32-3.
6. Vector Borne Zoonotic Dis 2019 Jun 18;
7. Vet Parasitol 2014 Aug 29;204(3-4):372-5.
8. Lik Sprava 2015 Oct-Dec;(7-8):167-71.
9. Ticks Tick Borne Dis 2017 02 ;8(2):219-225.
10. Wiad Lek 2019 ;72(2):224-228.
11. Ticks Tick Borne Dis 2020 Oct 04;12(1):101586.
12. Lik Sprava 2015 Oct-Dec;(7-8):167-71.
13. Ticks Tick Borne Dis 2013 Feb ;4(1-2):152-5.



## Animal bite-associated infection

<b>Agent</b>	BACTERIUM. <i>Pasteurella multocida</i> , and other zoonotic bite pathogens
<b>Reservoir</b>	Cat, Dog, Marsupial, Other mammal, Rarely bird, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Bite (cat in 60%, dog in 30%), No obvious source in 10%
<b>Incubation Period</b>	3h - 3d
<b>Diagnostic Tests</b>	Gram stain/culture. Hold specimen for 2 weeks to discount Capnocytophaga & other genera.
<b>Typical Adult Therapy</b>	<a href="#">Amoxicillin-clavulanate</a> , <a href="#">Doxycycline</a> , <a href="#">Cefuroxime</a> . Dosage and duration appropriate for nature and severity of infection <sup>1</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Amoxicillin-clavulanate</a> , <a href="#">Cefuroxime</a> . Dosage and duration appropriate for nature and severity of infection
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Infection of cat- dog- or other bite wound; however, as many as 10% do not recall the bite</li> <li>- Symptoms appear within 3 to 72 hours</li> <li>- Systemic infection (meninges, bone, lungs, joints, etc) may occur</li> </ul>
<b>Synonyms</b>	Bacteroides pyogenes, 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 canifelinum, Halomonas venusta, Kingella potus, Moraxella canis, Mycobacterium vulneris, Neisseria animaloris, Neisseria canis, Neisseria weaveri, Neisseria zoodegmatis, Pasteurella caballi, Pasteurella canis, Pasteurella dagmatis, Pasteurella multocida, Pasteurella stomatis, Psychrobacter immobilis, Seal finger, Staphylococcus intermedius, Vibrio harveyi. ICD9: 027.2 ICD10: A28.0

### References

1. [Clin Infect Dis 2014 Jul 15;59\(2\):147-59.](#)

## Anisakiasis

<b>Agent</b>	PARASITE - Nematoda. Secernentea: <i>Anisakis simplex</i> and <i>Pseudoterranova decipiens</i>
<b>Reservoir</b>	Marine mammals Fish, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Undercooked fish
<b>Incubation Period</b>	Hours - 14d
<b>Diagnostic Tests</b>	Endoscopic identification of larvae. Anisakis larvae: length 5 to 30 mm
<b>Typical Adult Therapy</b>	Endoscopic removal of larvae; surgery for complications <a href="#">Mebendazole</a> has been effective in animal models <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	Follows ingestion of undercooked fish (e.g., sushi), squid or octopus May present as  - Generalized allergic reaction, or - Acute and chronic abdominal pain, often with "peritoneal signs" or hematemesis
<b>Synonyms</b>	Anasakis, Anisakidosis, Bolbosoma, Cod worm disease, Contraeacum, Eustrongylides, Herring worm disease, Hysterothylacium, Pseudoterranova, Whaleworm. ICD9: 127.1 ICD10: B81.0

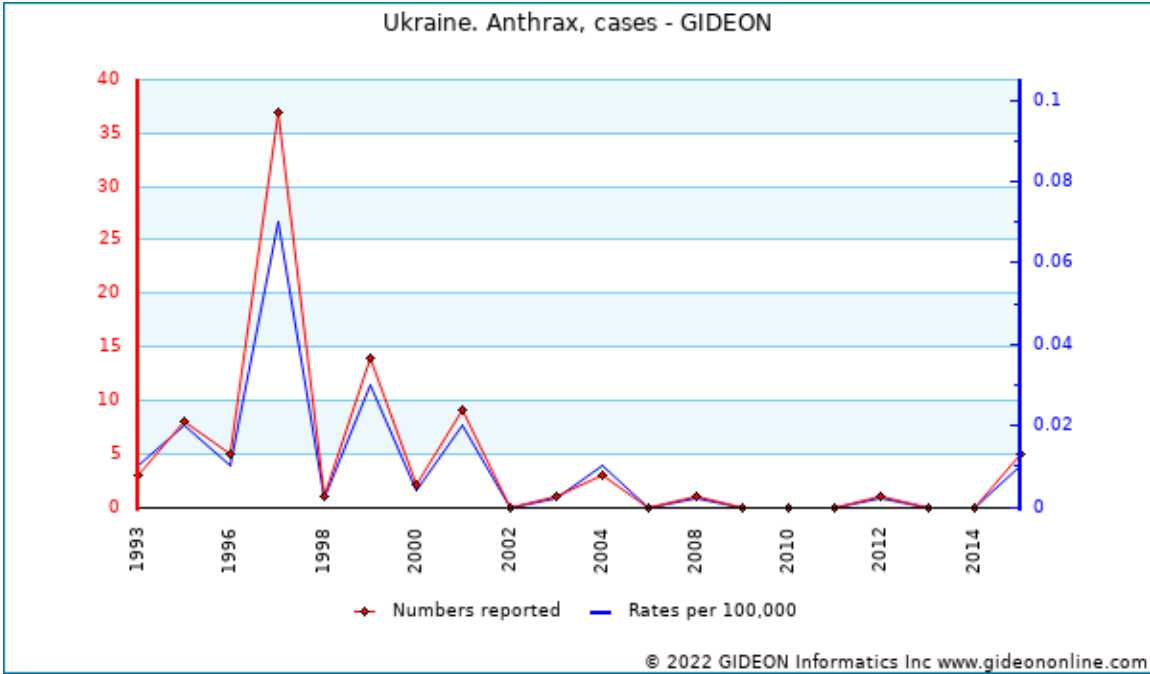
### References

1. [Clin Microbiol Rev 1989 Jul ;2\(3\):278-84.](#)
2. [Dig Dis Sci 2020 Feb 27;](#)

Anthrax	
Agent	BACTERIUM. <i>Bacillus anthracis</i> An aerobic gram positive bacillus
Reservoir	Soil, Goat, Cattle, Sheep, Water, Horse, Zoonotic
Vector	Fly (rare)
Vehicle	Hair, Wool, Hides, Bone products, Air, Meat, Contact, Respiratory or pharyngeal acquisition
Incubation Period	1d-7d; 1-12 cutaneous, 1-7 GI; 1-43 pulmonary
Diagnostic Tests	Bacteriological culture. Alert laboratory that organism may be present. Serology and rapid tests by Ref. Centers.
Typical Adult Therapy	Isolation (secretions). <a href="#">Ciprofloxacin</a> (or Penicillin if susceptible).  If systemic infection, add <a href="#">Meropenem</a> (or <a href="#">Imipenem</a> ) + <a href="#">Linezolid</a> (or <a href="#">Rifampin</a> or <a href="#">Clindamycin</a> )  Dosage/route/duration as per severity If inhalational anthrax, add <a href="#">Raxibacumab</a> <sup>1</sup>
Typical Pediatric Therapy	As for adult
Vaccine	<a href="#">Anthrax immune globulin</a> <a href="#">Anthrax vaccine</a>
Clinical Hints	Acquired from contact with large mammals or their products (meat, wool, hides, bone). Anthrax may present as dermal, pulmonary, gastrointestinal or other forms depending of site of inoculation.  - Edematous skin ulcer covered by black eschar - satellite vesicles may be present - Fulminant gastroenteritis or pneumonia - Necrotizing stomatitis - Hemorrhagic meningitis
Synonyms	Antrace, Antrax, Antraz, Bacillus cereus biovar anthracis, Carbunco, Carbunculo, La fievre charbonneuse, Malcharbon, Malignant pustule, Miltbrann, Miltvuur, Milzbrand, Mjaltbrand, Rural carbuncle, Siberian plague, Siberian ulcer, Splenic fever, Wool-sorter's disease. ICD9: 022 ICD10: A22

## Anthrax in Ukraine

Ukraine has accounted for approximately 13% of cases reported for the former Soviet Union.



Graph: Ukraine. Anthrax, cases

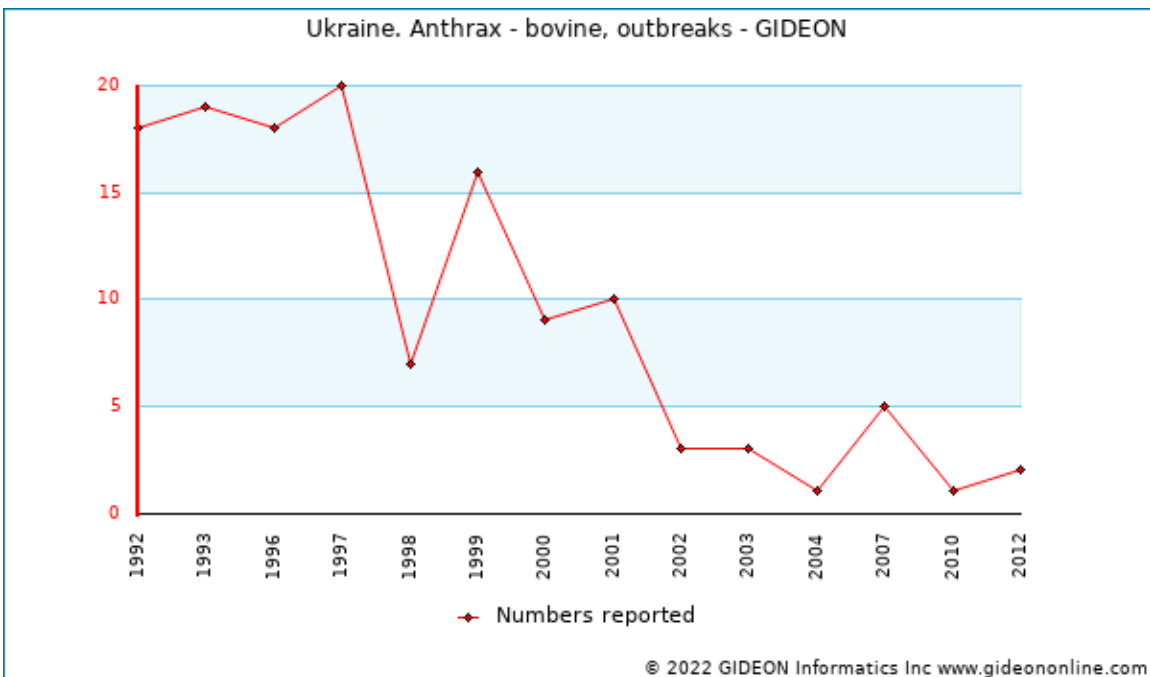
Notes:

Individual years:

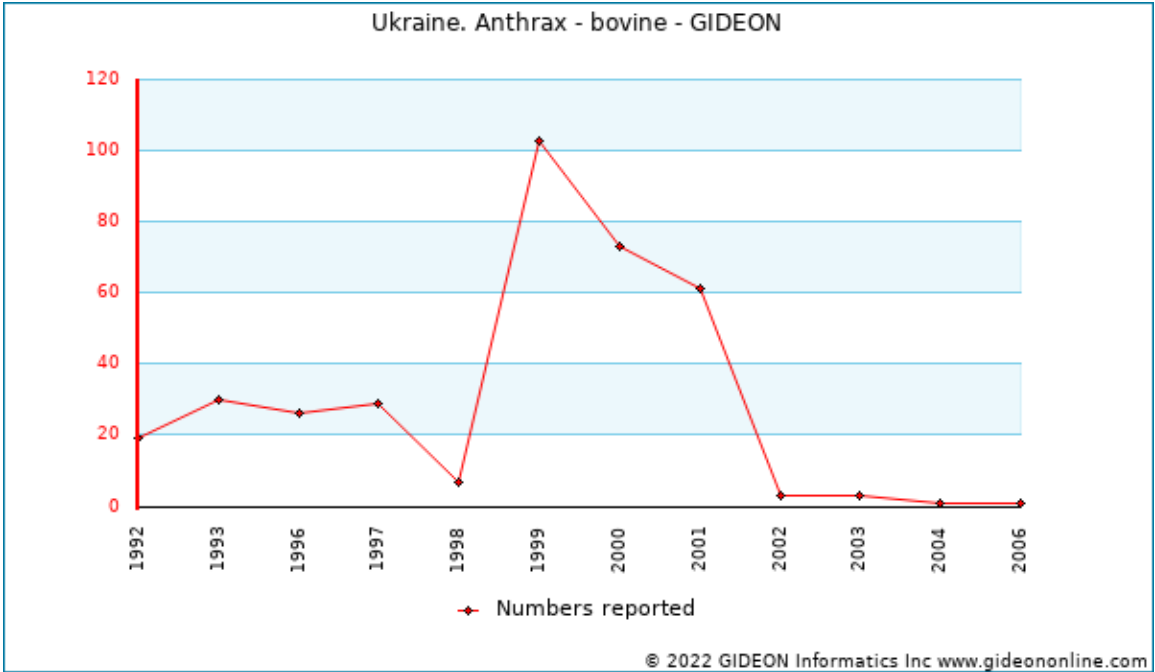
1998 - In Maksymivka. <sup>2</sup>

2001 - Most cases reported in Yahotyn District. <sup>3</sup>

2012 - A case of human anthrax was reported in Cherkassy - acquired from a pig. <sup>4</sup> An infected bovine was also reported in the area. <sup>5</sup>



Graph: Ukraine. Anthrax - bovine, outbreaks



Graph: Ukraine. Anthrax - bovine

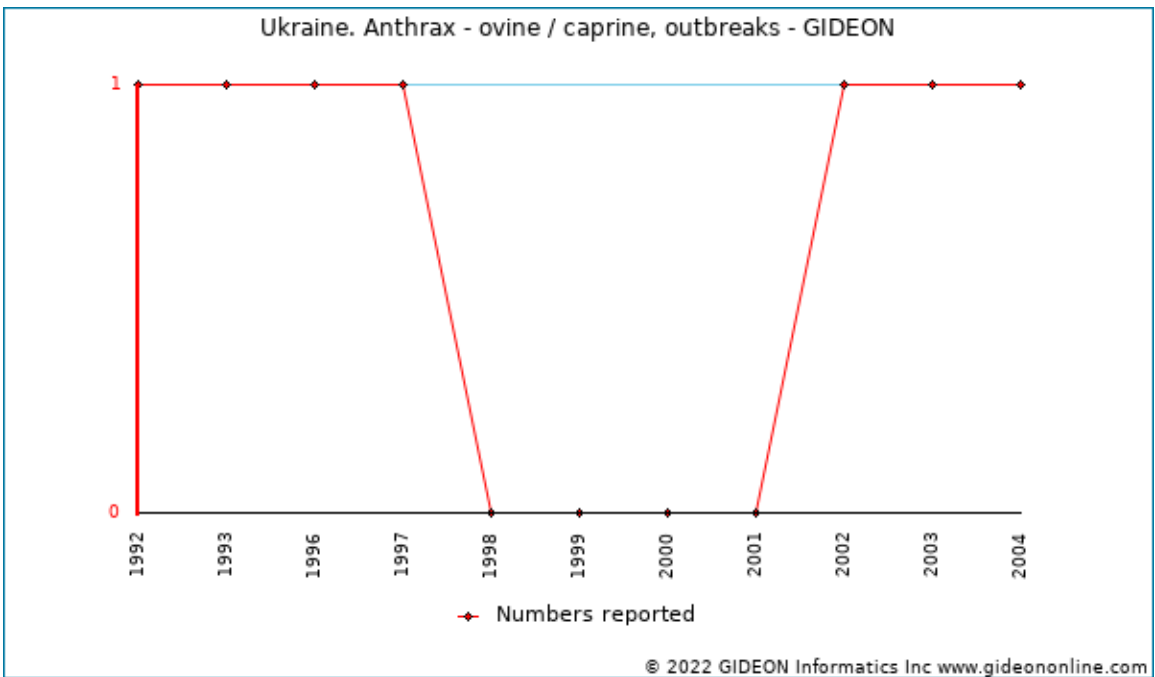
Notes:

Individual years:

2007 - Infected cattle were identified in a meat packing plant in Ivano Frankovsk <sup>6</sup> ; and in Kharkov region. <sup>7</sup>

2010 - Infected cattle were identified on a farm in Chernivtsi Province. <sup>8</sup>

2012 - Infected cattle were identified in Voznesenovka (Melitopol district, Zaporizhia region). <sup>9 10 11</sup>

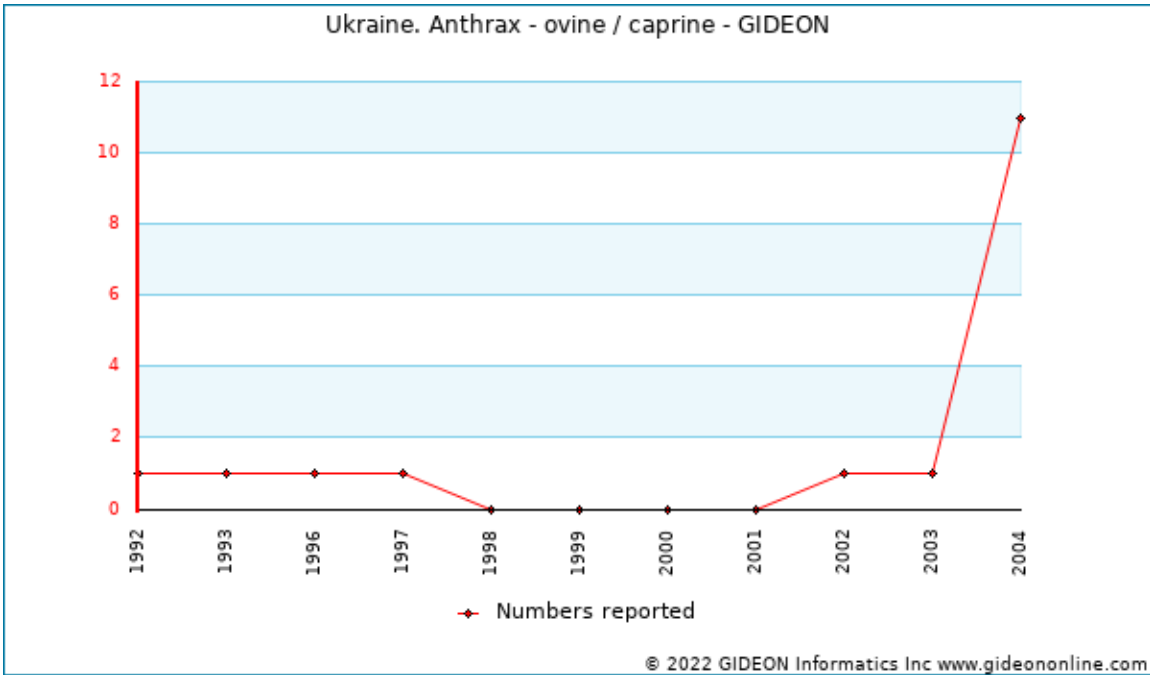


Graph: Ukraine. Anthrax - ovine / caprine, outbreaks

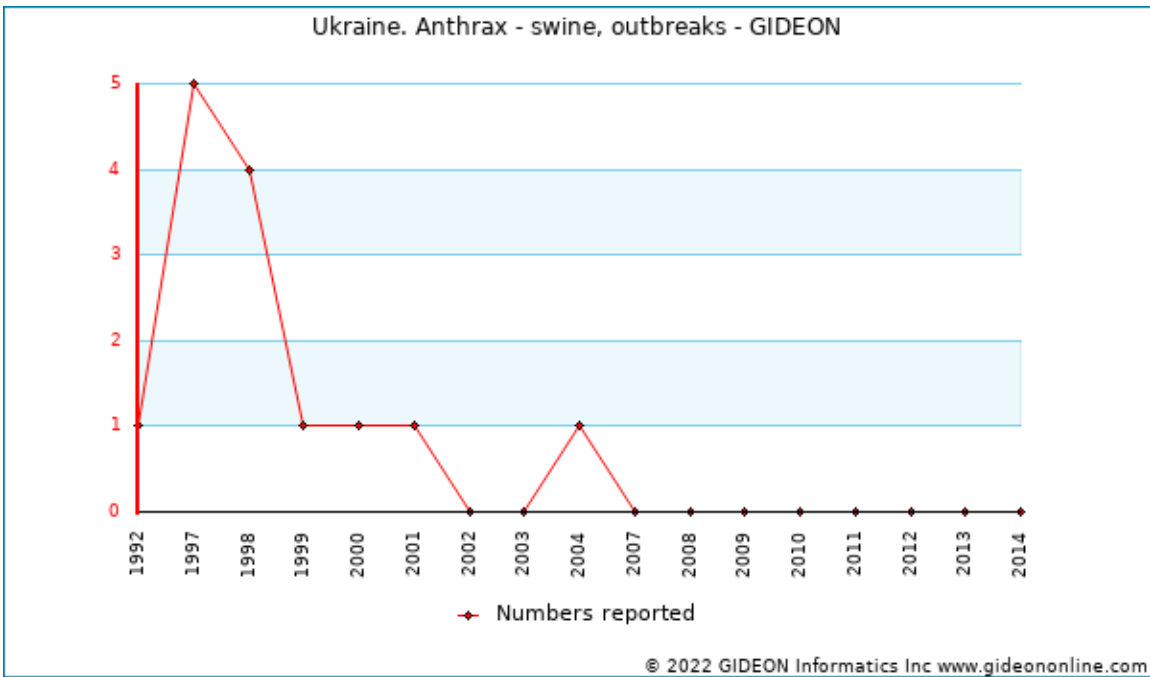
Notes:

Individual years:

2017 - An outbreak (2 cases) of ovine anthrax was reported in Sumy. <sup>12</sup>



Graph: Ukraine. Anthrax - ovine / caprine

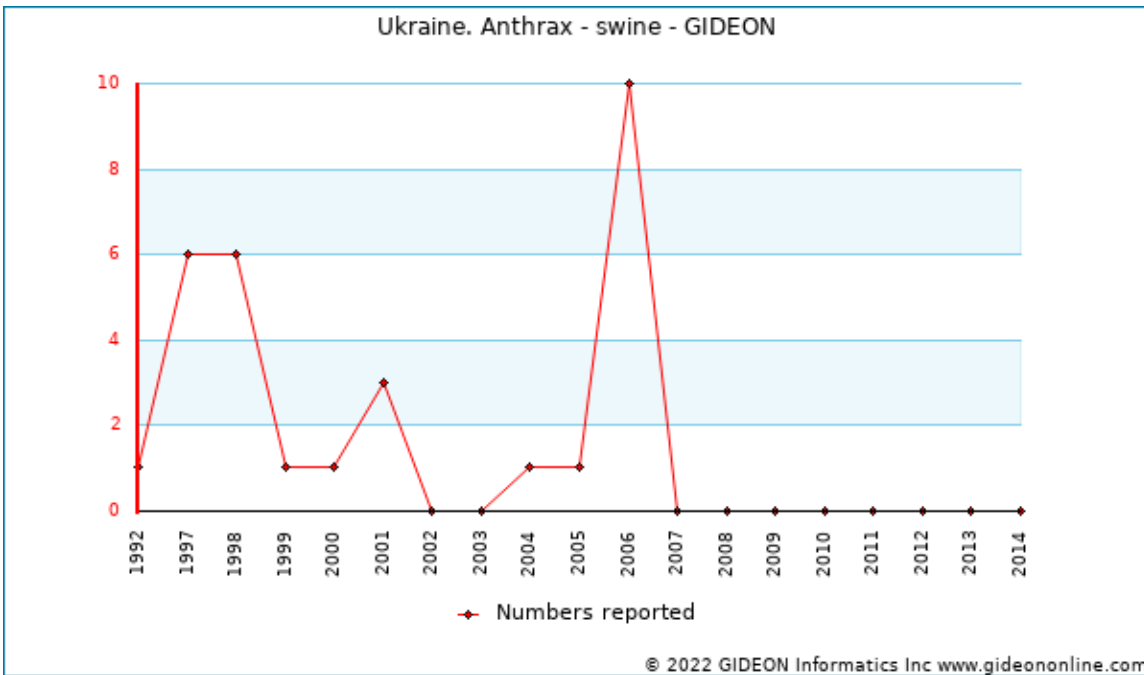


Graph: Ukraine. Anthrax - swine, outbreaks

Notes:

Individual years:

2006 - Small outbreaks of swine anthrax were reported in Odessa and Khelnitskiy. <sup>13</sup>



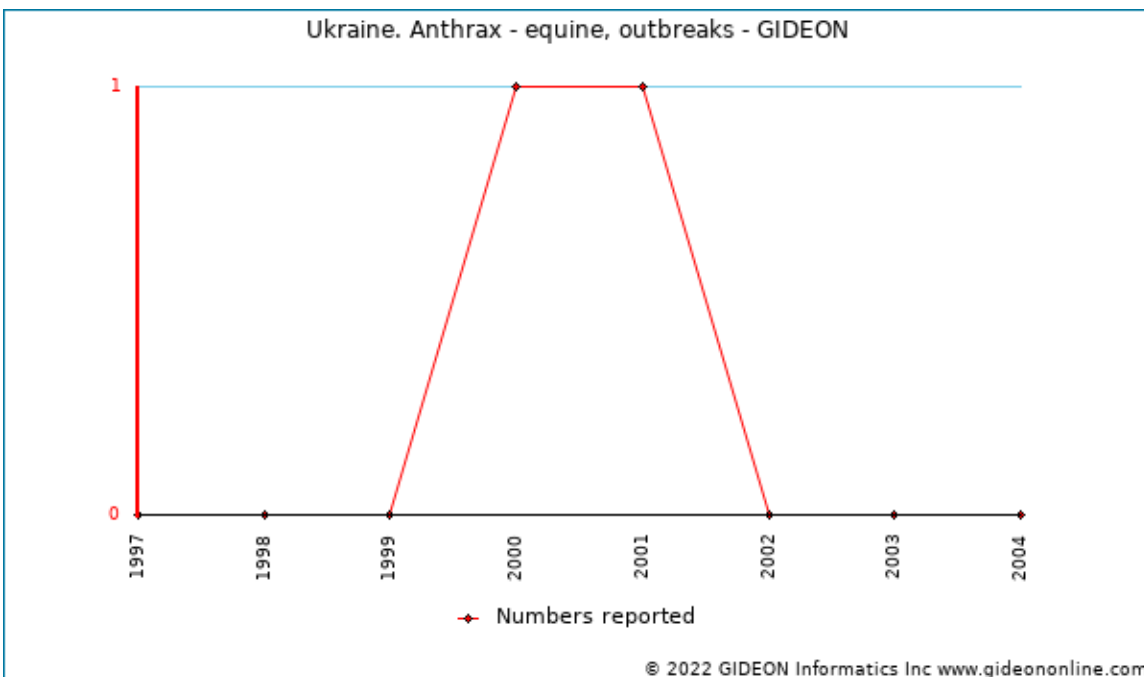
Graph: Ukraine. Anthrax - swine

Notes:

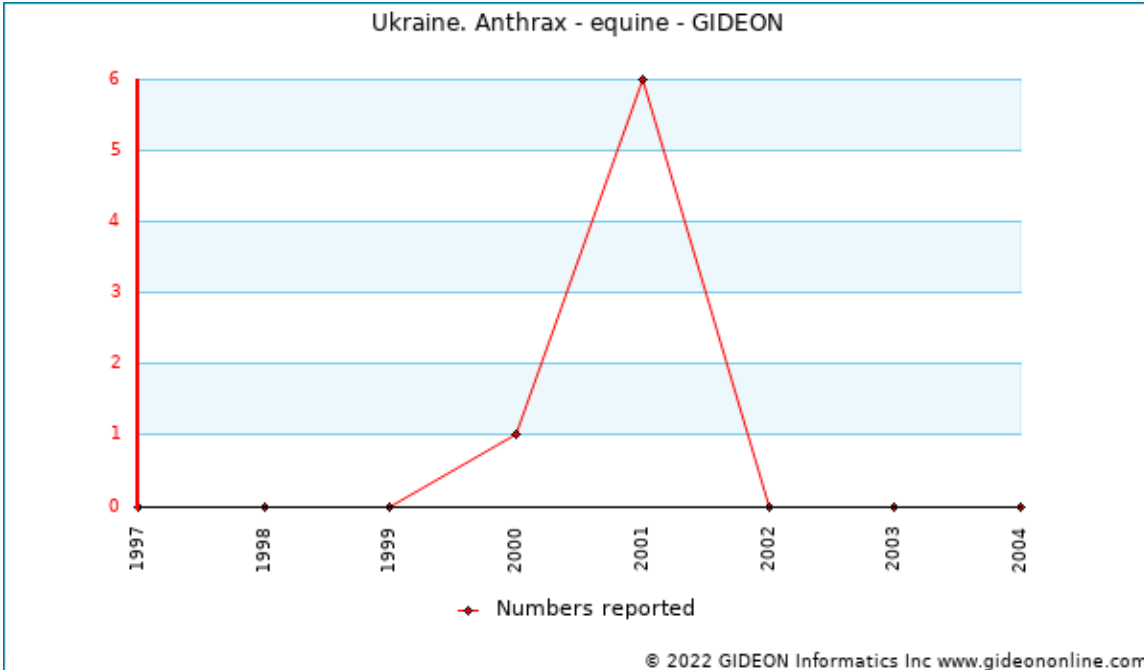
1. Seropositivity toward *Bacillus anthracis* is identified among wild boar (*Sus scrofa*) in Ukraine. <sup>14</sup>

Individual years:

2016 - An infected pig was reported in Kharkiv. <sup>15 16</sup>



Graph: Ukraine. Anthrax - equine, outbreaks



Graph: Ukraine. Anthrax - equine

Notes:

Individual years:

2021 - A pony died of anthrax at a zoo in Ternopil. [17](#)

**Notable outbreaks**

Years	Region	Cases	Deaths	Source	Notes
1997	Donetsk	21	2		Outbreak in Privilnoye (Donetsk region) <a href="#">18</a>
2004	Charkiv	9		sheep	<a href="#">19</a>
2004	Chernivtsi	3		cattle	Outbreak from contact with a slaughtered cow <a href="#">20</a>
2012	Southern Region				Outbreak involving at least one cow and one dog <a href="#">21</a>
2018	Odessa	5			Outbreak associated with skinning an infected cow <a href="#">22</a> <a href="#">23</a> <a href="#">24</a>

**References**

- Health Secur 2015 Nov-Dec;13(6):355-64.
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- ProMED <promedmail.org> archive: 20010731.1508
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- ProMED <promedmail.org> archive: 20181003.6068410
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## Ascariasis

<b>Agent</b>	PARASITE - Nematoda. Secernentea: <i>Ascaris lumbricoides</i>
<b>Reservoir</b>	Human, Dog, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Vegetables, Fly
<b>Incubation Period</b>	10d - 14d (range 7d - >200d)
<b>Diagnostic Tests</b>	Stool microscopy. Ascaris lumbricoides adult: female - 20 to 49 cm; male - 15 to 30 cm
<b>Typical Adult Therapy</b>	<a href="#">Mebendazole</a> 500 mg BID X 1 dose OR <a href="#">Albendazole</a> 400 mg X 1 dose <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Albendazole</a> 200 mg PO single dose OR <a href="#">Mebendazole</a> 100 mg BID X 3 d (> age 2).
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Highest rates among children and in areas of crowding and poor sanitation</li> <li>- Acute illness characterized by cough, wheezing and eosinophilia</li> <li>- Adult worms are associated with abdominal pain (occasionally obstruction), pancreatic or biliary disease</li> <li>- Passage of a roundworm longer than 5 cm is virtually pathognomonic</li> </ul>
<b>Synonyms</b>	Ascaris, Ascaris lumbricoides, Askariasis. ICD9: 127.0 ICD10: B77

### References

1. [JAMA 2008 Apr 23;299\(16\):1937-48.](#)
2. [Cochrane Database Syst Rev 2020 Apr 14;4:CD010599.](#)

## Aspergillosis

<b>Agent</b>	FUNGUS. Ascomycota, Euecomycetes, Eurotiales: <i>Aspergillus</i> . A hyaline hyphomycete
<b>Reservoir</b>	Compost, Hay, Cereal, Soil
<b>Vector</b>	None
<b>Vehicle</b>	Air, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	3d - 21d
<b>Diagnostic Tests</b>	Fungal culture. Biopsy. Nasal culture or serologic testing may be useful in select cases.
<b>Typical Adult Therapy</b>	<a href="#">Voriconazole</a> 6 mg/kg IV Q12h, day 1; follow with 4 mg/kg IV OR Liposomal <a href="#">Amphotericin B</a> 3 to 5 mg/kg/day OR <a href="#">Isavuconazole</a> 200 mg q8h for 6 doses, then 200 mg daily <sup>1</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Voriconazole</a> 9 mg/kg IV q12h, day 1; follow with 8 mg/kg IV q12h OR Liposomal <a href="#">Amphotericin B</a> , dosing as for adults
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Pulmonary "fungus ball" or adult-onset asthma</li><li>- Pulmonary consolidation or infected "pulmonary infarct" in the setting of immune suppression (e.g., AIDS, leukemia, etc)</li><li>- May progress to widespread hematogenous dissemination if not treated promptly</li></ul>
<b>Synonyms</b>	Aspergillose, Aspergillus. ICD9: 117.3 ICD10: B44

### References

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1. [Clin Infect Dis 2016 08 15;63\(4\):e1-e60.](#)

## Babesiosis

<b>Agent</b>	PARASITE - Protozoa. Apicomplexa: <i>Babesia microti</i> , <i>Babesia duncani</i> (U.S.); or <i>B. divergens</i> , <i>Babesia</i> EU1 and <i>B. bigemina</i> (Europe)
<b>Reservoir</b>	Rodent (usually white-footed mouse = <i>Peromyscus leucopus</i> ), Rabbit, Deer, Cattle, Tick, Zoonotic
<b>Vector</b>	Tick ( <i>Ixodes scapularis</i> for <i>Babesia microti</i> ; <i>Ixodes ricinus</i> for <i>B. divergens</i> )
<b>Vehicle</b>	Blood
<b>Incubation Period</b>	1w - 2w (range 1w - 9w)
<b>Diagnostic Tests</b>	Microscopy of stained blood smears. Animal inoculation. Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	<a href="#">Atovaquone</a> 750 mg BID + <a href="#">Azithromycin</a> 500 mg daily X 7 to 10 days. OR <a href="#">Clindamycin</a> 600 mg PO TID + <a href="#">Quinine</a> 650 mg PO TID X 7d. Exchange transfusion has been used in cases of high grade (>10%) parasitemia. <a href="#">1</a> <a href="#">2</a> <a href="#">3</a>
<b>Typical Pediatric Therapy</b>	<a href="#">Atovaquone</a> 20 mg/kg BID + <a href="#">Azithromycin</a> 10 mg/kg on day 1, then 5 mg/kg daily X 7 to 10 days. OR <a href="#">Clindamycin</a> 7 to 10 mg/kg PO TID + <a href="#">Quinine</a> 8 mg/kg TID X 7 to 10 days.
<b>Clinical Hints</b>	- Fever, rigors, myalgia, hepatomegaly and hemolysis - mimics malaria - Multiple relapses are common - Severe disease among asplenic patients - jaundice, renal failure and death - European ( <i>Babesia divergens</i> ) infection is restricted to splenectomized patients is usually fatal
<b>Synonyms</b>	Anthemosoma garnhami, Babesia, Babesia bigemina, Babesia bovis, Babesia crassa, Babesia divergens, Babesia duncani, Babesia EU1, Babesia microti, Babesia motasi, Babesia odocoilei, Babesia sp. FR1, Babesia sp. XXB/HangZhou, Babesia venatorum, Babesiose, Colpodella. ICD9: 088.82 ICD10: B60.0

### Babesiosis in Ukraine

#### Prevalence surveys

Years	Region	Study Group	%	Notes
2016*	Kiev	ticks	1.9	1.9% of <i>Ixodes ricinus</i> ticks in urban parks ( <i>Babesia microti</i> ) <a href="#">4</a>
2018	Multiple locations	ticks	1-3	3% / 1% of <i>Ixodes ricinus</i> / <i>Dermacentor reticulatus</i> ticks <a href="#">5</a>

\* indicates publication year (not necessarily year of survey)

#### Seroprevalence surveys

Years	Study Group	%	Notes
2020*	various	1.7-16.7	1.7% of blood donors and 16.7% of Lyme disease patients <a href="#">6</a>
2021*	various	3.4-6.9	3.9% / 6.9% of individuals were seropositive toward <i>Babesia microti</i> / <i>Babesia divergens</i> <a href="#">7</a>

\* indicates publication year (not necessarily year of survey)

#### References

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- JAMA 2016 Apr 26;315(16):1767-77.
- J Clin Apher 2020 Nov 12;
- Ticks Tick Borne Dis 2017 02 ;8(2):219-225.
- Ticks Tick Borne Dis 2020 Oct 04;12(1):101586.
- Pol Merkur Lekarski 2020 Jun 17;48(285):170-173.
- Pol Merkur Lekarski 2021 Jun 16;49(291):193-197.

## Bacillary angiomatosis

Agent	BACTERIUM. <i>Bartonella henselae</i> or <i>Bartonella quintana</i> . <i>Rickettsia</i> -like bacteria
Reservoir	Human, Tick, Cat, Zoonotic
Vector	Cat flea, Tick (Ixodid)
Vehicle	None
Incubation Period	Unknown
Diagnostic Tests	Histology with special stains. Specialized culture techniques. Serology. Nucleic acid amplification.
Typical Adult Therapy	<a href="#">Doxycycline</a> 100 mg BID X 3 months OR <a href="#">Erythromycin</a> 500 mg QID X 3 months <sup>1</sup>
Typical Pediatric Therapy	<a href="#">Erythromycin</a> 10 mg/kg/day QID X 4 months
Clinical Hints	<ul style="list-style-type: none"> <li>- Virtually all cases occur in the setting of AIDS or other immune deficiency</li> <li>- Hemangiomatous papules and nodules of skin, spleen, liver (peliosis hepatis), bone or other tissues</li> <li>- Rare instances are reported following tick bite in immune-competent individuals</li> </ul>
Synonyms	Bacillary peliosis, Peliosis hepatis. ICD9: 757.32,083.8 ICD10: K76.4,A44.0

### References

1. [Antimicrob Agents Chemother 2004 Jun ;48\(6\):1921-33.](#)

## Bacillus cereus food poisoning

<b>Agent</b>	BACTERIUM. <i>Bacillus cereus</i> (toxin). An aerobic gram-positive bacillus
<b>Reservoir</b>	Soil, Processed & dried foods
<b>Vector</b>	None
<b>Vehicle</b>	Food
<b>Incubation Period</b>	2h - 9h (range 1h - 24h)
<b>Diagnostic Tests</b>	No practical test available. Isolation of organism from suspect food.
<b>Typical Adult Therapy</b>	Supportive <sup>1</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Usually follows ingestion of rice or other vegetables</li><li>- Vomiting within 1 to 6 hours and/or diarrhea within 6 to 24 hours</li><li>- Fecal leukocytes are not seen</li></ul>
<b>Synonyms</b>	Bacillus cytotoxicus. ICD9: 005.89 ICD10: A05.4

### References

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1. Clin Microbiol Rev 1993 Oct ;6(4):324-38.

## Bacterial vaginosis

Agent	BACTERIUM. <i>Gardnerella vaginalis</i> (facultative gram-negative bacillus), <i>Mobiluncus curtisii</i> , <i>Mobiluncus mulieris</i> , <i>Prevotella</i> , et al
Reservoir	Human
Vector	None
Vehicle	Sexual contact, Normal flora in 14% (girls) to 70% (women)
Incubation Period	Unknown
Diagnostic Tests	Identification of "clue cells" or positive KOH test in vaginal discharge. Culture.
Typical Adult Therapy	<a href="#">Metronidazole</a> 500 mg PO BID X 7d OR intravaginal <a href="#">Metronidazole</a> 0.75% gel daily X 5 days OR <a href="#">Clindamycin</a> 300 mg PO BID X 7d OR intravaginal <a href="#">Clindamycin</a> 2% gel daily X 7 days Also treat sexual partner <sup>1</sup>
Typical Pediatric Therapy	<a href="#">Metronidazole</a> 7.5 mg/kg BID X 7d
Clinical Hints	- Thin vaginal discharge - "fishy" odor when mixed with KOH - Mild to moderate pruritis - Urethritis may be present in sexual partner
Synonyms	Gardnerella, Gardnerella vaginalis, Mobiluncus. ICD9: 041.89,616,10,099.8 ICD10: N76.1

### References

1. [MMWR Recomm Rep 2015 Jun 05;64\(RR-03\):1-137.](#)

## Bartonellosis - cat borne

Agent	BACTERIUM. <i>Afipia felis</i> , <i>Bartonella henselae</i> , <i>Bartonella clarridgeiae</i> , <i>Bartonella grahamii</i> , et al. A facultative gram-negative coccobacillus
Reservoir	Cat, Possibly tick, Zoonotic
Vector	Cat flea ( <i>Ctenocephalides</i> )
Vehicle	Cat scratch, Plant matter (thorn, etc)
Incubation Period	3d - 14d
Diagnostic Tests	Visualization of organisms on Warthin Starry stain. Culture. Serology. Nucleic acid amplification.
Typical Adult Therapy	<a href="#">Azithromycin</a> 500 mg day 1, then 250 daily X 4 days Alternatives: <a href="#">Clarithromycin</a> , <a href="#">Ciprofloxacin</a> , <a href="#">Sulfamethoxazole / Trimethoprim</a>  Aspiration of nodes as necessary. <sup>1</sup>
Typical Pediatric Therapy	<a href="#">Azithromycin</a> 10 mg/kg day 1, then 5 mg/kg daily X 4 days  Aspiration of nodes as necessary.
Clinical Hints	- Tender suppurative regional adenopathy following a cat scratch (usually kitten) - Fever present in 25% - Systemic infection (liver, brain, endocardium, bone, etc) occasionally encountered - Most cases resolve within 6 weeks.
Synonyms	<i>Afipia felis</i> , <i>Bartonella clarridgeiae</i> , <i>Bartonella grahamii</i> , <i>Bartonella henselae</i> , <i>Bartonella koehlerae</i> , Cat scratch disease, Debre's syndrome, Foshay-Mollaret cat-scratch fever, Katszenkratz-Krankheit, Petzetakis' syndrome, SENLAT. ICD9: 078.3 ICD10: A28.1

## References

1. [Pediatr Infect Dis J 1998 Jun ;17\(6\):447-52.](#)

## Bartonellosis - other systemic

<b>Agent</b>	BACTERIUM. <i>Bartonella quintana</i> , <i>B. koehlerae</i> , <i>B. elizabethae</i> , <i>B. tamiae</i> , <i>B. washoensis</i> , etc A fastidious gram-negative coccobacillus
<b>Reservoir</b>	Human, Louse, Rat, Cat, Dog, Sheep, Zoonotic
<b>Vector</b>	Louse ( <i>Pediculus</i> ) Flea ( <i>Ctenocephalides, Pulex</i> ), Mite ( <i>Dermanyssus</i> )
<b>Vehicle</b>	Wound or eye contact with secretions/louse feces
<b>Incubation Period</b>	9d - 25d (range 4d - 35d)
<b>Diagnostic Tests</b>	Serology. Culture. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	<a href="#">Doxycycline</a> 100 mg PO BID + <a href="#">Rifampin</a> 300 mg BID X 4 to 6 weeks (neuroretinitis) OR <a href="#">Rifampin</a> 300 mg BID +/- <a href="#">Gentamicin</a> or <a href="#">Trimethoprim-Sulfamethoxazole</a> X 14 days (hepatosplenic) If endocarditis, <a href="#">Doxycycline</a> 100 mg PO BID X 4 weeks + <a href="#">Gentamicin</a> 3 mg/kg daily X 2 weeks <sup>1</sup> <a href="#">2</a> <a href="#">3</a>
<b>Typical Pediatric Therapy</b>	<a href="#">Rifampin</a> 20 mg/kg/d X 14 days +/- <a href="#">Gentamicin</a> or <a href="#">Trimethoprim-Sulfamethoxazole</a> (hepatosplenic)
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Often associated with poor hygiene and crowding</li> <li>- Headache, myalgias, shin pain, macular rash and splenomegaly</li> <li>- Endocarditis and bacteremia in some cases</li> <li>- Relapse is common</li> </ul>
<b>Synonyms</b>	<i>Bartonella alsatica</i> , <i>Bartonella bovis</i> , <i>Bartonella capreoli</i> , <i>Bartonella doshiae</i> , <i>Bartonella elizabethae</i> , <i>Bartonella melophagi</i> , <i>Bartonella quintana</i> , <i>Bartonella rochalimae</i> , <i>Bartonella roussetti</i> , <i>Bartonella schoenbuchensis</i> , <i>Bartonella tamiae</i> , <i>Bartonella taylorii</i> , <i>Bartonella tribocorum</i> , <i>Bartonella vinsonii</i> , <i>Bartonella vinsonii berkhoffii</i> , <i>Bartonella volans</i> , <i>Bartonella washoensis</i> , <i>Candidatus Bartonella mayotimonensis</i> , <i>Candidatus Bartonella merieuxii</i> , <i>Candidatus Bartonella rochalimae</i> , 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

### Bartonellosis - other systemic in Ukraine

#### Prevalence surveys

Years	Region	Study Group	%	Notes
2018	Multiple locations	ticks	5-9	9% / 5% of <i>Ixodes ricinus</i> / <i>Dermacentor reticulatus</i> ticks <sup>4</sup>
2019*	Multiple locations	ticks	2.7-8.1	8.1% / 2.7% of <i>Dermacentor reticulatus</i> ticks from Chernobyl exclusion zone / Kiev ( <i>Bartonella</i> spp) <sup>5</sup>

\* indicates publication year (not necessarily year of survey)

#### References

1. *Ophthalmology* 1998 Mar ;105(3):459-66.
2. *Eur Heart J* 2015 Nov 21;36(44):3075-3128.
3. *Clin Infect Dis* 1999 Apr ;28(4):778-84.
4. *Ticks Tick Borne Dis* 2020 Oct 04;12(1):101586.
5. *Vector Borne Zoonotic Dis* 2019 May 21;



## Blastocystis hominis infection

<b>Agent</b>	PARASITE - Protozoa. Chromista, Bigyra, Blastocystea: <i>Blastocystis hominis</i> . (taxonomic status remains uncertain)
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Fecal-oral, Water
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Stool microscopy. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	No treatment necessary for asymptomatic patients  Nitazoxanide 500 mg BID X 3 d. OR Metronidazole 750 mg TID X 10d. OR Tinidazole 2 G Once OR Sulfamethoxazole / Trimethoprim <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	No treatment necessary for asymptomatic patients  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. OR Tinidazole (age >3) 50 mg/kg Once OR Sulfamethoxazole / Trimethoprim
<b>Clinical Hints</b>	The precise role of this organism in disease is controversial  - Diarrhea and flatulence, usually without fever - The illness is similar to giardiasis - Increased risk among immune-suppressed patients
<b>Synonyms</b>	Apoi, Blastocystiose, Blastocystis hominis, Zierdt-Garavelli disease. ICD9: 007.8 ICD10: A07.8

### References

1. J Travel Med 2003 Mar-Apr;10(2):128-30.
2. Am J Gastroenterol 1999 Nov ;94(11):3245-7.
3. Clin Gastroenterol Hepatol 2005 Oct ;3(10):987-91.

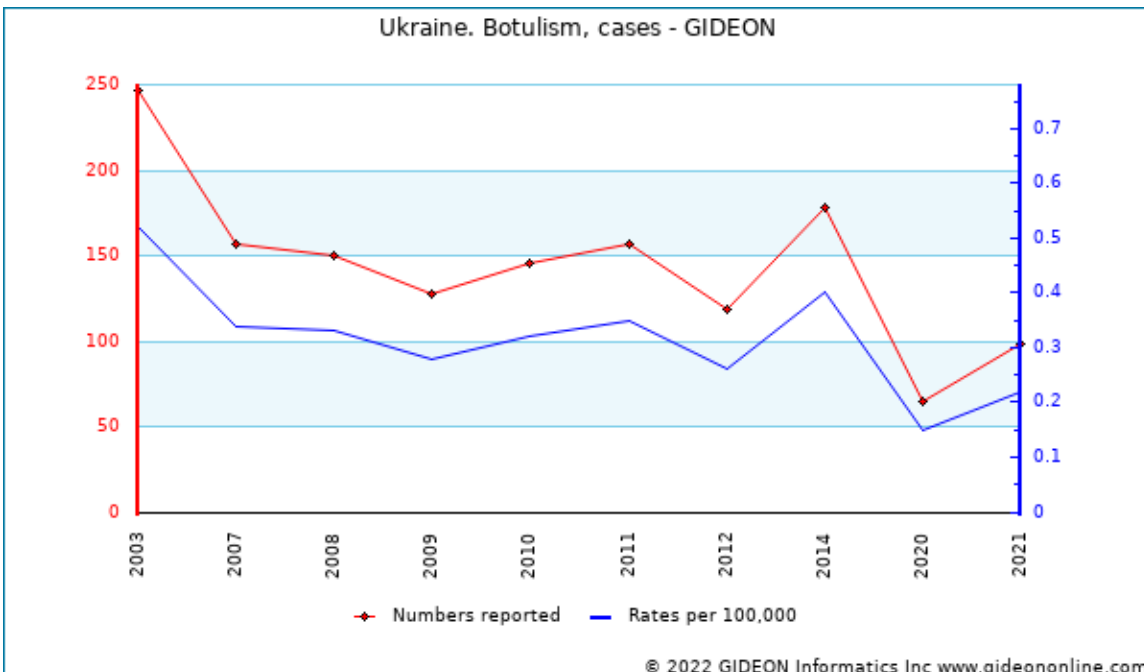
## Borna virus encephalitis

<b>Agent</b>	VIRUS - RNA Mononegavirales Bornavirus
<b>Reservoir</b>	Squirrel, Horse, Sheep, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Unknown
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Metagenomic analysis of brain tissue and cerebrospinal fluid Culture on specialized cell lines Serology
<b>Typical Adult Therapy</b>	Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- May follow animal (horse, squirrel) contact</li> <li>- Most infections are subclinical</li> <li>- Manifested in some cases by mood disorders or possibly schizophrenia</li> <li>- Overt and fatal encephalitis has been reported, with fever, gait disturbance and ocular palsy</li> </ul>
<b>Synonyms</b>	Borna disease, Heated head disease, Sad horse disease, Staggering disease of cats, Variegated squirrel 1 bornavirus, VSBV-1. ICD9: 323.9 ICD10: A83.9

## Botulism

<b>Agent</b>	BACTERIUM. <i>Clostridium botulinum</i> . An anaerobic gram-positive bacillus
<b>Reservoir</b>	Soil, Animal, Fish
<b>Vector</b>	None
<b>Vehicle</b>	Food, Soil (contamination of wound or injected drug)
<b>Incubation Period</b>	1d - 2d
<b>Diagnostic Tests</b>	Electrophysiologic (EMG) pattern. Isolation of organism from food (occ. from infant stomach). Mouse toxin assay
<b>Typical Adult Therapy</b>	Heptavalent (types A-G) antitoxin (following test dose) 1 vial (10-22 ml) in 100 ml saline over 30 min For wound botulism debridement AND <b>Penicillin G</b> 3 million units X6/day Respiratory support
<b>Typical Pediatric Therapy</b>	Age < 1 year: Botulism immune globulin 50 mg/kg 1-17 years: Heptavalent antitoxin, 20%-100% of adult dose: For weight >= 30 kg: % adult dose = weight (kg) + 30
<b>Vaccine</b>	<b>Botulism antitoxin</b>
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Clinical manifestations similar to those of atropine poisoning</li> <li>- Dysarthria, diplopia, dilated pupils, dry mouth, constipation, flaccid paralysis</li> <li>- Onset approximately 36 hrs after ingestion of poorly-preserved food</li> <li>- May follow contaminated injection (ie, illicit drug) or other wound</li> <li>- Infant botulism associated with infant formula containing honey contaminated by bacterial spores</li> </ul>
<b>Synonyms</b>	Botulisme, Botulismo, Botulismus, Kerner's disease. ICD9: 005.1 ICD10: A05.1

### Botulism in Ukraine



Graph: Ukraine. Botulism, cases

Notes:

Individual years:

2017 - 119 cases (12 fatal) were reported to November. <sup>1 2 3</sup> 11 outbreaks (14 cases) were reported in the Zaporozhye region. <sup>4</sup>

2018 - 93 cases (8 fatal) were reported to September. <sup>5</sup>

2020 - Included 4 fatal cases

2021 - 88 outbreaks (98 cases, 10 fatal) were reported - with highest incidence in Volyn Oblast. <sup>6 7 8</sup>

- 1955 to 2018 - 8,614 cases of food-borne botulism (659 fatal) were reported in Ukraine. Botulism toxin type B was responsible for 59.64% of cases, type E 25.47% and type A 7.97%. <sup>9</sup>
- 2021 - Most cases of botulism are related to consumption of dried/salted freshwater fish purchased in markets, or canned home-cooked meat <sup>10</sup>
- 2021 - Ten cases of botulism (3 fatal) were reported in Chernihiv region to July 20. <sup>11</sup>

**Notable outbreaks**

Years	Region	Setting	Cases	Deaths	Source	Population	Notes
2003	Dnepropetrovsk		6				Outbreak associated with home-canned food <sup>12</sup>
2004	Kharkov		6		seafood - fish		<sup>13</sup>
2005	Zaporozhye		3		seafood - fish	family members	Outbreak ascribed to contaminated commercially-prepared dried fish. <sup>14</sup>
2006	Donetsk		3		seafood - fish		<sup>15</sup>
2006	Zaporozhye				seafood - fish		Outbreak associated with dried fish. <sup>16</sup>
2015	Zaporozhye		5	2	seafood - fish		Outbreak associated with dried fish. <sup>17</sup>
2020	Odessa		2		seafood - fish		Outbreak associated with smoked fish <sup>18</sup>
2021	Sumy	dinner	4	0	mushrooms		Outbreak associated with canned mushrooms. <sup>19</sup>

**References**

1. ProMED <promedmail.org> archive: 20170617.5112622
2. ProMED <promedmail.org> archive: 20170706.5154755
3. ProMED <promedmail.org> archive: 20171121.5455767
4. ProMED <promedmail.org> archive: 20180522.5812349
5. ProMED <promedmail.org> archive: 20180914.6023095
6. ProMED <promedmail.org> archive: 20210727.8549096
7. ProMED <promedmail.org> archive: 20211207.8700129
8. ProMED <promedmail.org> archive: 20220120.8700992
9. Foodborne Pathog Dis 2020 Dec 17;
10. ProMED <promedmail.org> archive: 20220120.8700992
11. ProMED <promedmail.org> archive: 20210727.8549096
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13. ProMED <promedmail.org> archive: 20041030.2930
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17. ProMED <promedmail.org> archive: 20150607.341718
18. ProMED <promedmail.org> archive: 20200527.7382682
19. ProMED <promedmail.org> archive: 20211207.8700129

**Brain abscess**

<b>Agent</b>	BACTERIUM OR FUNGUS. Mixed oral anaerobes / streptococci, <i>Staphylococcus aureus</i> (from endocarditis), etc.
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	None
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Imaging techniques (CT, scan, etc).
<b>Typical Adult Therapy</b>	Antibiotic(s) appropriate to likely pathogens + drainage Typical empiric therapy: Intravenous <b>Ceftriaxone</b> 2 gm Q12h + <b>Metronidazole</b> 500 mg Q8h <sup>1</sup>
<b>Typical Pediatric Therapy</b>	Typical empiric therapy: Intravenous <b>Ceftriaxone</b> 50 mg/kg Q12 h + <b>Metronidazole</b> 7.5 to 15 mg/kg IV, Q8h
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Headache, vomiting and focal neurological signs</li><li>- Often associated with chronic sinusitis or otitis media, pleural or heart valve infection</li><li>- Patients are often afebrile</li></ul>
<b>Synonyms</b>	Ascesso cerebrale, Cerebral abscess. ICD9: 324.0 ICD10: G06.0

**References**

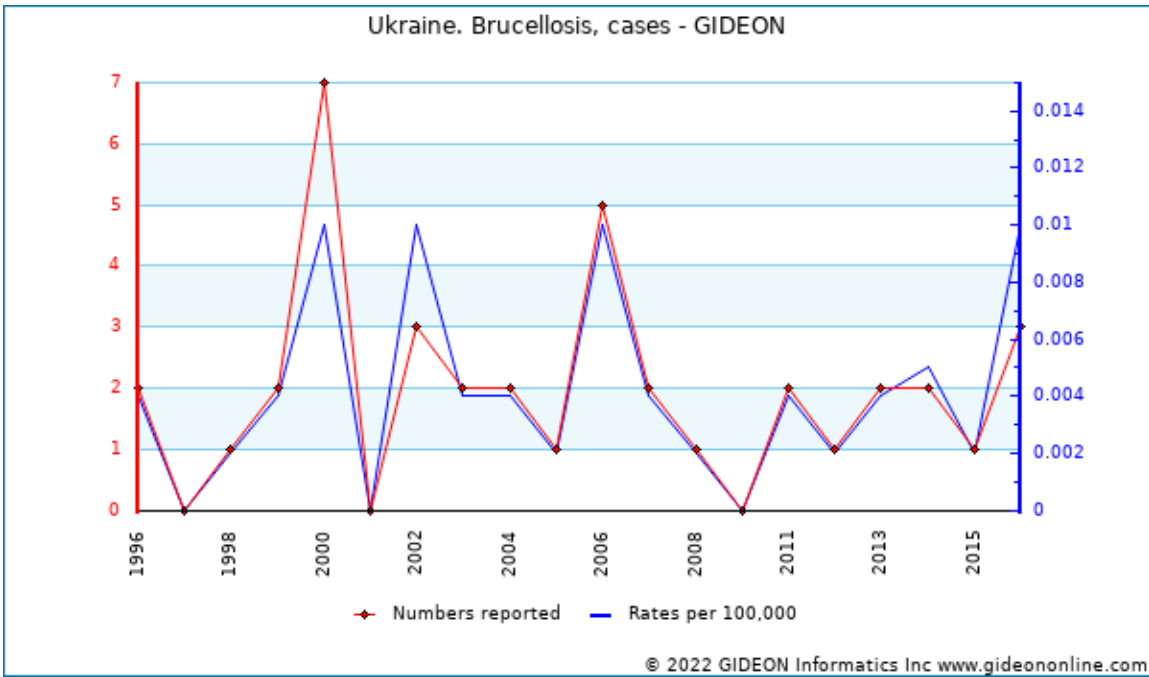
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1. [Handb Clin Neurol 2017 ;140:349-364.](#)

## Brucellosis

<b>Agent</b>	BACTERIUM. <i>Brucella abortus</i> , <i>Brucella melitensis</i> , <i>Brucella suis</i> , <i>Brucella canis</i> An aerobic gram-negative bacillus
<b>Reservoir</b>	Pig, Cattle, Sheep, Goat, Dog, Coyote, Caribou, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Food, Air, Dairy products, Animal excretions, Breastfeeding
<b>Incubation Period</b>	10d - 14d (range 5d - 60d)
<b>Diagnostic Tests</b>	Culture of blood or bone marrow. Serology. Note: Alert laboratory to possibility of Brucella.
<b>Typical Adult Therapy</b>	<a href="#">Doxycycline</a> 100 mg BID X 6 weeks PLUS <a href="#">Rifampin</a> 600 mg once daily X 6 weeks. OR <a href="#">Gentamicin</a> 5 mg/kg daily X 7 days OR <a href="#">Streptomycin</a> 1 g IM daily X 14 days <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Rifampin</a> 20 mg/kg/day (maximum 600 mg) PLUS if age >8 years: <a href="#">Doxycycline</a> 2 mg/kg BID PO X 6w if age <8 years <a href="#">Sulfamethoxazole</a> / <a href="#">Trimethoprim</a> 4/20 mg/kg BID X 4 to 6w  Consider adding aminoglycoside if severe
<b>Clinical Hints</b>	- Prolonged fever, hepatosplenomegaly, lymphadenopathy - Arthritis, osteomyelitis or chronic multisystem infection - Follows ingestion of unpasteurized dairy products, contact with farm animals or meat processing
<b>Synonyms</b>	Bang's disease, Bangsche Krankheit, Brucella, Brucellemia, Brucelliasis, Brucellose, Brucellosen, Brucellosi, Brucelose, Brucelosis, Cyprus fever, Febris melitensis, Febris sudoralis, Febris undulans, Fievre caprine, Gibraltar fever, Goat fever, Malta fever, Maltafieber, Melitococcosis, Neapolitan fever, Rock fever, Typhomalarial fever, Undulant fever. ICD9: 023 ICD10: A23

**Brucellosis in Ukraine**



Graph: Ukraine. Brucellosis, cases

**References**

1. Ann Intern Med 1992 Jul 01;117(1):25-30.
2. Clin Infect Dis 2006 Apr 15;42(8):1075-80.
3. Pediatr Infect Dis J 1989 Feb ;8(2):75-8.

**Bunyaviridae infections - misc.**

<b>Agent</b>	VIRUS - RNA. Bunyaviridae, Orthobunyavirus. Over 30 strains have been associated with human disease (see Synonyms)
<b>Reservoir</b>	Rat, Bird, Marsupial, Chipmunk, Cattle, Sheep, Horse, Bat, Zoonotic
<b>Vector</b>	Mosquito (exceptions: Shuni is transmitted by culicoid flies; Bhanja, Tamdy, Wanowrie and Zirqa by ticks)
<b>Vehicle</b>	None
<b>Incubation Period</b>	3d - 12d
<b>Diagnostic Tests</b>	Biosafety level 2 or 3.  Serology and virus isolation. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Abrupt onset of fever, chills, headache; photophobia, rash arthralgia or myalgia - Vomiting, diarrhea or cough may be present - Meningitis or myocarditis may occur with Bwamba virus - Illness resolves within two-to-seven days
<b>Synonyms</b>	Abbey Lake, Avalon, Bangui, Batai, Bhanja, Bunyamwera, Bwamba, Cache Valley, Calovo, Cat Que, Catu, Chittoor virus, Cristoli, Ebinur Lake, Fort Sherman, Garissa, Germiston, Guama, Hartland virus, Ilesha, Ingwavuma, Issyk-Kul, Kairi, Lumbo, Maguari, Ngari, Northway, Ntwetwe, Nyando, Pongola, Shokwe, Shuni, Tacaiuma, Tamdy, Tataguine, Tensaw, Umbre, Wanowrie, Wyeomyia, Yezo virus, Zirqa. ICD9: 066.3 ICD10: A93.8

Although Bunyaviridae infections - misc. is not endemic to Ukraine, imported, expatriate or other presentations of the disease have been associated with this country.

**Bunyaviridae infections - misc. in Ukraine**

- Tamdy virus has been found in Central Asia, Kazakhstan and Transcaucasia. The local vector is *Hyalomma asiaticum*. <sup>1</sup>

The ecosystem of southern Ukraine could possibly support the presence of Bhanja virus. <sup>2</sup>

**References**

1. [Vopr Virusol 1984 Jul-Aug;29\(4\):487-90.](#)

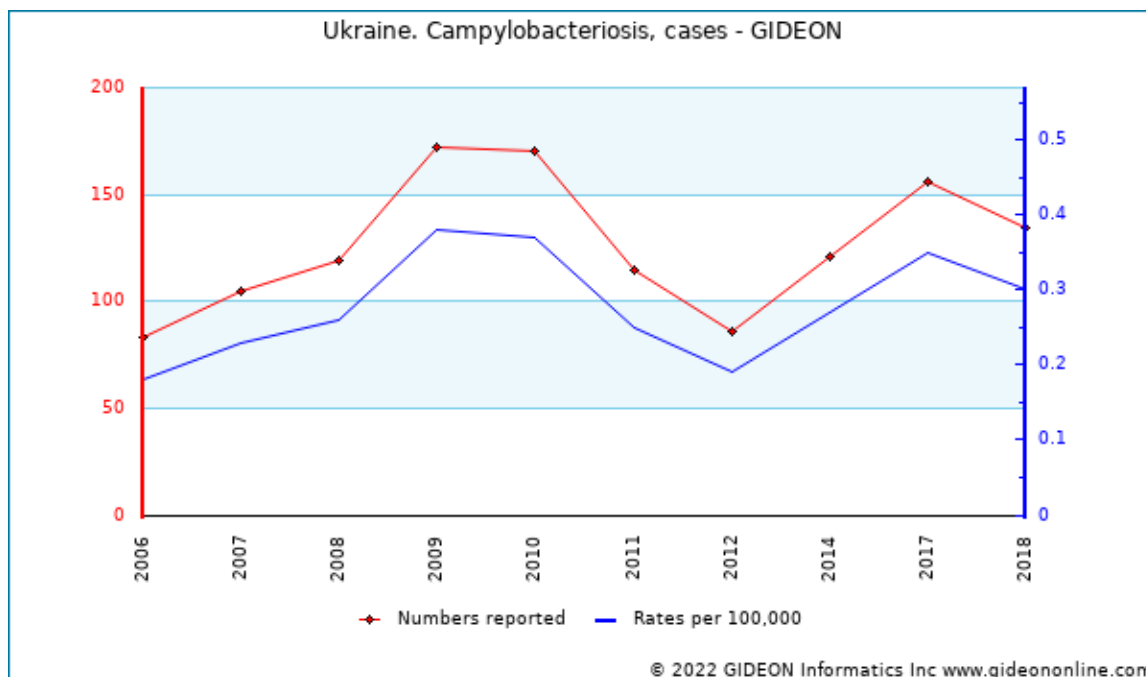
2. [Interdiscip Perspect Infect Dis 2009 ;2009:372691.](#)



## Campylobacteriosis

<b>Agent</b>	BACTERIUM. <i>Campylobacter jejuni</i> subsp <i>jejuni</i> , et al A microaerophilic gram-negative bacillus
<b>Reservoir</b>	Human, Mammal, Bird, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Water, Food, Sexual contact
<b>Incubation Period</b>	2d - 4d (range 1d - 10d)
<b>Diagnostic Tests</b>	Stool (rarely blood, CSF) culture. Nucleic acid amplification. Alert laboratory when these organisms are suspected.
<b>Typical Adult Therapy</b>	Stool precautions. <a href="#">Azithromycin</a> 500 mg QD X 3 days Alternatives <a href="#">Erythromycin</a> , Fluoroquinolone ( <a href="#">Ciprofloxacin</a> , <a href="#">Levofloxacin</a> , <a href="#">Trovafoxacin</a> , <a href="#">Pefloxacin</a> , <a href="#">Sparfloxacin</a> or <a href="#">Moxifloxacin</a> ), <a href="#">Gentamicin</a> <sup>1</sup>
<b>Typical Pediatric Therapy</b>	Stool precautions. <a href="#">Azithromycin</a> 10 mg/kg QD X 3 days Alternatives - <a href="#">Erythromycin</a> , <a href="#">Gentamicin</a>
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Febrile diarrhea or dysentery</li> <li>- Vomiting or bloody stool often noted</li> <li>- Severe abdominal pain may mimic appendicitis</li> <li>- Disease is most common among children and lasts for one-to-four days</li> </ul>
<b>Synonyms</b>	Campylobacter. ICD9: 008.43 ICD10: A04.5

### Campylobacteriosis in Ukraine



Graph: Ukraine. Campylobacteriosis, cases

**Prevalence surveys**

Years	Region	Study Group	%	Notes
1984 - 1991		patients	3	3% of patients with "intestinal dysfunction" <sup>2</sup>
1993*		patients	11.2	11.2% of acute enteric infections <sup>3</sup>
1995*	Kiev	patients	6.4	6.4% of patients hospitalized with acute enteric infections <sup>4</sup>
1996*		patients	1.9	1.9% enteric infections <sup>5</sup>

\* indicates publication year (not necessarily year of survey)

**References**

1. [Expert Rev Anti Infect Ther 2016 ;14\(2\):193-206.](#)
2. [Lik Sprava 1993 Jul ;\(8\):104-5.](#)
3. [Lik Sprava 1993 May-Jun;\(5-6\):92-4.](#)
4. [Zh Mikrobiol Epidemiol Immunobiol 1995 Sep-Oct;\(5\):60-3.](#)
5. [Zh Mikrobiol Epidemiol Immunobiol 1996 Sep-Oct;\(5\):29-32.](#)

## Candidiasis

<b>Agent</b>	FUNGUS - Yeast. Ascomycota, Hemiascomycetes, Saccharomycetales. <i>Candida albicans</i> , and other species.
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Contact, Catheter
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Culture. Serology and assays for cell-specific antigens are performed in some centers,
<b>Typical Adult Therapy</b>	Topical, oral, systemic antifungal agent depending on clinical presentation and species (in Drugs module, scroll through upper left box) <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Dermal erythema with satellite pustules</li> <li>- "Cheesy" mucosal discharge</li> <li>- Candidemia in the setting of intravenous catheter or endocarditis</li> <li>- Severe, widespread or intractable disease may suggest underlying diabetes, AIDS or other form of immune suppression</li> </ul>
<b>Synonyms</b>	Candida, Candida-Mykosen, Candidiase, Candidiasi, Candidose, Monilia, Moniliasis, Thrush. ICD9: 112 ICD10: B37

### Candidiasis in Ukraine

2012 - The incidence of recurrent vaginal candidiasis in Ukraine was estimated at 893,579 cases per year; and the incidence of esophageal candidiasis among HIV-positive patients was estimated at 13,727 cases per year.<sup>3</sup>

#### Prevalence surveys

Years	Region	Study Group	%	Notes
2021*	Kyiv	women	17.7	Survey of vulvovaginal infection among women with a past history of sexually-transmitted infection <sup>4</sup>
2013 - 2018	Ternopil	patients - STD	1.6	Survey of adults with gonorrhea <sup>5</sup>
1999*	Kiev	patients - HIV / AIDS	74.7	74.7% of patients hospitalized with AIDS <sup>6</sup>

\* indicates publication year (not necessarily year of survey)

#### References

1. J Antimicrob Chemother 2018 Jan 01;73(suppl\_1):i33-i43.
2. J Antimicrob Chemother 2018 01 01;73(suppl\_1):i14-i25.
3. Mycoses 2015 Oct ;58 Suppl 5:94-100.
4. Wiad Lek 2021 ;74(4):896-901.
5. J Med Life 2020 Jan-Mar;13(1):75-81.
6. Zh Mikrobiol Epidemiol Immunobiol 1999 Jan-Feb;(1):29-31.

**Capillariasis - extraintestinal**

<b>Agent</b>	PARASITE - Nematoda. <i>Capillaria hepatica</i> ( <i>Calodium hepaticum</i> ), <i>Capillaria aerophila</i> , <i>Anatrichosoma cutaneum</i>
<b>Reservoir</b>	Rat, Dog, Cat, Monkey, Soil, Earthworm, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Soil Earthworm
<b>Incubation Period</b>	21d -28d
<b>Diagnostic Tests</b>	Visualization of ova or adults in liver, lung or dermal tissue.  Capillaria hepatica adult: female - 53 to 78 mm; male - 24 to 37 mm
<b>Typical Adult Therapy</b>	Consider Thiabendazole 25 mg/kg/day X 30d <sup>1</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Three infecting species, associated with: - Bronchitis or pneumonia - Acral pruritic rash - Tender hepatomegaly, abdominal distention, eosinophilia and fever
<b>Synonyms</b>	Anatrichosoma cutaneum, Calodiasis, Calodium hepaticum, Capillaria aerophila, Capillaria hepatica, Capillariasis - pulmonary, Capillary liver worm, Eucoleus aerophilus, Hepatic capillariasis, Thominx aerophilus. ICD9: 128.8 ICD10: B83.8

**Capillariasis - extraintestinal in Ukraine**

2008 (publication year) - Pulmonary capillariasis due to *Capillaria aerophila* has been reported. <sup>2</sup>

**References**

1. Am J Trop Med Hyg 1993 May ;48(5):610-25.
2. Am J Trop Med Hyg 2008 Jan ;78(1):14-6.

## Chancroid

<b>Agent</b>	BACTERIUM. <i>Haemophilus ducreyi</i> . A facultative gram-negative bacillus
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Sexual contact
<b>Incubation Period</b>	3d - 10d (2d - 21d)
<b>Diagnostic Tests</b>	Culture (inform laboratory when this diagnosis is suspected). Fluorescent staining under development
<b>Typical Adult Therapy</b>	<a href="#">Azithromycin</a> 1.0 g PO X 1 dose. OR <a href="#">Ceftriaxone</a> 250 mg IM X 1 dose. OR <a href="#">Ciprofloxacin</a> 500 mg PO BID X 3 days OR <a href="#">Erythromycin</a> 500 mg PO TID X 7d. <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Azithromycin</a> 20 mg/kg PO X 1 dose OR <a href="#">Erythromycin</a> 10 mg/kg PO TID X 7d. OR <a href="#">Ceftriaxone</a> 10 mg/kg IM X 1
<b>Clinical Hints</b>	- Soft, painful and tender chancre on erythematous base - Regional lymphadenopathy - generally unilateral and painful - Onset three-to-ten days following sexual exposure
<b>Synonyms</b>	Blot sjanker, Chancre mou, Chancro blando, Haemophilus ducreyi, Nkumunye, Soft chancre, Ulcera mole, Ulcus molle, Weeke sjanker, Weicher Schanker. ICD9: 099.0 ICD10: A57

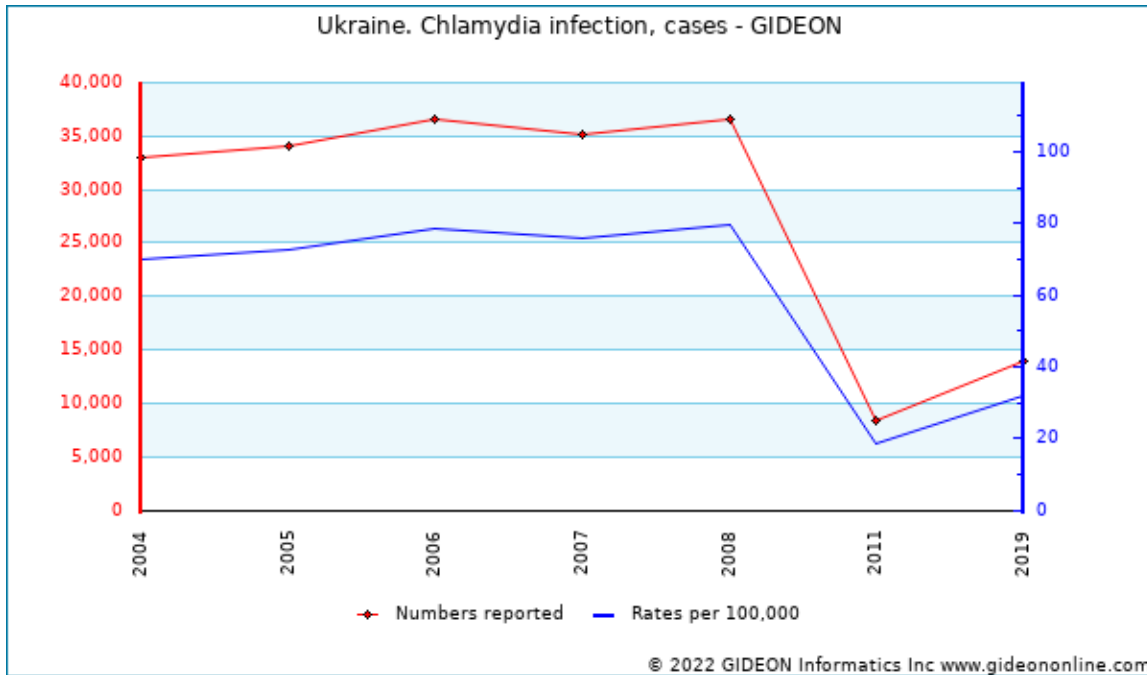
### References

1. Sex Transm Dis 1994 Jul-Aug;21(4):231-4.
2. MMWR Recomm Rep 2015 Jun 05;64(RR-03):1-137.
3. Antimicrob Agents Chemother 1987 Jan ;31(1):67-9.

## Chlamydia infections, misc.

<b>Agent</b>	BACTERIUM. Chlamydiaceae, <a href="#">Chlamydiae</a> , <i>Chlamydia trachomatis</i> ; <i>Simkania negevensis</i> ; <i>Waddlia chondrophila</i>
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Sexual contact
<b>Incubation Period</b>	5d - 10d
<b>Diagnostic Tests</b>	Microscopy and immunomicroscopy of secretions. Serology. Tissue culture. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	<a href="#">Azithromycin</a> 1g as single dose OR <a href="#">Doxycycline</a> 100 mg BID X 7d. OR <a href="#">Levofloxacin</a> 500 mg daily X 7 days OR <a href="#">Ofloxacin</a> 300 mg BID X 7 days <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	Weight <45 kg: <a href="#">Erythromycin</a> 12.5 mg/kg QID X 14d Weight ≥45 kg, but age <8 years: <a href="#">Azithromycin</a> 1 g as single dose Age ≥ 8 years: <a href="#">Azithromycin</a> 1 g as single dose OR <a href="#">Doxycycline</a> 100 mg BID X 7 d
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Thin, scant penile discharge</li> <li>- Cervicitis, with overt pelvic inflammatory disease in some cases</li> <li>- Conjunctivitis or neonatal pneumonia</li> <li>- Concurrent gonorrhea may be present</li> </ul>
<b>Synonyms</b>	Bedsonia, Chlamydia felis, Chlamydia suis, Chlamydia trachomatis, Chlamydien-Urethritis, Chlamydien-Zervizitis, Chlamydophila, Inclusion blenorrea, Non-gonococccal urethritis, Nonspecific urethritis, Parachlamydia, Parachlamydia acanthamoebae, Prachlamydia, Protochlamydia, Protochlamydia naegleriophila, Rhabdochlamydia, Simkania negevensis, Waddlia chondrophila. ICD9: 099.41,099.5 ICD10: A56,A55

## Chlamydia infections, misc. in Ukraine



Graph: Ukraine. Chlamydia infection, cases

Notes:

1. Disease rates per 100,000 were 16.1 in 1995; 54.2 in 2000 <sup>3</sup>

### Prevalence surveys

Years	Region	Study Group	%	Notes
2021*	Kyiv	women	11.4	Survey of vulvovaginal infection among women with a past history of sexually-transmitted infection <sup>4</sup>
2019*	Ternopil	various	5.3	Survey of "consecutive mostly symptomatic females and males" <sup>5</sup>
2014 - 2016	Kharkov	general population	3.9-6.1	3.9% of women and 6.1% of men, ages 12 to 76 years <sup>6</sup>
1999 - 2005		pregnant women	1	1% of pregnant HIV-infected women <sup>7</sup>
2013 - 2018	Ternopil	patients - STD	2.2	Survey of adults with gonorrhoea <sup>8</sup>

\* indicates publication year (not necessarily year of survey)

### References

1. MMWR Recomm Rep 2015 Jun 05;64(RR-03):1-137.
2. 2016 ;
3. Sex Transm Infect 2002 Jun ;78(3):219-21.
4. Wiad Lek 2021 ;74(4):896-901.
5. APMIS 2019 Jun 21;
6. Int J STD AIDS 2017 12 ;28(14):1405-1409.
7. Eur J Epidemiol 2007 ;22(12):925-36.
8. J Med Life 2020 Jan-Mar;13(1):75-81.

## Chlamydia pneumoniae infection

<b>Agent</b>	BACTERIUM. Chlamydiaceae, <a href="#">Chlamydiae</a> , <i>Chlamydia (Chlamydophila) pneumoniae</i>
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Droplet, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	7d - 28d
<b>Diagnostic Tests</b>	Direct fluorescence of sputum. Serology and culture in specialized laboratories. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Respiratory isolation. <a href="#">Azithromycin</a> 500 mg day 1, then 0.25 g daily X 4 days OR <a href="#">Levofloxacin</a> 750 mg po BID X 7d. OR Alternatives: <a href="#">Doxycycline</a> 100 mg BID X 7d. <a href="#">Erythromycin</a> 500 mg QID X 10d. <a href="#">Clarithromycin</a> 0.5 g BID X 7d <sup>1</sup>
<b>Typical Pediatric Therapy</b>	Respiratory isolation <a href="#">Azithromycin</a> 10 mg/kg PO day 1; 5 mg/kg PO days 2 to 5 OR <a href="#">Doxycycline</a> 1-2 mg/kg BID X 10d OR <a href="#">Clarithromycin</a> 5 mg/kg BID X 10d
<b>Clinical Hints</b>	- Atypical pneumonia, often associated with pharyngitis and myalgia - Consider this diagnosis when <i>Mycoplasma</i> , <i>Legionella</i> and influenza are discounted
<b>Synonyms</b>	Chlamydia caviae, Chlamydia pneumoniae, Chlamydia TWAR, Chlamydophila pneumoniae, TWAR. ICD9: 078.88 ICD10: J16.0

### References

1. [Expert Rev Anti Infect Ther 2003 Oct ;1\(3\):493-503.](#)



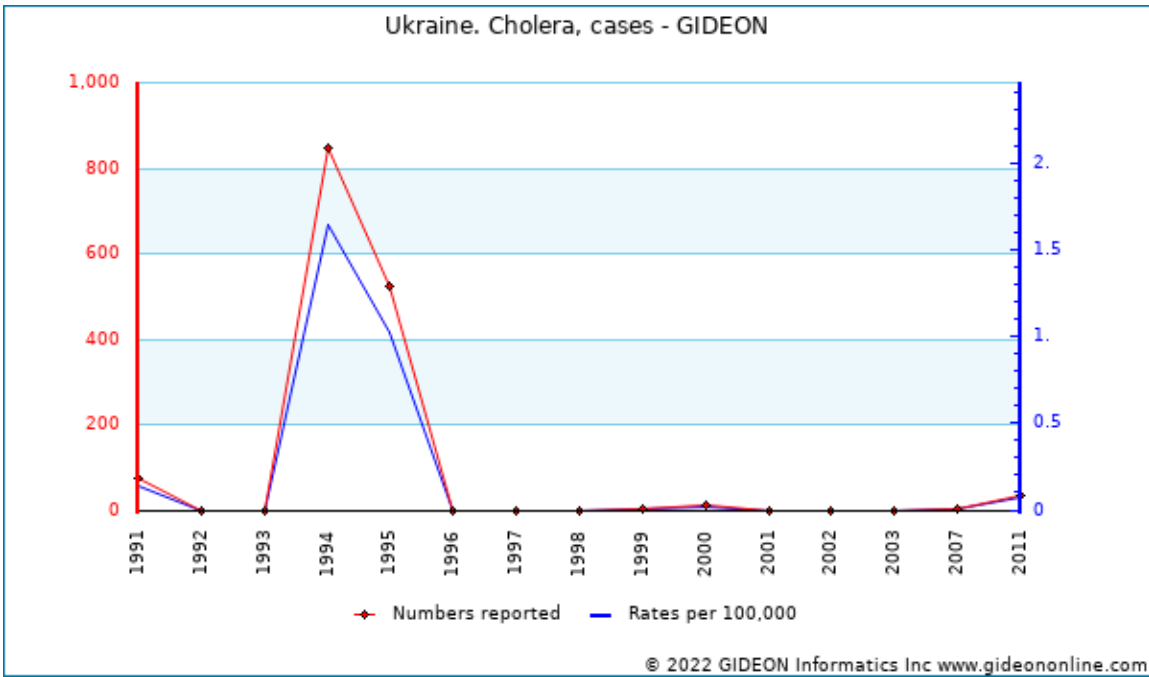
## Cholecystitis and cholangitis

<b>Agent</b>	BACTERIUM. <i>Escherichia coli</i> , <i>Klebsiella pneumoniae</i> , enterococci, et al.
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Endogenous
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Roentgenograms/imaging (cholecystogram, ultrasound, CT, etc).
<b>Typical Adult Therapy</b>	Antibiotics and surgical intervention as required
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Fever, chills and right upper quadrant abdominal pain;</li><li>- Often "female, fat and forty"</li><li>- May be associated with gallstones or pancreatitis, or present as "fever of unknown origin"</li></ul>
<b>Synonyms</b>	Acute cholecystitis, Angiocholite, Ascending cholangitis, Cholangitis, Cholecystite, Cholecystitis, Cholezystitis, Colangite, Colangitis, Colecistite, Gall bladder. ICD9: 575.0,576.1 ICD10: K81,K83.0

## Cholera

<b>Agent</b>	BACTERIUM. <i>Vibrio cholerae</i> A facultative gram-negative bacillus
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Water, Fecal-oral, Seafood (oyster, ceviche), Vegetables, Fly
<b>Incubation Period</b>	1d - 5d (range 9h - 6d)
<b>Diagnostic Tests</b>	Stool culture. Advise laboratory when this organism is suspected.
<b>Typical Adult Therapy</b>	Stool precautions.  Doxycycline 300 mg single dose OR Tetracycline 500 mg Q6h X 3d OR Azithromycin 1000 mg single dose OR Erythromycin 500 mg Q6h X 3d OR Ciprofloxacin 1000 mg single dose  Fluids (g/l): NaCl 3.5, NaHCO <sub>3</sub> 2.5, KCl 1.5, glucose 20 IV Ringer's lactate if severe <sup>1</sup>
<b>Typical Pediatric Therapy</b>	Stool precautions.  Doxycycline 4-6 mg/kg single dose OR Tetracycline 10-12 mg/kg Q6h X 3d OR Azithromycin 20 mg/kg single dose OR Erythromycin 10 mg/kg Q6h X 3d  Fluids as for adult
<b>Vaccine</b>	Cholera - injectable vaccine Cholera - oral vaccine
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Massive, painless diarrhea and dehydration</li> <li>- Occasionally vomiting</li> <li>- Apathy or altered consciousness are common</li> <li>- Rapid progression to acidosis, electrolyte imbalance and shock</li> <li>- Fever is uncommon</li> </ul>
<b>Synonyms</b>	Colera, Kolera. ICD9: 001 ICD10: A00

## Cholera in Ukraine



Graph: Ukraine. Cholera, cases

Notes:

1. An outbreak of cholera was reported during the Second World War. <sup>2 3</sup>

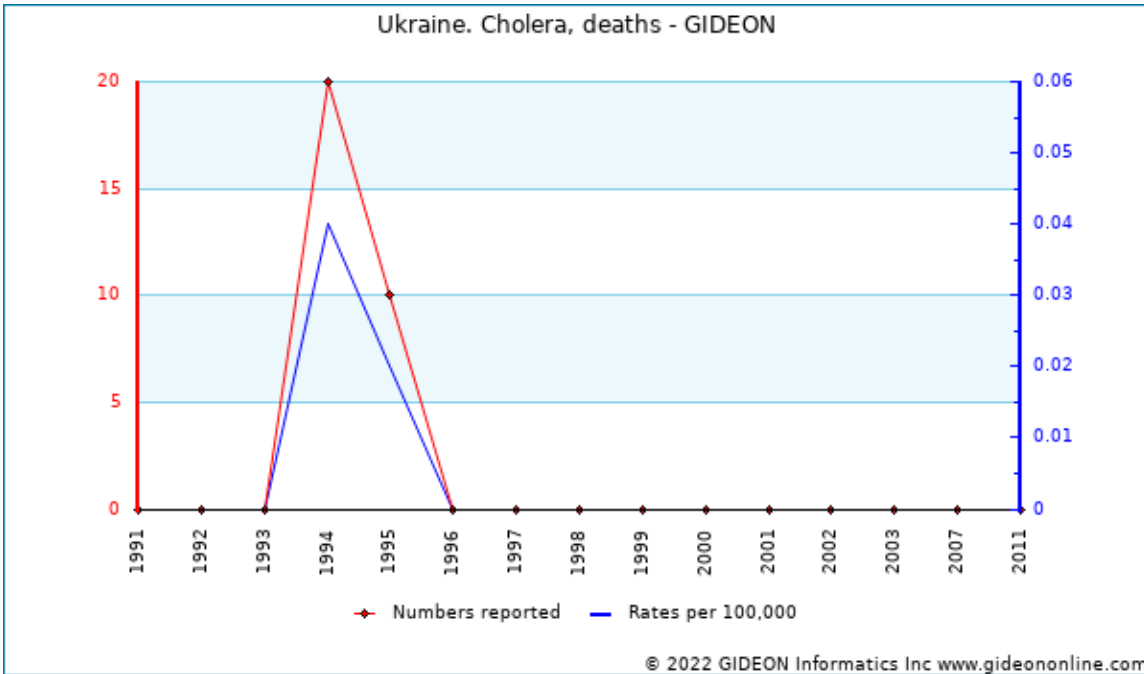
2. 1,337 cases were reported during 1965 to 1989 <sup>4</sup>

Individual years:

1999 - One case in Mariupol and one in Dnepropetrovsk

2007 - Imported case <sup>5</sup>

- As of 1996, there was activity in Cherson, Crimea, Mariupole, Nicolaiev and Odesskaya.
- These areas were removed from the W.H.O. "infected areas" list as of November 1997.



Graph: Ukraine. Cholera, deaths

- 2010 - *Vibrio cholerae* was identified in the Dnieper River. <sup>6</sup>

**Notable outbreaks**

Years	Region	Cases	Deaths	Source	Notes
1847	Kiev				<sup>7</sup>
1920 - 1922	Kherson				<sup>8</sup>
1994 - 1995	Multiple locations	1,370	32		Outbreak related to pollution of the South Bug River by sewage. <sup>9</sup> <sup>10 11 12</sup>
2011	Zaporozhye	4			<sup>13</sup>
2011	Donetsk	33		water	Outbreak ascribed to drinking water from the Sea of Azov <sup>14 15 16</sup>
2020	Moroto	102	3		<sup>17</sup>

**References**

1. Cochrane Database Syst Rev 2014 Jun 19;(6):CD008625.
2. Z Tropenmed Parasitol 1966 Dec ;17(4):475-8.
3. Z Tropenmed Parasitol 1966 Apr ;17(1):3-5.
4. Bull World Health Organ 1993 ;71(2):189-96.
5. Wkly Epidemiol Rec 2008 Aug 01;83(31):269-83.
6. ProMED <promedmail.org> archive: 20100817.2851
7. Agapit 1996 ;(4):70-1.
8. Zh Mikrobiol Epidemiol Immunobiol 1974 Mar ;51(3):151-4.
9. Epidemiol Infect 1998 Aug ;121(1):15-29.
10. Epidemiol Infect 1998 Aug ;121(1):1-13.
11. Antibiot Khimioter 1996 Jun ;41(6):25-8.
12. Zh Mikrobiol Epidemiol Immunobiol 2017 01 ;(1):49-55.
13. ProMED <promedmail.org> archive: 20110603.1697
14. Infect Genet Evol 2016 10 ;44:471-478.
15. ProMED <promedmail.org> archive: 20110603.1697
16. ProMED <promedmail.org> archive: 20110711.2094
17. ProMED <promedmail.org> archive: 20200524.7370024

## Chromomycosis

<b>Agent</b>	FUNGUS. Ascomycota, Euecomycetes, Chaetothyriales. Dematiaceous molds: <i>Phialophora</i> , <i>Cladophialophora</i> , <i>Fonsecaea</i> , <i>Rhinochadiella</i>
<b>Reservoir</b>	Wood, Soil, Vegetation
<b>Vector</b>	None
<b>Vehicle</b>	Minor trauma
<b>Incubation Period</b>	14d - 90d
<b>Diagnostic Tests</b>	Biopsy and fungal culture.
<b>Typical Adult Therapy</b>	<a href="#">Itraconazole</a> 100-200 mg PO BID X (up to) 36 m. OR <a href="#">Terbinafine</a> 500 mg QD X (minimum) 12 months OR <a href="#">Posaconazole</a> 400 mg PO BID X 12 months  Local heat Excision as necessary <sup>1</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Itraconazole</a> 2.5 mg/kg PO BID X (up to) 36 m. OR <a href="#">Terbinafine</a> Weight 35 kg 250 mg QD  Local heat Excision as necessary
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Violaceous, verrucous, slowly-growing papule(s) or nodules</li> <li>- Most commonly on lower extremities</li> <li>- Usually follows direct contact with plant matter in tropical regions</li> </ul>
<b>Synonyms</b>	Chromoblastomycosis, Chromomykose, Phoma insulana, Veronaea, Verrucous dermatitis. ICD9: 117.2 ICD10: B43.0

### References

1. [Clin Microbiol Rev 2017 01 ;30\(1\):233-276.](#)

## Chronic meningococemia

Agent	BACTERIUM. <i>Neisseria meningitidis</i> An aerobic gram-negative coccus
Reservoir	Human
Vector	None
Vehicle	Air, Infected secretions
Incubation Period	Unknown
Diagnostic Tests	Blood culture. Test patient for complement component deficiency.
Typical Adult Therapy	<a href="#">Ceftriaxone</a> 2 g IV BID X 7-10d <sup>1</sup>
Typical Pediatric Therapy	<a href="#">Ceftriaxone</a> 50 mg/kg BID X 7-10d
Clinical Hints	<ul style="list-style-type: none"><li>- Recurrent episodes of low-grade fever, rash, arthralgia and arthritis</li><li>- May persist for months</li><li>- Rash is distal and prominent near joints and may be maculopapular, petechial or pustular</li><li>- In some cases, associated with complement component-deficiency</li></ul>
Synonyms	Meningococemia, chronic. ICD9: 036.2 ICD10: A39.3

### References

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1. [Pediatr Dermatol 1996 Nov-Dec;13\(6\):483-7.](#)

**Clostridial food poisoning**

<b>Agent</b>	BACTERIUM. <i>Clostridium perfringens</i> An anaerobic gram-positive bacillus
<b>Reservoir</b>	Soil, Human, Pig, Cattle, Fish, Poultry
<b>Vector</b>	None
<b>Vehicle</b>	Food
<b>Incubation Period</b>	8h - 14h (range 5h - 24h)
<b>Diagnostic Tests</b>	Laboratory diagnosis is usually not practical. Attempt culture of food for <i>C. perfringens</i> .
<b>Typical Adult Therapy</b>	Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Abdominal pain and watery diarrhea</li><li>- Usually no fever or vomiting</li><li>- Onset 8 to 14 hours after ingestion of meat, fish or gravy</li><li>- Fecal leukocytes not seen</li><li>- Most cases resolve within 24 hours</li></ul>
<b>Synonyms</b>	ICD9: 005.2 ICD10: A05.2

## Clostridial myonecrosis

<b>Agent</b>	BACTERIUM. <i>Clostridium perfringens</i> An anaerobic gram-positive bacillus
<b>Reservoir</b>	Soil, Human
<b>Vector</b>	None
<b>Vehicle</b>	Soil, Trauma
<b>Incubation Period</b>	6h - 3d
<b>Diagnostic Tests</b>	Gram stain of exudate. Wound and blood cultures. Presence of gas in tissue (not specific).
<b>Typical Adult Therapy</b>	Prompt, aggressive debridement. Penicillin G 3 million units IV Q4h + Clindamycin 900 mg IV Q8h. OR Piperacillin-tazobactam 4.5 g + Clindamycin 900 mg TID
<b>Typical Pediatric Therapy</b>	Prompt, aggressive debridement. Penicillin G 50,000 units/kg IV Q4h + Clindamycin 10 mg/kg IV Q6h. OR Piperacillin-tazobactam (dosing for piperacillin): 100 mg/kg TID (maximum 16 g/day) + Clindamycin 10 mg/kg IV Q6h
<b>Vaccine</b>	Gas gangrene antitoxin
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Rapidly progressive tender and foul-smelling infection of muscle</li> <li>- Local gas present - crepitus or visible on X-ray</li> <li>- Hypotension, intravascular hemolysis and obtundation</li> </ul>
<b>Synonyms</b>	Anaerobic myonecrosis, Clostridial gangrene, Gas gangrene. ICD9: 040.0 ICD10: A48.0



## Clostridioides difficile colitis

Agent	BACTERIUM. <i>Clostridioides difficile</i> An anaerobic gram-positive bacillus
Reservoir	Human
Vector	None
Vehicle	Endogenous, Food
Incubation Period	Variable
Diagnostic Tests	Assay of stool for C. difficile toxin.
Typical Adult Therapy	<a href="#">Fidaxomicin</a> 200 mg PO BID X 10d OR <a href="#">Vancomycin</a> 125 mg (oral preparation) QID X 10d OR <a href="#">Metronidazole</a> 500 mg PO TID X 10d.  Add Bezlotoxumab in cases of recurrence within six months of initial episode.  Fecal transplantation (PO or by enema) has been effective in some cases. <a href="#">1</a> <a href="#">2</a> <a href="#">3</a> <a href="#">4</a>
Typical Pediatric Therapy	<a href="#">Fidaxomicin</a> Age 0 to <6 years: 16 mg/kg oral suspension twice daily (maximum, 400 mg/d) Age >=6 to <18 years: 200 mg PO BID OR <a href="#">Vancomycin</a> 10 mg/kg PO QID X 10d OR <a href="#">Metronidazole</a> 7.5 mg/kg PO QID X 10d
Vaccine	<a href="#">Bezlotoxumab</a>
Clinical Hints	<ul style="list-style-type: none"> <li>- Fever, leukocytosis and abdominal pain</li> <li>- Mucooid or bloody diarrhea during or following antibiotic therapy</li> <li>- Fecal leucocytes are seen</li> <li>- Suspect this diagnosis even when mild diarrhea follows antibiotic intake</li> </ul>
Synonyms	Klebsiella oxytoca colitis, Pseudomembranous colitis. ICD9: 008.45 ICD10: A04.7

### References

1. Clin Infect Dis 2018 Feb 15;
2. Curr Opin Gastroenterol 2019 Jan ;35(1):20-24.
3. Adv Geriatr Med Res 2021 ;3(2)
4. J Clin Gastroenterol 2021 Sep 09;

**Common cold**

<b>Agent</b>	VIRUS - RNA. Picornaviridae. Rhinoviruses, Coronavirus, et al.
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Droplet, Contact, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	1d - 3d
<b>Diagnostic Tests</b>	Viral culture and serology are available, but not practical.
<b>Typical Adult Therapy</b>	Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Nasal obstruction or discharge, cough and sore throat are common</li><li>- Fever above 38 C is common in children, but unusual in adults</li><li>- Illness typically persists for one week, occasionally two</li></ul>
<b>Synonyms</b>	Acute coryza, Raffreddore. ICD9: 079,460 ICD10: J00

**Conjunctivitis - inclusion**

<b>Agent</b>	BACTERIUM. <a href="#">Chlamydiae</a> , <i>Chlamydia trachomatis</i>
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Infected secretions, Sexual contact, Water (swimming pools)
<b>Incubation Period</b>	2d - 20d
<b>Diagnostic Tests</b>	Demonstration of chlamydiae on direct fluorescence or culture of exudate.
<b>Typical Adult Therapy</b>	Secretion precautions. <a href="#">Azithromycin</a> 1g as single dose OR <a href="#">Doxycycline</a> 100 mg BID X 7d. OR <a href="#">Levofloxacin</a> 500 mg daily X 7 days OR <a href="#">Ofloxacin</a> 300 mg BID X 7 days <sup>1</sup>
<b>Typical Pediatric Therapy</b>	Secretion precautions. Weight =45 kg, but age = 8 years: <a href="#">Azithromycin</a> 1 g as single dose OR <a href="#">Doxycycline</a> 100 mg BID X 7 d
<b>Clinical Hints</b>	- Ocular foreign body sensation, photophobia and discharge - Illness can persist for months, to as long as 2 years
<b>Synonyms</b>	Inclusion conjunctivitis, Paratrachoma. ICD9: 077.0 ICD10: P39.1,A74.0

**References**

1. [MMWR Recomm Rep 2015 Jun 05;64\(RR-03\):1-137.](#)

**Conjunctivitis - viral**

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

**COVID-19**

<b>Agent</b>	Virus - RNA Coronaviridae, Betacoronavirus. SARS-CoV-2 (Severe acute respiratory syndrome coronavirus-2)
<b>Reservoir</b>	Human, Bat, Mink, Cat, Dog, Mammal, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Droplet, Contact, Food, Fecal-oral, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	2d - 14d (mean 5 to 7 days)
<b>Diagnostic Tests</b>	Identification of virus - PCR or direct methods Serology
<b>Typical Adult Therapy</b>	<p>Isolation (respiratory and other secretions).</p> <p><a href="#">Molnupiravir</a> 800 mg PO every 12 hours X 5 days. For early treatment of mild to moderate disease.</p> <p><a href="#">Nirmatrelvir/ritonavir</a> 300 mg/100 mg BID X 5 days. For early treatment of mild-to-moderate COVID-19 who are at high risk for progression to severe disease</p> <p><a href="#">Remdesivir</a> (released for use in several countries) 200 mg IV day 1; then, 100 mg IV X 4 to 9 days</p> <p><a href="#">Baricitinib</a> appears to increase the effectiveness of <a href="#">Remdesivir</a> and has been used in situations where corticosteroids cannot be administered.</p> <p><a href="#">Chloroquine</a> 500 mg PO BID X 10 days has been used in some cases. (several publications have suggested that <a href="#">Hydroxychloroquine</a> is more effective and less toxic) The effectiveness of these drugs against COVID-19 is unproven.</p> <p>Monoclonal antibodies (Casirivimab / Imdevimab; Bamlanivimab) have been issued emergency use authorization for treatment of patients aged &gt;=12 years at high risk for severe COVID-19.</p> <p>Tocilizumab (a monoclonal antibody that inhibits IL-6 receptors) may dampen the response to cytokines.</p> <p>Corticosteroids have been used as an adjunct or substitute to <a href="#">Remdesivir</a> in some cases.</p> <p>Lopinavir and other antivirals may be effective</p> <p>There is some evidence that convalescent plasma from COVID-19 patients may be effective.<sup>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31</sup></p>
<b>Typical Pediatric Therapy</b>	<p>Molnupirivir: Use in children not established.</p> <p><a href="#">Nirmatrelvir/ritonavir</a>: Use in children not established.</p> <p><a href="#">Remdesivir</a>: Weight 3.5 to 40 Kg: Day 1: 5 mg/kg IV X 1 Days 2-10: 2.5 mg/kg IV X 1</p> <p>Monoclonal antibodies: Use in children not established.</p>
<b>Vaccines</b>	<p><a href="#">Bamlanivimab</a> <a href="#">Bebtelovimab</a> <a href="#">Casirivimab / Imdevimab</a> <a href="#">COVID-19 vaccine - inactivated</a> <a href="#">COVID-19 vaccine - mRNA</a> <a href="#">COVID-19 vaccine - recombinant nanoparticle</a> <a href="#">COVID-19 vaccine - viral vector</a> <a href="#">Regdanvimab</a> <a href="#">Sotrovimab</a> <a href="#">Tixagevimab / Cilgavimab</a></p>
<b>Clinical Hints</b>	- Exposure to endemic area or patient

	<ul style="list-style-type: none"> <li>- Fever (&gt;38 C), cough, respiratory difficulty, pneumonia</li> <li>- Diminished sense of smell and / or taste is an important early symptom</li> <li>- Severe illness more common in the elderly and individuals with underlying conditions</li> <li>- Case-fatality rate 2-5%</li> </ul>
<b>Synonyms</b>	2019-nCoV, 2019-new coronavirus, 2019-Novel coronavirus infection, Covid-19, covid19, Novel coronavirus 2019 infection, Pediatric multisystem inflammatory syndrome, SARS-CoV-2 infection, Severe Specific Contagious Pneumonia, SSCP. ICD9: 079.82 ICD10: U07.1

**COVID-19 in Ukraine**

2020 - The first case of COVID-19 in Ukraine was reported in Chernivtsi Oblast on March 3 - imported from Europe.

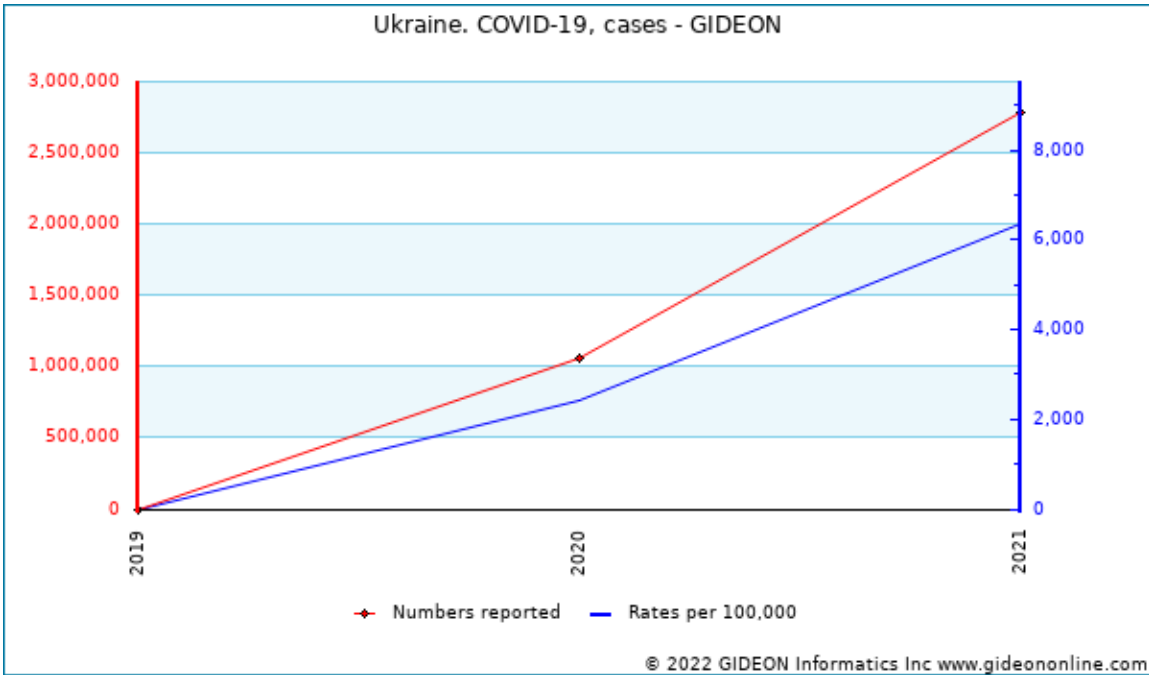
- 2020 - Analysis of the first 6,592 cases of COVID-19 in Ukraine <sup>32</sup>

**Seroprevalence surveys**

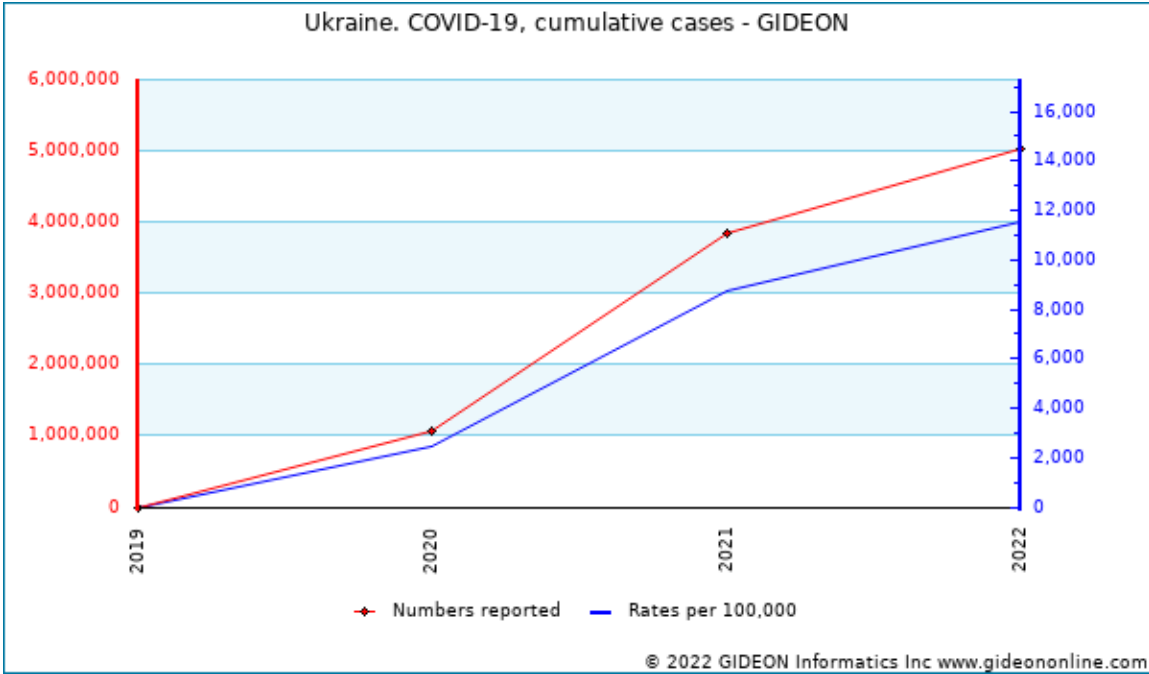
Years	Region	Study Group	%	Notes
2020	Poltava	patients	5.7	5.7% of patients (IgM) <sup>33</sup>

**Notable outbreaks**

Years	Region	Cases	Deaths	Notes
2020 - 2022	Nationwide	5,040,518	112,459	Case count to February 26, 2022. Includes 1,055,047 cases (18,533 fatal) in 2020. <sup>34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53</sup>



Graph: Ukraine. COVID-19, cases

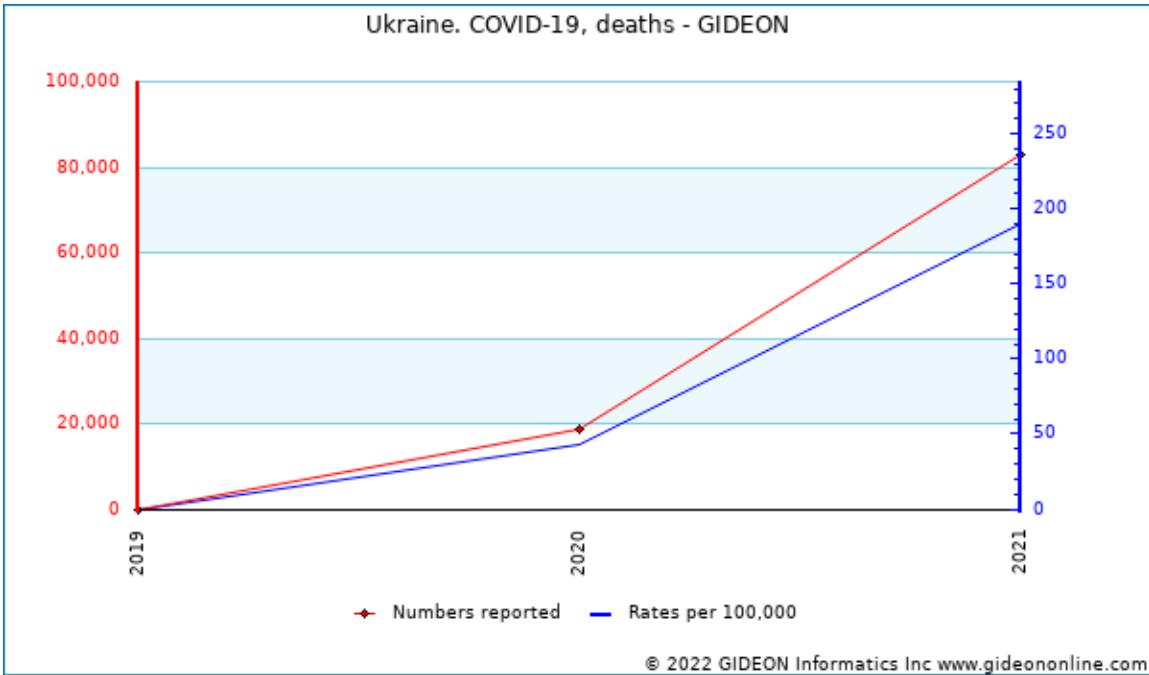


Graph: Ukraine. COVID-19, cumulative cases

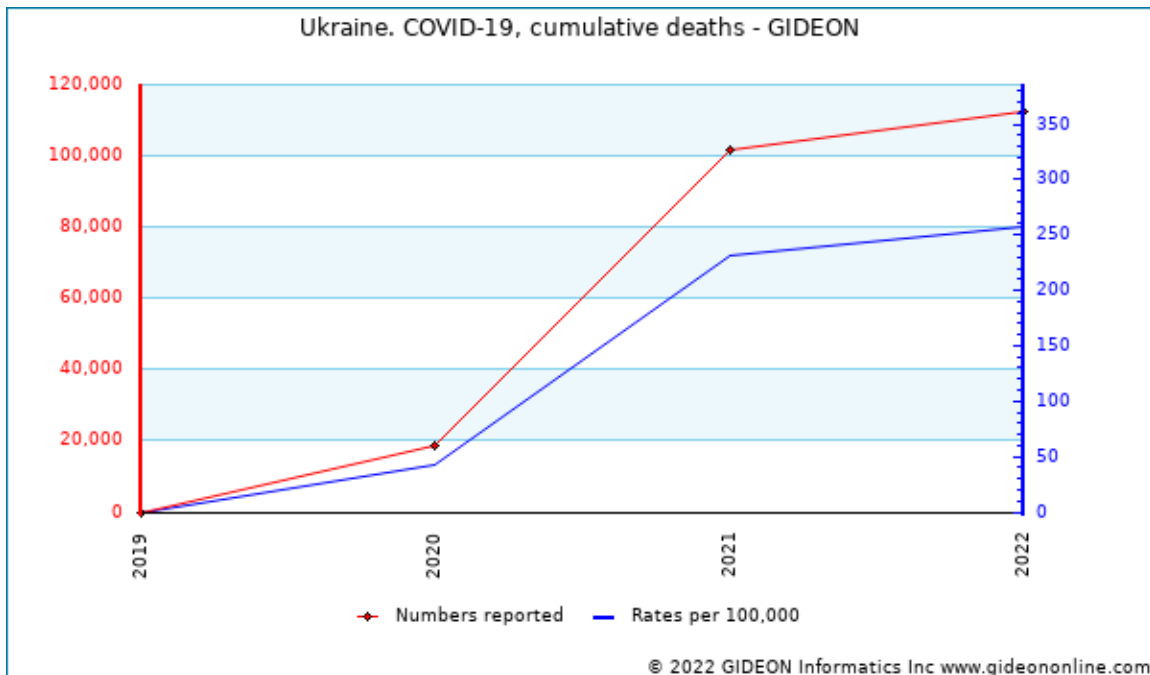
Notes:

Individual years:

2022 - Reported cases as of February 26, 2022.



Graph: Ukraine. COVID-19, deaths



Graph: Ukraine. COVID-19, cumulative deaths

Notes:

Individual years:

2022 - Reported cases as of February 26, 2022.

**Case series \***

- 2020 - Epidemiological characteristics of 33,190 patients with COVID-19 <sup>54</sup>
- 2021 (publication year) - Clinical features and risk factors for mortality among 367 patients hospitalized with COVID-19 - impact of obesity and hyperglycemia <sup>55</sup>

\* series do not include experimental diagnostic or treatment protocols

**References**

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3. *Microbes Infect* 2020 Feb 01;
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6. *Travel Med Infect Dis* 2020 Mar 04;;101615.
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9. *Zhonghua Jie He He Hu Xi Za Zhi* 2020 Mar 12;43(3):185-188.
10. *Zhonghua Jie He He Hu Xi Za Zhi* 2020 Mar 12;43(3):170-172.
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28. *Infect Chemother* 2021 Aug 30;
29. *QJM* 2021 Sep 27;
30. *Am J Trop Med Hyg* 2021 Sep 10;
31. *Eur J Intern Med* 2021 Oct 23;
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## Creutzfeldt-Jakob disease

<b>Agent</b>	PRION
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Corneal graft Dural graft Neurosurgical instrumens
<b>Incubation Period</b>	14 months to >=42 years
<b>Diagnostic Tests</b>	Biopsy and specialized tests for protein markers in cerebrospinal fluid protein
<b>Typical Adult Therapy</b>	None
<b>Typical Pediatric Therapy</b>	NA
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Most infections are sporadic and characterized by severe, progressive and ultimately fatal neurological disease</li> <li>- Patient may recall neurosurgical intervention several year previously</li> </ul>
<b>Synonyms</b>	<p>CJD, Familial spongiform encephalopathy, Fatal familial insomnia, Gerstmann–Straussler–Scheinker syndrome, Subacute spongiform encephalopathy, Variably protease-sensitive prionopathy.</p> <p>ICD9: 046.11 ICD10: A81.09</p>

## Crimean-Congo hemorrhagic fever

<b>Agent</b>	VIRUS - RNA. Bunyaviridae, Nairovirus: CCHF virus. Infections also ascribed to related agents (Nairobi sheep and Dugbe viruses)
<b>Reservoir</b>	Hare, Bird, Tick, Cattle, Sheep, Goat, Zoonotic
<b>Vector</b>	Tick ( <i>Hyalomma</i> - over 30 potential vectors in this genus)
<b>Vehicle</b>	Infected secretions from patient or livestock, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	2d - 6d (range 1d - 53d)
<b>Diagnostic Tests</b>	Biosafety level 4. Viral culture (blood, CSF, tissue). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Isolation. Supportive therapy.  <b>Ribavirin</b> : 1g PO QID X 4d, then 0.5g QID X 6d <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	Isolation. Supportive therapy <b>Ribavirin</b> (dosage not established)
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Headache, chills, myalgia, abdominal pain and photophobia</li> <li>- Conjunctivitis and pharyngitis are often present</li> <li>- Petechiae, thrombocytopenia and leukopenia are common</li> <li>- Onset 3 to 7 days following a tick bite or exposure to infected patient</li> <li>- Case-fatality rate is approximately 30%</li> </ul>
<b>Synonyms</b>	Acute infectious capillary toxinosis, CCHF, Crimea Congo hemorrhagic fever, Dugbe, Erve, Ganjam, Kasokero, Kemerovo, Nairobi sheep, Orungo, Songling, Tribec, Xinjiang hemorrhagic fever. ICD9: 065.0 ICD10: A98.0

### Crimean-Congo hemorrhagic fever in Ukraine

Crimean-Congo hemorrhagic fever was first described in the Crimea in 1944, and later equated with an illness which occurred in the Congo in 1956. <sup>3 4</sup>

2006 (publication year) - CCHF virus is found primarily in forest habitats, notably those with high humidity <sup>5</sup>

Ukraine. Crimean-Congo hemorrhagic fever, cases: None reported between 2003 and 2007

#### Seroprevalence surveys

Years	Region	Study Group	%	Notes
2020*	Lviv	general population	1.7	<sup>6</sup>

\* indicates publication year (not necessarily year of survey)

#### Cross-border events

Years	Acquired by**	Originated in**	Setting	Cases	Notes
1944	Russian Federation	Ukraine	military	200	Outbreak was reported among Russian soldiers in the Crimea <sup>7</sup>

\*\* Country or Nationality

**Notable outbreaks**

Years	Region	Cases	Population	Notes
1944	Crimea	200	military personnel	Outbreak among Russian soldiers in the Crimea. <sup>8</sup>

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1. [BMC Infect Dis 2010 Jul 13;10:207.](#)
2. [Cochrane Database Syst Rev 2018 Jun 05;6:CD012713.](#)
3. [Curr Opin Infect Dis 2007 Oct ;20\(5\):495-500.](#)
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6. [Front Cell Infect Microbiol 2020 ;10:589464.](#)
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8. [ProMED <promedmail.org> archive: 20150309.3217736](#)

## Cryptococcosis

<b>Agent</b>	FUNGUS - Yeast. Basidiomycota, Hymenomycetes, Sporidiales: <i>Cryptococcus neoformans</i> and other species
<b>Reservoir</b>	Pigeon, Soil, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Air, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Fungal culture and stains. Latex test for fungal antigen in CSF and serum. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	(Induction) Liposomal <b>Amphotericin B</b> 3-4 mg/kg/d X 2-6 weeks + (Preferred) <b>Flucytosine</b> 25 mg/kg/d PO QID X 2 weeks OR <b>Fluconazole</b> 400 mg BID X 2 weeks <sup>1</sup>
<b>Typical Pediatric Therapy</b>	(Induction) <b>Amphotericin B</b> deoxycholate 1 mg/kg/d X 2-6w + <b>Flucytosine</b> 25 mg/kg/d PO QID X 2 weeks
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Chronic lymphocytic meningitis or pneumonia in an immune-suppressed patient</li> <li>- Meningitis may be subclinical, or "wax and wane"</li> <li>- Nuchal rigidity is absent or minimal;</li> <li>- Bone, skin, adrenals, liver, prostate and other sites may be infected hematogenously</li> </ul>
<b>Synonyms</b>	Busse-Buschke disease, Cryptococcus, European blastomycosis, Torulosis. ICD9: 117.5,321.0 ICD10: B45

## Cryptococcosis in Ukraine

2012 - The incidence of cryptococcal meningitis among AIDS patients in Ukraine was estimated at 10,085 cases per year. <sup>2</sup>

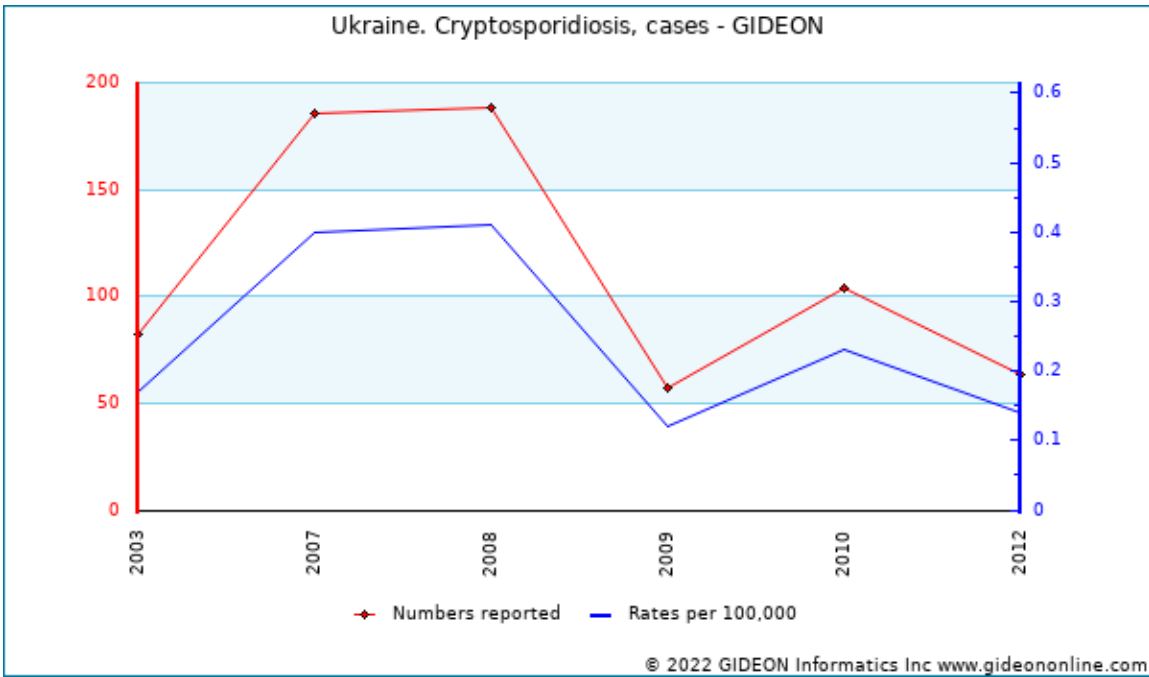
### References

1. [Clin Infect Dis 2010 Feb 01;50\(3\):291-322.](#)
2. [Mycoses 2015 Oct ;58 Suppl 5:94-100.](#)

## Cryptosporidiosis

<b>Agent</b>	PARASITE - Protozoa. Apicomplexa, Eimeriida: <i>Cryptosporidium hominis</i> and <i>C. parvum</i> (rarely <i>C. muris</i> , <i>C. felis</i> , <i>C. meleagridis</i> , et al).
<b>Reservoir</b>	Mammal (over 150 species), Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Water, Feces, Oysters, Fly
<b>Incubation Period</b>	5d - 10d (range 2d - 14d)
<b>Diagnostic Tests</b>	Stool/duodenal aspirate for acid-fast, direct fluorescence staining, or antigen assay. Nucleic acid amplification
<b>Typical Adult Therapy</b>	Stool precautions. <a href="#">Nitazoxanide</a> 500 mg PO BID X 3 days <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	Stool precautions. <a href="#">Nitazoxanide</a> : 1 to 3 years: 100 mg PO BID X 3 days 4 to 11 years: 200 mg PO BID X 3 days >12 years: 500 mg PO BID X 3 days
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Watery diarrhea, vomiting, abdominal pain</li> <li>- Self-limited disease in healthy subjects</li> <li>- Immunosuppressed (e.g., AIDS) patients experience chronic, wasting illness (may be associated with pulmonary disease)</li> </ul>
<b>Synonyms</b>	<p><i>Cryptosporidium</i>, <i>Cryptosporidium andersoni</i>, <i>Cryptosporidium baileyi</i>, <i>Cryptosporidium chipmunk</i> genotype, <i>Cryptosporidium cunulicus</i>, <i>Cryptosporidium ditrichi</i>, <i>Cryptosporidium fayeri</i>, <i>Cryptosporidium felis</i>, <i>Cryptosporidium hedgehog</i> genotype, <i>Cryptosporidium hominis</i>, <i>Cryptosporidium meleagridis</i>, <i>Cryptosporidium occultus</i>, <i>Cryptosporidium parvum</i>, <i>Cryptosporidium pestis</i>, <i>Cryptosporidium suis</i>, <i>Cryptosporidium tyzzeri</i>, <i>Cryptosporidium ubiquitum</i>, <i>Cryptosporidium viatorum</i>, Kryptosporidiose.</p> <p>ICD9: 007.4 ICD10: A07.2</p>

## Cryptosporidiosis in Ukraine



Graph: Ukraine. Cryptosporidiosis, cases

### References

1. Lancet 2002 Nov 02;360(9343):1375-80.
2. J Infect Dis 2001 Jul 01;184(1):103-6.
3. Int J Parasitol Drugs Drug Resist 2021 Sep 21;17:128-138.

## Cutaneous larva migrans

<b>Agent</b>	PARASITE - Nematoda. Secernentea: <i>Ancylostoma braziliense</i> , <i>A. caninum</i> , <i>Bunostomum phlebotomum</i> , <i>Strongyloides myopotami</i>
<b>Reservoir</b>	Cat, Dog, Cattle, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Soil, Contact
<b>Incubation Period</b>	2d - 3d (range 1d - 30d)
<b>Diagnostic Tests</b>	Biopsy is rare helpful.
<b>Typical Adult Therapy</b>	<a href="#">Ivermectin</a> 200 micrograms/kg as single dose OR <a href="#">Albendazole</a> 200 mg BID X 3d OR <a href="#">Thiabendazole</a> topical X 5d <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Ivermectin</a> 200 micrograms/kg as single dose. OR <a href="#">Albendazole</a> 7.5 mg/kg BID X 3d OR <a href="#">Thiabendazole</a> topical X 5d
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Erythematous, serpiginous, intensely pruritic and advancing lesion(s) or bullae</li> <li>- Usually involves the feet</li> <li>- Follows contact with moist sand or beach</li> <li>- May recur or persist for months.</li> </ul>
<b>Synonyms</b>	Creeping eruption, Pelodera, Plumber's itch, Uncinariasis. ICD9: 126.2,126.8,126.9 ICD10: B76.9

### References

1. [Clin Infect Dis 2013 Oct ;57\(8\):1155-7.](#)

2. [Eur J Dermatol 1999 Jul-Aug;9\(5\):352-3.](#)



## Cyclosporiasis

<b>Agent</b>	PARASITE - Protozoa. Apicomplexa, Eimeriida: <i>Cyclospora cayetanensis</i>
<b>Reservoir</b>	Human, Non-human primate, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Water, Vegetables
<b>Incubation Period</b>	1d - 11d
<b>Diagnostic Tests</b>	Identification of organism in stool smear. Cold acid fast stains and ultraviolet microscopy may be helpful.
<b>Typical Adult Therapy</b>	<a href="#">Sulfamethoxazole / Trimethoprim</a> 800/160 mg BID X 7d <a href="#">Ciprofloxacin</a> 500 mg PO BID X 7 d (followed by 200 mg TIW X 2 w) has been used in sulfa-allergic patients <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Sulfamethoxazole / Trimethoprim</a> 10/2 mg/kg BID X 7d
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Most cases follow ingestion of contaminated water in underdeveloped countries</li><li>- Large outbreaks have been associated with ingestion of contaminated fruit</li><li>- Watery diarrhea (average 6 stools daily)</li><li>- Abdominal pain, nausea, anorexia and fatigue</li><li>- May persist for up to 6 weeks (longer in AIDS patients)</li></ul>
<b>Synonyms</b>	<i>Cryptosporidium muris</i> , Cyanobacterium-like agent, <i>Cyclospora</i> . ICD9: 007.5 ICD10: A07.8

### References

1. [Lancet 1995 Mar 18;345\(8951\):691-3.](#)
2. [Ann Intern Med 2000 Jun 06;132\(11\):885-8.](#)

## Cysticercosis

<b>Agent</b>	PARASITE - Platyhelminthes, Cestoda. Cyclophyllidea, Taeniidae: <i>Taenia solium</i>
<b>Reservoir</b>	Pig, Human, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Soil (contaminated by pigs), Fecal-oral, Fly
<b>Incubation Period</b>	3m - 3y
<b>Diagnostic Tests</b>	Serology (blood or CSF) and identification of parasite in biopsy material.
<b>Typical Adult Therapy</b>	<a href="#">Albendazole</a> 7.5 mg/kg PO BID X 10-14d AND / OR <a href="#">Praziquantel</a> 17 mg/kg TID X 14d Add corticosteroids if brain involved  Surgery as indicated <sup>1</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Albendazole</a> 15 mg/kg PO BID X 30d. AND / OR <a href="#">Praziquantel</a> 30 mg/kg TID X 14d (15 to 30d for neurocysticercosis). Add corticosteroids if brain involved.  Surgery as indicated
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Cerebral, ocular or subcutaneous mass</li> <li>- Usually no eosinophilia</li> <li>- Calcifications noted on X-ray examination</li> <li>- Associated with regions where pork is eaten</li> <li>- 25% to 50% of patients have concurrent tapeworm infestation</li> </ul>
<b>Synonyms</b>	Taenia crassiceps, Taenia martis, Versteria. ICD9: 123.1 ICD10: B69

### References

1. [Clin Infect Dis 2018 Apr 03;66\(8\):e49-e75.](#)

## Cystoisosporiasis

<b>Agent</b>	PARASITE - Protozoa. Apicomplexa, Eimeriida: <i>Isospora (Cystoisospora) belli</i>
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Food, Liquids, Fecal-oral, Sexual (homosexual) contact
<b>Incubation Period</b>	7d - 10d
<b>Diagnostic Tests</b>	Microscopy of stool or duodenal contents. Advise laboratory when this organism is suspected.
<b>Typical Adult Therapy</b>	Immunocompetent patients: <a href="#">Sulfamethoxazole / Trimethoprim</a> 800/160 mg BID X 10 days OR <a href="#">Ciprofloxacin</a> 500 mg PO BID X 10 days  Immunosuppressed: <a href="#">Sulfamethoxazole / Trimethoprim</a> 800/160 mg BID X 10 days then 3/week until CD4>200 OR <a href="#">Pyrimethamine</a> 75 mg QD + leucovorin then 25 mg QD until CD4>200 OR <a href="#">Ciprofloxacin</a> 500 mg PO BID X 10 days then 3/week until CD4>200 <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	As for adult (dosage adjusted for weight)
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Myalgia, watery diarrhea, nausea and leukocytosis</li> <li>- Eosinophilia may be present</li> <li>- Illness is prolonged and severe in AIDS patients</li> </ul>
<b>Synonyms</b>	Isospora belli, Isosporiasis. ICD9: 007.2 ICD10: A07.3

### References

1. [N Engl J Med 1986 Jul 10;315\(2\):87-90.](#)
2. [Ann Intern Med 1988 Sep 15;109\(6\):474-5.](#)
3. [Ann Intern Med 2000 Jun 06;132\(11\):885-8.](#)

## Cytomegalovirus infection

<b>Agent</b>	VIRUS - DNA. Herpesviridae, Betaherpesvirinae: Human herpesvirus 5 (Cytomegalovirus)
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Droplet (respiratory), Urine, Dairy products, Tears, Stool, Sexual, contact (rare), Transplacental, Breastfeeding
<b>Incubation Period</b>	3w - 5w (range 2w - 12w)
<b>Diagnostic Tests</b>	Viral culture (blood, CSF, urine, tissue). Serology. Direct viral microscopy. Nucleic acid amplification
<b>Typical Adult Therapy</b>	(Most cases self-limited). Ganciclovir 5 mg/kg q12h IV X 2 to 3w. OR Foscarnet 90 mg/kg Q12h IV OR Cidofovir 5 mg/kg IV weekly + probenecid <sup>1 2 3 4 5</sup>
<b>Typical Pediatric Therapy</b>	(Most cases self-limited) Ganciclovir 5 mg/kg q12h IV X 2 to 3w
<b>Vaccine</b>	Cytomegalovirus immunoglobulin
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Heterophile-negative "mononucleosis"</li> <li>- Mild pharyngitis, without exudate</li> <li>- Variable degree of lymphadenopathy and splenomegaly</li> <li>- Retinitis in AIDS patients</li> <li>- Pneumonia in setting of immune suppression</li> <li>- Congenital infection characterized by multisystem disease in newborns</li> </ul>
<b>Synonyms</b>	Cytomegalovirus, Zytomegalie. ICD9: 078.5 ICD10: B25

### Cytomegalovirus infection in Ukraine

#### Prevalence surveys

Years	Region	Study Group	%	Notes
2014 - 2017	Kyiv	patients - CNS	13	CMV accounted for 13% of Herpes-group infections of the CNS <sup>6</sup>

#### References

1. An Pediatr (Barc) 2011 Jan ;74(1):52.e1-52.e13.
2. Pediatr Ann 2015 May ;44(5):e115-25.
3. Paediatr Child Health 2017 May ;22(2):72-74.
4. Acta Paediatr 2010 Apr ;99(4):509-15.
5. Virus Res 2011 May ;157(2):212-21.
6. Wiad Lek 2018 ;71(7):1289-1294.

## Dengue

<b>Agent</b>	VIRUS - RNA. Flaviviridae, Flavivirus: Dengue virus
<b>Reservoir</b>	Human, Mosquito, Monkey (in Malaysia and Africa), Zoonotic
<b>Vector</b>	Mosquito - <i>Stegomyia (Aedes) aegypti</i> , <i>S. albopictus</i> , <i>S. polynesiensis</i> , <i>S. scutellaris</i>
<b>Vehicle</b>	Blood, Breastfeeding
<b>Incubation Period</b>	5d - 8d (range 2d - 15d)
<b>Diagnostic Tests</b>	Biosafety level 2. Viral isolation (blood). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Supportive; IV fluids to maintain blood pressure and reverse hemoconcentration
<b>Typical Pediatric Therapy</b>	As for adult
<b>Vaccine</b>	<a href="#">Dengue vaccine</a>
<b>Clinical Hints</b>	- Headache, myalgia, arthralgia - Relative bradycardia, leukopenia and macular rash - Severe dengue (DHF or dengue-shock syndrome) defined by thrombocytopenia, hemoconcentration and hypotension
<b>Synonyms</b>	Bouquet fever, Break-bone fever, Dandy fever, Date fever, Dengue Fieber, Duengero, Giraffe fever, Petechial fever, Polka fever. ICD9: 061 ICD10: A90,A91

Although Dengue is not endemic to Ukraine, imported, expatriate or other presentations of the disease have been associated with this country.

### Dengue in Ukraine

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2003 - No cases were reported.

## Dermatophytosis

<b>Agent</b>	FUNGUS. Ascomycota, Euascomyces, Onygenales: <i>Epidermophyton</i> , <i>Microsporum</i> , <i>Trichophyton</i> , <i>Trichosporon</i> spp., <i>Arthroderma</i> , et al
<b>Reservoir</b>	Human, Dog, Cat, Rabbit, Marsupial, Other mammal, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Contaminated soil/flooring, Animal Contact
<b>Incubation Period</b>	2w - 38w
<b>Diagnostic Tests</b>	Fungal culture and microscopy of skin, hair or nails. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Skin - topical Clotrimazole, <a href="#">Miconazole</a> , etc. Hair/nails - <a href="#">Terbinafine</a> , <a href="#">Griseofulvin</a> , <a href="#">Itraconazole</a> or <a href="#">Fluconazole</a> PO <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Erythematous, circinate, scaling or dyschromic lesions of skin, hair or nails - Pruritus, secondary infection or regional lymphadenopathy may be present
<b>Synonyms</b>	Arthroderma, DermatOMICOSE, DermatomyCOSE, DermatomyCOsIS, DermatomyKOSE, DermatomyKOSEN, Emericella, Favus, Granuloma trichophyticum, Gruby's disease, Kodamaea, Leukonychia trichophytica, Microsporum, Natrassia, Onychocola, Onychomycosis, Pityriasis versicolor, Ringworm, Saint Aignan's disease, Scopulariopsis, Scytalidium, Tinea, Tinea barbae, Tinea capitis, Tinea corporis, Tinea cruris, Tinea favosa, Tinea imbricata, Tinea manum, Tinea pedis, Tinea unguinum, Tokelau ringworm, Triadelphia pulvinata, Trichomycosis, Trichophytosis, Trichophytosis gladiatorum. ICD9: 110,111 ICD10: B35,B36

### References

1. [Dig Endosc 2014 Nov ;26\(6\):752-3.](#)
2. [Arch Dermatol 1989 Nov ;125\(11\):1537-9.](#)
3. [Br J Dermatol 1997 Apr ;136\(4\):575-7.](#)

## Dicrocoeliasis

<b>Agent</b>	PARASITE - Platyhelminthes, Trematoda. Plagiorchiida, Dicrocoeliidae: <i>Dicrocoelium dendriticum</i> and <i>D. hospes</i>
<b>Reservoir</b>	Sheep, Cattle, Pig, Goat, Snail, Ant, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Ingested ant
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Identification of ova in stool, bile or duodenal aspirate.
<b>Typical Adult Therapy</b>	<a href="#">Triclabendazole</a> 10 mg/kg single dose OR <a href="#">Praziquantel</a> 25 mg/kg PO TID X 1d (investigational) <sup>1</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Acquired in sheep-raising areas</li><li>- Abdominal pain, often accompanied by eosinophilia</li><li>- Follows inadvertent ingestion of ants (with raw vegetables or fruit)</li></ul>
<b>Synonyms</b>	<i>Dicrocoelium dendriticum</i> , <i>Dicrocoelium hospes</i> , Halzoun, Lancet liver fluke. ICD9: 121.8 ICD10: B66.2

### References

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1. [Ann Saudi Med 2010 Mar-Apr;30\(2\):159-61.](#)

## Dientamoeba fragilis infection

<b>Agent</b>	PARASITE - Protozoa. Metamonada, Parabasala, Trichomonadea. Flagellate: <i>Dientamoeba fragilis</i>
<b>Reservoir</b>	Human, Gorilla, Pig, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Fecal-oral (ingestion of pinworm ova)
<b>Incubation Period</b>	8d - 25d
<b>Diagnostic Tests</b>	Identification of trophozoites in stool. Nucleic acid amplification. Alert laboratory if this diagnosis is suspected.
<b>Typical Adult Therapy</b>	Stool precautions. <a href="#">Iodoquinol</a> 650 mg PO TID X 20d. OR <a href="#">Tetracycline</a> 500 mg QID X 10d. OR <a href="#">Paromomycin</a> 10 mg/kg TID X 7d OR <a href="#">Metronidazole</a> 750 mg PO TID X 10d <sup>1 2 3 4 5 6</sup>
<b>Typical Pediatric Therapy</b>	Stool precautions. <a href="#">Iodoquinol</a> 13 mg/kg PO TID X 20d. OR (age >8) <a href="#">Tetracycline</a> 10 mg/kg QID X 10d OR <a href="#">Paromomycin</a> 10 mg/kg TID X 7d OR <a href="#">Metronidazole</a> 15 mg/kg PO TID X 10d
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Abdominal pain with watery or mucous diarrhea</li> <li>- Eosinophilia may be present</li> <li>- Concurrent enterobiasis (pinworm) is common</li> <li>- Infestation may persist for more than one year</li> </ul>
<b>Synonyms</b>	ICD9: 007.8 ICD10: A60.8

### References

1. [Int J Parasitol Drugs Drug Resist 2012 Dec ;2:204-15.](#)
2. [Int J Infect Dis 2016 Aug ;49:59-61.](#)
3. [Antimicrob Agents Chemother 2012 Jan ;56\(1\):487-94.](#)
4. [Am J Trop Med Hyg 2012 Dec ;87\(6\):1046-52.](#)
5. [Pediatr Infect Dis J 2013 Apr ;32\(4\):e148-50.](#)
6. [Expert Rev Gastroenterol Hepatol 2020 Mar 10;](#)

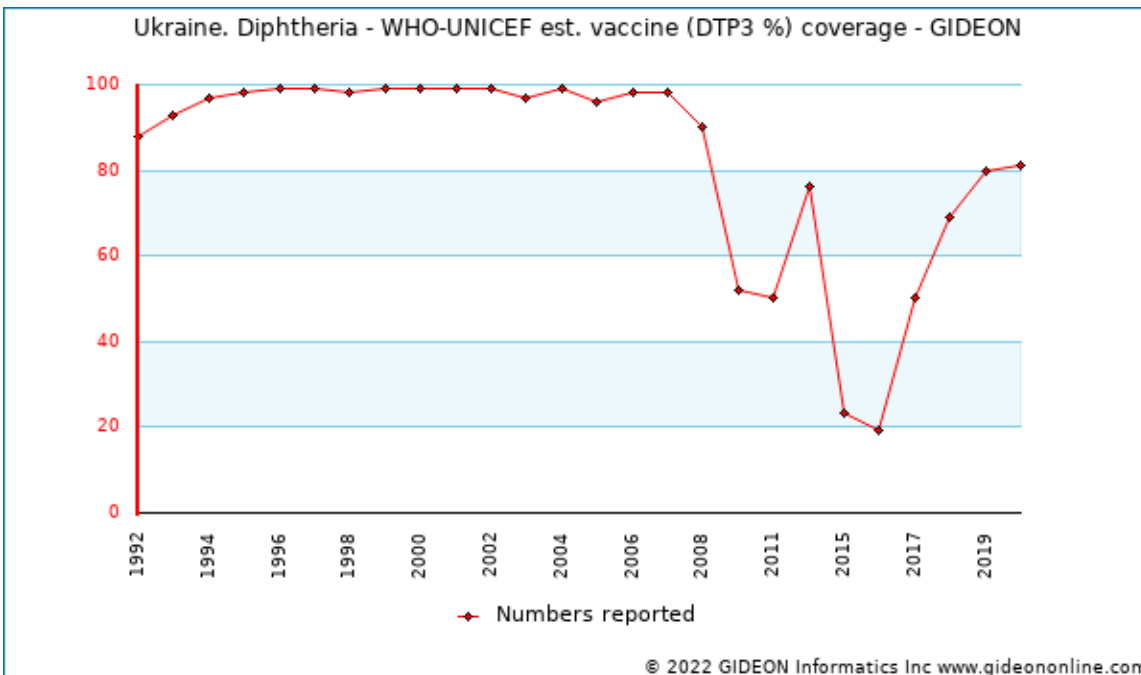


Diphtheria	
Agent	BACTERIUM. <i>Corynebacterium diphtheriae</i> A facultative gram-positive bacillus
Reservoir	Human
Vector	None
Vehicle	Droplet, Contact, Dairy products, Clothing
Incubation Period	2d - 5d (range 1d - 10d)
Diagnostic Tests	Culture on special media. Advise laboratory when this diagnosis is suspected.
Typical Adult Therapy	Respiratory isolation. Equine antitoxin 20,000 to 120,000 units IM. (first perform scratch test) AND <a href="#">Erythromycin</a> 500 mg QID (or Penicillin preparation) X 14d <sup>1</sup>
Typical Pediatric Therapy	Respiratory isolation. Equine antitoxin 20,000 to 120,000 units IM. (first perform scratch test) AND <a href="#">Erythromycin</a> 10 mg/kg QID (or penicillin preparation) X 14d
Vaccines	<a href="#">Diphtheria antitoxin</a> <a href="#">Diphtheria vaccine</a> <a href="#">DT vaccine</a> <a href="#">DTaP vaccine</a> <a href="#">DTP vaccine</a> <a href="#">Td vaccine</a>
Clinical Hints	- Pharyngeal membrane with cervical edema and lymphadenopathy - "Punched out" skin ulcers with membrane - Myocarditis or neuropathy (foot/wrist drop) may appear weeks following initial infection
Synonyms	<i>Corynebacterium diphtheriae</i> , Difteri, Difteria, Difterie, Difterite, Diphterie. ICD9: 032 ICD10: A36

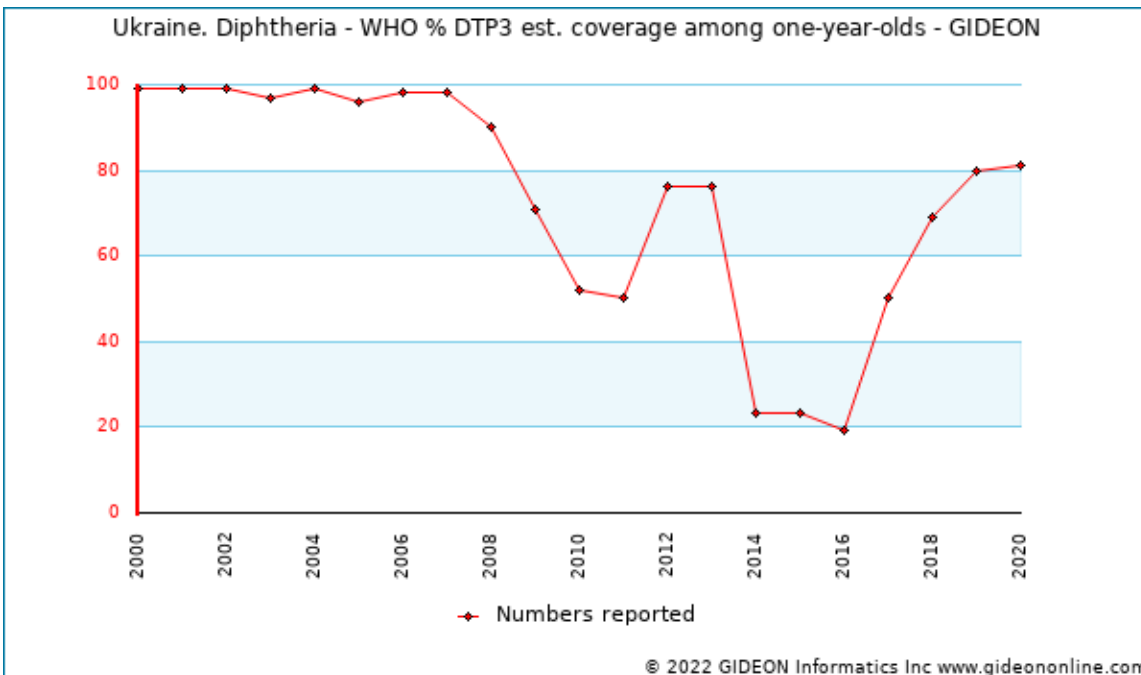
## Diphtheria in Ukraine

### Vaccine Schedule:

BCG - 3 days  
 DT - 6 years  
 DTP - 2,4,6,18 months  
 DTPHibHepB - 2 months  
 HepB - birth 1,6 months  
 HIB - 2,4,12 months  
 IPV - 2,4 months  
 MMR - 12 months; 6 years  
 OPV - 6, 18 months; 6, 14 years  
 Td - 16,26,36,46,56 years



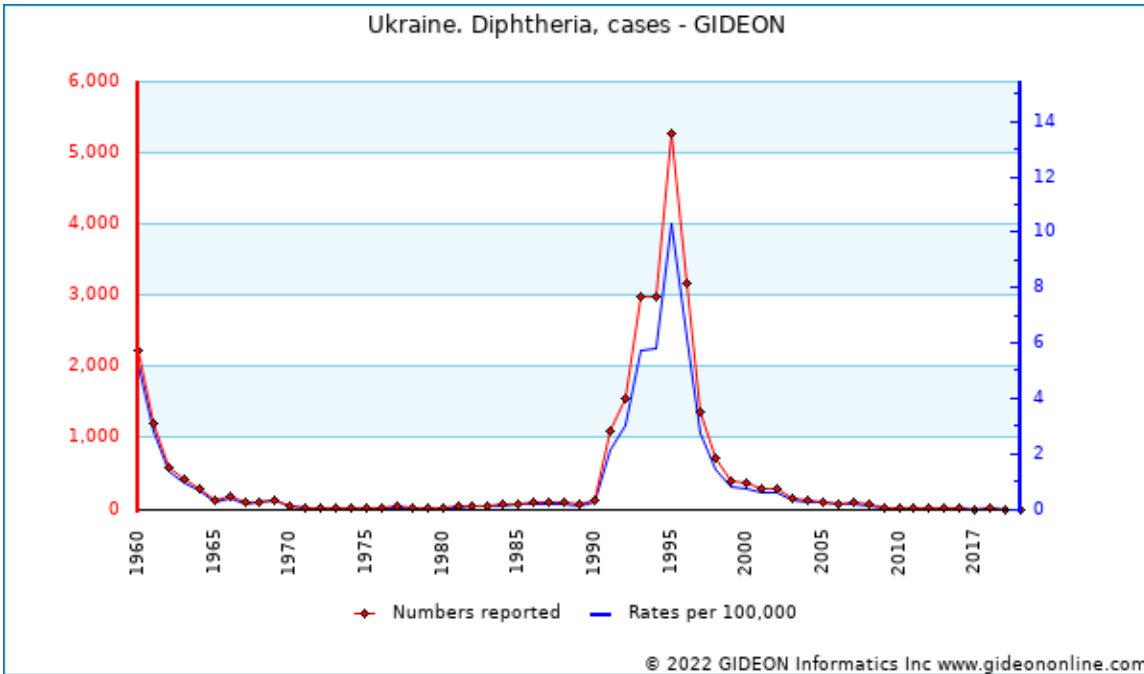
Graph: Ukraine. Diphtheria - WHO-UNICEF est. vaccine (DTP3 %) coverage



Graph: Ukraine. Diphtheria - WHO % DTP3 est. coverage among one-year-olds

**Seroprevalence surveys**

Years	Region	Study Group	%	Notes
2017	Multiple locations	children	50-79.2	50.0% to 79.2% of children born during 2006 to 2015 in Zakarpattia, Sumy, and Odessa provinces, and Kyiv City. <sup>2</sup>



Graph: Ukraine. Diphtheria, cases

Notes:

Individual years:

1991 - 33.7% of cases were reported from Kiev.

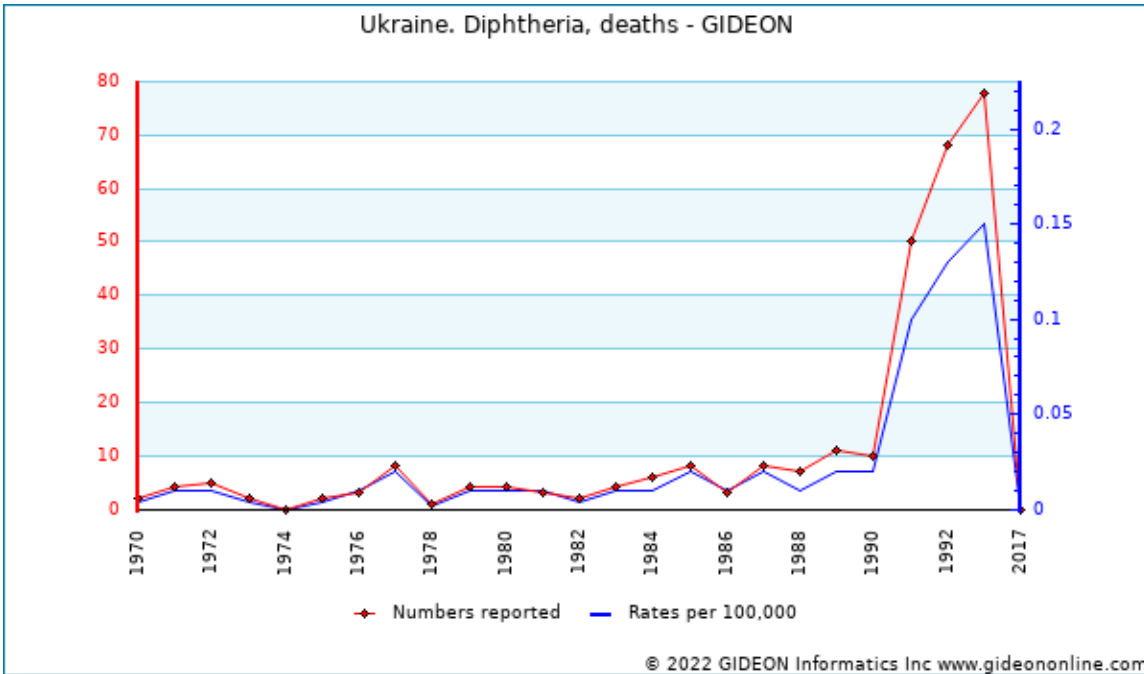
1994 - 80% of cases were reported from Kiev, Odessa and Lvov.

2018 - Four cases were reported to September. <sup>3 4</sup>

**Cross-border events**

Years	Acquired by**	Originated in**	Cases	Notes
1994	United States	Ukraine	1	<sup>5</sup>

\*\* Country or Nationality



Graph: Ukraine. Diphtheria, deaths

- 646 diphtheria deaths were reported during 1992 to 1997, including 78 in 1993 and 111 in 1994.

*Corynebacterium diphtheriae* Biotype *gravis* predominated during the 1990's.

**Notable outbreaks**

Years	Cases	Notes
1990 - 2004	20,843	<a href="#">6</a> <a href="#">7</a> <a href="#">8</a> <a href="#">9</a> <a href="#">10</a> <a href="#">11</a>

**References**

1. Clin Infect Dis 1998 Oct ;27(4):845-50.
2. Vaccine 2022 Feb 10;
3. ProMED <promedmail.org> archive: 20180625.5872810
4. ProMED <promedmail.org> archive: 20180907.6012908
5. MMWR Morb Mortal Wkly Rep 1995 Mar 31;44(12):237, 243-4.
6. J Infect Dis 2000 Feb ;181 Suppl 1:S35-40.
7. MMWR Morb Mortal Wkly Rep 1995 Mar 17;44(10):177-81.
8. Commun Dis Rep CDR Wkly 1994 Sep 23;4(38):177.
9. Wkly Epidemiol Rec 1994 Aug 26;69(34):253-8.
10. Lik Sprava 1995 Sep-Dec;(9-12):150-3.
11. Lik Sprava 1995 Sep-Dec;(9-12):147-9.

## Diphyllobothriasis

<b>Agent</b>	PARASITE - Platyhelminthes, Cestoda. Pseudophyllidea, Diphylobothriidae: <i>Diphyllobothrium latum</i> , et al
<b>Reservoir</b>	Human, Dog, Bear, Fish-eating mammal, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Fresh-water fish - notably (for <i>D. latum</i> ) perch, burbot and pike
<b>Incubation Period</b>	4w - 6w (range 2w - 2y)
<b>Diagnostic Tests</b>	Identification of ova or proglottids in feces. Tapeworm length often exceeds ten meters
<b>Typical Adult Therapy</b>	<a href="#">Praziquantel</a> 10 mg/kg PO as single dose OR <a href="#">Niclosamide</a> 2 g PO once <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Praziquantel</a> 10 mg/kg PO as single dose OR <a href="#">Niclosamide</a> 50 mg/kg PO once
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Abdominal pain, diarrhea and flatulence</li> <li>- Vitamin B12 deficiency is noted in 0.02% of patients</li> <li>- Rare instances of intestinal obstruction have been described</li> <li>- Worm may survive for decades in the human intestine</li> </ul>
<b>Synonyms</b>	Adenocephalus pacificus, Bandwurm [Diphyllobothrium], Bothriocephalus acheilognathi, Bothriocephalus latus, Broad fish tapeworm, Dibothriocephalus infection, Diphyllobothrium cordatum, Diphyllobothrium dalliae, Diphyllobothrium dendriticum, Diphyllobothrium klebanovskii, Diphyllobothrium latum, Diphyllobothrium nihonkaiense, Diphyllobothrium stemmacephalum, Diphyllobothrium ursi, Diplogonoporiosis, Fish tapeworm. ICD9: 123.4 ICD10: B70.0

### References

1. [Acta Trop 1980 Sep ;37\(3\):293-6.](#)

2. [Curr Opin Infect Dis 2007 Oct ;20\(5\):524-32.](#)

## Dipylidiasis

<b>Agent</b>	PARASITE - Platyhelminthes, Cestoda. Cyclophyllidea, Dipylidiidae: <i>Dipylidium caninum</i>
<b>Reservoir</b>	Dog, Cat, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Ingested flea ( <i>Ctenocephalides</i> spp.)
<b>Incubation Period</b>	21d - 28d
<b>Diagnostic Tests</b>	Identification of proglottids in feces. Tapeworm length may exceed 50 cm.
<b>Typical Adult Therapy</b>	<a href="#">Praziquantel</a> 10 mg/kg PO as single dose OR <a href="#">Niclosamide</a> 2 g PO once <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Praziquantel</a> 10 mg/kg PO as single dose OR <a href="#">Niclosamide</a> : weight 11-34 kg 1 g PO as single dose weight >34 kg 1.5 g PO as single dose
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Diarrhea, abdominal distention and restlessness (in children)</li> <li>- Eosinophilia present in some cases</li> <li>- Proglottids may migrate out of the anus</li> </ul>
<b>Synonyms</b>	Cucumber tapeworm, <i>Dipylidium caninum</i> , Dog tapeworm, Double-pored dog tapeworm. ICD9: 123.8 ICD10: B71.1

### References

1. [Acta Trop 1980 Sep ;37\(3\):293-6.](#)

2. [Pediatr Infect Dis J 2018 Nov 07;](#)

## Dirofilariasis

<b>Agent</b>	PARASITE - Nematoda. Secernentea: <i>Dirofilaria (Nochtiella) immitis</i> (pulmonary); <i>D. tenuis</i> & <i>D. repens</i> (subcutaneous infection) & <i>D. ursi</i>
<b>Reservoir</b>	Mammal, Dog, Wild carnivore ( <i>D. tenuis</i> in raccoons; <i>D. ursi</i> in bears), Zoonotic
<b>Vector</b>	Mosquito
<b>Vehicle</b>	None
<b>Incubation Period</b>	60d - 90d
<b>Diagnostic Tests</b>	Identification of parasite in tissue. Serology. Nucleic acid amplification.  Dirofilaria immitis adult: female - 23 to 31 cm; male - 12 to 23 cm  Dirofilaria repens adult: female - 25 to 30 cm; male - 5 to 7 cm
<b>Typical Adult Therapy</b>	Not available; excision is often diagnostic and curative
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Most patients are asymptomatic - Cough and chest pain in some cases - Solitary pulmonary coin lesion seen on imaging - Multiple tender subcutaneous nodules may be present - Eosinophilia is usually absent
<b>Synonyms</b>	Breinlia, Candidatus <i>Dirofilaria hongkongensis</i> , <i>Dirofilaria</i> sp. genotype Hongkong, Dirofilariosis, Dirofiliaria, Dog heartworm, Filaria conjunctivae, Loaina. ICD9: 125.6 ICD10: B74.8

### Dirofilariasis in Ukraine

#### Time and Place

Dirofilariasis has been a reportable disease in Ukraine since 1975. <sup>1</sup>

- Most cases are reported from Kyiv; and Donetsk, Zaporizhzhya, Dnipropetrovsk, Kherson and Chernihiv oblasts.
- During 1997 to 2002, highest rates were reported from Kherson Oblast (9.79 per 100,000) and lowest rates in western Ukraine (0.07 to 1.68 per 100,000)
- 1,533 cases were reported to December 2012, most in the age group 21 to 40 years.
- Approximately 100 cases were reported in the Zaporozhye Region during a five-year period; 10 cases during January to September 2014. <sup>2</sup>

Sporadic case reports of *Dirofilaria repens* are published. <sup>3 4 5 6</sup>

#### Cross-border events

Does not include importation of infected animals

Years	Acquired by**	Originated in**	Setting	Cases	Notes
2016*	Spain	Ukraine	immigrant / expatriate	1	A Ukrainian national in Spain was found to have dirofilariasis of the eyelid. <sup>7</sup>

\* indicates publication year (not necessarily year of event)

\*\* Country or Nationality

#### Prevalence surveys

Years	Study Group	%	Notes
2017 - 2019	dogs	3.9	<sup>8</sup>

2010 to 2011 - *Dirofilaria repens* was found in ticks which infest dogs in Kiev. <sup>9</sup>

#### References

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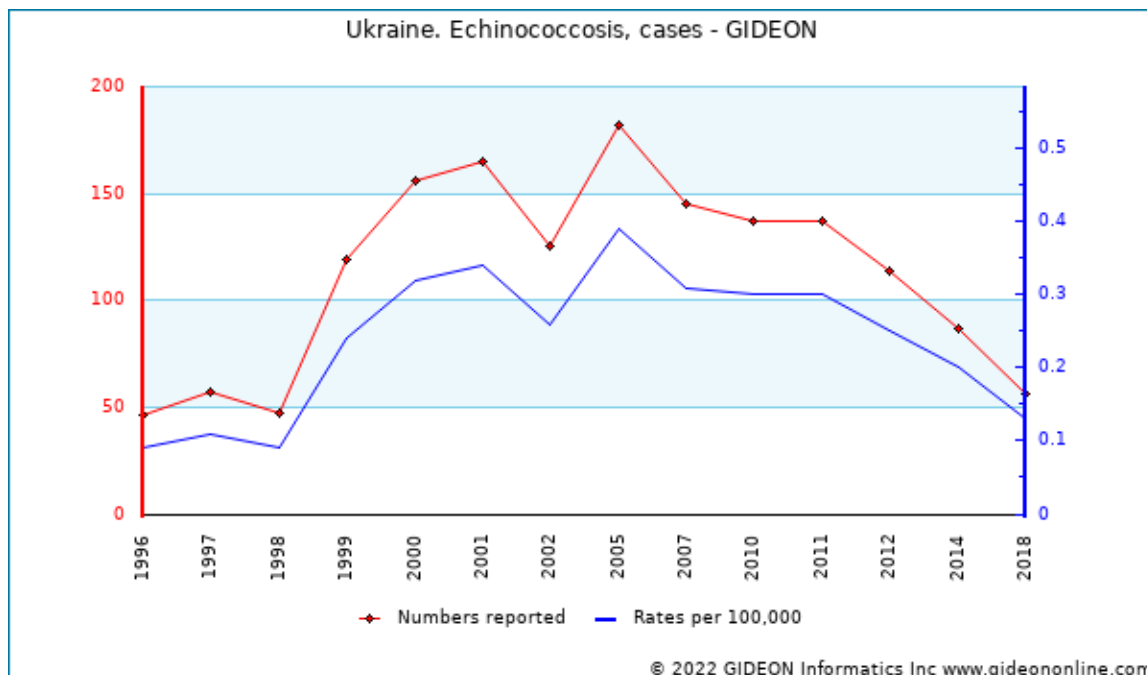
1. Acta Parasitol 2013 Dec ;58(4):592-8.
2. ProMED <promedmail.org> archive: 20141001.2822746
3. Med Parazitol (Mosk) 1973 May-Jun;42(3):358.
4. Med Parazitol (Mosk) 2005 Jan-Mar;(1):50-1.
5. Vet Rec 2004 Nov 13;155(20):638-9.
6. ProMED <promedmail.org> archive: 20210303.8219052
7. Arch Soc Esp Oftalmol 2017 09 ;92(9):439-441.
8. Sci Rep 2021 Jan 13;11(1):1068.
9. Ticks Tick Borne Dis 2013 Feb ;4(1-2):152-5.



## Echinococcosis - unilocular

<b>Agent</b>	PARASITE - Platyhelminthes, Cestoda. Cyclophyllidea, Taeniidae: <i>Echinococcus granulosus</i> , <i>Echinococcus canadensis</i>
<b>Reservoir</b>	Dog, Wolf, Dingo, Sheep, Horse, Pig, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Soil, Dog feces, Fly
<b>Incubation Period</b>	1y - 20y
<b>Diagnostic Tests</b>	Serology. Identification of parasite in surgical specimens.
<b>Typical Adult Therapy</b>	<b>Albendazole</b> 400 mg BID X 1-3 months <b>Praziquantel</b> has been used preoperatively to sterilize cyst. Follow by surgery as indicated. PAIR (puncture-aspiration-injection-reaspiration) is also used <sup>1</sup>
<b>Typical Pediatric Therapy</b>	<b>Albendazole</b> 10 mg/kg/day X 1-3 months <b>Praziquantel</b> has been used preoperatively to sterilize cyst. Follow by surgery as indicated. PAIR (puncture-aspiration-injection-reaspiration) also used
<b>Clinical Hints</b>	- Calcified hepatic cyst or mass lesions in lungs and other organs - Brain and lung involvement are common in pediatric cases
<b>Synonyms</b>	<i>Echinococcus canadensis</i> , <i>Echinococcus granulosus</i> , <i>Echinococcus intermedius</i> , <i>Echinococcus ortleppi</i> , Hydatid cyst, Unilocular echinococcosis. ICD9: 122.0,122.1,122.2,122.3,122.4 ICD10: B67.0,B67.1,B67.2,B67.3,B67.4

### Echinococcosis - unilocular in Ukraine



Graph: Ukraine. Echinococcosis, cases

- 1990 to 2000 - Echinococcosis was reported among pigs. <sup>2</sup>

**References**

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1. [Infect Dis Clin North Am 2012 Jun ;26\(2\):421-35.](#)
2. [Przegl Epidemiol 2003 ;57\(4\):579-86.](#)

**Endocarditis - infectious**

<b>Agent</b>	BACTERIUM OR FUNGUS. viridans streptococci, <i>Staphylococcus aureus</i> , enterococci, <i>Candida albicans</i> , et al.
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Endogenous
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Blood culture, clinical findings, ultrasonography of heart valves.
<b>Typical Adult Therapy</b>	Bactericidal antibiotic appropriate to species <a href="#">1</a> <a href="#">2</a> <a href="#">3</a> <a href="#">4</a>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Consider in any patient with prolonged and unexplained fever,</li><li>- Multisystem disease and a preexisting cardiac valvular lesion may be present</li><li>- Skin lesions, hematuria, neurological symptoms, single or multiple abscesses or bone, brain, lung (etc)</li></ul>
<b>Synonyms</b>	Bacterial endocarditis, Endocardite, Endocarditis, Endokarditis, Fungal endocarditis, Infectious endocarditis, S.B.E.. ICD9: 421 ICD10: I33

**References**

1. Infect Dis Clin North Am 2009 Sep ;23(3):643-64.
2. J Antimicrob Chemother 1987 Sep ;20 Suppl A:143-5.
3. Curr Cardiol Rep 2018 Aug 16;20(10):86.
4. J Am Coll Cardiol 2022 Mar 01;79(8):772-785.

## Enterobiasis

<b>Agent</b>	PARASITE - Nematoda. Secernentea: <i>Enterobius vermicularis</i>
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Fecal-oral, Air, Clothing, Sexual contact
<b>Incubation Period</b>	14d - 42d
<b>Diagnostic Tests</b>	Apply scotch tape to anal verge in a.m. & paste onto glass slide for microscopy.  Enterobius vermicularis adult: female - 8 to 13 mm; male - 1 to 4 mm
<b>Typical Adult Therapy</b>	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 <sup>1</sup>
<b>Typical Pediatric Therapy</b>	Mebendazole 100 mg PO as single dose (>age 2) - repeat in 2w. OR Pyrantel pamoate 11 mg/kg (max 1g) PO X 1
<b>Clinical Hints</b>	- Nocturnal anal pruritus - Occasionally presents with vaginitis or abdominal pain - Eosinophilia is rarely, if ever, encountered
<b>Synonyms</b>	Enterobio, Enterobius vermicularis, Oxyuriasis, Oxyuris, Pinworm, Seatworm. ICD9: 127.4 ICD10: B80

## Enterobiasis in Ukraine

### Prevalence surveys

Years	Study Group	%	Notes
2018*	women	12	Survey of women with reproductive health disorders <sup>2</sup>

\* indicates publication year (not necessarily year of survey)

### References

1. Expert Opin Pharmacother 2001 Feb ;2(2):267-75.
2. Wiad Lek 2018 ;71(3 pt 2):674-677.

## Enterovirus infection

<b>Agent</b>	VIRUS - RNA. Picornaviridae: Coxsackievirus, ECHO virus, Enterovirus, Parechovirus
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Droplet, Fecal-oral, Breastfeeding, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	2d-7d
<b>Diagnostic Tests</b>	Viral culture (stool, pharynx, CSF). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Supportive. Pleconaril 200 to 400 mg PO TID X 7d has been used for severe infections <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	Supportive. Pleconaril 8.5 mg/kg PO TID has been used for severe infections
<b>Vaccine</b>	Enterovirus 71 vaccine
<b>Clinical Hints</b>	- Summer-to-autumn sore throat - Specific forms present with conjunctivitis, chest pain, macular or vesicular rash, meningitis, myopericarditis, etc
<b>Synonyms</b>	Acute flaccid myelitis, Boston exanthem [Coxsackie. A 16], Coxsackie, Coxsackievirus, ECHO, Echovirus, Enteroviruses, Hand, foot and mouth disease, Hand-foot-and-mouth disease, Herpangina [Coxsackievirus A], HEV 68, HPeVs, Human Enterovirus 68, Human Parechovirus, Ljungan virus, Myocarditis, enteroviral, Parechovirus, Pericarditis, enteroviral. ICD9: 049,079.2,008.67,074.0,074.8,074.3,070.4,078.89 ICD10: A88.0,A87.0,B08.4,B08.5,B08.8,B30.3,B34.1

### Enterovirus infection in Ukraine

#### Prevalence surveys

Years	Region	Study Group	%	Notes
2017*	Kiev	patients - CNS	23.5	Enteroviral RNA was identified in blood specimens from 23.5% of patients with acute stroke, vs. 2.8% of a control group <sup>3</sup>

\* indicates publication year (not necessarily year of survey)

#### Seroprevalence surveys

Years	Region	Study Group	%	Notes
2017*	Kiev	patients - CNS	12.5	IgG toward Enterovirus was identified in 12.5% of patients with acute stroke, vs. 5.7% of a control group <sup>4</sup>

\* indicates publication year (not necessarily year of survey)

#### Notable outbreaks

Years	Region	Setting	Pathogen	Population	Notes
2019	Odessa	school	Coxsackievirus	students	Outbreak affected eight school classes <sup>5</sup>

#### References

1. Antimicrob Agents Chemother 2006 Jul ;50(7):2409-14.
2. J Pediatric Infect Dis Soc 2016 Mar ;5(1):53-62.
3. Wiad Lek 2017;70(2):187-191.
4. Wiad Lek 2017;70(2):187-191.
5. ProMED <promedmail.org> archive: 20191120.6788864

## Epidural abscess

<b>Agent</b>	BACTERIUM. <i>Staphylococcus aureus</i> , facultative gram negative bacilli, etc
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Endogenous
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Imaging (CT scan, MRI). Gram-stain and culture of blood or pus.
<b>Typical Adult Therapy</b>	Intravenous antibiotic(s) appropriate to identified or suspected pathogens. Drainage as indicated <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	Intravenous antibiotic(s) appropriate to identified or suspected pathogen. Drainage as indicated
<b>Clinical Hints</b>	- Frontal bone abscess; or spinal cord compression with signs of infection - Often in setting of injecting drug abuse or preexisting staphylococcal infection
<b>Synonyms</b>	ICD9: 324.9 ICD10: G06.1,G06.2

### References

1. Continuum (Minneap Minn) 2018 Oct ;24(5, Neuroinfectious Disease):1327-1348.
2. Acta Neurochir (Wien) 2018 Mar ;160(3):487-496.

## Erysipelas or cellulitis

<b>Agent</b>	BACTERIUM. Erysipelas: <i>Streptococcus pyogenes</i> Cellulitis: <i>Staphylococcus aureus</i> , <i>Streptococcus pyogenes</i> , occasionally others
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Endogenous
<b>Incubation Period</b>	1d - 7d
<b>Diagnostic Tests</b>	Clinical diagnosis is usually sufficient. Aspiration of lesion for smear and culture may be helpful in some cases.
<b>Typical Adult Therapy</b>	Antibiotic directed at likely pathogens (Group A Streptococcus and Staphylococcus aureus) <sup>1 2 3 4</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Erysipelas is well-circumscribed, tender, edematous (peau d'orange), warm and painful - Cellulitis is less painful, flat and without a distinct border
<b>Synonyms</b>	Cellulite, Cellulitis, Celulite, Celulitis, Erisipela, Erysipelas, St. Anthony's fire (erysipelas), St. Francis' fire (erysipelas), Zellulitis. ICD9: 035,681,682 ICD10: A46,L03

### References

1. 2018 01 ;
2. Cochrane Database Syst Rev 2017 06 20;6:CD009758.
3. Cochrane Database Syst Rev 2010 Jun 16;(6):CD004299.
4. BMJ Clin Evid 2008 Jan 02;2008

## Erysipeloid

Agent	BACTERIUM. <i>Erysipelothrix rhusiopathiae</i> A facultative gram-positive bacillus
Reservoir	Mammal, Bird, Fish, Zoonotic
Vector	None
Vehicle	Contact with meat (mammal, poultry or fish)
Incubation Period	1d - 7d
Diagnostic Tests	Culture.
Typical Adult Therapy	Oral therapy for 7 days: <a href="#">Penicillin V</a> , <a href="#">Cephalexin</a> , <a href="#">Ciprofloxacin</a> , <a href="#">Clindamycin</a> . For diffuse cutaneous or systemic infection parenteral therapy: <a href="#">Penicillin</a> , <a href="#">Ceftriaxone</a> , <a href="#">Imipenem</a> , <a href="#">Ciprofloxacin</a> , <a href="#">Levofloxacin</a> , <a href="#">Daptomycin</a> <sup>1 2 3</sup>
Typical Pediatric Therapy	Oral therapy for 10 days: <a href="#">Penicillin V</a> , <a href="#">Ampicillin</a> , third-generation cephalosporin or <a href="#">Erythromycin</a> , <a href="#">Clindamycin</a> are generally adequate
Clinical Hints	<ul style="list-style-type: none"> <li>- Typically follows contact with raw animal or fish products</li> <li>- Annular erythema or "target lesion" on hand</li> <li>- Fever is present in only 10% of cases.</li> <li>- Local pain and swelling, without discharge</li> </ul>
Synonyms	<i>Erysipelothrix rhusiopathiae</i> , Rutlauf. ICD9: 027.1 ICD10: A26

### Erysipeloid in Ukraine

Ukraine. Erysipeloid, cases: None reported between 1997 and 2004

### References

1. Arch Derm Syphilol 1945 Nov-Dec;52:400.
2. Rev Infect Dis 1988 Mar-Apr;10(2):317-25.
3. Clin Microbiol Rev 1989 Oct ;2(4):354-9.



## Erythrasma

<b>Agent</b>	BACTERIUM. <i>Corynebacterium minutissimum</i> A facultative gram-positive bacillus
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Endogenous
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Coral fluorescence of skin lesion under Wood's lamp. Culture (alert lab regarding diagnosis).
<b>Typical Adult Therapy</b>	For limited disease: Topical <a href="#">Clindamycin</a> 2%, topical <a href="#">Erythromycin</a> and topical <a href="#">Fusidic acid</a> . For extensive disease: <a href="#">Erythromycin</a> 250 mg PO QID X 14d OR <a href="#">Clarithromycin</a> 1 g PO taken once <sup>1</sup>
<b>Typical Pediatric Therapy</b>	For limited disease: Topical <a href="#">Clindamycin</a> 2%, topical <a href="#">Erythromycin</a> and topical <a href="#">Fusidic acid</a> . For extensive disease: <a href="#">Erythromycin</a> 10 mg/kg PO QID X 14d
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Common in obese or diabetic males</li><li>- Pruritic, scaling, slowly-progressive red-brown patch</li><li>- Usually affects the groin - occasionally in toe webs</li><li>- Coral fluorescence under Wood's light.</li></ul>
<b>Synonyms</b>	<i>Corynebacterium minutissimum</i> , Eritrasma. ICD9: 039.0 ICD10: L08.1

### References

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1. [J Dermatolog Treat 2013 Feb ;24\(1\):70-4.](#)

## Escherichia coli diarrhea

<b>Agent</b>	BACTERIUM. <i>Escherichia coli</i> A facultative gram-negative bacillus
<b>Reservoir</b>	Human, Mammal, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Food, Water, Fecal-oral
<b>Incubation Period</b>	1d - 3d (range 12h - 10d)
<b>Diagnostic Tests</b>	Stool culture. Request characterization of E. coli isolates.
<b>Typical Adult Therapy</b>	Supportive therapy. If EHEC, avoid anti-motility drugs and antimicrobial agents. Plasma exchange may be effective in HUS  Note that antimicrobial agents may increase risk for hemolytic-uremic syndrome when used in cases of E. coli O157:H7 infection <sup>1</sup>
<b>Typical Pediatric Therapy</b>	Supportive therapy. If EHEC, avoid anti-motility drugs and antimicrobial agents. Plasma exchange may be effective in HUS  Note that antimicrobial agents may increase risk for hemolytic-uremic syndrome when used in cases of E. coli O157:H7 infection
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Watery diarrhea or dysentery</li> <li>- Common among travelers and infants</li> <li>- Hemorrhagic colitis and hemolytic uremic syndrome with type O157, and occasionally other strains</li> </ul>
<b>Synonyms</b>	DAEC (Diffusely Adherent E. coli), E. coli diarrhea, EAEC (Enteroadherent E. coli), EAggEC (Enteraggregative E. coli), EHEC (Enterohemorrhagic E. coli), EIEC (Enteroinvasive E. coli), EPEC (Enteropathogenic E. coli), Escherichia albertii, ETEC (Enterotoxigenic E. coli), Hemolytisch-uramisches Syndrom, Hemolytic Uremic Syndrome, HUS. ICD9: 008.0 ICD10: A04.0,A04.1,A04.2,A04.3,A04.4

### Escherichia coli diarrhea in Ukraine

2009 - 2,987 cases of EPEC infection were reported.

#### References

1. [Expert Rev Anti Infect Ther 2016 ;14\(2\):193-206.](#)

Fascioliasis	
Agent	PARASITE - Platyhelminthes, Trematoda. Echinostomatida, Fasciolidae: <i>Fasciola hepatica</i> or <i>Fasciola gigantica</i>
Reservoir	Sheep, Cattle, Snail ( <i>Lymnaea</i> , <i>Galba</i> , <i>Fossaria</i> ), Zoonotic
Vector	None
Vehicle	Food, Aquatic plants, Watercress ( <i>Nasturtium officinale</i> )
Incubation Period	2w - 3m
Diagnostic Tests	Identification of ova in stool or duodenal aspirates (adult parasite in tissue). Serology. PCR. CT scan.  Fasciola hepatica adult: 13 mm X 30 mm
Typical Adult Therapy	Triclabendazole 10 mg/kg PO X 2 doses. OR Nitazoxanide 500 mg PO BID X 7d <sup>1 2 3</sup>
Typical Pediatric Therapy	Triclabendazole 10 mg/kg PO X 2 doses. OR Nitazoxanide: Age 1 to 3y 100 mg BID X 7 d Age 4 to 11y 200 mg BID X 7d  Multiple regimens may be necessary for cure in some cases
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.

## Fascioliasis in Ukraine

### Note for former U.S.S.R.

- 2003 (publication year) - *Fasciola hepatica* has been identified in elk (*Alces alces*), red deer (*Cervus elaphus*) and roe deer (*Capreolus capreolus*) from the Belorussian Polesie.<sup>4</sup>
- 131 cases were reported from the former U.S.S.R. in the literature during 1969 to 1989 - most from Tajikistan.

### References

1. Aliment Pharmacol Ther 2003 Jan ;17(2):265-70.
2. Am J Trop Med Hyg 1995 Jun ;52(6):532-5.
3. J Glob Antimicrob Resist 2021 Apr 13;
4. Parasitol Res 2003 Jan ;89(1):75-6.

## Fungal infection - invasive

<b>Agent</b>	FUNGUS. Various (major syndromes such as Candidiasis, Blastomycosis, etc are discussed separately in this module)
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Endogenous, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Culture of blood, urine, biopsy material. Serum antigen or antibody assay in some cases.
<b>Typical Adult Therapy</b>	Antifungal agent(s) directed at known or likely pathogen <a href="#">1</a> <a href="#">2</a> <a href="#">3</a>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Fungal etiology should be suspected in any patient with evidence of severe local or multisystem infection - Commonly encountered in the setting of immune suppression
<b>Synonyms</b>	Acremonium, Acrophialophora, Adiaspiromycosis, Allescheriasis, Alternaria, Arthrographis kalrae, Arxiozyma, Athopsis, Aureobasidium, Bipolaris, Blastobotrys proliferans, Chaetomium, Chrysosporium, Cladophialophora, Cladosporium, Curvularia, Cyphellophora, Dactylaria, Debaryomyces, Dreschlera, Emergomyces, Emmonsia, Exophiala, Exserohilum, Fonsecaea, Fungal meningitis, Fungal sepsis, Fusariosis, Fusarium, Geosmithia, Geosmithia argillacea, Geotrichosis, Graphium, Hansenula, Haplomycosis, Hendersonula, Humicola, Hyalophycomycosis, Kazachstania, Kluyveromyces, Lasiodiplodia, Lecythophora, Lomentospora, Magnusiomyces, Malassezia furfur, Monascus, Monosporiosis, Mycoentrospora, Nannizziopsis, Neocosmospora vasinfecta, Neosartorya hiratsukae, Neosartorya udagawae, Neoscytalidium, Ochroconis, Oidiodendron, Paecilomyces, Paraconiothyrium, Parathyridaria, Pestalotiopsis, Phaeoacremonium, Phaeohyphomycosis, Phialemoniopsis, Phialophora, Phoma, Pichia, Pseudallescheria, Pseudallescheriasis, Pseudochaetosphaeronema martinelli, Purpureocillium, Pyrenochaeta, Ramichloridium, Rhinocladiella, Rhytidhysterion, Saccharomyces, Saprochaete, Sarcopodium, Sarocladium, Scedosporium, Septicemia - fungal, Taeniolella, Thielavia, Trichoderma, Truncatella, Ulocladium, Veronacea, Verruconis, Wallemia. ICD9: 117.6,117.8,117.9,118 ICD10: B43.1,B43.2,B43.8,B48.2,B48.3,B48.7,B48.8

### References

1. Pharmacol Ther 2018 Oct 19;
2. Curr Opin Infect Dis 2018 Dec ;31(6):490-498.
3. J Mycol Med 2018 Sep ;28(3):574-584.

## Gastroenteritis - viral

<b>Agent</b>	VIRUS - RNA Calicivirus (Norwalk, Hawaii, Sapporo, Snow Mountain, Norovirus); Torovirus; or Astrovirus
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Food, Water, Shellfish, Vegetables
<b>Incubation Period</b>	Norwalk 1d - 2d; Astrovirus 3d - 4d
<b>Diagnostic Tests</b>	Demonstration of virus (electron microscopy or stool antigen analysis). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Stool precautions; supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Vomiting (less common with Astrovirus) and abdominal pain</li> <li>- Loose, watery diarrhea lasting 1 to 3 days</li> <li>- Fecal leucocytes not present</li> <li>- Fever in 50%</li> <li>- Headache or myalgia in some cases</li> </ul>
<b>Synonyms</b>	<p>Aichi, Astroviridae, Astrovirus, Bufavirus, Calicivirus gastroenteritis, Chiba, Cosavirus, Cutavirus, Cyclovirus, Diarrhea, Gastroenterite virale, Hawaii agent gastroenteritis, Human cosavirus, Klassevirus, Mexico virus, Mini-reovirus, Minireovirus, Norovirus gastroenteritis, Norwalk agent gastroenteritis, Norwalk-like, Parkville virus gastroenteritis, Picobirnavirus, Protoparvovirus, Recovirus, Roskilde disease, Saffold Cardiovirus, Salivirus, Sapovirus, Sapporo, Sapporo-like, Snow Mountain, SRSV gastroenteritis, STL polyomavirus, STLPyV, Toronto virus, Torovirus, Tusavirus, Vinterkraksjuka, Viral gastroenteritis, Winter vomiting disease.</p> <p>ICD9: 008.8,008.69,008.62,008.63,008.64,008.65,008.66,008.67 ICD10: A08.1,A08.2,A08.3,A08.4</p>

### Gastroenteritis - viral in Ukraine

#### Prevalence surveys

Years	Region	Study Group	%	Notes
2009	Multiple locations	children	4	Viral pathogens were found in 4.0% of Rotavirus-negative fecal specimens from children below age 5 years (Armenia, Azerbaijan, Belarus, Georgia, Republic of Moldova and Ukraine) <sup>1</sup>
2016	Odessa	general population	13.6	Viruses (Rotavirus, Norovirus, Adenovirus) were identified in 13.60% of patients with gastroenteritis <sup>2</sup>

#### References

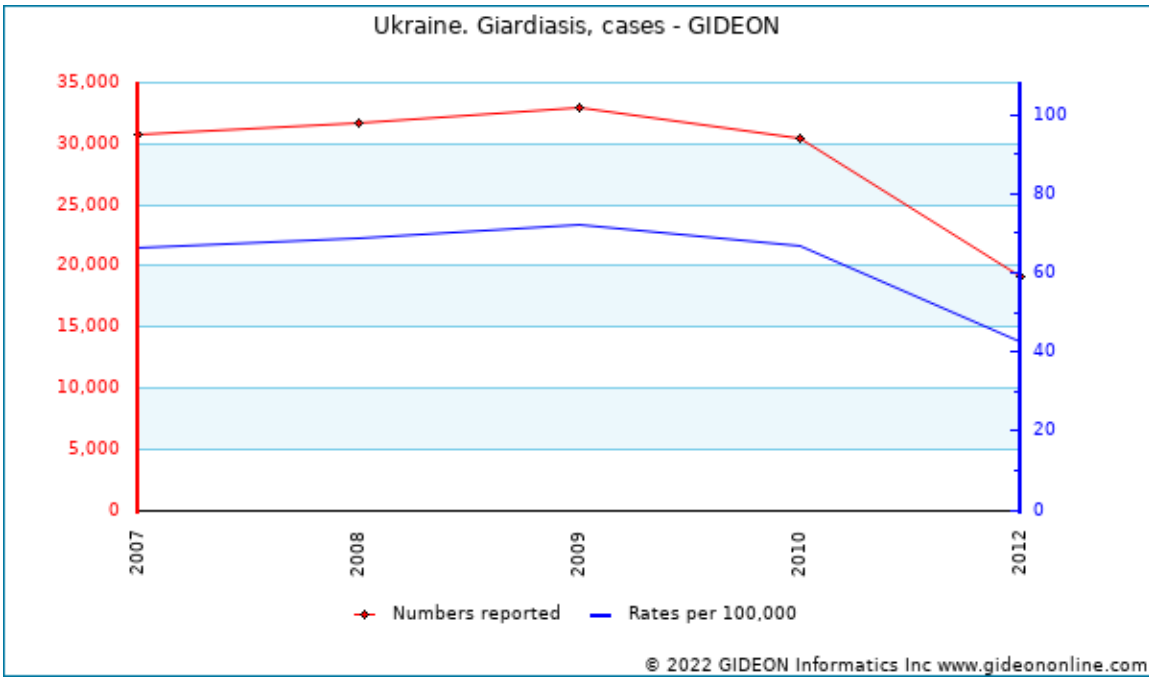
1. Infect Genet Evol 2014 Dec ;28:283-8.
2. Georgian Med News 2019 May ;(290):77-85.

**Gianotti-Crosti syndrome**

<b>Agent</b>	UNKNOWN
<b>Reservoir</b>	Unknown
<b>Vector</b>	None
<b>Vehicle</b>	Unknown
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Clinical features and skin biopsy findings.
<b>Typical Adult Therapy</b>	None
<b>Typical Pediatric Therapy</b>	None
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- History of recent viral illness or vaccination</li><li>- Generalized skin eruption involving the extremities, face and buttocks</li><li>- Lymphadenopathy of the axillae and inguinal region</li><li>- Anicteric hepatitis may occur</li><li>- Illness resolves in 15 to 42 days</li><li>- Rare outbreaks have been reported</li></ul>
<b>Synonyms</b>	Acrodermatitis papulosa infantilis, Papular acrodermititis of childhood, Papulovesicular acrolocated syndrome. ICD9: 693.0 ICD10: L27.8

Giardiasis	
Agent	PARASITE - Protozoa. Sarcocystidophora, Metamonada, Trepononadea. Flagellate: <i>Giardia lamblia</i> ( <i>G. intestinalis</i> , <i>G. duodenalis</i> )
Reservoir	Human, Beaver, Muskrat, Dog, Cat, Carnivores, Sheep, Goat, Horse, Cattle, Zoonotic
Vector	None
Vehicle	Food, Water, Fecal-oral, Fly
Incubation Period	1w - 3w (range 3d - 6w)
Diagnostic Tests	String test (gelatin capsule containing string). Stool microscopy or antigen assay. Nucleic acid amplification.
Typical Adult Therapy	<a href="#">Tinidazole</a> 2 g PO X1. OR <a href="#">Nitazoxanide</a> 500 mg PO BID X 3d  Alternatives: <a href="#">Metronidazole</a> 250 mg PO TID X 5d. OR <a href="#">Furazolidone</a> 100 mg PO QID X 7d. OR <a href="#">Paromomycin</a> 10 mg/kg PO TID X 7d OR <a href="#">Quinacrine</a> 100 mg PO TID X 5d <sup>1 2 3 4</sup>
Typical Pediatric Therapy	<a href="#">Tinidazole</a> 50 mg PO X 1 (maximum 2g). OR <a href="#">Nitazoxanide</a> : Age 1 to 3y 100 mg BID X 7 d Age 4 to 11y 200 mg BID X 7d  Alternatives: <a href="#">Metronidazole</a> 5 mg/kg PO TID X 5d. OR <a href="#">Furazolidone</a> 2 mg/kg QID X 7d
Clinical Hints	<ul style="list-style-type: none"> <li>- Foul smelling, bulky diarrhea</li> <li>- Nausea and flatulence</li> <li>- Upper abdominal pain is common</li> <li>- Illness may "wax and wane"</li> <li>- Weight loss and low-grade fever are common</li> <li>- Severe or intractable infection may suggest underlying IgA deficiency</li> </ul>
Synonyms	Beaver fever, <i>Giardia duodenalis</i> , <i>Giardia intestinalis</i> , <i>Giardia lamblia</i> , Lambliosis. ICD9: 007.1 ICD10: A07.1

**Giardiasis in Ukraine**



Graph: Ukraine. Giardiasis, cases

**Seroprevalence surveys**

Years	Study Group	%	Notes
2018*	women	7.5	Survey of women with reproductive health disorders <sup>5</sup>

\* indicates publication year (not necessarily year of survey)

**References**

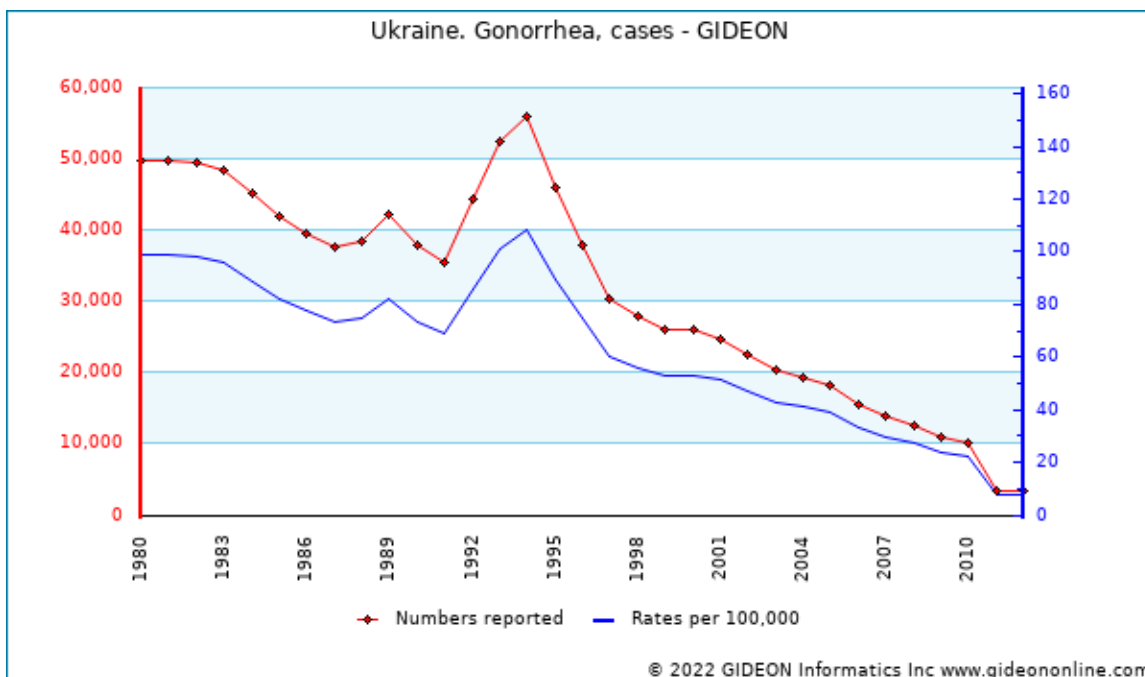
1. Expert Rev Anti Infect Ther 2014 Sep ;12(9):1143-57.
2. 2018 01 ;
3. Clin Microbiol Infect 2018 Jan ;24(1):37-42.
4. J Infect Dis 2021 May 24;
5. Wiad Lek 2018 ;71(3 pt 2):674-677.



## Gonococcal infection

<b>Agent</b>	BACTERIUM. <i>Neisseria gonorrhoeae</i> An aerobic gram-negative coccus
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Sexual, contact, Childbirth, Exudates, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	2d - 7d
<b>Diagnostic Tests</b>	Smear (male), culture. Consult laboratory for proper acquisition & transport. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	<a href="#">Ceftriaxone</a> 500 mg IM X 1.  If chlamydial infection has not been excluded, add <a href="#">Doxycycline</a> 100 mg PO BID X 7 days <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	Weight <=45 kg: <a href="#">Ceftriaxone</a> 25 - 50 mg/kg IM or IV X 1 (max. 125 mg IM) Weight >45 kg: as for adult.
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Onset 2 to 7 days after sexual exposure</li> <li>- Copious urethral discharge (male) or cervicitis</li> <li>- Pelvic inflammatory disease</li> <li>- Systemic disease associated with fever, painful pustules and suppurative arthritis (primarily encountered in postmenstrual females)</li> </ul>
<b>Synonyms</b>	Blenorrhagia, Blenorragia, Gonococcemia, Gonore, Gonorre, Gonorraea, Gonorrhoea, Gonorrhoe, Gonorrhoe, Gonorrhoe, Infeccion gonococica, Infeccoes gonococicas, Neisseria gonorrhoeae. ICD9: 098 ICD10: A54

### Gonococcal infection in Ukraine



Graph: Ukraine. Gonorrhoea, cases

## Notes:

## Individual years:

1996 - 73.3 per 100,000 among girls ages 16 to 18 <sup>4</sup>

**Prevalence surveys**

Years	Region	Study Group	%	Notes
2021*	Kyiv	women	2.1	Survey of vulvovaginal infection among women with a past history of sexually-transmitted infection <sup>5</sup>
2019*	Ternopil	various	1.5	Survey of "consecutive mostly symptomatic females and males" <sup>6</sup>
1999 - 2005		pregnant women	0	0% of pregnant HIV-infected women <sup>7</sup>

\* indicates publication year (not necessarily year of survey)

- 2013 to 2018 - 136 adult were treated for gonorrhoea at an STD clinic in Ternopil - m / f ratio 6.6 / 1. <sup>8</sup>

**Drug resistance**

- 2013 to 2018 - 9.3% (or 11.3% <sup>9</sup> of *Neisseria gonorrhoeae* isolates in Ternopil and Dnipropetrovsk were resistant to ciprofloxacin, 6.0% to tetracycline, 2.0% to azithromycin and 0.7% to penicillin G. <sup>10</sup>

**References**

1. MMWR Recomm Rep 2015 Jun 05;64(RR-03):1-137.
2. Clin Infect Dis 2014 Oct 15;59(8):1083-91.
3. 2016 ;
4. Entre Nous Cph Den 1999 ;(45):13-4.
5. Wiad Lek 2021 ;74(4):896-901.
6. APMIS 2019 Jun 21;
7. Eur J Epidemiol 2007 ;22(12):925-36.
8. J Med Life 2020 Jan-Mar;13(1):75-81.
9. APMIS 2020 May 21;
10. APMIS 2019 Mar 23;

## Granuloma inguinale

<b>Agent</b>	BACTERIUM. <i>Klebsiella granulomatis</i> (formerly <i>Calymmatobacterium granulomatis</i> ) A gram-negative bacillus
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Sexual, contact, Direct contact
<b>Incubation Period</b>	7d - 30d (range 3d - 1 year)
<b>Diagnostic Tests</b>	Identification of organism in stained smears. Culture in specialized laboratories (HEp-2 cells).
<b>Typical Adult Therapy</b>	<a href="#">Azithromycin</a> 1 g weekly X 3 w. Alternatives: <a href="#">Doxycycline</a> 100 mg BID PO X 3w. <a href="#">Sulfamethoxazole / Trimethoprim</a> 800/160 mg BID X 3w <a href="#">Erythromycin</a> 500 mg QID X 3w. <a href="#">Ciprofloxacin</a> 750 mg BID X 3w <sup>1</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Azithromycin</a> 10 mg / kg po day 1; then 250 mg / kg daily days 2 to 5 Alternatives: <a href="#">Sulfamethoxazole / Trimethoprim</a> , <a href="#">Erythromycin</a> or <a href="#">Doxycycline</a>
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Slowly expanding, ulcerating skin nodule with friable base</li> <li>- Usually painless</li> <li>- May be complicated by edema or secondary infection</li> <li>- Rarely spreads to bone or joints</li> </ul>
<b>Synonyms</b>	<i>Calymmatobacterium granulomatis</i> , Donovanosis, Granuloma genitoinguinale, Granuloma inguinale tropicum, Granuloma venereum, Sixth venereal disease. ICD9: 099.2 ICD10: A58

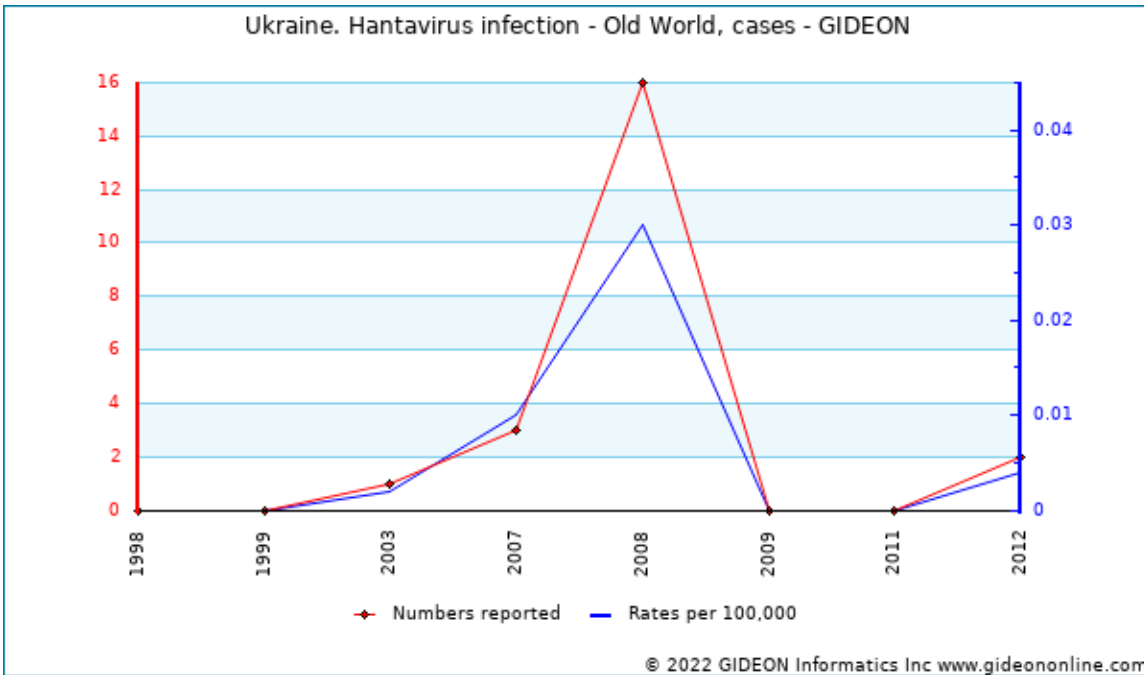
## References

1. [MMWR Recomm Rep 2015 Jun 05;64\(RR-03\):1-137.](#)

## Hantaviruses - Old World

<b>Agent</b>	VIRUS - RNA. Bunyaviridae, Hantavirus - Old world : Hantaan, Puumala, Dobrava/Belgrade, Saaremaa & Seoul viruses
<b>Reservoir</b>	Field mouse ( <i>Apodemus agrarius</i> -Hantaan), Vole ( <i>Myodes glareolus</i> -Puumala), Rat ( <i>Rattus norvegicus</i> -Seoul), Bat, Bird, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Animal excreta, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	12d - 21d (range 4d - 42d)
<b>Diagnostic Tests</b>	Biosafety level 3.  Serology. Viral culture. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Supportive. Suggest <a href="#">Ribavirin</a> : Loading dose 33 mg/kg, then 16 mg/kg IV q6h X 4d, then 8 mg/kg q8h X 3d <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	Supportive. Suggest <a href="#">Ribavirin</a>
<b>Vaccine</b>	<a href="#">Hantavirus vaccine</a>
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Headache, backache, myalgia, diarrhea, vomiting, conjunctivitis</li> <li>- Hemorrhage and azotemia</li> <li>- Proteinuria and thrombocytopenia are common</li> <li>- History of local rodent infestation may be elicited</li> <li>- Case-fatality rates 0.1% (Puumala virus) to 15% (Belgrade virus)</li> </ul>
<b>Synonyms</b>	Acute epidemic hemorrhagic fever, Anjozorobe , Bosnian hemorrhagic fever, Churilov disease, Dobrava/Belgrade, Endemic benign nephropathy, Epidemic hemorrhagic fever, Far eastern hemorrhagic fever, Haemorrhagic nephrosonephritis, Hantaan, Hemorrhagic fever & renal syndrome, Imjin virus, Infectious hemorrhagic fever, Khabarovsk, Korean hemorrhagic fever, Mouse fever, Muju, Muroid virus nephropathy, Nephropathia epidemica, Puumala, Rodent-borne viral nephropathy, Saaremaa, Sandinavian epidemic nephropathy, Sangassou, Seoul, Sochi virus, Songo fever, Sorkfeber, Thailand orthohantavirus, Thailand virus, Thottapalayam, Topografov, Tula, Viral hemorrhagic fever, Viral hemorrhagic fevers. ICD9: 078.6 ICD10: A98.5

## Hantaviruses - Old World in Ukraine



Graph: Ukraine. Hantavirus infection - Old World, cases

### Seroprevalence surveys

Years	Region	Study Group	%	Notes
2020*	Lviv	general population	1.6	<sup>4</sup>
2019	Northwest Region	rodents	15.7-33.9	15.7% of <i>Myodes glareolus</i> , 20.5% of <i>Apodemus agrarius</i> and 33.9% of <i>Apodemus flavicollis</i> <sup>5</sup>

\* indicates publication year (not necessarily year of survey)

Also see note for Russian Federation.

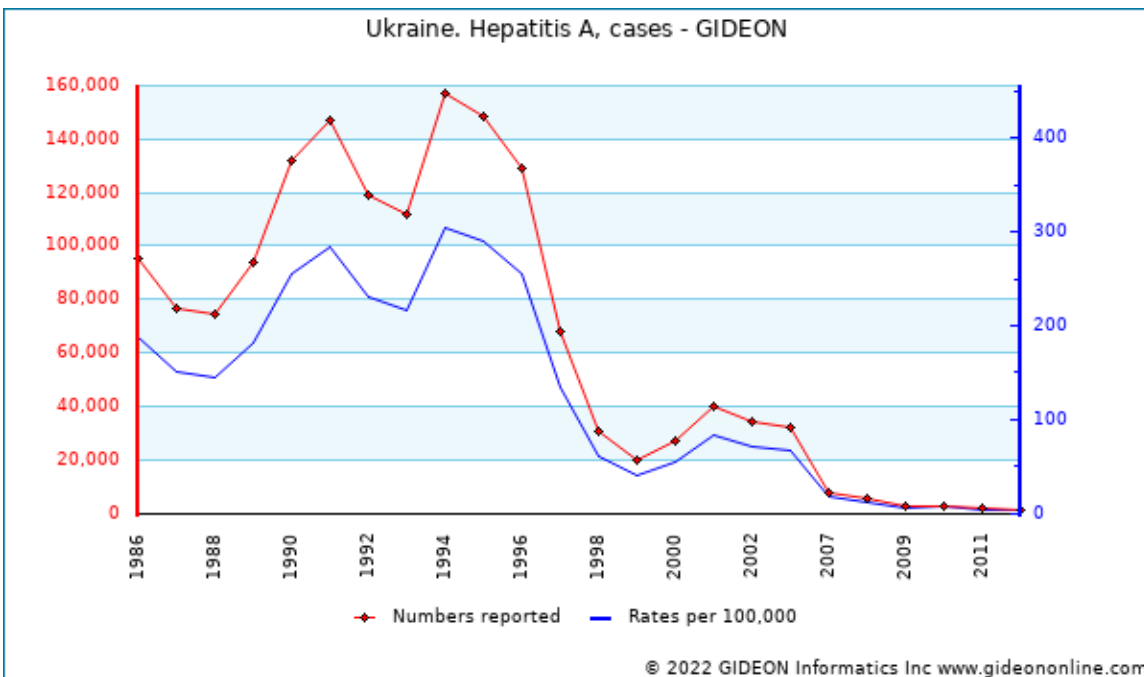
### References

1. J Infect Dis 1991 Dec ;164(6):1119-27.
2. Acta Virol 2017;61(1):3-12.
3. Virusdisease 2014 ;25(3):385-9.
4. Front Cell Infect Microbiol 2020 ;10:589464.
5. Viruses 2021 Aug 18;13(8)

## Hepatitis A

<b>Agent</b>	VIRUS - RNA. Picornaviridae, Hepatovirus: Hepatitis A virus
<b>Reservoir</b>	Human, Non-human primate
<b>Vector</b>	None
<b>Vehicle</b>	Fecal-oral, Food, Water, Milk, Fly, Breastfeeding
<b>Incubation Period</b>	21d - 30d (range 14d - 60d)
<b>Diagnostic Tests</b>	Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Stool precautions; supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Vaccine</b>	<a href="#">Hepatitis A + Hepatitis B vaccine</a> <a href="#">Hepatitis A vaccine</a> <a href="#">Immune globulin</a>
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Vomiting, anorexia, dark urine, light stools and jaundice</li> <li>- Rash and arthritis occasionally encountered</li> <li>- Fulminant disease, encephalopathy and fatal infections are rare</li> <li>- Case-fatality rate 0.15% to 2.7%, depending on age</li> </ul>
<b>Synonyms</b>	Botkin's disease, Epatite A, HAV, Hepatite per virus A, Infectious hepatitis. ICD9: 070.0 ICD10: B15.0, B15.9

### Hepatitis A in Ukraine



Graph: Ukraine. Hepatitis A, cases

### Seroprevalence surveys

Years	Region	Study Group	%	Notes
2008*	Kiev	general population	31.9	31.9% of individuals in Kiev City - 9.2% ages 1 to 5, and 81.7% above age 50 (2008 publication) <sup>1</sup>

\* indicates publication year (not necessarily year of survey)

#### Notable outbreaks

Years	Region	Setting	Cases	Source	Population	Notes
1994*				water		An outbreak of hepatitis A and hepatitis E infection was ascribed to mass contamination of drinking water. <sup>2</sup>
2003	Luhansk		479	water		An outbreak (479 cases) of hepatitis A in Sukhodilsk, Luhansk Region was ascribed to contaminated water. <sup>3 4</sup>
2013	Zhitomir		17			
2019	Chernigov	school	15		students	<sup>5</sup>

\* indicates publication year (not necessarily year of outbreak)

#### References

1. J Viral Hepat 2008 Oct ;15 Suppl 2:43-6.
2. Zh Mikrobiol Epidemiol Immunobiol 1994 Jan-Feb;(2):63-7.
3. Vaccine 2008 Jun 13;26(25):3135-7.
4. ProMED <promedmail.org> archive: 20030718.1766
5. ProMED <promedmail.org> archive: 20191031.6752534

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. For chronic infection: <a href="#">Entecavir</a> OR <a href="#">Tenofovir</a> OR <a href="#">Peginterferon alfa-2a</a> OR <a href="#">Peginterferon alfa-2b</a> <sup>1 2</sup>
Typical Pediatric Therapy	As for adult
Vaccines	<a href="#">Hepatitis A + Hepatitis B vaccine</a> <a href="#">Hepatitis B + Haemoph. influenzae vaccine</a> <a href="#">Hepatitis B immune globulin</a> <a href="#">Hepatitis B vaccine</a>
Clinical Hints	- Vomiting and jaundice - Rash or arthritis occasionally noted - Fulminant and fatal infections are encountered - Risk group (drug abuse, blood products, sexual transmission) - Hepatic cirrhosis or hepatoma may follow years after acute illness
Synonyms	Epatite B, HBV, Hepatite per virus B, Serum hepatitis. ICD9: 070.1 ICD10: B16.2,B16.9, B16.1

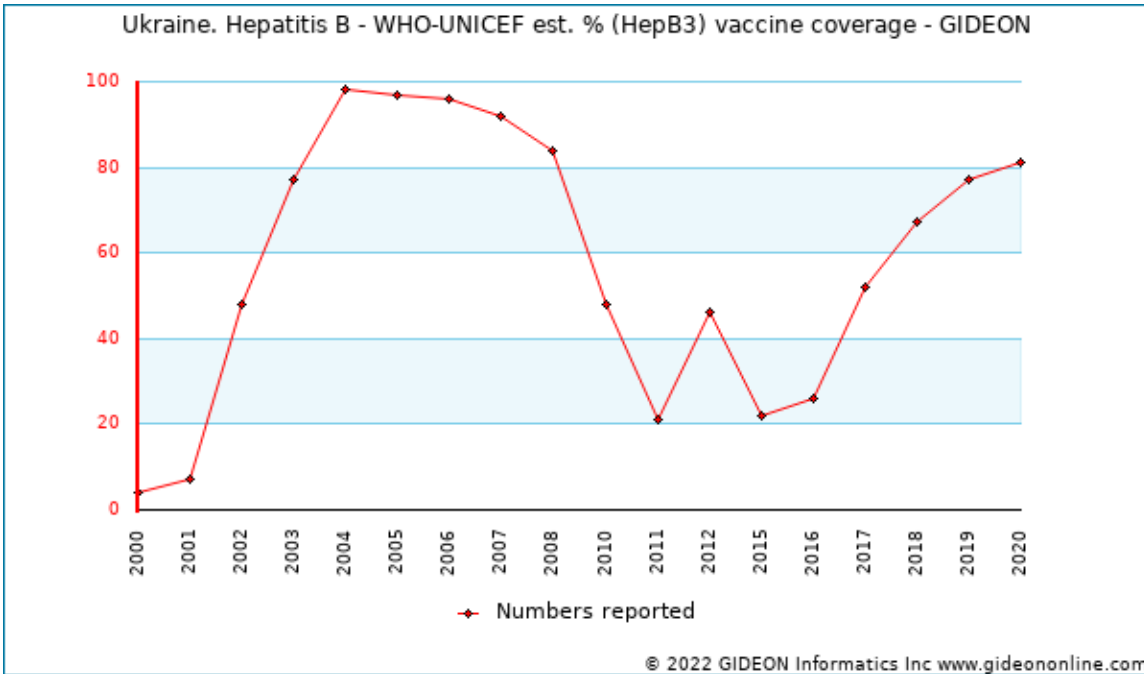
## Hepatitis B in Ukraine

### Vaccine Schedule:

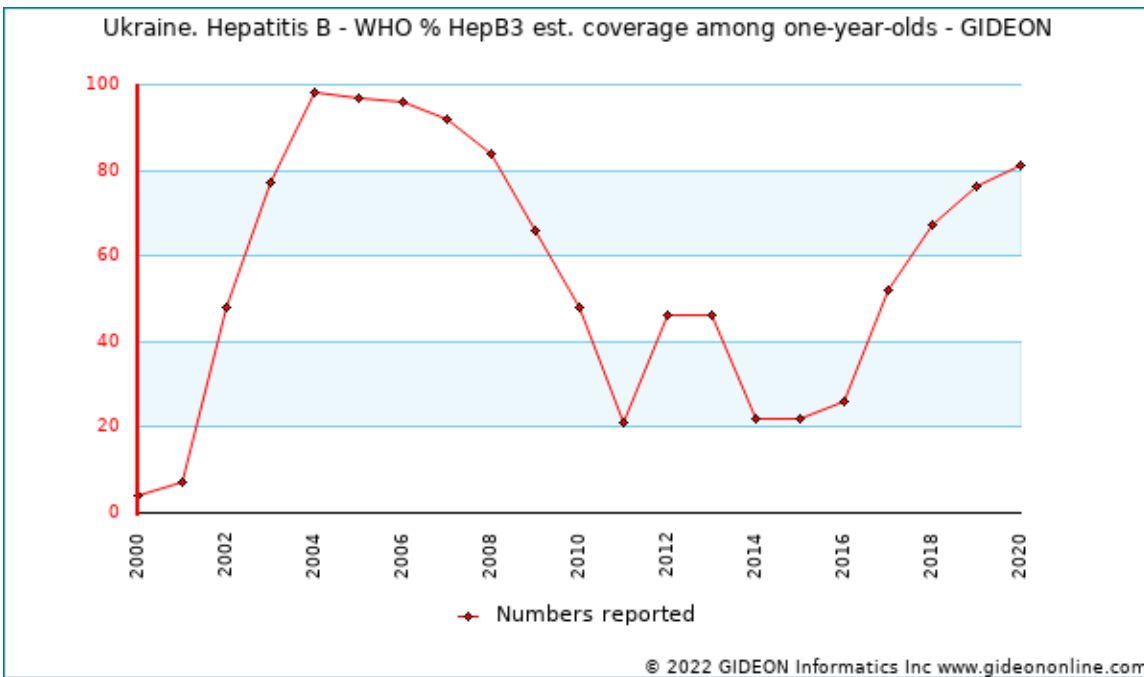
BCG - 3 days  
 DT - 6 years  
 DTP - 2,4,6,18 months  
 DTPHibHepB - 2 months  
 HepB - birth 1,6 months  
 Hib - 2,4,12 months  
 IPV - 2,4 months  
 MMR - 12 months; 6 years  
 OPV - 6, 18 months; 6, 14 years  
 Td - 16,26,36,46,56 years

Mandatory vaccination against Hepatitis B was introduced in 2003.

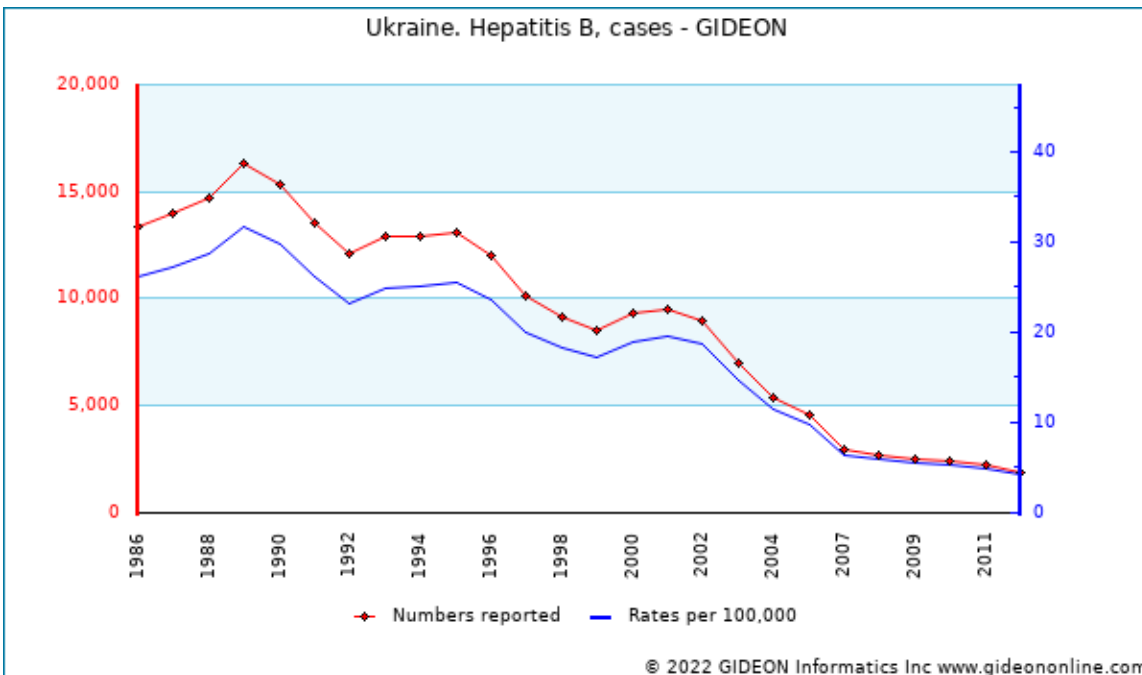




Graph: Ukraine. Hepatitis B - WHO-UNICEF est. % (HepB3) vaccine coverage



Graph: Ukraine. Hepatitis B - WHO % HepB3 est. coverage among one-year-olds



Graph: Ukraine. Hepatitis B, cases

Rates (per 100,000) of hepatitis B in Ukraine were 6.8 in 1970; 31.5 in 1989; 26.1 in 1991; 23.4 in 1996; 7.8 in 2006 and 7.7 in 2008.

**Prevalence surveys**

Years	Region	Study Group	%	Notes
2018*	Lviv	patients - chronic liver disease	3	Hepatitis B was identified in 3% of patients with hepatic encephalopathy <sup>3</sup>

\* indicates publication year (not necessarily year of survey)

**HBsAg-positivity surveys**

Years	Region	Study Group	%	Notes
1996*	Northwest Region	children	8.3	8.3% of children in boarding school (1996 publication) <sup>4</sup>
2017	Multiple locations	children	0.2	Survey of children in Zakarpattya, Sumy, and Odessa provinces, and Kyiv City, who were born during 2004 to 2007 <sup>5</sup>
2013*	Nationwide	prisoners	5.2	5.2% of prisoners at the time of release (2013 publication) <sup>6</sup>
2013*		general population	1.3	1.3% of the general population (2013 publication) <sup>7</sup>
2010		blood donors	0.69	0.690% of blood donors in 2010
2012	Nationwide	blood donors	0.546	<sup>8</sup>

\* indicates publication year (not necessarily year of survey)

**References**

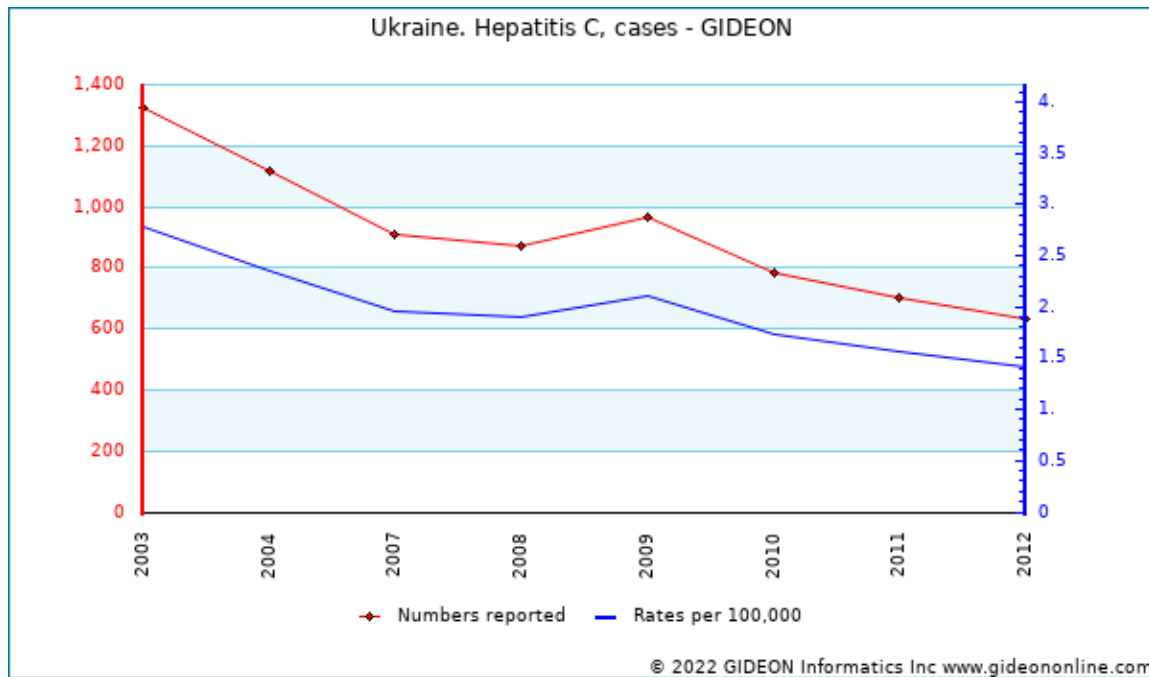
1. Therap Adv Gastroenterol 2018 ;11:1756284818786108.
2. JAMA 2018 May 01;319(17):1802-1813.
3. J Transl Int Med 2018 Sep ;6(3):146-151.
4. Zh Mikrobiol Epidemiol Immunobiol 1996 Mar-Apr;(2):29-32.
5. Vaccine 2021 Feb 11;

6. [PLoS One 2013 ;8\(3\):e59643.](#)
7. [Epidemiol Infect 2014 Feb ;142\(2\):270-86.](#)
8. [Lik Sprava 2014 Sep-Oct;\(9-10\):152-8.](#)

## Hepatitis C

<b>Agent</b>	VIRUS - RNA. Flaviviridae, Hepacivirus: Hepatitis C virus
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Blood, Sexual contact, Transplacental
<b>Incubation Period</b>	5w - 10w (range 3w - 16w)
<b>Diagnostic Tests</b>	Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Needle precautions. For chronic infection: <a href="#">Ledipasvir / Sofosbuvir</a> (Genotype 1,4,5,6) OR <a href="#">Sofosbuvir / Velpatasvir</a> (Genotype 1,2,3,4,5,6) OR <a href="#">Ombitasvir-Paritaprevir-Ritonavir</a> + Dasabuvir + <a href="#">Ribavirin</a> (Genotype 1,4)  (Regimen / Duration dependent on viral genotype) <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	Most agents recommended for adult disease are not currently licensed for use in children except (age >12): <a href="#">Sofosbuvir</a> / <a href="#">Ribavirin</a> <a href="#">Ledipasvir</a> / <a href="#">Sofosbuvir</a> <a href="#">Peginterferon alfa-2b</a> 3 MU/m2 SC x1 weekly + <a href="#">Ribavirin</a> 15mg/kg
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Vomiting and jaundice</li> <li>- May be history of transfusion or injection within preceding 1 to 4 months</li> <li>- Chronic hepatitis and fulminant infections are encountered</li> <li>- Hepatic cirrhosis or hepatoma may follow years after acute illness</li> </ul>
<b>Synonyms</b>	Epatite C, HCV, Hepatite per virus C, Non-A, non-B parenteral hepatitis. ICD9: 070.2,070.3,070.44,070.51,070.54,070.7 ICD10: B17.1

## Hepatitis C in Ukraine



Graph: Ukraine. Hepatitis C, cases

### Prevalence surveys

Years	Region	Study Group	%	Notes
		various	1.4-3.2	1.4% of blood donors and 3.2% of health care workers
1997	Nationwide	general population	1.2	1.20% nationwide in 1997
1999		general population	1.2	1.2% in 1999
2018*	Lviv	patients - chronic liver disease	17	Hepatitis C was identified in 17% of patients with hepatic encephalopathy <sup>4</sup>

\* indicates publication year (not necessarily year of survey)

### Seroprevalence surveys

Years	Region	Study Group	%	Notes
1993*	Sumy	children	2.3	2.3% of blood donors and 0.8% of school children in Sumy (1993 publication) <sup>5</sup>
1996*	Northwest Region	children	1.4	1.4% of children in boarding school (1996 publication) <sup>6</sup>
2013*	Nationwide	prisoners	60.2	60.2% of prisoners at the time of release (2013 publication) <sup>7</sup>
2008*	Foreign Country	immigrants	28.3	28.3% of immigrants from the former Soviet Union living in New York City - 11.1% from Russia, 29.0% from Uzbekistan, 331.0% from Ukraine (2008 publication) <sup>8</sup>
2009*	Central Region	injecting drug users	73	73.0% of hanka (poppy derivative) injection users (2009 publication) <sup>9</sup>
2014 - 2015	Multiple locations	injecting drug users	62.1	<sup>10</sup>
2014 - 2015	Multiple locations	injecting drug users	58.6	Serosurvey of IDU in Kyiv, Odessa, Mykolaiv, Dnipro and Lviv. <sup>11</sup>
2015	Nationwide	general population	5	Estimated seroprevalence, nationwide <sup>12</sup>
2010		blood	1.498	1.498% of blood donors in 2010

Years	Region	Study Group	%	Notes
		donors		
2012	Nationwide	blood donors	1.207	1.207% in 2012 <sup>13</sup>
2007 - 2012	Multiple locations	patients - HIV / AIDS	33	33% of HIV-positive women were seropositive toward HCV <sup>14</sup>

\* indicates publication year (not necessarily year of survey)

## References

1. World J Hepatol 2018 Oct 27;10(10):670-684.
2. Gastroenterology 2018 Oct 17;
3. Expert Rev Anti Infect Ther 2018 08 ;16(8):599-610.
4. J Transl Int Med 2018 Sep ;6(3):146-151.
5. Vopr Virusol 1993 May-Jun;38(3):137-8.
6. Zh Mikrobiol Epidemiol Immunobiol 1996 Mar-Apr;(2):29-32.
7. PLoS One 2013 ;8(3):e59643.
8. Am J Gastroenterol 2008 Apr ;103(4):922-7.
9. Harm Reduct J 2009 Aug 23;6:23.
10. Int J Drug Policy 2018 Apr 11;57:11-17.
11. Int J Drug Policy 2018 Nov 29;
12. Hepatol Med Policy 2017 ;2:9.
13. Lik Sprava 2014 Sep-Oct;(9-10):152-8.
14. BMC Infect Dis 2016 Dec 12;16(1):755.

## Hepatitis D

<b>Agent</b>	VIRUS - RNA. Deltavirus: Hepatitis D virus - a 'satellite' virus which is encountered as infection with a co-virus (Hepatitis B)
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Infected secretions, Blood, Sexual contact
<b>Incubation Period</b>	4w - 8w (range 2w - 20w)
<b>Diagnostic Tests</b>	Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Needle precautions; supportive <a href="#">Bulevirtide</a> 2 mg SC daily <a href="#">Interferon alfa 2-a</a> has been used. <a href="#">Foscarnet</a> has been used. <b>1</b>
<b>Typical Pediatric Therapy</b>	Needle precautions; supportive
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Vomiting and jaundice</li> <li>- Biphasic course often noted</li> <li>- Occurs as a coinfection or superinfection of hepatitis B</li> <li>- May be chronic or fulminant</li> <li>- Hepatitis D coinfection worsens prognosis of Hepatitis B</li> </ul>
<b>Synonyms</b>	Epatite D, Hepatitis delta. ICD9: 070.41,070.52 ICD10: B17.0

### References

1. [Prog Clin Biol Res 1987 ;234:309-20.](#)

## Hepatitis E

<b>Agent</b>	VIRUS - RNA. Hepeviridae: Hepatitis E virus
<b>Reservoir</b>	Human, Rodent, Pig, Rabbit, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Fecal-oral, Water, Shellfish, Blood, Meat
<b>Incubation Period</b>	30d - 40d (range 10d - 70d)
<b>Diagnostic Tests</b>	Identification of virus by immune electron microscopy (stool). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Stool precautions; supportive <a href="#">Ribavirin</a> 300-500 mg PO BID has been used successfully in patients with Genotype 3 <sup>1</sup>
<b>Typical Pediatric Therapy</b>	Stool precautions; supportive <a href="#">Ribavirin</a> 15 mg/kg BID has been used successfully in patients with Genotype 3
<b>Vaccine</b>	<a href="#">Hepatitis E vaccine</a>
<b>Clinical Hints</b>	- Clinically similar to hepatitis A - Chronic residua are rare - Severe or fatal if acquired during pregnancy (10% to 24% case-fatality rate).
<b>Synonyms</b>	Epatite E, Non-A, non-B enteric hepatitis. ICD9: 070.43,070.53 ICD10: B17.2

### Hepatitis E in Ukraine

#### Notable outbreaks

Years	Source	Notes
1994*	water	<a href="#">2</a>

\* indicates publication year (not necessarily year of outbreak)

#### References

1. [J Viral Hepat 2016 Feb ;23\(2\):68-79.](#)
2. [Zh Mikrobiol Epidemiol Immunobiol 1994 Jan-Feb;\(2\):63-7.](#)



## Herpes B infection

<b>Agent</b>	VIRUS - DNA. Herpesviridae, Alphaherpesviridae, Simplexvirus: Cercopithecine herpesvirus 1 (Herpes B virus)
<b>Reservoir</b>	Monkey ( <i>Macaca species</i> and <i>Cynomolgus</i> ), Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Contact or bite, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	10d - 20d (range 2d - 60d)
<b>Diagnostic Tests</b>	Biosafety level 4. Viral culture (skin exudates). Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Therapy: <a href="#">Acyclovir</a> 10 mg/kg IV q8h. OR <a href="#">Ganciclovir</a> 5 mg/kg IV q12h for 14-21d Follow with prolonged <a href="#">Acyclovir</a> 800 mg PO 5X daily OR <a href="#">Valacyclovir</a> 1 g PO TID.  Postexposure prophylaxis: <a href="#">Valacyclovir</a> 1g PO q8h X 14 days. OR <a href="#">Acyclovir</a> 800 mg PO X 14 days <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Acyclovir</a> or <a href="#">Ganciclovir</a> as for adult.
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Skin vesicles, lymphadenopathy, myalgia, singultus, major neurological signs</li> <li>- Usually onset within one month of contact with monkey</li> <li>- Case-fatality rates exceed 80%</li> <li>- Permanent neurological residua are common</li> </ul>
<b>Synonyms</b>	Cercopithecine herpesvirus 1, Herpes B, Herpesvirus simiae, Macacine herpesvirus 1, MCHV-1. ICD9: 078.89 ICD10: B00.4

### References

1. [J Occup Med Toxicol 2009 Nov 26;4:29.](#)

2. [Sante 2008 Jan-Mar;18\(1\):3-8.](#)

## Herpes simplex encephalitis

<b>Agent</b>	VIRUS - DNA. Herpesviridae, Alphaherpesvirinae, Simplexvirus: Human herpesvirus (usually type I)
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Infected secretions, Sexual contact
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Viral culture CSF usually negative. CT brain. Compare CSF/blood antibody levels. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	<a href="#">Acyclovir</a> 10 mg/kg IV Q8h <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Acyclovir</a> 10 mg/kg IV Q8h
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Rapidly-progressive severe encephalitis</li><li>- Exanthem not evident in most cases</li><li>- Often unilateral, with temporal and parietal lobe predominance</li><li>- Permanent residua and high case-fatality rate in untreated cases</li></ul>
<b>Synonyms</b>	ICD9: 054.3 ICD10: B00.4

### References

1. [Med Lett Drugs Ther 2018 Sep 24;60\(1556\):153-157.](#)
2. [Curr Infect Dis Rep 2017 Mar ;19\(3\):13.](#)

## Herpes simplex infection

<b>Agent</b>	VIRUS - DNA. Herpesviridae, Alphaherpesvirinae, Simplexvirus: Human herpesvirus I and II
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Infected secretions, Sexual contact, Breastfeeding, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	1d - 14d
<b>Diagnostic Tests</b>	Viral culture or microscopy of lesions. Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Skin / lesion precautions  Famciclovir 1,500 mg PO once OR Valacyclovir 1 g PO BID X 1d OR Acyclovir 400 mg PO X 5 per day X 5d  Dosage and duration may vary for initial vs. recurrent vs. suppressive regimens. <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	Skin / lesion precautions  Acyclovir 10 mg/kg PO QID X 7 d
<b>Clinical Hints</b>	- Recurring localized crops of painful vesicles on a red base - Regional adenopathy often present - May follow a prodrome of neuropathy or hyperesthesia
<b>Synonyms</b>	Herpes gladiatorum, Herpes rubiginosus, Herpes simplex, Scrum pox. ICD9: 054.0,054.1,054.2,054.4,054.5,054.6,054.7,054.8,054.9 ICD10: A60,B00

### Herpes simplex infection in Ukraine

#### Prevalence surveys

Years	Region	Study Group	%	Notes
2013 - 2018	Ternopil	patients - STD	1.5	Survey of adults with gonorrhoea (HSV-2 infection) <sup>3</sup>
2014 - 2017	Kyiv	patients - CNS	12.1	HSV accounted for 12.1% of Herpes-group infections of the CNS <sup>4</sup>

#### Seroprevalence surveys

Years	Region	Study Group	%	Notes
1997*	Chernobyl	children	100	100% of children ages 4 to 15, living the area of the Chernobyl nuclear accident (1997 publication) <sup>5</sup>
2007 - 2012	Multiple locations	women	68	68% of HIV-positive women (HSV-2, 2007 to 2012) <sup>6</sup>

\* indicates publication year (not necessarily year of survey)

#### References

- 2016 ;
- Med Lett Drugs Ther 2018 Sep 24;60(1556):153-157.
- J Med Life 2020 Jan-Mar;13(1):75-81.
- Wiad Lek 2018 ;71(7):1289-1294.
- Vopr Virusol 1997 Jan-Feb;42(1):36-41.
- BMC Pregnancy Childbirth 2016 Apr 27;16:94.

## Herpes zoster

<b>Agent</b>	VIRUS - DNA. Herpesviridae, Alphaherpesvirinae: Varicella-zoster virus
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Air, Direct contact
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Viral culture (vesicles). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Skin / lesion precautions <a href="#">Acyclovir</a> 800 mg PO X 5 daily X 7d. OR <a href="#">Famciclovir</a> 500 PO TID X 7d. OR <a href="#">Valacyclovir</a> 1 g PO TID X 7d <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	Skin / lesion precautions <a href="#">Acyclovir</a> 20 mg/kg PO QID X 7 d
<b>Vaccine</b>	<a href="#">Herpes zoster vaccine</a>
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Patients usually above age 50</li> <li>- Unilateral dermatomal pain, tenderness and paresthesia</li> <li>- Rash appears after 3 to 5 days - macular, erythematous lesions which evolve into vesicles</li> <li>- Trunk and chest wall most commonly involved; but eyes, extremities and other areas also affected</li> <li>- Recurrence is common</li> </ul>
<b>Synonyms</b>	Fuocodi Saint'Antonio, Shingles, Zona, Zoster. ICD9: 053 ICD10: B02

### References

1. [Cutis 2017 Nov ;100\(5\):321;324;330.](#)
2. [Med Lett Drugs Ther 2018 Sep 24;60\(1556\):153-157.](#)

## Histoplasmosis

<b>Agent</b>	FUNGUS. Ascomycota, Euascomycetes, Onygenales: <i>Histoplasma capsulatum</i> var. <i>capsulatum</i> A dimorphic fungus
<b>Reservoir</b>	Soil, Caves, Chicken roosts, Bat, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Air, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	10d - 14d (range 5d - 25d)
<b>Diagnostic Tests</b>	Fungal culture. Serologic tests less helpful. Antigen tests currently under study. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	<a href="#">Itraconazole</a> 200 mg PO TID X 3 days, then 1-2 daily X 6-12w  For severe or immunocompromised patients: Liposomal <a href="#">Amphotericin B</a> 3 to 5 mg/kg/d OR <a href="#">Amphotericin B</a> deoxycholate 0.7 to 1 mg/kg/d, followed by <a href="#">Itraconazole</a> as above <sup>1</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Itraconazole</a> 2 to 5 mg/kg PO TID X 3 days, then BID daily X 12w.  For severe or immunocompromised patients: Liposomal <a href="#">Amphotericin B</a> 3 to 5 mg/kg/d X 2w, followed by <a href="#">Itraconazole</a> as above
<b>Clinical Hints</b>	- Fever, cough, myalgia - Pulmonary infiltrates and calcifying hilar lymphadenopathy - Chronic multisystem infection is often encountered
<b>Synonyms</b>	Darling's disease, <i>Histoplasma capsulatum</i> , Histoplasmosis, Ohio River Valley Fever, Ohio Valley disease, Reticuloendothelial cytomycosis. ICD9: 115.0 ICD10: B39.0,B39.1,B39.2,B39.3,B39.4

### References

1. [Clin Infect Dis 2007 Oct 01;45\(7\):807-25.](#)

**HIV infection - initial illness**

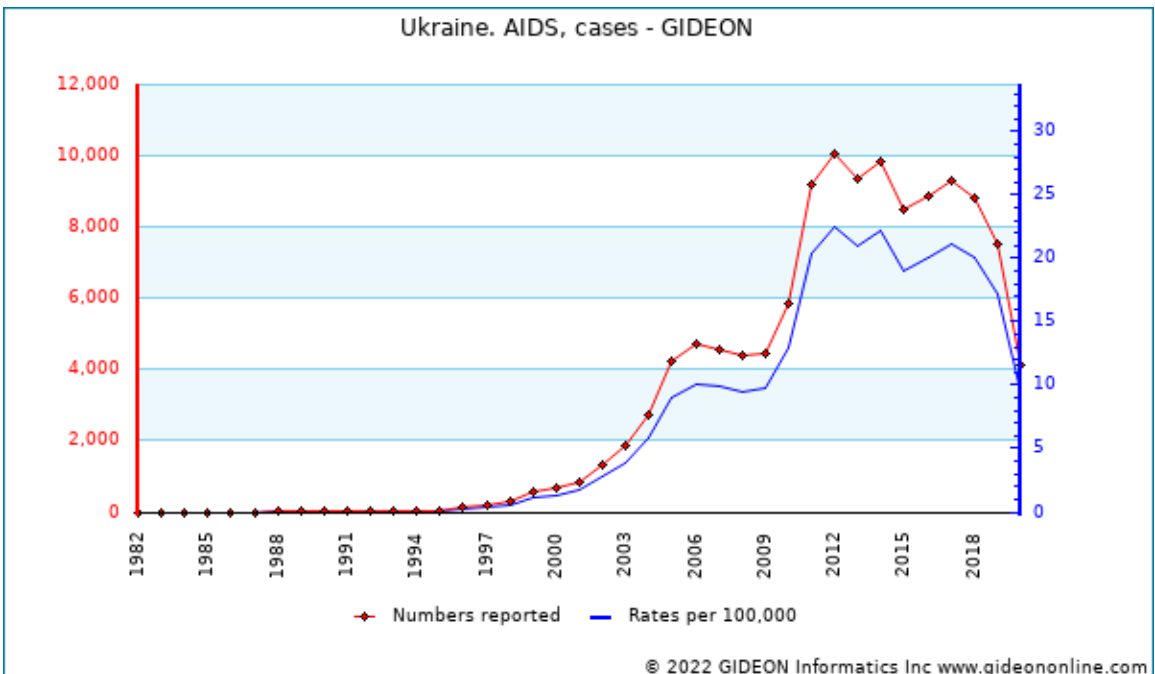
<b>Agent</b>	VIRUS - RNA. Retroviridae, Lentivirinae: Human Immunodeficiency Virus
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Blood, Semen, Sexual contact, Transplacental, Breastfeeding
<b>Incubation Period</b>	1w - 6w
<b>Diagnostic Tests</b>	HIV antibody (ELISA, Western blot). HIV or HIV antigen assays. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Antiretroviral therapy - most experts will initiate treatment even if no symptoms + normal CD4 count.
<b>Typical Pediatric Therapy</b>	Antiretroviral therapy - most experts will initiate treatment even if no symptoms + normal CD4 count.
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Most common among "high risk" patients (illicit drug use, commercial sex work, men who have sex with men, etc)</li> <li>- Fever, diarrhea, sore throat and a mononucleosis-like illness</li> <li>- Symptoms subside within two weeks; but may persist for as long as ten weeks</li> </ul>
<b>Synonyms</b>	HIV, HIV infection, HTLV-III infection. ICD9: 042 ICD10: B20,B21,B22,B23,B24

## HIV/AIDS

<b>Agent</b>	VIRUS - RNA. Retroviridae, Lentivirinae: Human Immunodeficiency Virus, HIV
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Blood, Semen, Sexual, Transplacental, Breastfeeding
<b>Incubation Period</b>	2m - 10y (50% within 10y)
<b>Diagnostic Tests</b>	HIV antibody (ELISA, Western blot). Nucleic acid amplification. Tests for HIV antigen & viral load as indicated.
<b>Typical Adult Therapy</b>	Regimens vary - in general: Two Nucleoside/nucleotide reverse transcriptase inhibitors + A Non-nucleoside reverse transcriptase inhibitor OR a Protease Inhibitor OR an Integrase strand transfer inhibitor
<b>Typical Pediatric Therapy</b>	As for adult
<b>Vaccine</b>	Ibalizumab
<b>Clinical Hints</b>	- Most often associated with drug abuse, blood products, men who have sex with men, hemophilia - Severe and multiple episodes of infection (herpes simplex, moniliasis, candidiasis, etc) - Chronic cough, diarrhea, weight loss, lymphadenopathy, retinitis, encephalitis or Kaposi's sarcoma
<b>Synonyms</b>	AIDS, ARC, GRID, HIV-1, HIV-2, HIV-AIDS, SIDA, Slim disease. ICD9: 042 ICD10: B20,B21,B22,B23,B24

### HIV/AIDS in Ukraine

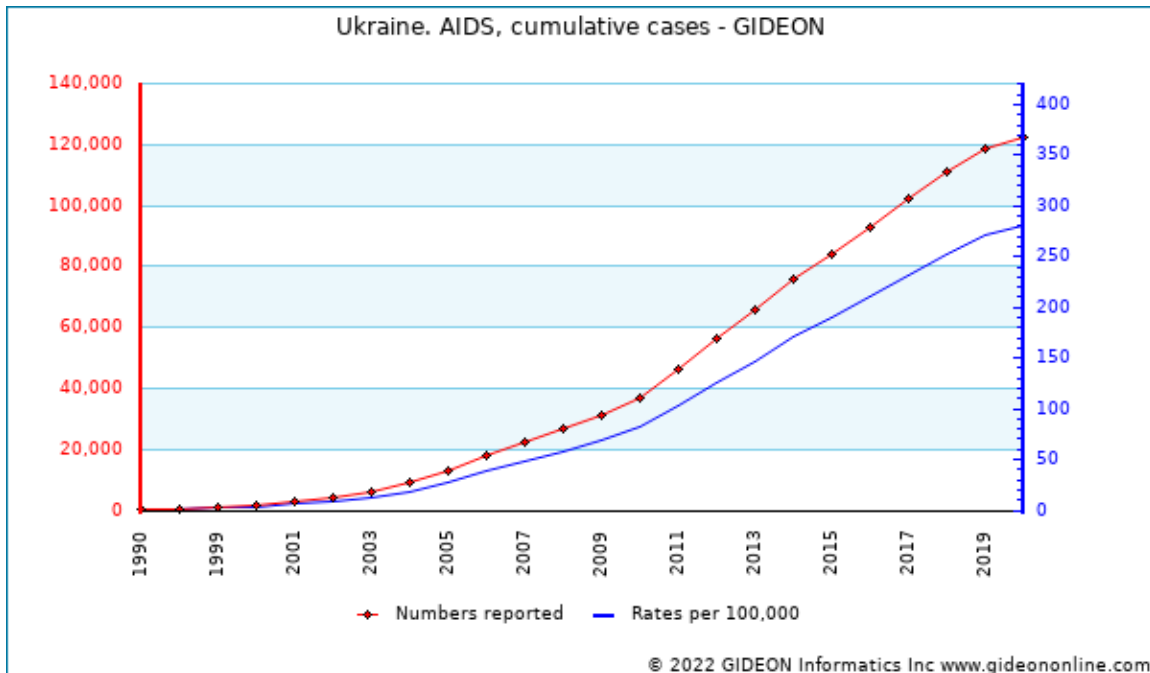
The first cases were reported in 1988.



Graph: Ukraine. AIDS, cases

## Notes:

1. Review of cases reported during 1987 to 1997 - see reference <sup>1</sup>

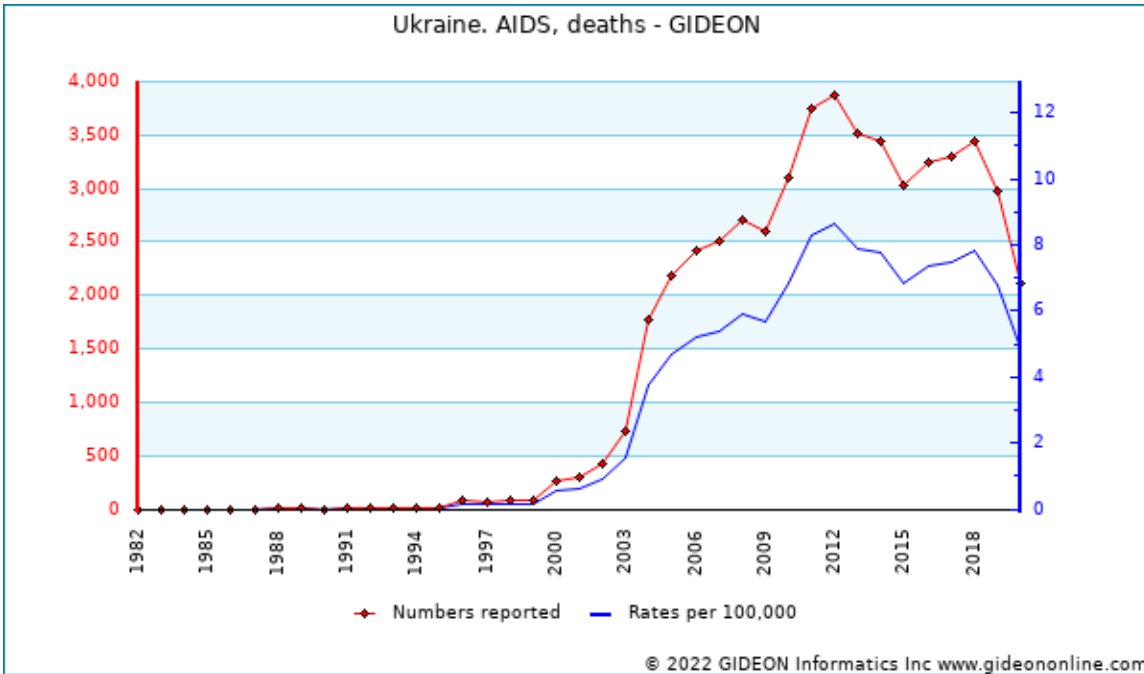


Graph: Ukraine. AIDS, cumulative cases

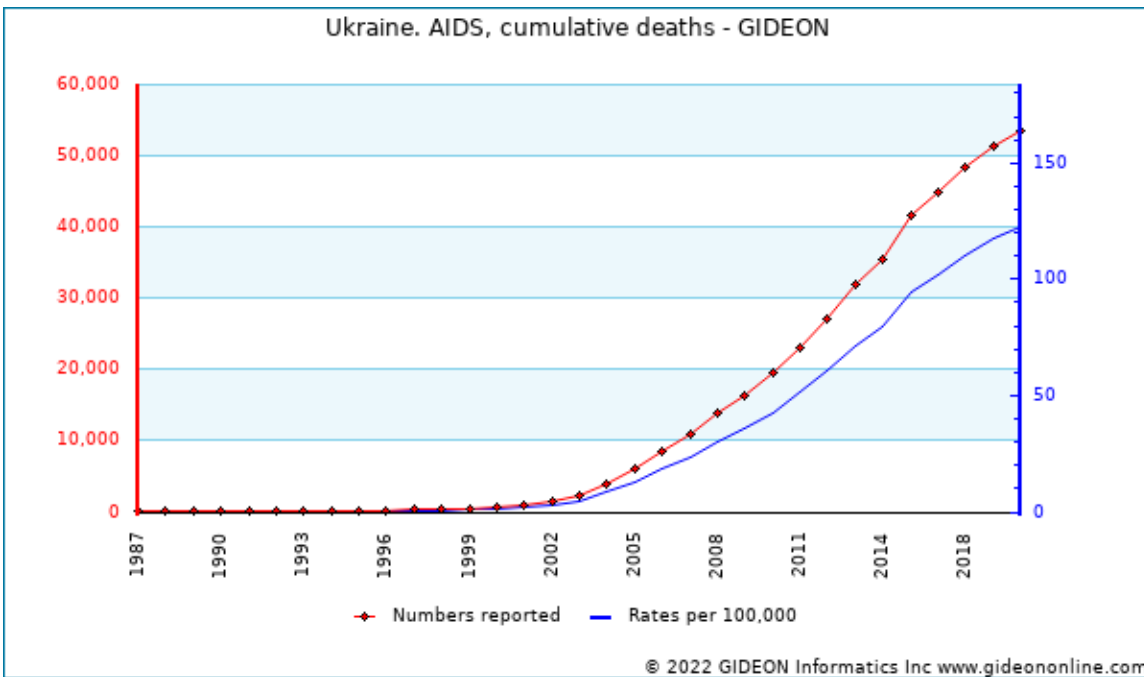
**Demography and risk factors**

- Cases to May 1998: 83% ages 15 to 49; 74% males; 24% heterosexual; 6% men who have sex with men; 64% IDU; 1% transfusion; 5% mother to infant.
- Cases reported during 1996 to 1998: 95% ages 13 to 49; 73% males; 11% heterosexual; 2% men who have sex with men; 82% IDU; 0% transfusion or hemophilia-related; 4% mother to infant.
- Cases during 1997 to 1999: 96% ages 15 to 49; 78% males; 11% heterosexual; 0% men who have sex with men; 86% IDU; 0% transfusion/hemophilia; 2% mother to infant.
- Cases during 1997 to 2001: 97% ages 15 to 49; 77% males; 15% heterosexual; 0% men who have sex with men; 84% IDU; 0% transfusion/hemophilia; 1% mother to infant.
- 6,750 HIV infections were diagnosed in IDU during 1995 to 1996. Rates among IDU increased from 1.7% to 56.5% during an 11-month period in 1995.
- During 2015 to 2018, older adults accounted for an increasing proportion of total new HIV infections and AIDS cases. <sup>2</sup>

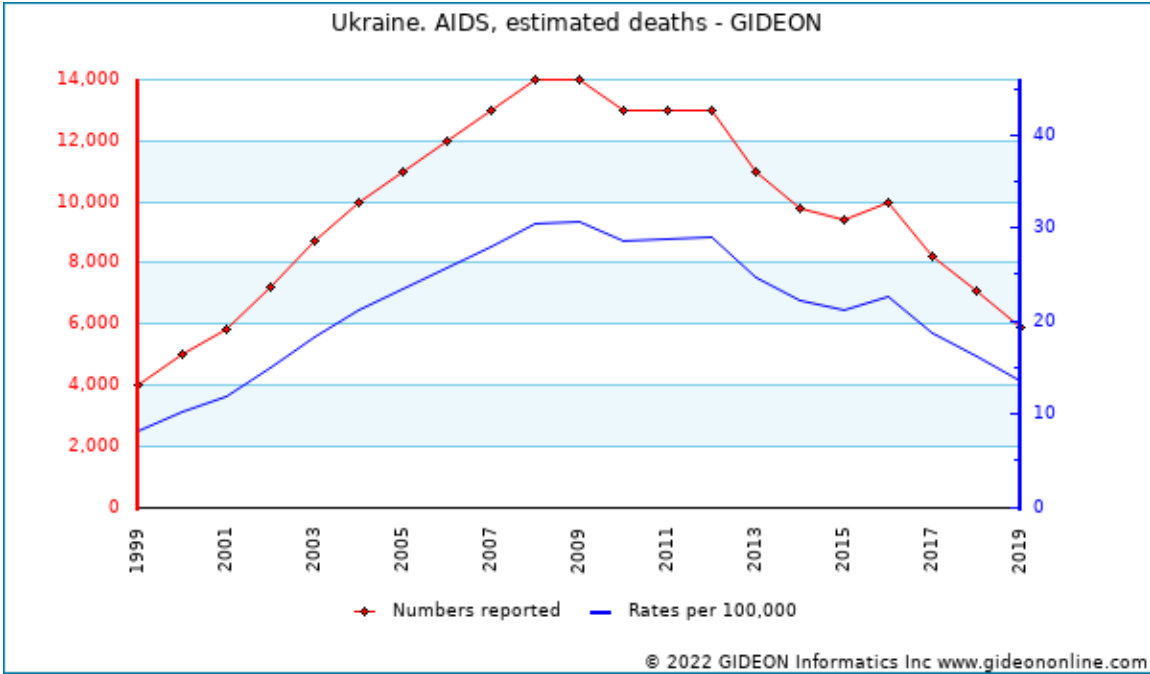




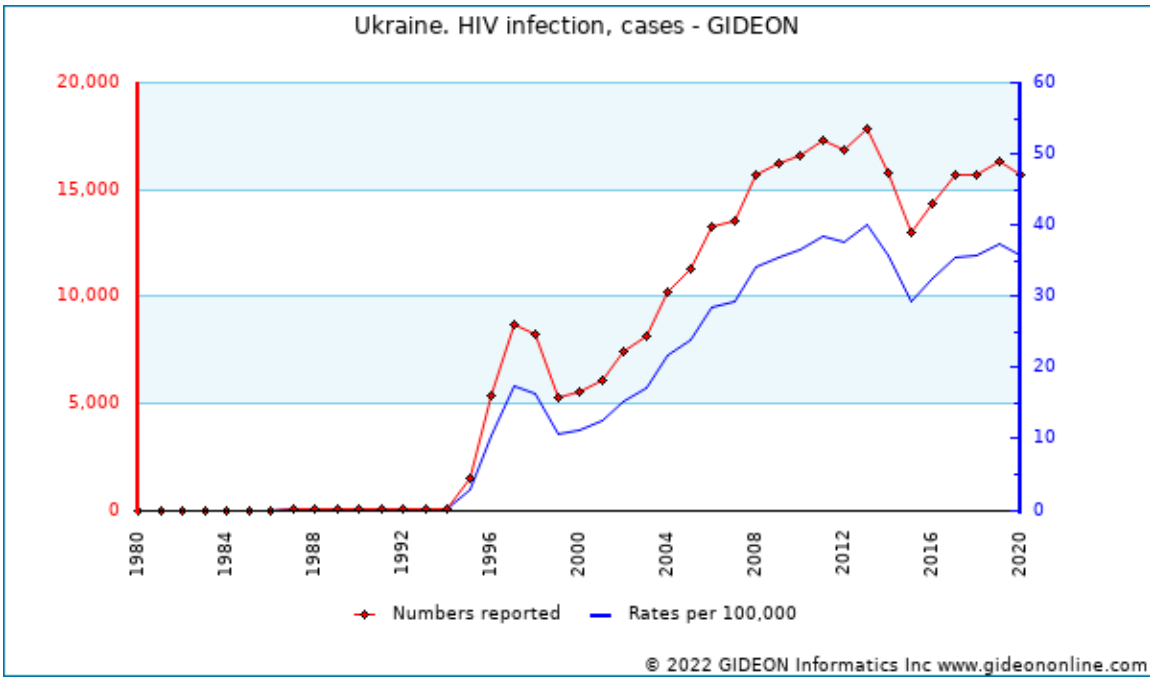
Graph: Ukraine. AIDS, deaths



Graph: Ukraine. AIDS, cumulative deaths



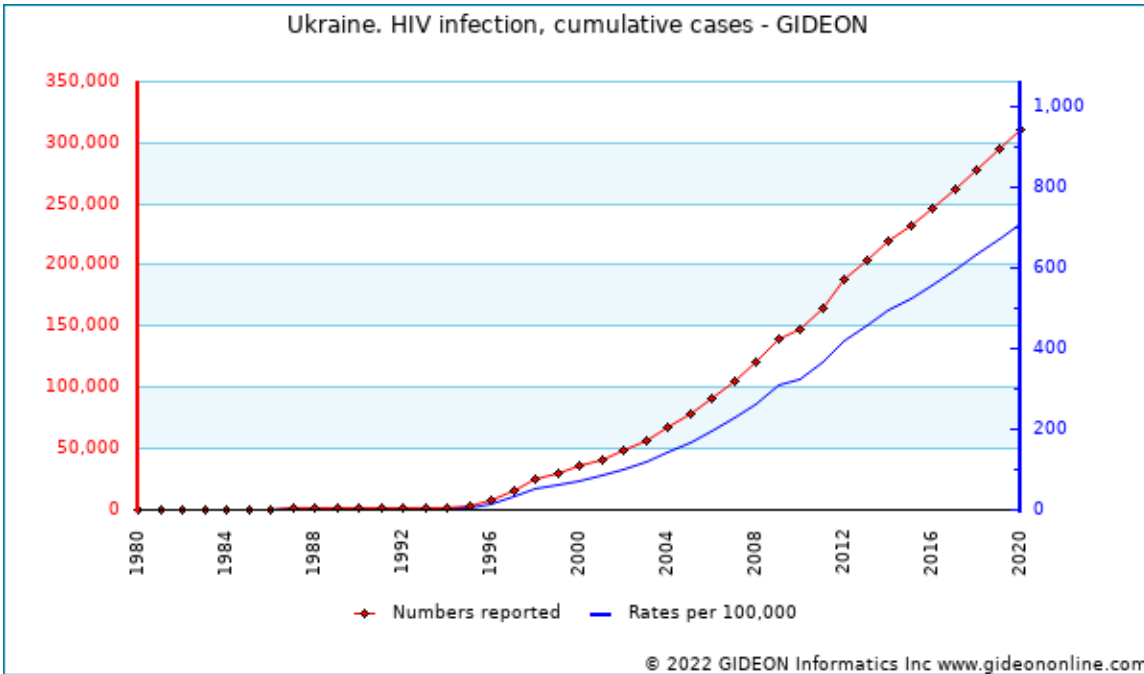
Graph: Ukraine. AIDS, estimated deaths



Graph: Ukraine. HIV infection, cases

Notes:

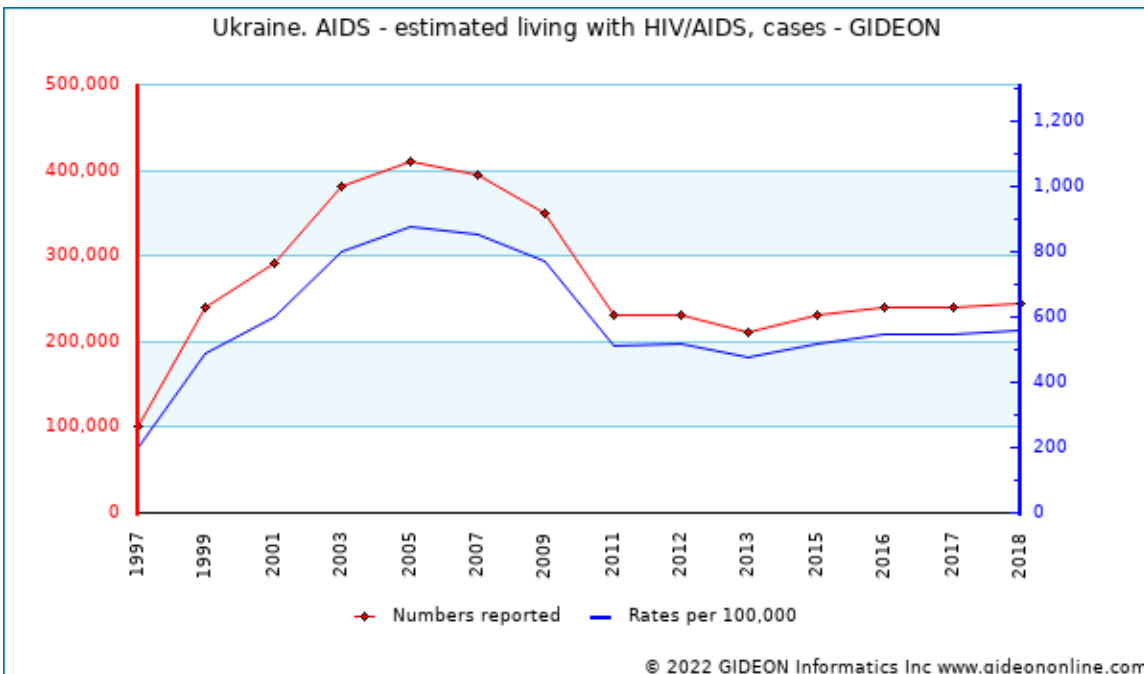
1. 5,000 cases were reported in Odessa during 1996 - most IDU
2. 455 HIV-positive prisoners were reported in 1995, 2,937 in 1996, 2,779 in 1997, and 173 during January to May, 1998 <sup>3</sup>



Graph: Ukraine. HIV infection, cumulative cases

Notes:

1.398 cases of HIV infection were reported during 1987 to 1994, reaching a total of 1,490 by the end of 1995. <sup>4</sup>



Graph: Ukraine. AIDS - estimated living with HIV/AIDS, cases

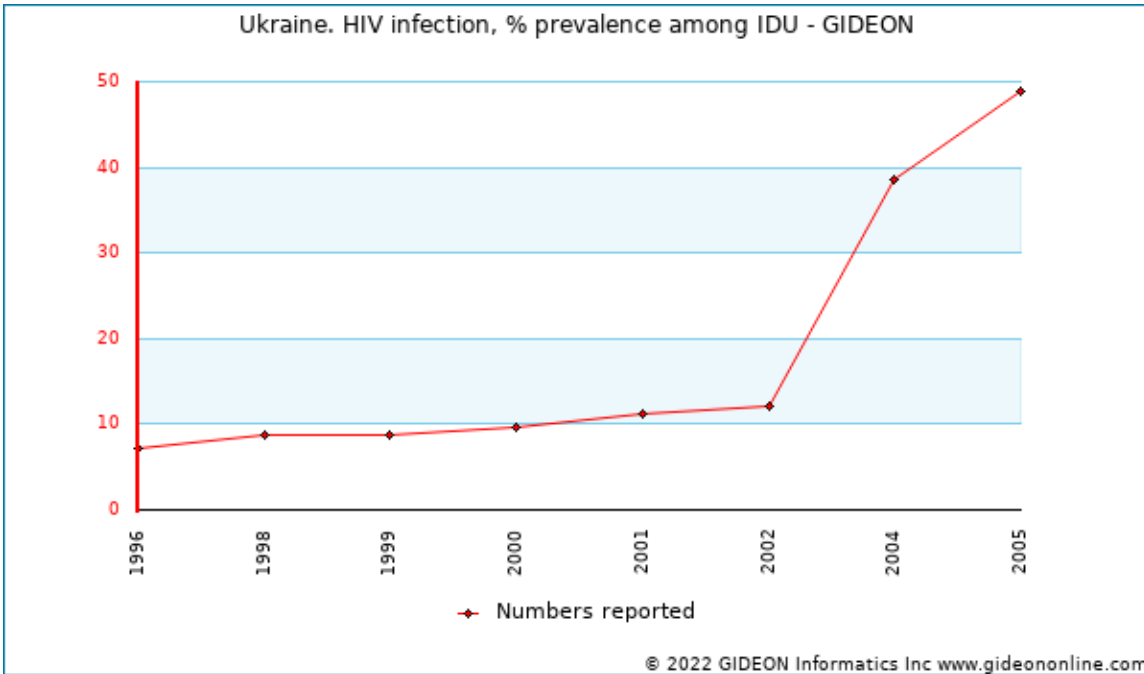
Notes:

1. Figure for 1997 represented 0.43% of all adults; 1.0% in 2001; 1.4% in 2003; 1.63% in 2007. <sup>5</sup>

**Seroprevalence surveys**

Years	Region	Study Group	%	Notes
2009	Kiev	MSM	8.6	
2013*	Nationwide	prisoners	19.4	19.4% of prisoners at the time of release <sup>6</sup>
2000*	Zhitomir	injecting drug users	41	<sup>7</sup>
2004	Multiple locations	injecting drug users	59	59% if IDU in Odessa and Simferopol
2009	Kiev	injecting drug users	22.9	
2009*	Central Region	injecting drug users	14	14.0% of hanka (poppy derivative) injection users <sup>8</sup>
2014 - 2015	Multiple locations	injecting drug users	35.1	Serosurvey of IDU in Kyiv, Odessa, Mykolaiv, Dnipro and Lviv. <sup>9</sup>
2006	Donetsk	various	15.5-23.7	15.5% of civilians and 23.7% of prisoners with tuberculosis <sup>10</sup>
2008 - 2015	Nationwide	various	6.3-24.2	24.2% / 22.0% of IDU (2008 to 2009 / 2015) ; 13.6% / 6.3% of CSW <sup>11</sup>
2005		sex workers	8	
2013 - 2014	Multiple locations	sex workers	7.1	<sup>12</sup>
1993	Multiple locations	pregnant women	1	1% or more of pregnant women in Odessa and Mikolyiv
1996	Multiple locations	pregnant women	0.015-0.0239	0.0239% of pregnant women Nikolayev and 0.0150 in Odessa
2002	Kiev	patients - tuberculosis	6.3	6.3% of newly diagnosed tuberculosis patients in Kiev in 2002
2004		patients - tuberculosis	10.1	
2010 - 2012	Nationwide	blood donors	0.112	<sup>13</sup>
1996		patients - STD	13.3	13.3% of urban male STD patients
2013 - 2018	Ternopil	patients - STD	1.6	Survey of adults with gonorrhea <sup>14</sup>
2009*	Foreign Country	truck drivers	1.66	1.66% of Ukrainian long-distance truck drivers in Azerbaijan <sup>15</sup>

\* indicates publication year (not necessarily year of survey)

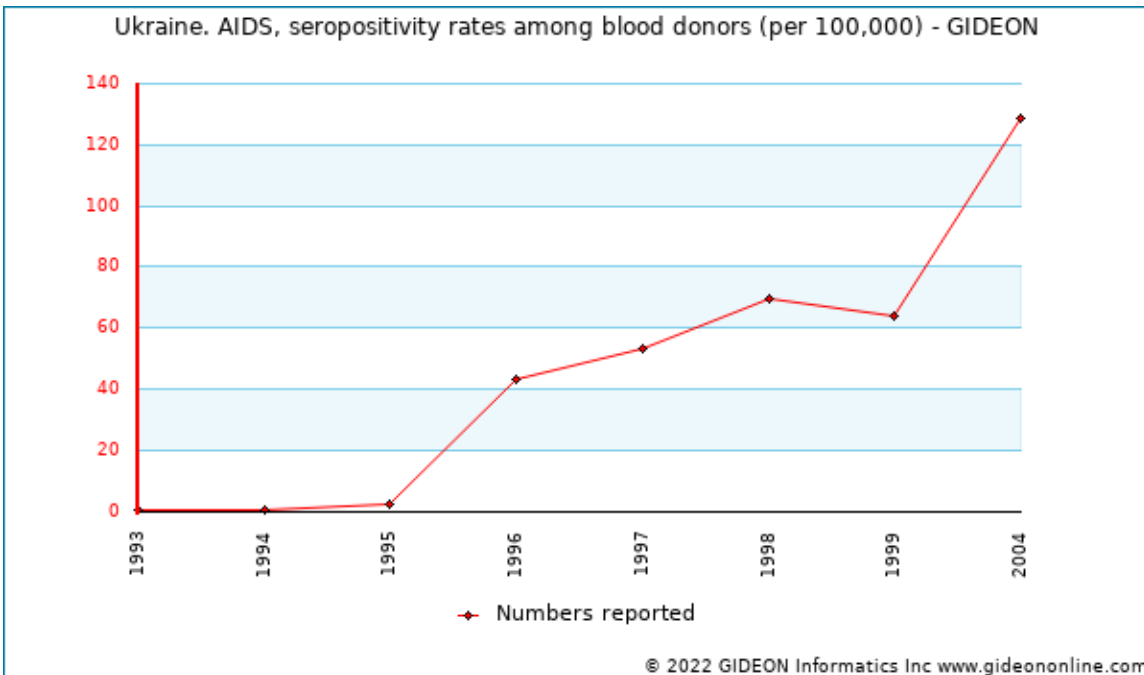


Graph: Ukraine. HIV infection, % prevalence among IDU

Notes:

Individual years:

2002 - 23.5% in Kiev region, 40.0% in Konetsk, 58.3% in Odessa.



Graph: Ukraine. AIDS, seropositivity rates among blood donors (per 100,000)

**Associated Infections**

6.3% of newly diagnosed tuberculosis patients in Kiev were HIV-positive in 2002; 10.1% in 2004. <sup>16</sup>

- Candidiasis was identified in 74.7% of patients hospitalized with AIDS (1999 publication) <sup>17</sup>

- Chlamydial infection is present in 1% of pregnant HIV-infected women, gonorrhoea 0%, syphilis 3.3%, herpes simplex infection 1.5% and trichomoniasis 22.7% (1999 to 2005) <sup>18</sup>
- *Pneumocystis pneumonia* was identified in 13.7% of patients with HIV / AIDS, primary pulmonary tuberculosis 12.5% and pulmonary toxoplasmosis 0.2% (2013 to 2015) <sup>19</sup>
- 68% of HIV-positive women were seropositive toward HSV-2 (2007 to 2012) <sup>20</sup>
- 33% of HIV-positive women were seropositive toward HCV (2016 publication) <sup>21</sup>

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2. PLoS One 2021 ;16(9):e0256627.
3. Zh Mikrobiol Epidemiol Immunobiol 1999 Jan-Feb;(1):31-3.
4. Zh Mikrobiol Epidemiol Immunobiol 1999 Jan-Feb;(1):26-9.
5. Sex Transm Infect 2008 Aug ;84 Suppl 1:i37-i41.
6. PLoS One 2013 ;8(3):e59643.
7. Zh Mikrobiol Epidemiol Immunobiol 2000 Jul-Aug;(4):100-3.
8. Harm Reduct J 2009 Aug 23;6:23.
9. Int J Drug Policy 2018 Nov 29;
10. Scand J Infect Dis 2008 ;40(8):655-62.
11. Int J STD AIDS 2018 Jul 27;:956462418784096.
12. Sex Transm Infect 2019 Mar 06;
13. Lik Sprava 2014 Sep-Oct;(9-10):152-8.
14. J Med Life 2020 Jan-Mar;13(1):75-81.
15. Int J STD AIDS 2009 Jul ;20(7):477-82.
16. Emerg Infect Dis 2006 May ;12(5):766-8.
17. Zh Mikrobiol Epidemiol Immunobiol 1999 Jan-Feb;(1):29-31.
18. Eur J Epidemiol 2007 ;22(12):925-36.
19. Folia Parasitol (Praha) 2021 Jul 07;68
20. BMC Pregnancy Childbirth 2016 Apr 27;16:94.
21. BMC Infect Dis 2016 Dec 12;16(1):755.

Hookworm	
Agent	PARASITE - Nematoda. Secernentea: <i>Necator americanus</i> , <i>Ancylostoma duodenale</i> , <i>A. ceylanicum</i> (in Kolkata and the Philippines)
Reservoir	Human, Non-human primates, Zoonotic
Vector	None
Vehicle	Soil, Contact
Incubation Period	7d - 2y
Diagnostic Tests	Examination of stool for ova.  <i>Ancylostoma duodenale</i> adult: female - 10 to 13 mm; male - 8 to 11 mm  <i>Necator americanus</i> adult: female - 9 to 11 mm; male - 5 to 9 mm
Typical Adult Therapy	<a href="#">Albendazole</a> 400 mg X 1 dose. OR <a href="#">Mebendazole</a> 100 mg BID X 3d. OR <a href="#">Pyrantel pamoate</a> 11 mg/kg (max 3g) X 3d <sup>1 2</sup>
Typical Pediatric Therapy	<a href="#">Albendazole</a> 200 mg PO single dose OR <a href="#">Mebendazole</a> 100 mg BID X 3 d (> age 2).
Clinical Hints	<ul style="list-style-type: none"> <li>- Pruritic papules, usually on feet</li> <li>- Later cough and wheezing</li> <li>- Abdominal pain and progressive iron-deficiency anemia</li> <li>- Eosinophilia is common</li> <li>- Dyspnea and peripheral edema in heavy infections</li> </ul>
Synonyms	Anchilostoma, <i>Ancylostoma ceylanicum</i> , <i>Ancylostoma duodenale</i> , Ancylostomiasis, Anquilostomiasis, Cyclodontostomum, Eosinophilis enteritis, Hakenwurmer-Befall, Miner's anemia, <i>Necator americanus</i> , <i>Necator gorillae</i> , Necatoriasis. ICD9: 126.0,126.1 ICD10: B76.0,B76.1,B76.8

### References

1. [BMJ 2017 Sep 25;358:j4307.](#)

2. [PLoS One 2011 ;6\(9\):e25003.](#)

## HTLV Infections

<b>Agent</b>	VIRUS - RNA Retroviridae. Deltaretrovirus Human T-lymphotropic virus I to IV (disease limited to I and II)
<b>Reservoir</b>	Human, Non-human primate
<b>Vector</b>	None
<b>Vehicle</b>	Blood, Needles, Semen, Sexual contact, Transplacental, Breastfeeding, Meat (bush-meat)
<b>Incubation Period</b>	6 months to 20 years
<b>Diagnostic Tests</b>	Serology Nucleic acid amplification
<b>Typical Adult Therapy</b>	Specific therapy not available. Advanced symptomatic disease has been treated with Mogamulizumab and interferon OR <a href="#">Zidovudine</a> + Interferon, Cyclosporine, or anti-neoplastic agents <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	As of adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Overt disease is evident in only 1% to 5% of infections</li> <li>- Increased susceptibility to pyodermas, sepsis, bronchiectasis</li> <li>- Keratoconjunctivitis sicca or uveitis</li> <li>- Late development of tropical spastic paraparesis or T-cell leukemia/lymphoma</li> </ul>
<b>Synonyms</b>	Adult T-cell leukemia / lymphoma, HTLV-1, HTLV-1/2, HTLV-2, HTLV-4, HTLV-I, HTLV-I/II, HTLV-II, HTLV-IV, Human T-cell lymphotropic virus, Human T-lymphotropic virus, Primate T-lymphotropic virus, PTLV-1, Tropical spastic paraparesis. ICD9: 204.0,208.9 ICD10: C83,C88,G04.1

### References

1. [N Engl J Med 2018 02 08;378\(6\):529-538.](#)
2. [J Neurovirol 2007 Aug ;13\(4\):364-72.](#)



## Human herpesvirus 6 infection

<b>Agent</b>	VIRUS - DNA. Herpesviridae, Betaherpesvirinae, Roseolovirus: Herpesvirus 6 (Herpesvirus 7 is also implicated)
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Droplet, Contact, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	10d - 15d
<b>Diagnostic Tests</b>	Viral isolation and serologic tests rarely indicated. Nucleic acid amplification has been used
<b>Typical Adult Therapy</b>	Supportive  Ganciclovir and Foscarnet have been used in unusual and severe cases. <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- High fever followed by sudden defervescence and fleeting rash - Most patients are below the age of 2 years - Note that only 10% to 20% of Herpesvirus 6 infections are associated with a rash
<b>Synonyms</b>	Dreitagefieber, Exanthem criticum, Exanthem subitum, Herpesvirus 6, HHV-6, Pseudorubella, Roseola, Roseola infantilis, Roseola subitum, Sixth disease, Zahorsky's disease. ICD9: 057.8 ICD10: B08.2

## Human herpesvirus 6 infection in Ukraine

### Prevalence surveys

Years	Region	Study Group	%	Notes
2014 - 2017	Kyiv	patients - CNS	4.7	HHV-6 accounted for 4.7% of Herpes-group infections of the CNS <sup>3</sup>

### References

1. Clin Infect Dis 2005 Mar 15;40(6):887-9.
2. Am J Transplant 2004 Jul ;4(7):1200-3.
3. Wiad Lek 2018 ;71(7):1289-1294.

## Human pegivirus infection

<b>Agent</b>	VIRUS - RNA. Flaviviridae, Pegivirus GB virus C (Hepatitis G virus)
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Blood, Vertical transmission, Sexual contact suspected
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Supportive. Alpha interferon has been shown to ? transiently eliminate the carrier state <sup>1</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Acute or chronic hepatitis acquired from blood (needles, etc)</li> <li>- Clinically milder than hepatitis C</li> <li>- Most cases limited elevation of hepatic enzyme levels, without jaundice</li> <li>- Viremia has been documented for as long as 10 years</li> </ul>
<b>Synonyms</b>	Epatite G, GB virus C, GBV-C, Hepatitis G, Hepatitis GB, HPgV, HPgV-2, Human hepegivirus, Human Pegivirus 2. ICD9: 070,59 ICD10: B17.8

## Human pegivirus infection in Ukraine

### Prevalence surveys

Years	Region	Study Group	%	Notes
2017*	Kiev	fetus	5-13.7	13.7% of plasmas, 5.0% of fetal tissues, 5.4% of chorions <sup>2</sup>

\* indicates publication year (not necessarily year of survey)

### References

1. [Acta Virol 2017;61\(4\):401-412.](#)

2. [Virol J 2017 08 31;14\(1\):167.](#)

## Hymenolepis diminuta infection

<b>Agent</b>	PARASITE - Platyhelminthes, Cestoda. Cyclophyllidea, Hymenolepididae: <i>Hymenolepis diminuta</i>
<b>Reservoir</b>	Rodent, Various insects, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Arthropod ingestion
<b>Incubation Period</b>	2w - 4w
<b>Diagnostic Tests</b>	Identification of ova in stool Adult worm may measure 20 to 60 cm.
<b>Typical Adult Therapy</b>	<a href="#">Praziquantel</a> 25 mg/kg as single dose. OR <a href="#">Niclosamide</a> 2g, then 1g/d X 6d <sup>1</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Praziquantel</a> 25 mg/kg as single dose. OR <a href="#">Niclosamide</a> 1g, then 0.5g/d X 6d (1.5g, then 1g for weight >34kg)
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Nausea, abdominal pain and diarrhea</li><li>- Eosinophilia may be present</li><li>- Primarily a disease of children, in rodent-infested areas</li><li>- Infestation resolves spontaneously within 2 months</li></ul>
<b>Synonyms</b>	Hymenolepis diminuta, Mathevotaenia, Rat tapeworm. ICD9: 123.6 ICD10: B71.0

### References

1. [MedGenMed 2004 Apr 22;6\(2\):7.](#)

## Hymenolepis nana infection

<b>Agent</b>	PARASITE - Platyhelminthes, Cestoda. Cyclophyllidea, Hymenolepididae: <i>Hymenolepis (Rodentolepis) nana</i>
<b>Reservoir</b>	Human, Rodent (hamster)
<b>Vector</b>	None
<b>Vehicle</b>	Food, Water, Fecal-oral
<b>Incubation Period</b>	2w - 4w
<b>Diagnostic Tests</b>	Identification of ova in stool Adult worm may measure 15 to 40 mm.
<b>Typical Adult Therapy</b>	<a href="#">Praziquantel</a> 25 mg/kg once. OR <a href="#">Nitazoxanide</a> 500 mg BID X 3d OR <a href="#">Niclosamide</a> 2g/d X 1 <sup>1</sup> <sup>2</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Praziquantel</a> 25 mg/kg once. OR <a href="#">Nitazoxanide</a> 100 mg (age 1 to 3 years) to 200 mg (age 4 to 11 years) BID X 3d OR <a href="#">Niclosamide</a> 1g/d X 1 (weight 11-34 kg) to 1.5g/d X 1 (weight >34 kg)
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Nausea, abdominal pain, diarrhea, irritability and weight loss</li> <li>- Eosinophilia may be present</li> <li>- Continued infestation maintained by autoinfection (worm reproduces within the intestinal lumen)</li> </ul>
<b>Synonyms</b>	Dwarf tapeworm, <i>Hymenolepis nana</i> , <i>Rodentolepis microstoma</i> , <i>Rodentolepis nana</i> , <i>Rodentolepsiasis</i> , <i>Vampirolepis nana</i> . ICD9: 123.6 ICD10: B71.0

### References

1. [Am J Trop Med Hyg 1980 Mar ;29\(2\):320-1.](#)
2. [Trans R Soc Trop Med Hyg 1984 ;78\(2\):280-1.](#)

**Infection of wound, puncture, IV line, etc**

<b>Agent</b>	BACTERIUM. <i>Staphylococcus aureus</i> , streptococci, facultative or aerobic gram negative bacilli, anaerobes, et al
<b>Reservoir</b>	Human, Soil, Water, Air (spores), Various animals and plants
<b>Vector</b>	None
<b>Vehicle</b>	Trauma, Water, Medications, Bandages, Autoinoculation
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Smear and culture of catheter, material from wound.
<b>Typical Adult Therapy</b>	Drainage, remove catheter, debridement and antibiotics appropriate to infecting species
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Source (ie, venous line, postoperative, marine, animal bite) may suggest species</li> <li>- Onset within 24 hrs = group A <i>Streptococcus</i> or <i>Cl. perfringens</i></li> <li>- Onset within 2 to 7 days = <i>S. aureus</i></li> <li>- Onset after more than 7 days = gram negative bacilli</li> <li>- Foul odor = mixed infection or anaerobic bacteria</li> </ul>
<b>Synonyms</b>	Intravenous catheter infection, Line infection, Surgical wound infection, Wound infection. ICD9: 686.9,451 ICD10: T79.3,I80.0, Y95

## Infectious mononucleosis or EBV infection

<b>Agent</b>	VIRUS - DNA. Herpesviridae. Gammaherpesvirinae, Lymphocryptovirus: Human herpesvirus 4 (Epstein Barr virus)
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Saliva, Blood transfusion, Breastfeeding, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	28d - 42d
<b>Diagnostic Tests</b>	Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Exudative pharyngitis</li> <li>- Symmetrical cervical lymphadenopathy, splenomegaly and hepatic dysfunction</li> <li>- Atypical lymphocytes and positive serology appear after 10 to 14 days</li> <li>- Acute illness resolves in 2 to 3 weeks, but malaise and weakness may persist for months</li> </ul>
<b>Synonyms</b>	EBV, Epstein-Barr, Febbre ghiandolare, Filatov's disease, Glandular fever, Infectious mononucleosis, Monocytic angina, Mononucleose, Mononucleosi, Mononucleosis - infectious, Mononukleose, Pfeiffer's disease. ICD9: 075 ICD10: B27.0

## Infectious mononucleosis or EBV infection in Ukraine

### Prevalence surveys

Years	Region	Study Group	%	Notes
2014 - 2017	Kyiv	patients - CNS	20.5	EBV accounted for 20.5% of Herpes-group infections of the CNS <sup>1</sup>
2016 - 2017	Kyiv	patients - CNS	21.2	Evidence of EBV infection was identified in 21.2% of adults with acute encephalitis <sup>2</sup>

### References

1. [Wiad Lek 2018 ;71\(7\):1289-1294.](#)

2. [Wiad Lek 2018 ;71\(6\):1224-1230.](#)

## Influenza

<b>Agent</b>	VIRUS - RNA. Orthomyxoviridae, Orthomyxovirus: Influenza virus
<b>Reservoir</b>	Human, Ferret, Bird, Pig, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Droplet, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	1d - 3d
<b>Diagnostic Tests</b>	Viral culture (respiratory secretions). Serology. Nucleic acid amplification techniques are available.
<b>Typical Adult Therapy</b>	Respiratory precautions. Influenza A or B: <a href="#">Oseltamivir</a> 75 mg PO BID X 5d OR <a href="#">Zanamivir</a> 10 mg BID X 5 days <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	Respiratory precautions. Influenza A or B: <a href="#">Oseltamivir</a> 2 mg/kg (max 75 mg) PO BID X 5d OR <a href="#">Zanamivir</a> (age > 5 years) 10 mg BID X 5 days  Alternative drugs: <a href="#">Amantadine</a> , <a href="#">Baloxavir</a> , <a href="#">Favipiravir</a> , <a href="#">Peramivir</a> , <a href="#">Rimantadine</a> , <a href="#">Umifenovir</a>
<b>Vaccine</b>	<a href="#">Influenza - inactivated vaccine</a> <a href="#">Influenza - live vaccine</a>
<b>Clinical Hints</b>	- Myalgia, headache, cough and 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
<b>Synonyms</b>	Asian flu, Aviaire influenza, Avian flu, Avian influenza, Bird flu, Epidemic catarrh, Grippe, H10N8, H1N1, H2N2, H3N2, H5N1, H7N9, Hong Kong flu, LPAI, Spanish influenza, Swine flu, Swine influenza. ICD9: 487 ICD10: J09,J10,J11

## Influenza in Ukraine

### Prevalence surveys

Years	Region	Study Group	%	Notes
2018 - 2020	Kyiv	children - respiratory	10.7	10.7% of children with acute respiratory infection (Influenza A) <sup>4</sup>

### Notable outbreaks

Years	Deaths	Pathogen	Notes
2009 - 2010	282	H1N1	An outbreak was reported. For comprehensive analyses of the H1N1 pdm09 pandemic see the Worldwide note. <sup>5 6 7 8 9 10 11 12 13 14 15</sup>

### Avian influenza - chronology

- 2005 - Avian influenza H5N1 was reported in poultry. <sup>16 17</sup>
- 2006 - Avian influenza H5N1 was reported in poultry. <sup>18 19 20</sup>
- 2008 - Avian influenza H5N1 was reported in poultry. <sup>21 22 23 24</sup>
- 2016 - Avian influenza H5N8 was reported in poultry. <sup>25 26 27 28</sup>
- 2017 - Avian influenza H5N8 was reported in poultry. <sup>29 30</sup>
- 2020 - Avian influenza H5 was reported in poultry. <sup>31</sup>
- 2021 - Avian influenza H5 was reported in poultry <sup>32 33</sup> ; and H5N8 in wild birds and poultry. <sup>34 35</sup>

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1. Front Immunol 2018 ;9:1946.
2. Clin Ther 2018 Aug 01;
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4. Wiad Lek 2021 ;74(6):1389-1395.
5. Lik Sprava 2015 Jan-Mar;(1-2):55-8.
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14. ProMED <promedmail.org> archive: 20091116.3959
15. ProMED <promedmail.org> archive: 20091117.3970
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17. ProMED <promedmail.org> archive: 20060227.0636
18. Avian Dis 2019 03 01;63(sp1):235-245.
19. ProMED <promedmail.org> archive: 20060625.1771
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21. Avian Dis 2018 Dec 18;63(sp1):219-229.
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23. ProMED <promedmail.org> archive: 20080123.0282
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31. ProMED <promedmail.org> archive: 20200121.6902541
32. ProMED <promedmail.org> archive: 20211015.8699066
33. ProMED <promedmail.org> archive: 20211215.8700280
34. ProMED <promedmail.org> archive: 20210322.8262620
35. ProMED <promedmail.org> archive: 20210207.8171652



## Intestinal spirochetosis

Agent	BACTERIUM. <i>Brachyspira pilosicoli</i> and <i>B. aalborgi</i> Anaerobic gram-negative spirochetes
Reservoir	Human, Fowl, Pig
Vector	None
Vehicle	Endogenous
Incubation Period	Unknown
Diagnostic Tests	Spirochetes resemble "brush border" on bowel biopsy; identification of <i>Brachyspira</i> by PCR
Typical Adult Therapy	<a href="#">Metronidazole</a> appears to be effective in some cases. <sup>1</sup>
Typical Pediatric Therapy	As for adult.
Clinical Hints	- Chronic diarrhea and abdominal pain in the absence of other identifiable etiology
Synonyms	Human intestinal spirochetosis. ICD9: 009.1 ICD10: A04.8

### References

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1. [Dig Dis Sci 2013 Jan ;58\(1\):202-8.](#)

**Intra-abdominal abscess**

<b>Agent</b>	BACTERIUM. Mixed anaerobic / aerobic, staphylococci, <i>Neisseria gonorrhoeae</i> , <i>Chlamydia trachomatis</i> , etc
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	None
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Various imaging techniques (CT, Gallium scan, ultrasound, etc).
<b>Typical Adult Therapy</b>	Percutaneous or open drainage + antibiotics directed at known or suspected pathogen(s)
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Fever, chills and localizing pain (e.g., chest pain in subphrenic abscess)</li><li>- Setting of prior surgery, biliary or colonic disease, appendicitis, vaginal discharge (PID)</li><li>- FUO, subdiaphragmatic gas or limited diaphragmatic motion may be present</li></ul>
<b>Synonyms</b>	Abscess - Abdominal, Acute appendicitis, Appendicitis, Infected pancreatic necrosis, Intraabdominal abscess, Intraperitoneal abscess, P.I.D., Pancreatic abscess, Pelvic abscess, Pelvic inflammatory disease, Pylephlebitis, Subhepatic abscess, Subphrenic abscess, Suppurative pancreatitis, Tuboovarian abscess. ICD9: 614,577.0 ICD10: K35,N73,K75.1,K85

## Intracranial venous thrombosis

<b>Agent</b>	BACTERIUM. Oral anaerobes, streptococci, et al
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Endogenous
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Culture (blood, CSF if indicated). Ophthalmoscopy. Roentgenographic studies of skull & sinuses.
<b>Typical Adult Therapy</b>	Antibiotic(s) directed at known or suspected pathogens <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Headache, seizures and fever</li><li>- Cranial nerve dysfunction may be present</li><li>- Usually occurs in the setting of ongoing facial, otic or sinus infection</li></ul>
<b>Synonyms</b>	Cavernous sinus thrombosis, Cerebral sinus thrombosis, Cortical vein thrombosis, Internal cerebral vein thrombosis, Lateral sinus thrombosis, Straight sinus thrombosis, Superior sinus thrombosis, Transverse sinus thrombosis. ICD9: 325 ICD10: G08

### References

1. J Neurol Sci 2016 Mar 15;362:221-7.

2. Curr Cardiol Rep 2014 Sep ;16(9):523.

## Japanese encephalitis

<b>Agent</b>	VIRUS - RNA. Flaviviridae, Flavivirus: Japanese encephalitis virus
<b>Reservoir</b>	Pig, Bird, Zoonotic
<b>Vector</b>	Mosquito ( <i>Aedes</i> spp., <i>Anopheles barbirostris</i> and <i>hyrcanus</i> groups, <i>Culex tritaeniorhynchus</i> group and <i>Cu. annulus</i> )
<b>Vehicle</b>	Blood (rare)
<b>Incubation Period</b>	6d - 8d (range 4d - 15d)
<b>Diagnostic Tests</b>	Biosafety level 3. Viral culture (blood, CSF, brain tissue). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Vaccine</b>	<a href="#">Japanese encephalitis vaccine</a>
<b>Clinical Hints</b>	- Myalgia, headache, vomiting, diarrhea, seizures, paralysis and leukocytosis - Polymorphonuclear leukocytes may predominate in cerebrospinal fluid - Case-fatality rates of 10% to 40% are reported; with neurological residua in 80%
<b>Synonyms</b>	Alfuy, Encefalite giapponese, Nam Dinh, Russian autumnal encephalitis, Summer encephalitis. ICD9: 062.0 ICD10: A83.0

Although Japanese encephalitis is not endemic to Ukraine, imported, expatriate or other presentations of the disease have been associated with this country.

### Japanese encephalitis in Ukraine

#### Cross-border events

Years	Acquired by**	Originated in**	Setting	Cases	Notes
2017	Ukraine	Taiwan	foreign worker	1	A Ukrainian woman working in Taiwan acquired Japanese encephalitis. <sup>1</sup>

\*\* Country or Nationality

#### References

1. ProMED <[promedmail.org](mailto:promedmail.org)> archive: 20170609.5095000

## Kawasaki disease

<b>Agent</b>	UNKNOWN
<b>Reservoir</b>	Unknown
<b>Vector</b>	None
<b>Vehicle</b>	Unknown
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Diagnosis is based on clinical criteria only.
<b>Typical Adult Therapy</b>	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 (a chimeric monoclonal antibody) 5 mg/kg has been successful in some studies. Glucocorticoids in addition to IVIG have been successful in some studies. <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Disease most common among children</li> <li>- Fever, conjunctivitis, stomatitis and an erythematous rash which desquamates</li> <li>- Occasionally complicated by coronary artery occlusion</li> <li>- Case-fatality rates of 1% to 4% are reported</li> </ul>
<b>Synonyms</b>	Kawasaki's disease, Mucocutaneous lymph node syndrome. ICD9: 446.1 ICD10: M30.3

### References

1. J Pediatr 1997 Dec ;131(6):888-93.
2. Cochrane Database Syst Rev 2003 ;(4):CD004000.
3. JAMA Pediatr 2016 Dec 01;170(12):1156-1163.

## Kikuchi's disease and Kimura disease

Agent	UNKNOWN
Reservoir	Unknown
Vector	None
Vehicle	Unknown
Incubation Period	Unknown
Diagnostic Tests	Biopsy.
Typical Adult Therapy	Supportive <a href="#">Hydroxychloroquine</a> and corticosteroids have been successful for Kikuchi's disease in some cases. Radiotherapy has been used in the treatment of Kimura's disease <sup>1 2</sup>
Typical Pediatric Therapy	As for adult
Clinical Hints	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 Kimura disease: - Similar to Kikuchi disease - Salivary gland involvement, glomerulitis, painless subcutaneous masses and eosinophilia suggest Kimura disease - May be misdiagnosed as filariasis
Synonyms	Angiolymphoid hyperplasia, Angiolymphoid hyperplasia-eosinophilia, Eosinophilic follicular lymphadenitis, Histiocytic necrotizing lymphadenitis, Kikuchi's disease, Kikuchi-Fujimoto disease, Kimura disease. ICD9: 289.3 ICD10: I89.8

### References

1. [Clin Infect Dis 2004 Dec 15;39\(12\):e124-6.](#)
2. [Indian J Cancer 2021 Aug 07;](#)

## Kingella infection

Agent	BACTERIUM. <i>Kingella kingae</i> , et al A facultative gram-negative coccobacillus
Reservoir	Human
Vector	None
Vehicle	Endogenous
Incubation Period	Unknown
Diagnostic Tests	Culture of blood, joint fluid, CSF, etc. Alert laboratory if these organisms are suspected.
Typical Adult Therapy	<a href="#">Ampicillin</a> usually effective For resistant organisms : <a href="#">Ampicillin/Sulbactam</a> OR <a href="#">Amoxicillin/Clavulanate</a> OR <a href="#">Cefazolin</a> Dosage per severity/site <sup>1 2 3</sup>
Typical Pediatric Therapy	As for adult
Clinical Hints	- Most cases reported among young children - May present as septic arthritis, endocarditis, meningitis and other localized or systemic infections
Synonyms	ICD9: 041.85 ICD10: A48.8

### References

1. [BMC Infect Dis 2015 Jul 07;15:260.](#)
2. [Pediatr Infect Dis J 2012 Feb ;31\(2\):212.](#)
3. [Diagn Microbiol Infect Dis 1999 May ;34\(1\):73-6.](#)

## Laryngotracheobronchitis

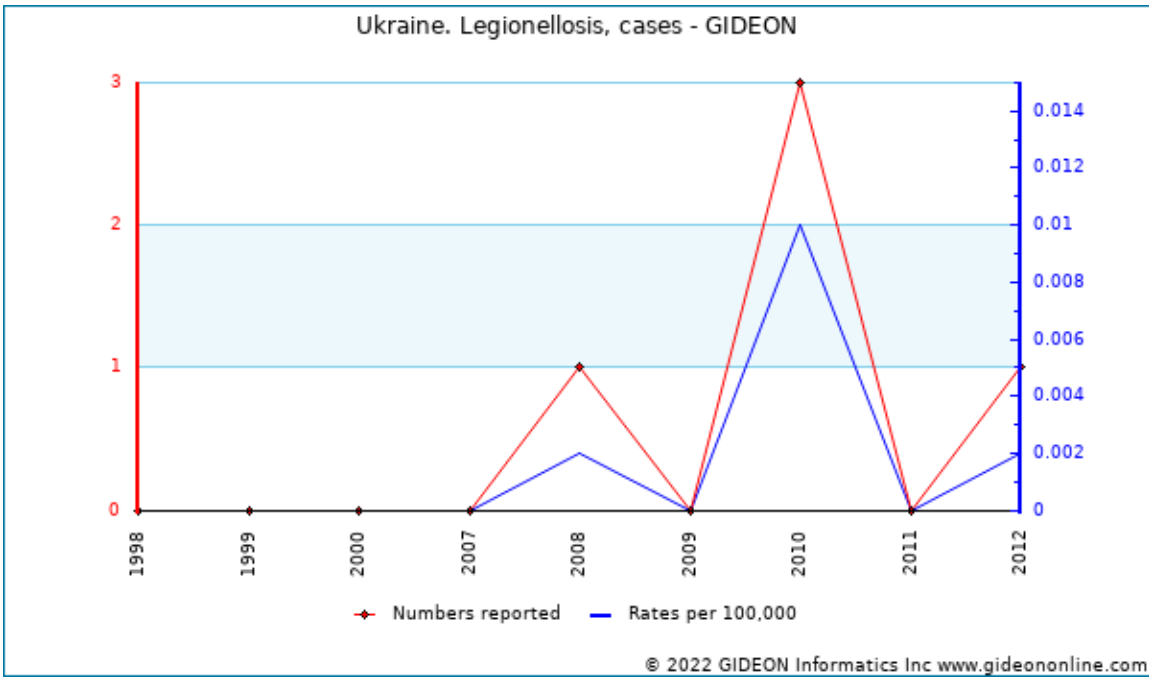
<b>Agent</b>	VIRUS OR BACTERIUM. Parainfluenza virus, Influenza virus, <i>Mycoplasma</i> , et al
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Droplet, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	3d - 8d
<b>Diagnostic Tests</b>	Viral culture (respiratory secretions). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Most cases are in young children - Usually encountered in the setting of bronchiolitis, laryngitis or croup following a minor upper respiratory infection
<b>Synonyms</b>	Bronchitis, Croup, Laringitis, Laryngite, Laryngitis, Laryngotracheitis. ICD9: 464,466 ICD10: J04,J05,J20,J21



## Legionellosis

<b>Agent</b>	BACTERIUM. <i>Legionella pneumophila</i> , et al An aerobic gram-negative bacillus
<b>Reservoir</b>	Water
<b>Vector</b>	None
<b>Vehicle</b>	Water, Aerosols, Droplet, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	5- 6d (range 2-12d); Pontiac fever = 1-2d
<b>Diagnostic Tests</b>	Serology. Culture. Urine antigen (certain types). Nucleic acid amplification. Alert lab if organism suspected.
<b>Typical Adult Therapy</b>	Fluoroquinolone ( <a href="#">Levofloxacin</a> , <a href="#">Trovaflaxacin</a> , <a href="#">Pefloxacin</a> , <a href="#">Sparfloxacin</a> or <a href="#">Moxifloxacin</a> ). OR <a href="#">Azithromycin</a> . OR <a href="#">Erythromycin</a> + <a href="#">Rifampin</a> OR <a href="#">Clarithromycin</a> <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Azithromycin</a> . OR <a href="#">Erythromycin</a> + <a href="#">Rifampin</a> OR <a href="#">Clarithromycin</a>
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Respiratory illness with extrapulmonary manifestations</li> <li>- Diarrhea, confusion, renal or hepatic dysfunction, relative bradycardia, etc.</li> <li>- Most cases reported during summer in temperate areas</li> <li>- Case-fatality rates of 5% to 25% are reported</li> </ul>
<b>Synonyms</b>	Doença dos legionarios, Legionarsjuka, Legionarssjuka, Legionella, Legionellose, Legionellosi, Legionnaire's disease, Pontiac fever. ICD9: 482.84 ICD10: A48.1,A48.2

**Legionellosis in Ukraine**



Graph: Ukraine. Legionellosis, cases

**References**

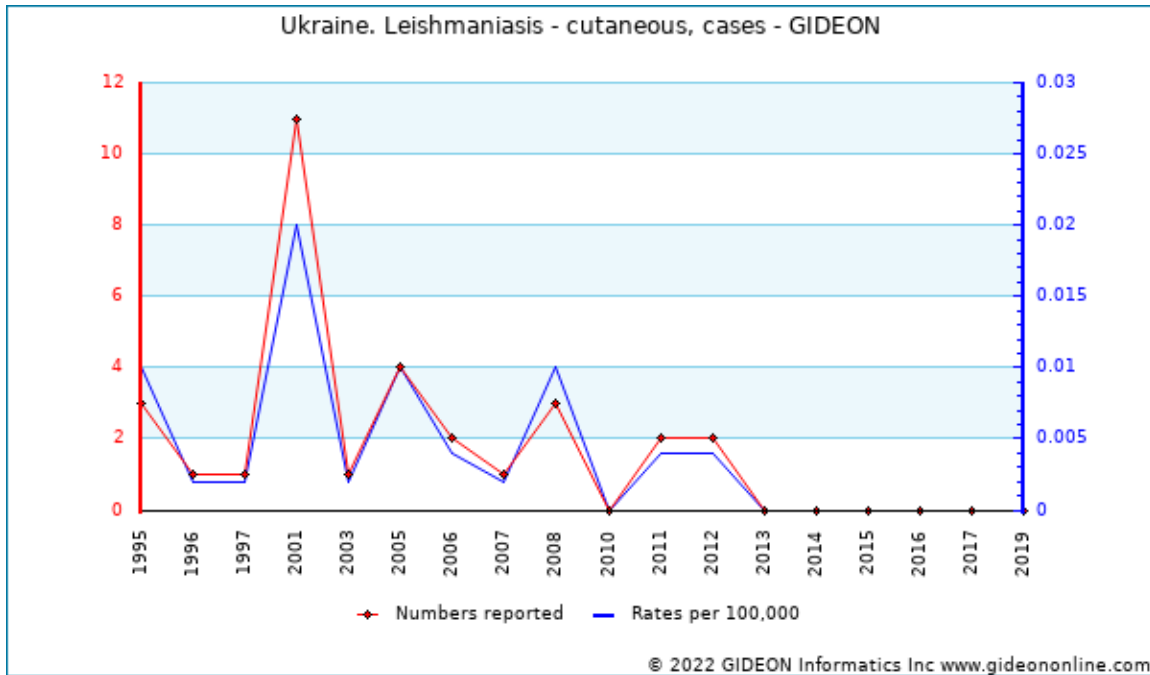
1. Infect Dis Clin North Am 2017 03 ;31(1):179-191.
2. Lancet Infect Dis 2014 Oct ;14(10):1011-21.
3. Curr Opin Infect Dis 2010 Apr ;23(2):152-7.

## Leishmaniasis - cutaneous

<b>Agent</b>	PARASITE - Protozoa. Euglenozoa, Kinetoplastea. Flagellate: <i>Leishmania tropica</i> , et al
<b>Reservoir</b>	Human, Hyrax, Rodent, Marsupial, Dog, Sloth, Anteater, Armadillo, Bat, Zoonotic
<b>Vector</b>	Sandfly ( <i>Phlebotomus</i> for Old-world; <i>Lutzomyia</i> or <i>Psychodopygus</i> for New-world)
<b>Vehicle</b>	None
<b>Incubation Period</b>	2w - 8w (range 1w - months)
<b>Diagnostic Tests</b>	Identification of organism on smear or specialized culture. Nucleic acid amplification
<b>Typical Adult Therapy</b>	Local therapy: Cryotherapy; Laser ablation  Pentavalent antimonials or Paromomycin.  For complicated disease: Fluconazole or Miltefosine, PO Alternatives: Amphotericin B deoxycholate, Liposomal Amphotericin B, Pentavalent antimony IV, Pentamidine <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Chronic ulcerating skin nodule - May be painless ( <i>Leishmania tropica</i> ) or painful ( <i>L. major</i> ) - Diffuse infection or regional lymphadenopathy are occasionally encountered
<b>Synonyms</b>	Aleppo button, Antep boil, Baghdad boil, Bay sore, Bejuco, Biskra boil, Boessie-Yassi, Bolho, Boschyaws, Bosjaws, Bush yaws, Busi-yasi, Chiclero ulcer, Crithidia, Cutaneous leishmaniasis, Delhi ulcer, Domal, El-Mohtafura, Forest yaws, Gafsa boil, Granuloma endemicum, Hashara, Jericho boil, Kaal Daana, Kandahar sore, Leishmania aethiops, Leishmania enriettii, Leishmania garnhami, Leishmania guyanensis, Leishmania killicki, Leishmania lainsoni, Leishmania lindenbergi, Leishmania major, Leishmania martiniquensis, Leishmania mexicana, Leishmania naiffi, Leishmania orientalis, Leishmania panamensis, Leishmania peruviana, Leishmania shawi, Leishmania tropica, Leishmania turanica, Leishmania venezuelensis, Leishmania waltoni, Leishmaniasis, Leishmaniose: Kutane, Leishmaniosi cutanea, Lepra de montana, Liana, Mundinia enriettii, Mundinia martiniquensis, Mundinia orientalis, Okhet, One-year boil, Oriental sore, Pendjeh sore, Pian bois, Saldana, Ulcera de Bejuco, Urfa boil, Uta, Yatevi, Year boil. ICD9: 085.1,085.2,085.3,085.4 ICD10: B55.1

Although Leishmaniasis - cutaneous is not endemic to Ukraine, imported, expatriate or other presentations of the disease have been associated with this country.

## Leishmaniasis - cutaneous in Ukraine



Graph: Ukraine. Leishmaniasis - cutaneous, cases

- 1990 to 2007 - 24 cases of cutaneous leishmaniasis were reported in Ukraine - all imported from Tajikistan and Armenia. The true number of cases during 2005 to 2008 was estimated at 10 to 20 per year. <sup>4</sup>
- 2008 to 2009 - Three cases were reported.

### References

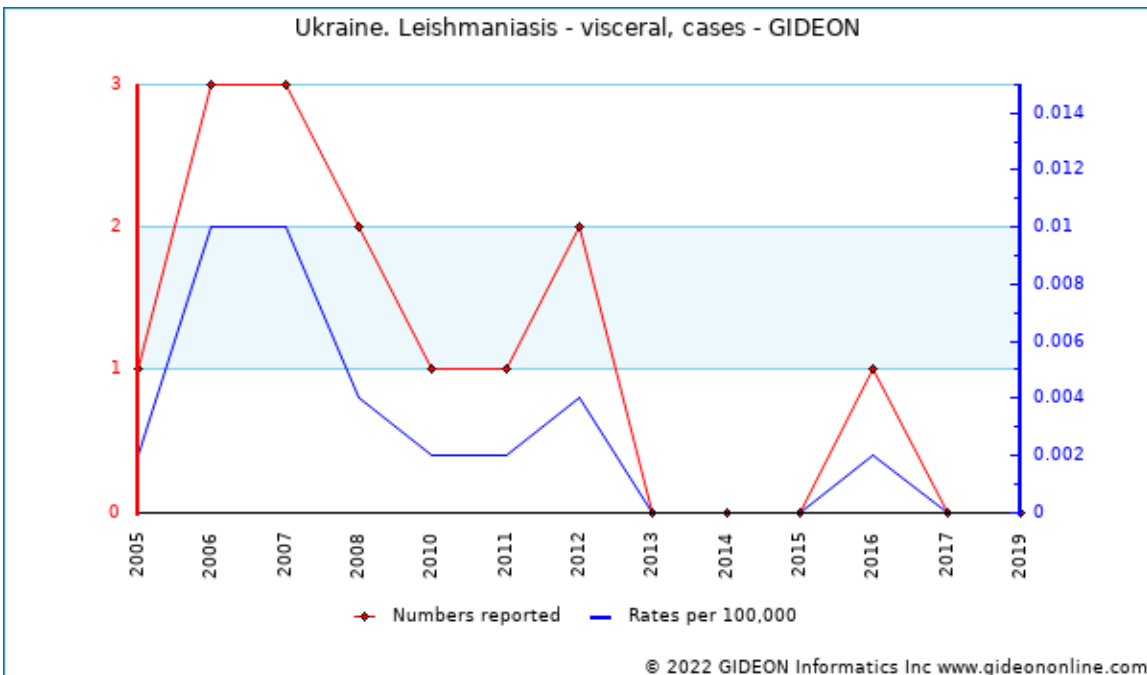
1. [Lancet 2018 09 15;392\(10151\):951-970.](#)
2. [Cochrane Database Syst Rev 2017 12 01;12:CD005067.](#)
3. [Cochrane Database Syst Rev 2017 11 17;11:CD005067.](#)
4. [PLoS One 2012 ;7\(5\):e35671.](#)

## Leishmaniasis - visceral

<b>Agent</b>	PARASITE - Protozoa. Euglenozoa, Kinetoplastea. Flagellate: <i>Leishmania donovani</i> , <i>L. infantum</i> , <i>L. cruzi</i> ; rarely, <i>L. tropica</i>
<b>Reservoir</b>	Human, Rodent, Dog, Cat, Fox, Hares, Zoonotic
<b>Vector</b>	Sandfly ( <i>Phlebotomus</i> for Old-world; <i>Lutzomyia</i> for New-world)
<b>Vehicle</b>	Blood
<b>Incubation Period</b>	2m - 6m (10d - 12m)
<b>Diagnostic Tests</b>	Smear / culture of bone marrow, splenic aspirate, lymph nodes. Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Liposomal <b>Amphotericin B</b> 3 mg/kg/d on days 1, 5, 14, 21 OR <b>Miltefosine</b> 0.8 mg/kg TID X 28d OR <b>Pentavalent antimonials</b> (Stibogluconate) 20 mg/kg/d X 28d. OR <b>Paromomycin</b> 15 mg/kg/d IM or IV X 21 days <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	<b>Pentavalent antimonials</b> (Stibogluconate) 20 mg/kg/d X 28d. OR <b>Amphotericin B</b> 1 mg/kg/QOD X 8w (or lipid complex 3 mg/kg/d X 5d) OR <b>Paromomycin</b> 11 mg/kg IM QD X 21 days OR <b>Miltefosine</b> 2.5 mg/kg daily (maximum 150 mg) X 28d
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Chronic fever, weight loss, diaphoresis</li> <li>- Hepatosplenomegaly, lymphadenopathy and pancytopenia</li> <li>- Grey pigmentation (Kala Azar = "black disease") may appear late in severe illness</li> <li>- Case-fatality rates vary from 5% (treated) to 90% (untreated)</li> </ul>
<b>Synonyms</b>	Burdwan fever, Cachectic fever, Dum Dum fever, Kala azar, <i>Leishmania donovani</i> , <i>Leishmania infantum</i> , <i>Leishmania siamensis</i> , <i>Leishmania tarentolae</i> , Leishmaniose: Viszerale, Leishmaniosi viscerale, Ponos, Visceral leishmaniasis, Visceral leishmaniosis. ICD9: 085.0 ICD10: B55.0

### Leishmaniasis - visceral in Ukraine

**Time and Place**



Graph: Ukraine. Leishmaniasis - visceral, cases

Seven cases of visceral leishmaniasis were reported in Ukraine during 1990 to 2007 (all imported from Tajikistan and Armenia) ; 2 (fatal) in 2008; 1 in 2009

- The true number of cases during 2005 to 2008 was estimated at 4 to 7 per year. <sup>4</sup>

#### Vectors

- *Phlebotomus turanicus* is the vector of *Leishmania infantum* in Turkmenistan
- Vectors west of Caspian Sea include *Phlebotomus* [Larrousius] *kandelakii* and *Ph. tobbi*
- Vectors east of Caspian Sea include *Ph. smirnovi* and *Ph. (Paraphlebotomus) caucasicus*. <sup>5 6 7</sup>
- *Ph. papatasi* is also active in the region. <sup>8</sup>

#### References

1. Lancet 2018 09 15;392(10151):951-970.
2. Clin Microbiol Infect 2018 Jun ;24(6):591-598.
3. Ther Adv Infect Dis 2016 Jun ;3(3-4):98-109.
4. PLoS One 2012 ;7(5):e35671.
5. Med Parazitol (Mosk) 2001 Jul-Sep;(3):26-31.
6. Trans R Soc Trop Med Hyg 1985 ;79(1):34-6.
7. Med Parazitol (Mosk) 1983 Jan-Feb;52(1):33-7.
8. Med Parazitol (Mosk) 1992 Jul-Aug;(4):30-3.

## Leprosy

<b>Agent</b>	BACTERIUM. <i>Mycobacterium leprae</i> <i>Mycobacterium lepromatosis</i> An acid-fast bacillus
<b>Reservoir</b>	Human, Armadillo, Squirrel, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Secretions
<b>Incubation Period</b>	3y - 5y (range 3m - 40y)
<b>Diagnostic Tests</b>	Visualization of organisms in exudate, scrapings or biopsy. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Multibacillary: One year therapy Daily: <b>Dapsone</b> 100 mg po + <b>Clofazimine</b> 50 mg po + Monthly: <b>Rifampin</b> 600 mg + <b>Clofazimine</b> 300 mg po  Paucibacillary: Six month therapy Daily: <b>Dapsone</b> 100 mg po + Monthly: <b>Rifampin</b> 600 mg po <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	Multibacillary: One year therapy Daily: <b>Dapsone</b> 1 to 2 mg/kg + <b>Clofazimine</b> 1 mg/kg + Monthly: <b>Rifampin</b> 10 mg/kg + <b>Clofazimine</b> 1 mg/kg  Paucibacillary: Six month therapy Daily: <b>Dapsone</b> 1 to 2 mg/kg po + Monthly: <b>Rifampin</b> 10 mg/kg po
<b>Clinical Hints</b>	- Anesthetic, circinate hypopigmented skin lesions - Thickened peripheral nerves (tuberculoid leprosy) - Diffuse, destructive papulonodular infection (lepromatous leprosy) - Combined/intermediate forms are encountered
<b>Synonyms</b>	Aussatz, Doence de Hansen, Hansen's disease, Lebbra, Lepra, Mycobacterium leprae, Mycobacterium lepromatosis. ICD9: 030 ICD10: A30

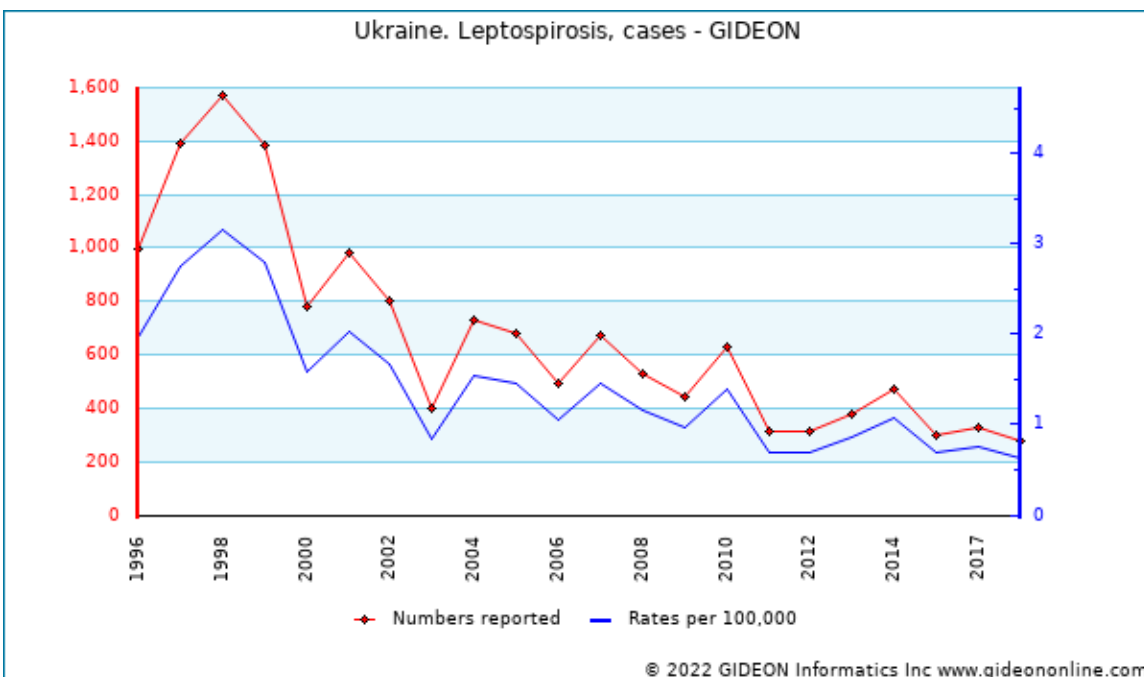
### References

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2. [Med Mal Infect 2015 Sep ;45\(9\):383-93.](#)
3. [Clin Microbiol Rev 2015 Jan ;28\(1\):80-94.](#)

## Leptospirosis

<b>Agent</b>	BACTERIUM. <i>Leptospira interrogans</i> , et al. An aerobic non-gram staining spirochete
<b>Reservoir</b>	Cattle, Dog, Horse, Deer, Rodent, Fox, Marine mammal, Cat, Marsupial, Frog, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Water, Soil, Urine contact, Breastfeeding
<b>Incubation Period</b>	7d - 12d (range 2d - 26d)
<b>Diagnostic Tests</b>	Culture on specialized media. Dark field microscopy of urine, CSF. Serology.
<b>Typical Adult Therapy</b>	Penicillin G 1.5 million units Q6h iv OR Doxycycline 100 mg BID X 5 to 7d OR Ceftriaxone 1g IV daily <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	Penicillin G 50,000u/kg q6h iv X 5 to 7d Age >= 8y: Doxycycline 2.2 mg/kg BID X 5 to 7d may also be used
<b>Clinical Hints</b>	- Often follows recent skin contact with fresh water in rural or rodent-infested areas - "Sterile" meningitis, nephritis, hepatitis, myositis and conjunctivitis - Case-fatality rates of 5% to 40% are reported
<b>Synonyms</b>	Andaman hemorrhagic fever, Canefield fever, Canicola fever, Field fever, Fish handler's disease, Fort Bragg fever, Japanese autumnal fever, Kelsch's disease, Leptospira, Leptospirose, Leptospirosen, Leptospirosi, Mud fever, Pre-tibial fever, Rat fever, Rice field fever, Swamp fever, Swineherd disease, Weil's disease. ICD9: 100 ICD10: A27

### Leptospirosis in Ukraine



Graph: Ukraine. Leptospirosis, cases



Notes:

Individual years:

- 2005 - Included 27 cases in the Chernovtsy region <sup>4</sup> and 69 fatal cases
- 2006 - None fatal

173 patients were hospitalized for leptospirosis in Subcarpathia during 1997 (12.6 per 100,000 population); 40 in 1998.

- 2002 to 2016 - 276 cases of leptospirosis were treated at a hospital in Lviv Oblast. <sup>5</sup>
- 2005 to 2015 - 401 cases of leptospirosis were confirmed in Zakarpattia Oblast. <sup>6</sup>

**Prevalence surveys**

Years	Region	Study Group	%	Notes
2001 - 2015	Lviv	mammals	0.19-8.74	0.19% to 8.74% of individuals from a variety of mammalian species <sup>7</sup>

**Seroprevalence surveys**

Years	Region	Study Group	%	Notes
2014 - 2015	Multiple locations	cattle	25.8-60	<sup>8</sup>
2001 - 2016	Ternopil	animals	23.1-28.6	27.7% to 28.6% of cattle, pigs and horses <sup>9</sup>
1981 - 2016	Ternopil	small mammals	2.09-33.14	<sup>10</sup>
2005 - 2015	Zakarpattia	small mammals	9.79	<sup>11</sup>

**Notable outbreaks**

Years	Region	Cases	Source	Pathogen	Notes
1965*	Tarnopol				<sup>12</sup>
1972	Ternopil	22	water	serovar Grippotyphosa	Outbreak associated with swimming <sup>13</sup>

\* indicates publication year (not necessarily year of outbreak)

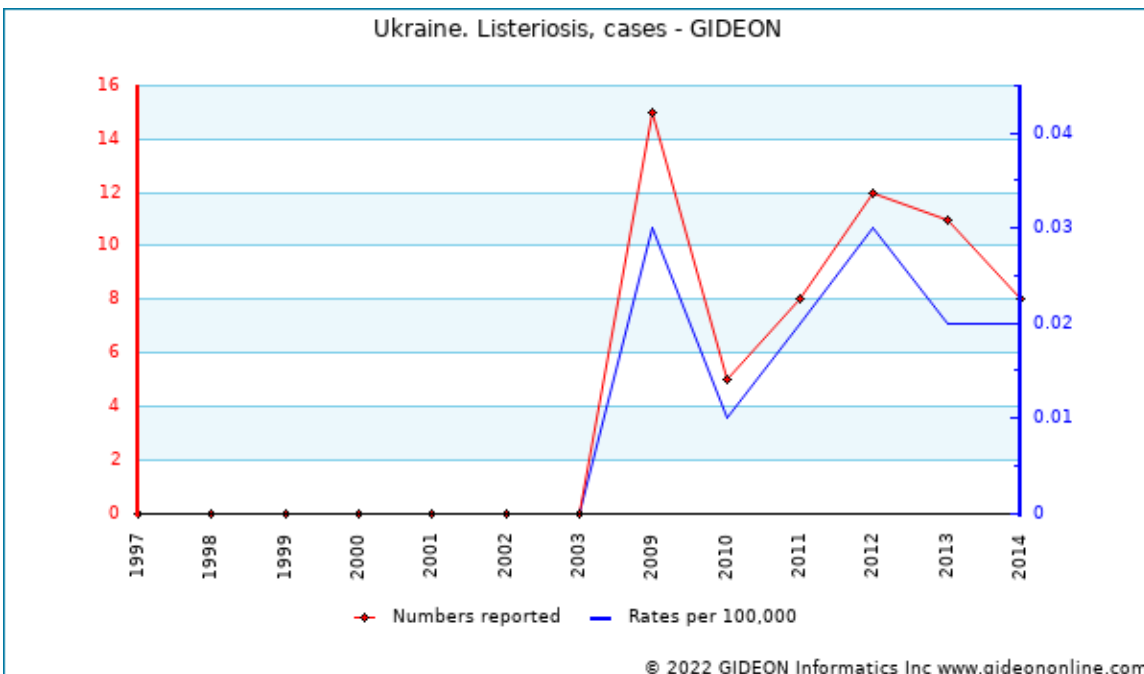
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7. PLoS Negl Trop Dis 2019 Dec ;13(12):e0007793.
8. Pol J Microbiol 2019 Sep ;68(3):295-302.
9. Ann Agric Environ Med 2017 Dec 23;24(4):671-675.
10. Ann Agric Environ Med 2017 Dec 23;24(4):671-675.
11. Vector Borne Zoonotic Dis 2019 Mar 05;
12. Vrach Delo 1965 Jan ;1:143-4.
13. Ann Agric Environ Med 2017 Dec 23;24(4):671-675.

## Listeriosis

<b>Agent</b>	BACTERIUM. <i>Listeria monocytogenes</i> A facultative gram-positive bacillus
<b>Reservoir</b>	Mammal, Human, Bird, Soil, Water, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Transplacental, Dairy products (eg, soft cheeses), Infected secretions, Vegetables, Poultry, Water, Fish, Shellfish
<b>Incubation Period</b>	3d - 21d (60d post-ingestion)
<b>Diagnostic Tests</b>	Culture of blood or CSF.
<b>Typical Adult Therapy</b>	<b>Ampicillin</b> 2g IV q6h X 2w (higher dosage in meningitis) + <b>Gentamicin</b> . <b>Sulfamethoxazole / Trimethoprim</b> recommended for Penicillin-allergic patients <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	<b>Ampicillin</b> 50 mg/kg IV Q6h X 2w (higher dosage in meningitis). <b>Sulfamethoxazole / Trimethoprim</b> recommended for Penicillin-allergic patients
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Meningitis or sepsis, often in immune-suppressed patients (lymphoma, AIDS, etc)</li> <li>- Gastroenteritis - may follow ingestion of "over-the-counter" foods</li> <li>- Neonatal septicemia occasionally encountered</li> </ul>
<b>Synonyms</b>	Listeria monocytogenes, Listeriose, Listeriosi. ICD9: 027.0 ICD10: A32

### Listeriosis in Ukraine



Graph: Ukraine. Listeriosis, cases

**References**

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**Liver abscess - bacterial**

<b>Agent</b>	BACTERIUM. Various species from portal (Bacteroides, mixed aerobe-anaerobe) or biliary ( <i>Escherichia coli</i> , etc) source
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Endogenous
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Ultrasonography, CT or radionucleotide scan. If amoebic abscess suspected, perform Entamoeba serology
<b>Typical Adult Therapy</b>	Intravenous antibiotic(s) directed at likely or suspected pathogens. Percutaneous or open drainage <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Tender liver and prolonged fever in a patient</li><li>- Often associated with diverticulosis, cholecystitis, appendicitis, etc</li><li>- Clinically similar to amoebic abscess, but often multiple</li></ul>
<b>Synonyms</b>	Ascesso fegato, Bacterial liver abscess, Hepatic abscess - bacterial, Liver abscess. ICD9: 572.0 ICD10: K75.0

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## Lyme disease

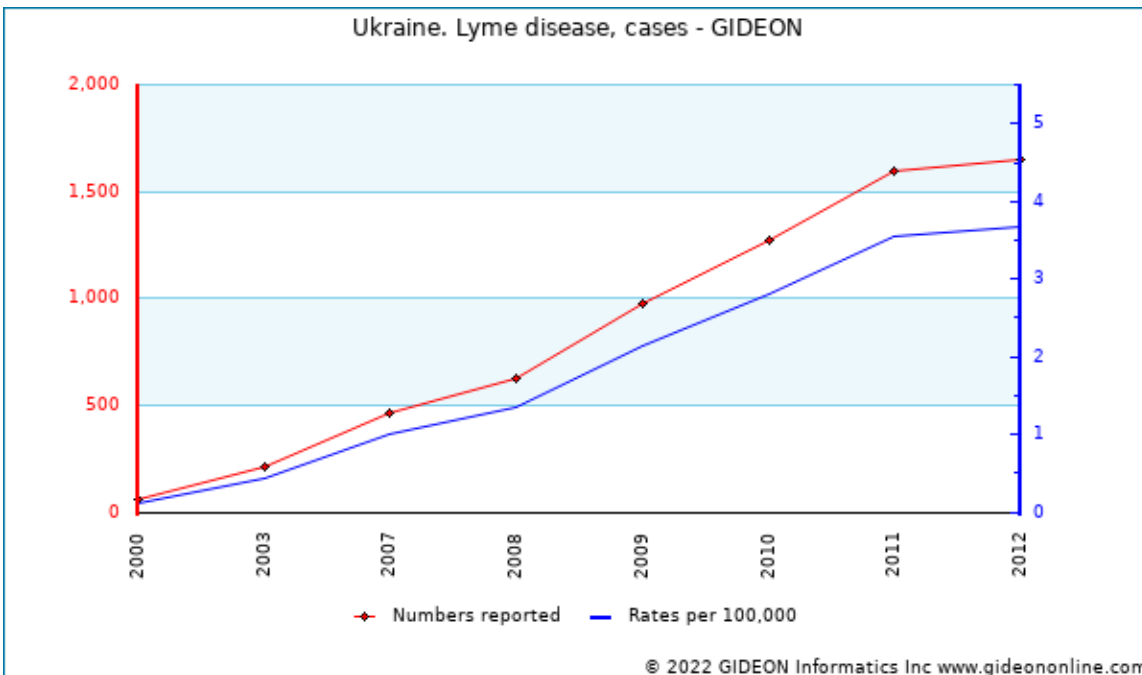
<b>Agent</b>	BACTERIUM. <i>Borrelia</i> spp.: <i>Borrelia burgdorferi</i> ; <i>B. afzelii</i> and <i>B. garinii</i> are also encountered (in Eurasia) A microaerophilic spirochete
<b>Reservoir</b>	Tick, Deer, Rodent, Bird, Zoonotic
<b>Vector</b>	Tick ( <i>Ixodes</i> , <i>Amblyomma</i> )
<b>Vehicle</b>	None
<b>Incubation Period</b>	7d - 14d (range 2d - 180d)
<b>Diagnostic Tests</b>	Serology. Nucleic acid amplification. Culture of blood and body fluids available in some laboratories.
<b>Typical Adult Therapy</b>	<a href="#">Doxycycline</a> , <a href="#">Ceftriaxone</a> , <a href="#">Amoxicillin</a> or <a href="#">Cefuroxime</a> Dosage, route and duration according to nature and severity of disease  Prophylactic antibiotics are often used in Lyme-endemic regions for disease prevention following tick-bite. <a href="#">1</a> <a href="#">2</a> <a href="#">3</a> <a href="#">4</a> <a href="#">5</a>
<b>Typical Pediatric Therapy</b>	>= Age 8 years: As for adult < Age 8 years: <a href="#">Ceftriaxone</a> , <a href="#">Cefuroxime</a> or <a href="#">Amoxicillin</a> . Dosage, route and duration according to nature and severity of disease
<b>Vaccine</b>	<a href="#">Lyme disease vaccine</a>
<b>Clinical Hints</b>	- Patient may recall recent tick bite - Fever, circular erythematous skin lesion, arthralgia and lymphadenopathy - Later meningitis or myocarditis, and eventual destructive polyarthritis
<b>Synonyms</b>	Arcodermatitis chronica atrophicans, Baggio-Yoshinari syndrome, Borrelia A 14S, Borrelia afzelii, Borrelia americana, Borrelia bavariensis, Borrelia bissetii, Borrelia burgdorferi, Borrelia carolinensis, Borrelia garinii, Borrelia lonestari, Borrelia lusitaniae, Borrelia mayonii, Borrelia spielmanii, Borrelia valaisiana, Borrelial lymphocytoma, Doença de Lyme, Erythema chronicum migrans, Erythema migrans, Garin-Bujadoux-Bannwarth syndrome, LD imitator syndrome, LD-like syndrome, Lyme borreliose, Lyme borreliosis, Master's disease, Neuroborreliosis, Southern tick-associated rash illness, STARI, TAPOS, Tick-associated poly-organic syndrome. ICD9: 088.81 ICD10: A69.2

### Lyme disease in Ukraine

**Time and Place**

Lyme disease is reported in all administrative regions of Ukraine and in the Autonomous Republic of Crimea.

- Most cases are reported in Artemovsk, Slavyansk, Kramatorsk, Donetsk, Gorlovka, and Makeyevka. <sup>6</sup>



Graph: Ukraine. Lyme disease, cases

- 2000 to 2019 - Review of Lyme disease incidence in Ukraine <sup>7</sup>

**Prevalence surveys**

Years	Region	Study Group	%	Notes
2009 - 2014	Western Region	ticks	29.3-31.9	29.3% / 31.9% ( <i>Ixodes ricinus</i> / <i>Dermacentor reticularis</i> ) <sup>8</sup>
2016*	Kiev	ticks	4	Survey of <i>Ixodes ricinus</i> ticks in urban parks <sup>9</sup>
2017	Ternopil	ticks	64	64% of <i>Ixodes</i> ticks <sup>10</sup>
2017*	Kiev	ticks	0.5-7.7	<i>Borrelia afzelii</i> in 7.7% of adults <i>Ixodes ricinus</i> , <i>B. burgdorferi</i> 2.2% and <i>B. garinii</i> 0.5%. <sup>11</sup>

\* indicates publication year (not necessarily year of survey)

**Seroprevalence surveys**

Years	Region	Study Group	%	Notes
2020*	Ternopil	children	57.7	Survey of children who had been bitten by ticks. <sup>12</sup>
2015 - 2018	Ternopil	patients	8.6-50	Serology was positive in 8.6% of hospital patients with neurological signs, 34.5% with arthritis and 50% with EM-like skin lesions <sup>13</sup>
2016*		patients	18.8	18.8% of patients with localized scleroderma (2016 publication) <sup>14</sup>

\* indicates publication year (not necessarily year of survey)

*Borrelia burgdorferi*, *B. garinii* and *B. afzelii* are identified. <sup>15 16</sup>

The principal tick vector is *Ixodes ricinus*.

- Possible reservoirs include *Mus musculus*, *Microtus arvalis*, *Myodes glareolus*, *Apodemus agrarius*, and *A. sylvaticus*.

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**Lymphocytic choriomeningitis**

<b>Agent</b>	VIRUS - RNA. Arenaviridae, Mammarenavirus: Lymphocytic choriomeningitis virus
<b>Reservoir</b>	House mouse, Guinea pig, Hamster, Monkey, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Urine, Saliva, Feces, Food, Dust, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	8d - 12d (range 6d - 14d)
<b>Diagnostic Tests</b>	Biosafety level 3. Viral culture (blood, throat, CSF). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Headache, myalgia, meningitis and encephalitis</li><li>- Photophobia or pharyngitis may be present</li><li>- Preceding exposure to rodents</li><li>- Infection resolves within 2 weeks, however convalescence may require an additional 2 months</li></ul>
<b>Synonyms</b>	ICD9: 049.0 ICD10: A87.2



## Lymphogranuloma venereum

<b>Agent</b>	BACTERIUM. Chlamydiaceae, <i>Chlamydiae</i> , <i>Chlamydia trachomatis</i> , types L1, L2, L3
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Sexual contact
<b>Incubation Period</b>	7d - 12d (range 3d - 30d)
<b>Diagnostic Tests</b>	Serology. Culture of pus performed in specialized laboratories.
<b>Typical Adult Therapy</b>	<a href="#">Doxycycline</a> 100 mg PO BID X 3w. OR <a href="#">Erythromycin</a> 500 mg QID X 3w OR <a href="#">Azithromycin</a> 1g po weekly X 3w <sup>1</sup>
<b>Typical Pediatric Therapy</b>	Age < 8 years: <a href="#">Erythromycin</a> 10 mg/kg PO QID X 2 to 4w. Age >= 8 years: <a href="#">Doxycycline</a> 2 mg/kg PO BID X 2 to 4w
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Genital nodule or vesicle with large, suppurating regional nodes</li><li>- Generalized lymphadenopathy or proctitis may be present</li><li>- Late complications include genital edema, rectal strictures and perianal abscesses</li></ul>
<b>Synonyms</b>	Bubonulus, Durand-Nicolas-Favre disease, Linfogranuloma venereo, Lymphogranuloma inguinale, Lymphopathia venereum, Maladie de Nicolas et Favre, Tropical bubo, Venereal bubo, Venerisk lymphogranulom. ICD9: 099.1 ICD10: A55

### References

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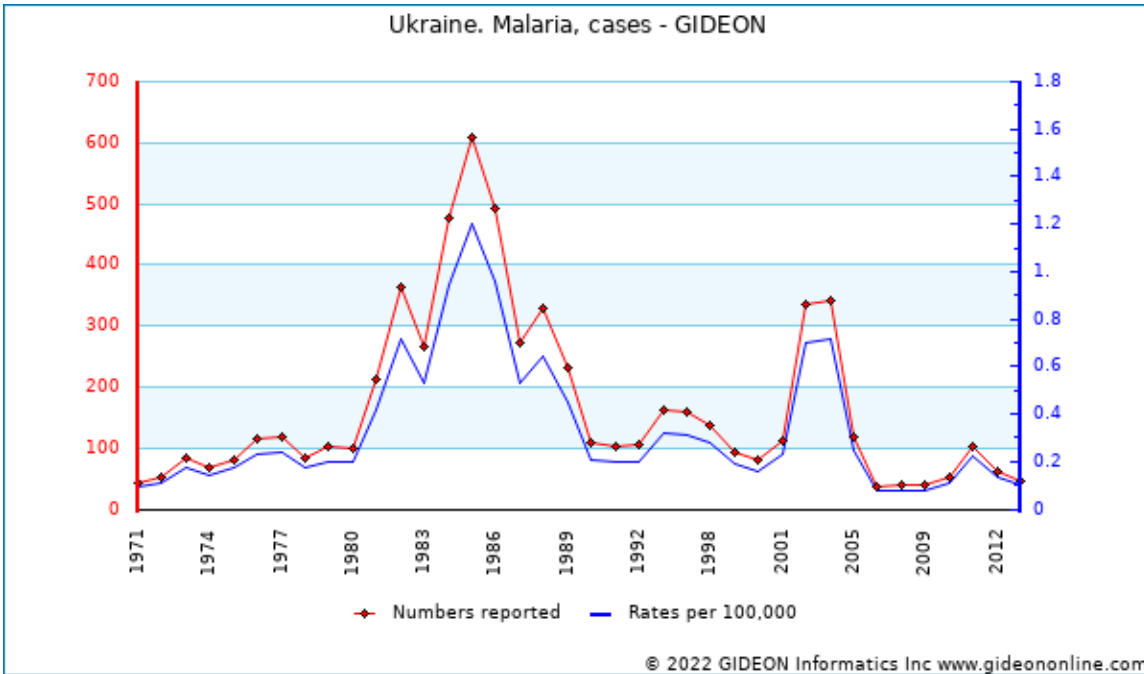
## Malaria

<b>Agent</b>	PARASITE - Protozoa. Apicomplexa, Haemosporida: <i>Plasmodium</i> spp.
<b>Reservoir</b>	Human Primate ( <i>Plasmodium knowlesi</i> , <i>P. cynomolgi</i> , <i>P. simium</i> ), Zoonotic
<b>Vector</b>	Mosquito ( <i>Anopheles</i> )
<b>Vehicle</b>	Blood
<b>Incubation Period</b>	7d -30d
<b>Diagnostic Tests</b>	Examination of blood smear. Serology, antigen & microscopic techniques. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	<p>Therapy: Resistant falciparum: <a href="#">Lumefantrine / Artemether</a> OR <a href="#">Quinine</a> + <a href="#">Doxycycline</a> or <a href="#">Clindamycin</a> OR <a href="#">Atovaquone / Proguanil</a> OR <a href="#">Artesunate</a> IV (severe malaria) If sens., <a href="#">Chloroquine</a> 1g, then 500 mg 6, 24 &amp; 48 hrs. If <i>P. ovale</i> or <i>P. vivax</i> - follow with <a href="#">Primaquine</a></p> <p>Severe malaria: <a href="#">Artesunate</a>: 2.4 mg/kg IV at 0, 12, 24 and 48 hours</p> <p>Prophylaxis: <a href="#">Atovaquone / Proguanil</a>, <a href="#">Chloroquine</a>, <a href="#">Doxycycline</a>, <a href="#">Mefloquine</a>, <a href="#">Tafenoquine</a> (see Drugs module for dosages)<sup>1</sup></p>
<b>Typical Pediatric Therapy</b>	<p>Therapy: Resistant falciparum: <a href="#">Lumefantrine / Artemether</a> OR <a href="#">Quinine</a> + <a href="#">Clindamycin</a> OR <a href="#">Atovaquone / Proguanil</a> OR <a href="#">Artesunate</a> (&gt;age 8) IV (severe malaria) If sens., <a href="#">Chloroquine</a> 10 mg/kg, then 5 mg/kg 6, 24, &amp; 48 hrs. If <i>P. ovale</i> or <i>P. vivax</i> - follow with <a href="#">Primaquine</a></p> <p>Severe malaria, weight &lt;20 kg: <a href="#">Artesunate</a>: 3.0 mg/kg IV at 0, 12, 24 and 48 hours</p> <p>Prophylaxis: <a href="#">Atovaquone / Proguanil</a>, <a href="#">Chloroquine</a>, <a href="#">Mefloquine</a>, <a href="#">Tafenoquine</a> (see Drugs module for dosages)</p>
<b>Vaccine</b>	<a href="#">Malaria (RTS,S)</a>
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Fever, headache, rigors ("shaking chills"), vomiting, myalgia, diaphoresis and hemolytic anemia</li> <li>- Fever pattern (every other or every third day) and splenomegaly may be present</li> <li>- Clinical disease may relapse after 7 (<i>ovale</i> and <i>vivax</i>) to 40 (<i>malariae</i>) years</li> </ul>
<b>Synonyms</b>	<p>Ague, Bilius remittent fever, Chagres fever, Estiautumnal fever, Marsh fever, Paludism, Paludismo, Plasmodium brasilianum, Plasmodium coatneyi, Plasmodium cynomolgi, Plasmodium falciparum, Plasmodium fieldi, Plasmodium inui, Plasmodium knowlesi, Plasmodium malariae, Plasmodium ovale, Plasmodium simiovale, Plasmodium simium, Plasmodium vivax.</p> <p>ICD9: 084 ICD10: B50,B51,B52,B53,B54</p>

Chloroquine resistant falciparum malaria endemic to 80 countries. Chloroquine-sensitive malaria endemic to 21 countries.

### Malaria in Ukraine

Indigenous malaria was eradicated as of 1956.

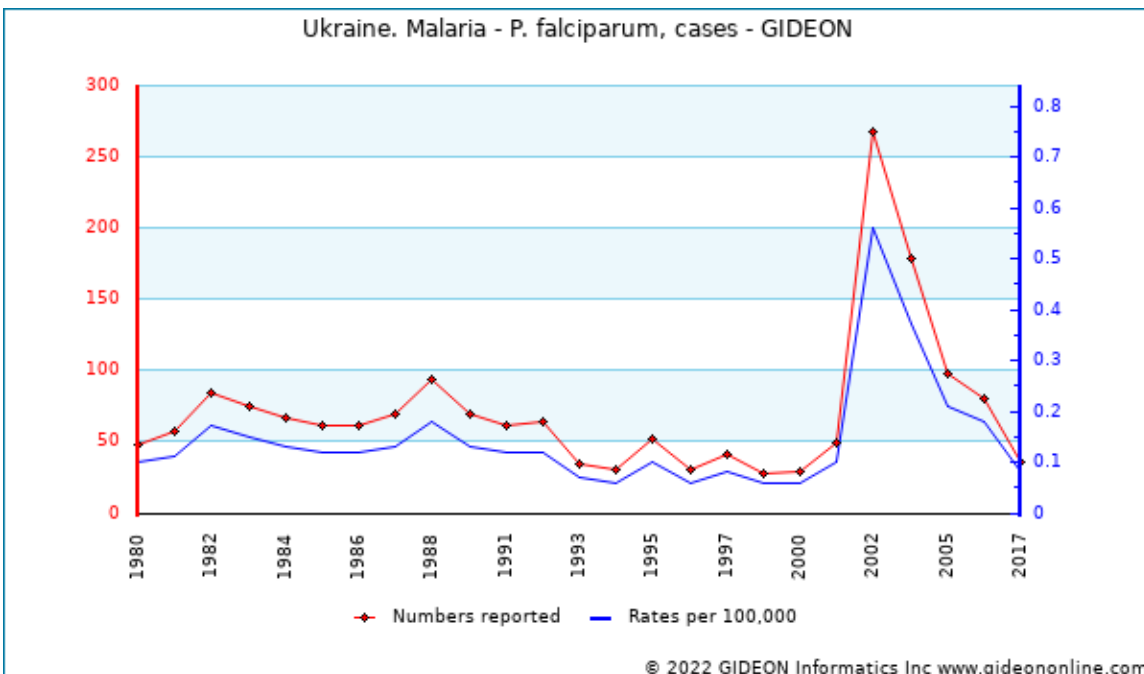


Graph: Ukraine. Malaria, cases

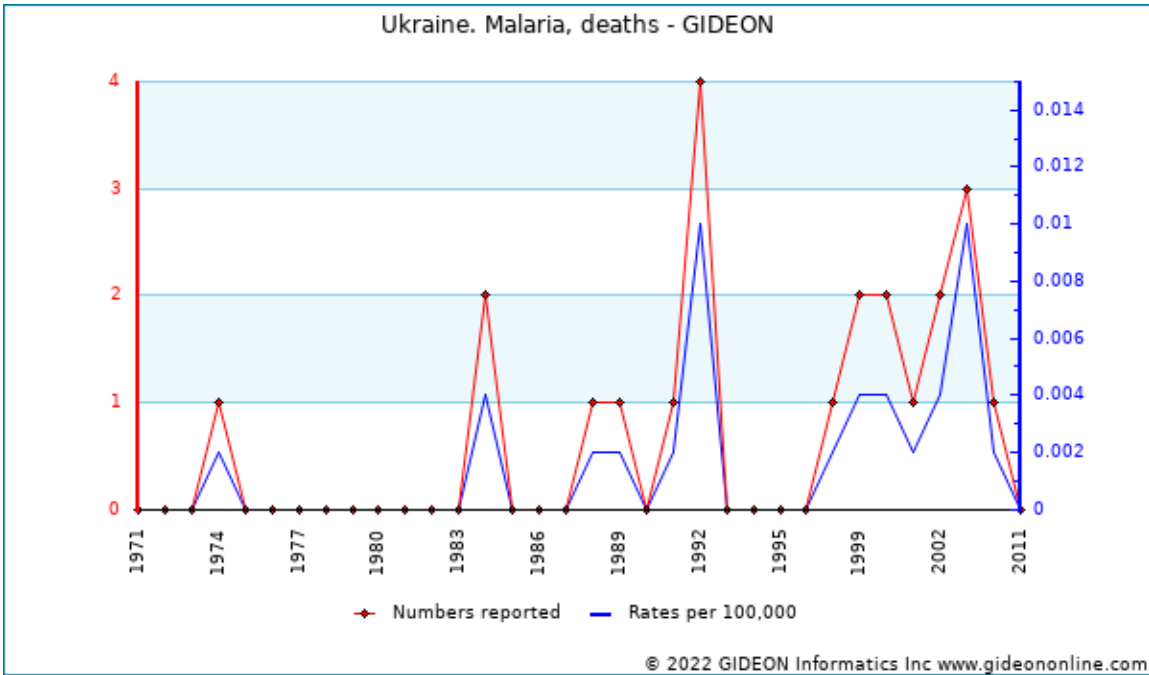
Notes:

1. No autochthonous cases were reported during 1971 to 2002; 1 in 2003; 0 in 2005.
2. One case of "local transmission" was reported in 1999, 0 in 2000, 1 in 2001, and 2 in 2002.
3. 0.2 per 100,000 in 1999, and in 2000.
4. Foreigners accounted for 53.3% of cases imported during 1999 to 2001.

- 1979 to 1997 - 322 cases of imported malaria were registered in the Donets region. <sup>2</sup>
- In 1944, the death rate from malaria in Sevastopol was 3,192 per 100,000.
- No cases were reported in the city during 1955 to 1974; 43 (1 fatal) during 1975 to 1991. <sup>3</sup>



Graph: Ukraine. Malaria - P. falciparum, cases



Graph: Ukraine. Malaria, deaths

Potential vectors are outlined in the note for Russian Federation, and include *Anopheles maculipennis*. <sup>4 5</sup>

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**Malignant otitis externa**

<b>Agent</b>	BACTERIUM. <i>Pseudomonas aeruginosa</i> : aerobic gram-negative bacillus (virtually all cases)
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Endogenous
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Culture of otic exudate and biopsy material. Careful roentgenographic and neurological examinations.
<b>Typical Adult Therapy</b>	Early debridement <a href="#">Ciprofloxacin</a> 400 mg iv Q8h Alternatives: <a href="#">Imipenem</a> , <a href="#">Meropenem</a> , <a href="#">Ceftazidime</a> , <a href="#">Cefepime</a> , <a href="#">Piperacillin</a> Early debridement <sup>1</sup>
<b>Typical Pediatric Therapy</b>	Early debridement Early debridement <a href="#">Ciprofloxacin</a> 10-15 mg/kg IV Q12h Alternatives: <a href="#">Imipenem</a> , <a href="#">Meropenem</a> , <a href="#">Ceftazidime</a> , <a href="#">Cefepime</a> , <a href="#">Piperacillin</a>
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Over 80% of patients are diabetics above age 50</li><li>- Otic pain, swelling and discharge</li><li>- Infection of bony and cartilaginous ear canal</li><li>- Cranial nerve (usually VII) signs in 50%</li><li>- Case-fatality rate &gt; 55%</li></ul>
<b>Synonyms</b>	ICD9: 380.2 ICD10: H60.2

**References**

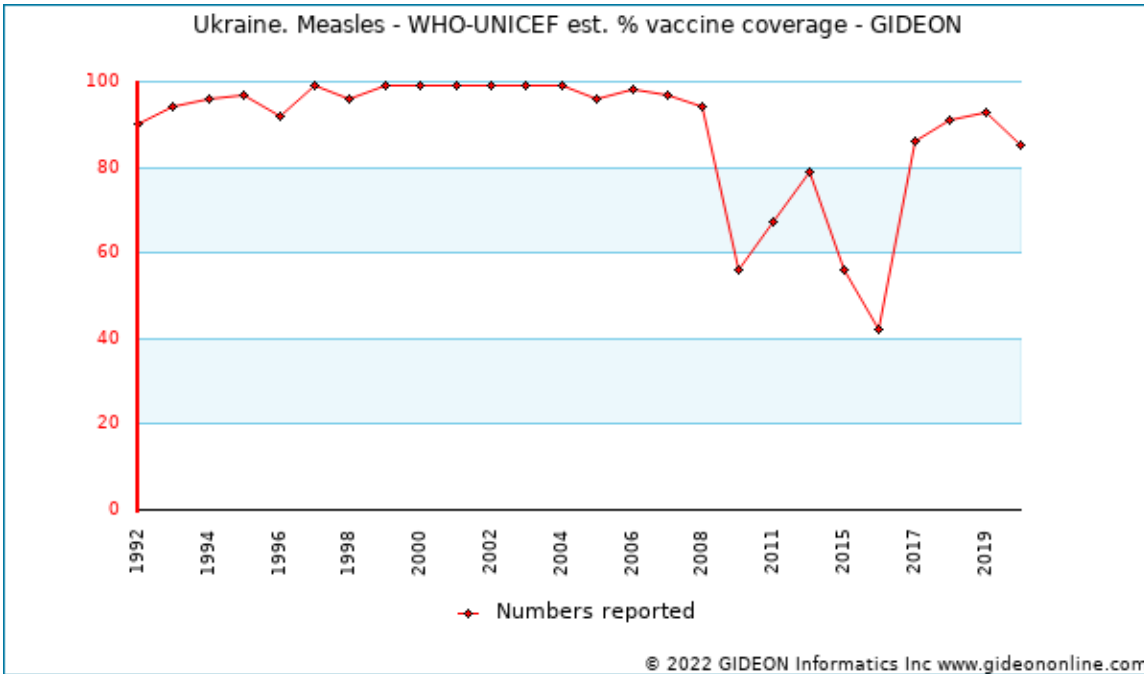
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Measles	
Agent	VIRUS - RNA. Mononegavirales Paramyxoviridae, Paramyxovirinae, Morbillivirus: Measles virus
Reservoir	Human
Vector	None
Vehicle	Droplet, Respiratory or pharyngeal acquisition
Incubation Period	8d - 14d
Diagnostic Tests	Viral culture (difficult and rarely indicated). Serology. Nucleic acid amplification.
Typical Adult Therapy	Respiratory isolation; supportive.  <a href="#">Ribavirin</a> 20 to 35 mg/kg/day X 7 days has been used for severe adult infection <sup>1 2</sup>
Typical Pediatric Therapy	Respiratory isolation; supportive.  <a href="#">Ribavirin</a> 7.5-10 mg/kg PO BID X 5-7 d has been used for severe infection
Vaccine	<a href="#">Measles vaccine</a> <a href="#">Measles-Mumps-Rubella vaccine</a> <a href="#">Measles-Rubella vaccine</a>
Clinical Hints	- 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
Synonyms	Masern, Massling, Mazelen, Meslinger, Morbilli, Morbillo, Rubeola, Rugeole, Sarampion, Sarampo. ICD9: 055 ICD10: B05

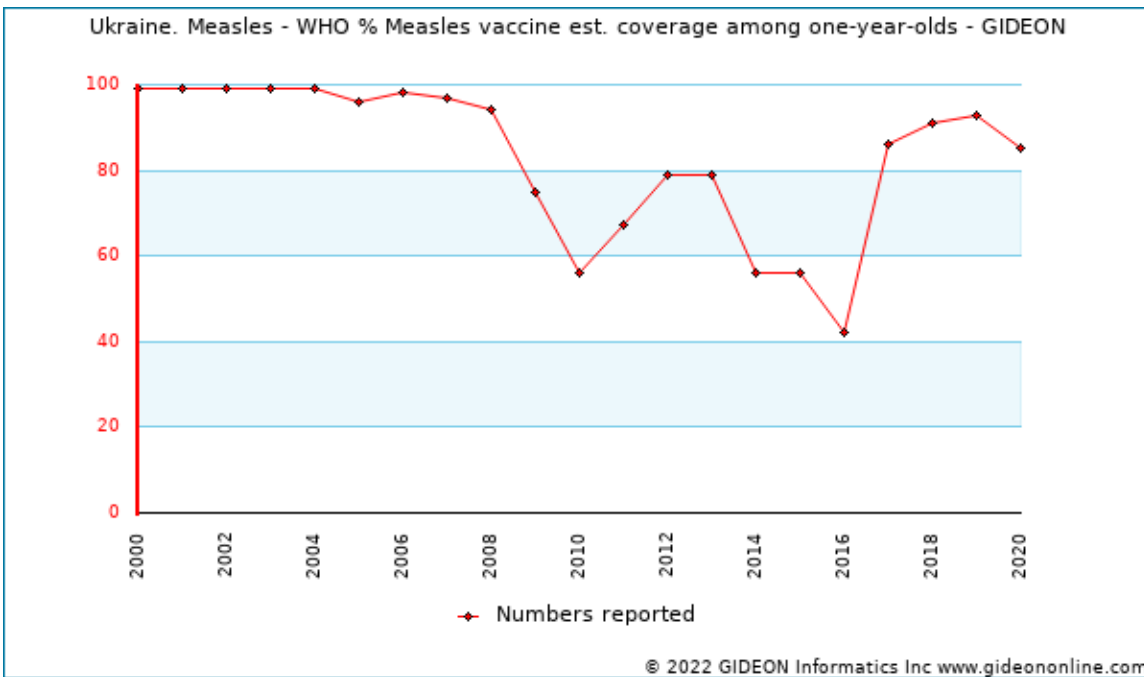
## Measles in Ukraine

### Vaccine Schedule:

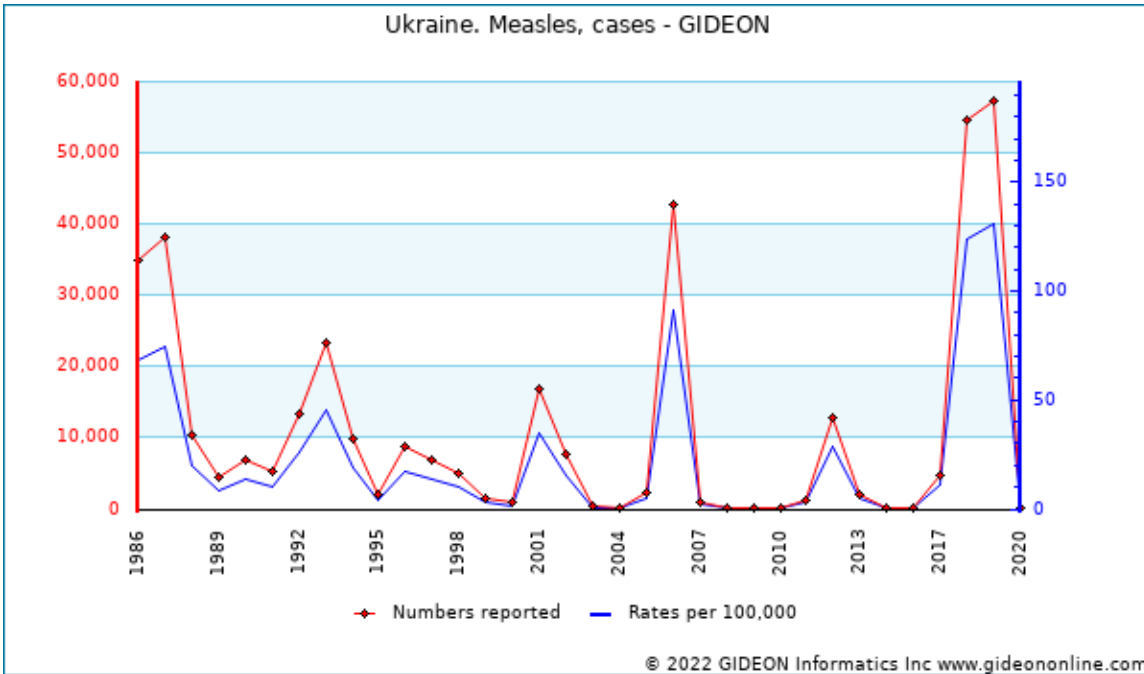
BCG - 3 days  
 DT - 6 years  
 DTP - 2,4,6,18 months  
 DTPHibHepB - 2 months  
 HepB - birth 1,6 months  
 HIB - 2,4,12 months  
 IPV - 2,4 months  
 MMR - 12 months; 6 years  
 OPV - 6, 18 months; 6, 14 years  
 Td - 16,26,36,46,56 years



Graph: Ukraine. Measles - WHO-UNICEF est. % vaccine coverage



Graph: Ukraine. Measles - WHO % Measles vaccine est. coverage among one-year-olds

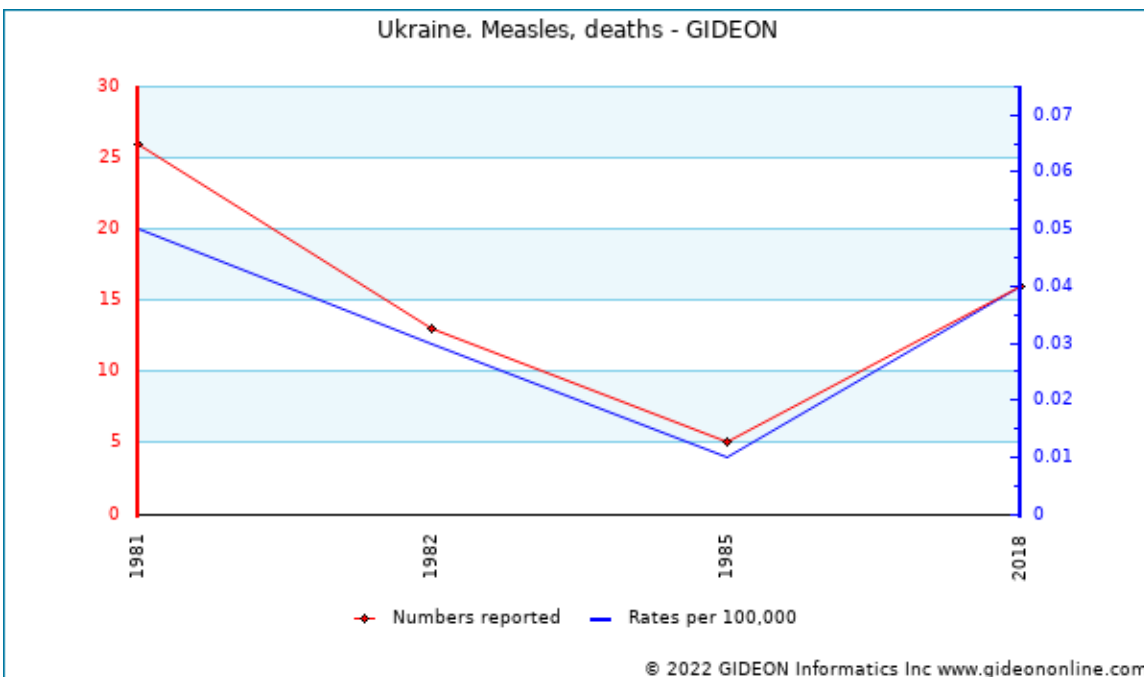


Graph: Ukraine. Measles, cases

Notes:

Individual years:

- 2010 - Included 20 cases in Donetsk. <sup>3</sup>
- 2012 - A case of measles in Russia was imported from Ukraine. <sup>4</sup>
- 2013 - A traveler from Belarus acquired measles in Ukraine. <sup>5</sup>
- 2020 - 255 cases were reported to November 22.



Graph: Ukraine. Measles, deaths



**Cross-border events**
*Single cases included if associated with outbreaks*

Years	Acquired by**	Originated in**	Setting	Cases	Notes
2006	Poland	Ukraine		3	Three cases of measles in Poland were associated with an outbreak in Ukraine. <sup>6</sup>
2011 to 2012	Ukraine	Italy		1,667	Outbreak (1,667 cases) in Ukraine was attributed to arrival of index cases from Italy. <sup>7 8 9 10 11 12 13 14</sup>
2017	Israel	Ukraine	travel	9	Soldiers in a clinic were infected by an index patient who appears to have acquired the infection while visiting Ukraine <sup>15</sup>
2018	Portugal	Ukraine	travel	5	Outbreak (5 cases) in Portugal related to index case imported from Ukraine
2018	Poland	Ukraine	foreign workers	6	Outbreak among Ukrainian workers at a sausage factory in Poland <sup>16</sup>
2018	Canada	Ukraine	travel	30	Outbreak involving Canada and the United States (Oregon and Washington) originated from an index patient arriving from Ukraine <sup>17</sup>
2018	United States	Ukraine	travel	30	Outbreak involving Canada and the United States (Oregon and Washington) originated from an index patient arriving from Ukraine <sup>18</sup>

\*\* Country or Nationality

**Notable outbreaks**

Years	Region	Setting	Cases	Deaths	Population	Notes
1955*	Western Region					<sup>19</sup>
2005 - 2007	Nationwide		46,121			Outbreak reported nationwide. Poland reported 3 cases associated with this outbreak. <sup>20 21 22 23 24 25 26 27</sup>
2011 - 2012	Multiple locations		1,952			Included 1,118 cases in Lviv. Outbreak attributed to arrival of index cases from Italy <sup>28 29 30 31 32 33 34 35 36</sup>
2012	Multiple locations		12,281			<sup>37 38 39 40 41 42 43</sup>
2013	Rovensskokl		42			<sup>44</sup>
2013	Kiev	secondary school	53		students	<sup>45</sup>
2014	Kharkov		47			<sup>46 47</sup>
2017	Multiple locations		4,782	5		Case count to November, 2017 <sup>48 49 50</sup>
2018	Multiple locations		54,481	16		<sup>51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72</sup>
2018	Foreign Country		5			Outbreak in Portugal associated with an imported case from Czech Ukraine
2018	Foreign Country	factory	6		foreign workers	Outbreak among Ukrainian workers at a sausage factory in Poland <sup>73</sup>
2018	Foreign Country		30			Outbreak involving Canada and the United States (Oregon and Washington) originated from an index patient arriving from Ukraine <sup>74</sup>
2019	Nationwide		58,276	20		Case count to November 6 <sup>75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91</sup>

\* indicates publication year (not necessarily year of outbreak)

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## Meloidosis

<b>Agent</b>	BACTERIUM. <i>Burkholderia pseudomallei</i> An aerobic gram-negative bacillus
<b>Reservoir</b>	Soil, Water, Sheep, Goat, Horse, Pig, Rodent, Monkey, Marsupial, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Water (contact, ingestion, aerosol), Breastfeeding, Sexual contact, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	3d - 21d (range 2d - 1y)
<b>Diagnostic Tests</b>	Culture of blood, sputum, tissue. Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	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. <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	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.
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Lymphangitis with septicemia</li> <li>- Fever, cough and chest pain</li> <li>- Diarrhea or infection of bone, central nervous system, liver and parotid are occasionally encountered</li> <li>- Chest roentgenogram findings and clinical course may mimic tuberculosis</li> <li>- Case-fatality rate 10% to over 50% (septicemic form)</li> </ul>
<b>Synonyms</b>	Burkholderia pseudomallei, Burkholderia thailandensis, Melioidose, Nightcliff Gardeners' Disease, Whitmore disease. ICD9: 025 ICD10: A24.1,A24.2,A24.3,A24.4

### References

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2. Semin Respir Crit Care Med 2015 Feb ;36(1):111-25.
3. Int J Antimicrob Agents 2014 Apr ;43(4):310-8.

## Meningitis - aseptic (viral)

<b>Agent</b>	VIRUS - RNA. Picornaviridae, enteroviruses
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Fecal-oral, Droplet
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Viral isolation (stool, CSF, throat). Serology.
<b>Typical Adult Therapy</b>	Supportive <sup>1</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Lymphocytic meningitis, with normal CSF glucose level - Often follows sore throat - Typically occurs during late summer and early autumn in temperate regions
<b>Synonyms</b>	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

### Meningitis - aseptic (viral) in Ukraine

1979 to 1983 - Poliomyelitis viruses accounted for 38.8% of aseptic meningitis in Odessa. <sup>2</sup>

#### Notable outbreaks

Years	Region	Cases	Population	Notes
2007	Vinnits'ka	20	children	<sup>3</sup>

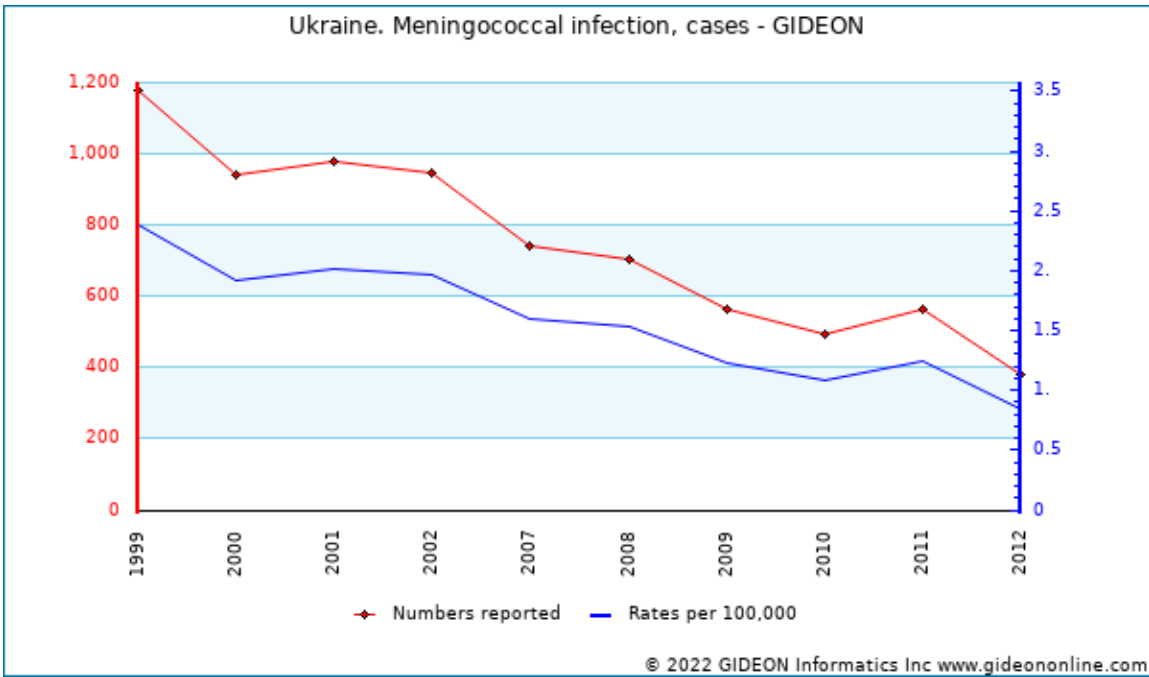
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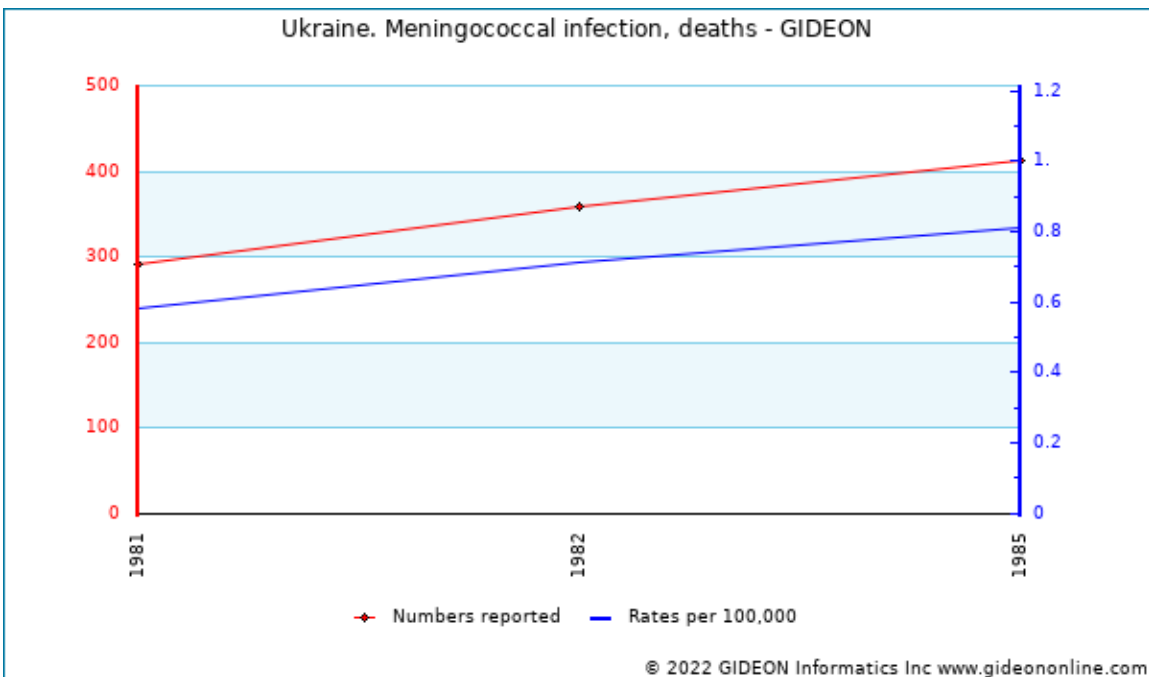
## Meningitis - bacterial

Agent	BACTERIUM. <i>Neisseria meningitidis</i> , <i>Streptococcus pneumoniae</i> , <i>Haemophilus influenzae</i> , et al
Reservoir	Human
Vector	None
Vehicle	Air, Secretions
Incubation Period	Variable
Diagnostic Tests	CSF microscopy and culture. Blood culture.  Note: Antigen detection is non-specific and rarely useful.
Typical Adult Therapy	If meningococcal meningitis is confirmed or suspected - respiratory isolation  Bactericidal agent(s) appropriate to known or suspected pathogen + dexamethasone <sup>1 2 3</sup>
Typical Pediatric Therapy	As for adult
Vaccines	<a href="#">H. influenzae (HbOC-DTP or -DTaP) vaccine</a> <a href="#">Haemophilus influenzae (HbOC) vaccine</a> <a href="#">Haemophilus influenzae (PRP-D) vaccine</a> <a href="#">Haemophilus influenzae (PRP-OMP) vaccine</a> <a href="#">Haemophilus influenzae (PRP-T) vaccine</a> <a href="#">Meningococcal vaccine</a>
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 batterica, Meningite meningococcica, Meningococcal, Meningococcal infection - invasive, Meningokokken Erkr., Meningokokkose. ICD9: 036.0,320 ICD10: A39,G00,G01,G02

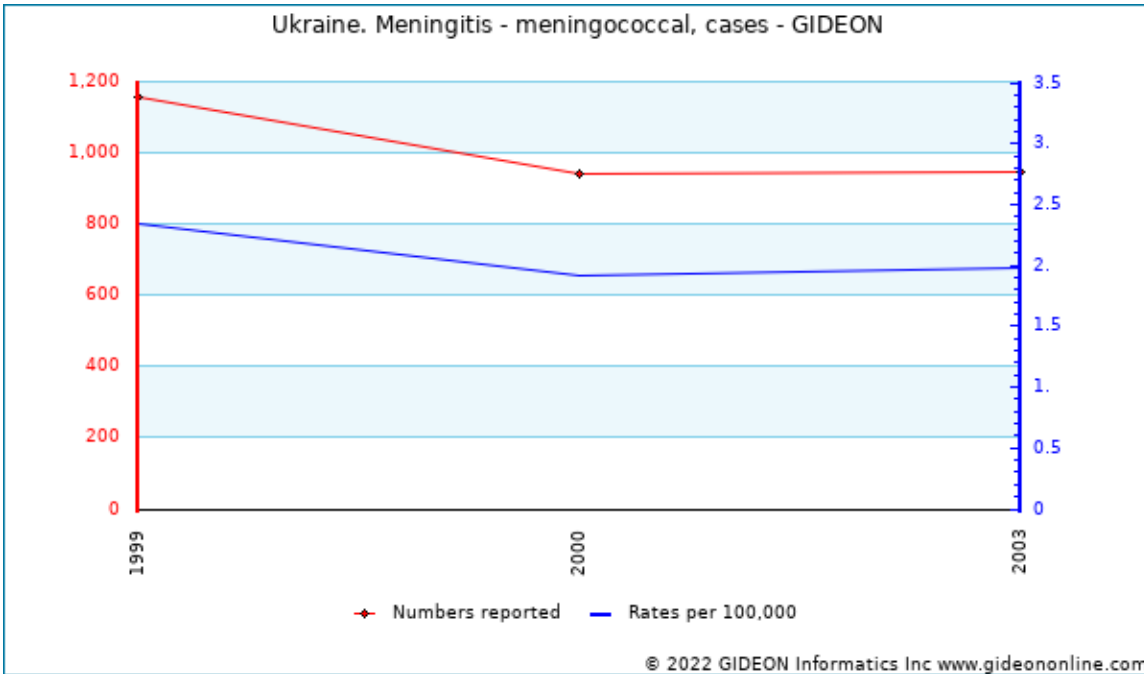
### Meningitis - bacterial in Ukraine



Graph: Ukraine. Meningococcal infection, cases



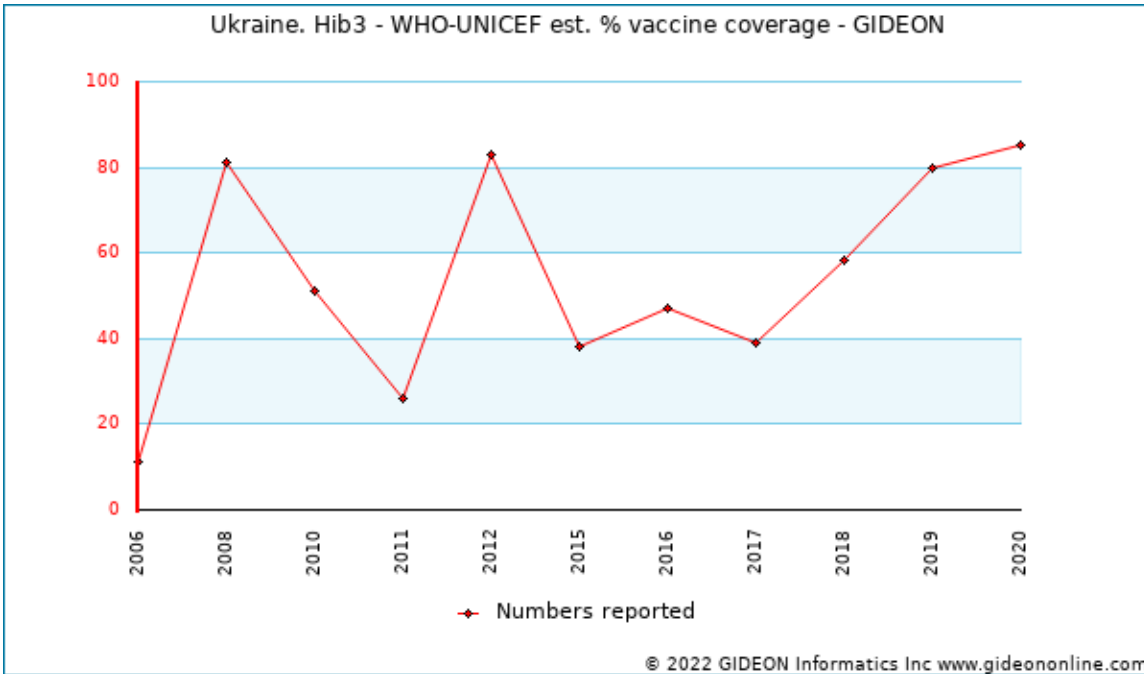
Graph: Ukraine. Meningococcal infection, deaths



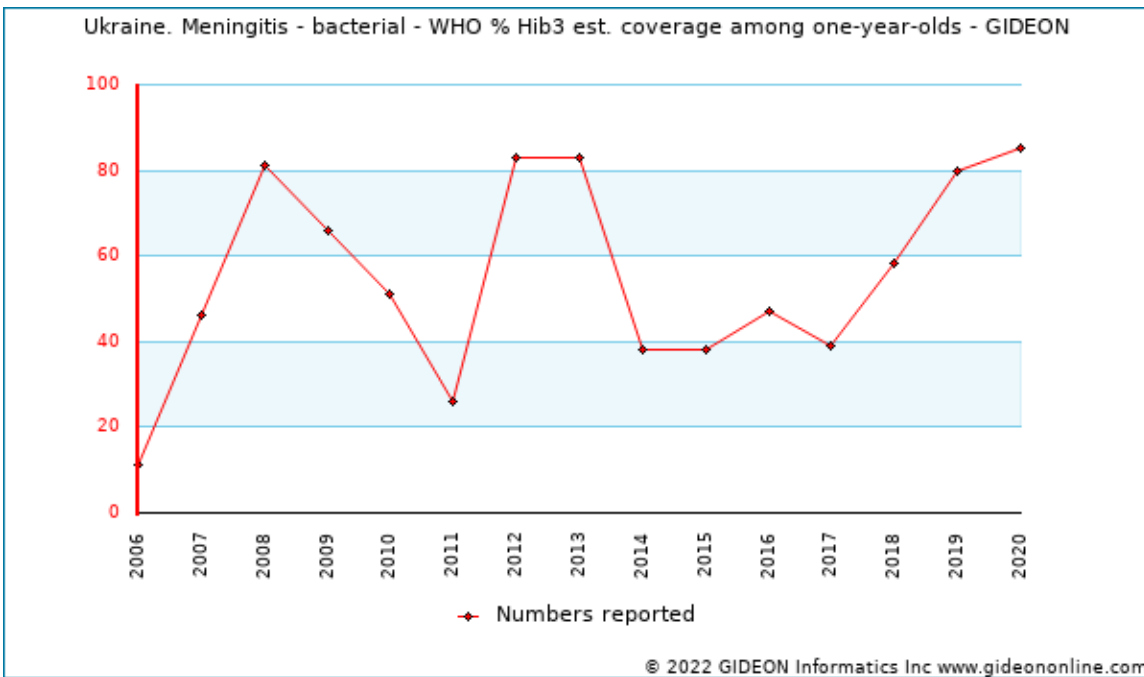
Graph: Ukraine. Meningitis - meningococcal, cases

**Vaccine Schedule:**

- BCG - 3 days
- DT - 6 years
- DTP - 2,4,6,18 months
- DTPHibHepB - 2 months
- HepB - birth 1,6 months
- HIB - 2,4,12 months
- IPV - 2,4 months
- MMR - 12 months; 6 years
- OPV - 6, 18 months; 6, 14 years
- Td - 16,26,36,46,56 years
- BCG - 3 days; 7, 14 years

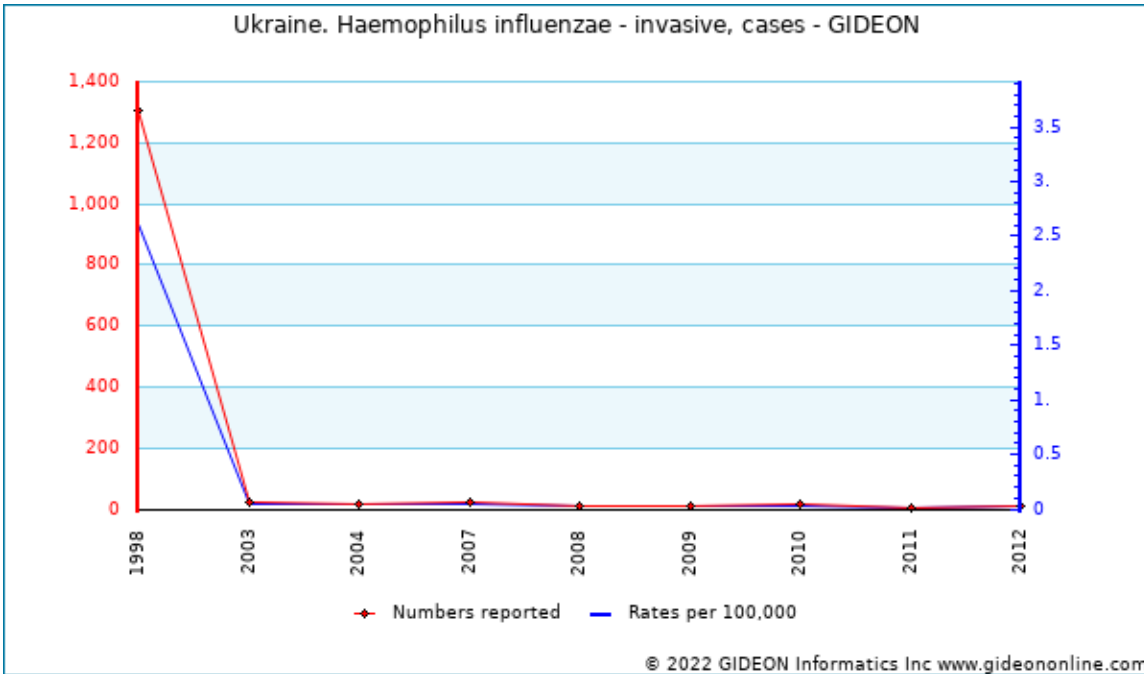


Graph: Ukraine. Hib3 - WHO-UNICEF est. % vaccine coverage

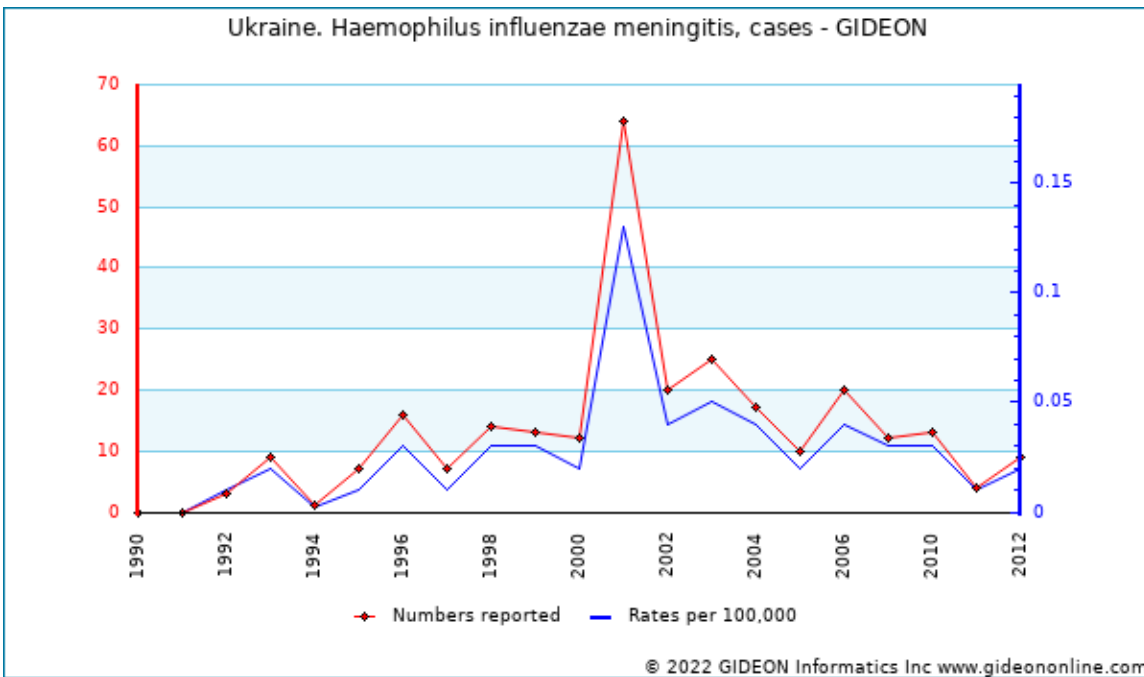


Graph: Ukraine. Meningitis - bacterial - WHO % Hib3 est. coverage among one-year-olds





Graph: Ukraine. Haemophilus influenzae - invasive, cases



Graph: Ukraine. Haemophilus influenzae meningitis, cases

**References**

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## MERS Coronavirus infection

<b>Agent</b>	Virus - RNA. Coronaviridae, Betacoronavirus.
<b>Reservoir</b>	Camel, Human, Bat, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Droplet, Fecal-oral, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	Mean 5.2 days (range 3d - 15d)
<b>Diagnostic Tests</b>	Identification of virus through PCR and direct immunofluorescence. Serology (ELISA)
<b>Typical Adult Therapy</b>	Isolation (respiratory and other secretions). Supportive. <sup>1</sup>
<b>Typical Pediatric Therapy</b>	Supportive. Isolation (respiratory and other secretions).  Preliminary studies suggest that a combination of recombinant interferon beta-1b and lopinavir-ritonavir may be effective.
<b>Clinical Hints</b>	- Exposure in an endemic area or contact with known case - Fever, cough, respiratory difficulty or severe overt pneumonia
<b>Synonyms</b>	Betacoronavirus England 1, HCoV-EMC, Human betacoronavirus 2c EMC, Human betacoronavirus 2c England-Qatar, Human betacoronavirus 2C Jordan-N3, Human coronavirus Erasmus Medical Centre, London1 novel CoV 2012, MERS, Middle East respiratory syndrome, Novel CoV 2012, Novel human coronavirus. ICD9: 079.82 ICD10: U04.9

Although MERS Coronavirus infection is not endemic to Ukraine, imported, expatriate or other presentations of the disease have been associated with this country.

### MERS Coronavirus infection in Ukraine

There is evidence that insectivorous bats (*Pipistrellus* spp and *Nycteris* spp) from Ghana, Germany, Italy, the Netherlands, Romania, South Africa, Thailand and Ukraine serve as reservoirs for MERS (or a related) Coronavirus.

[2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#)

### References

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2. Emerg Infect Dis 2013 Mar ;19(3):456-9.
3. Emerg Infect Dis 2013 Aug ;19(8):1349-51.
4. Viruses 2013 Oct 31;5(11):2679-89.
5. Antiviral Res 2014 Jan ;101:45-56.
6. ProMED <promedmail.org> archive: 20130122.1508656
7. ProMED <promedmail.org> archive: 20121019.1353615
8. ProMED <promedmail.org> archive: 20130725.1844412

## Microsporidiosis

<b>Agent</b>	FUNGUS. Microsporidia: <i>Enterocytozoon</i> , <i>Encephalitozoon (Septata)</i> , <i>Vittaforma (Nosema)</i> , <i>Pleistophora</i> , <i>Trachipleistophora</i> , et al.
<b>Reservoir</b>	Rabbit, Rodent, Carnivore, Non-human primate, Fish, Dog, Bird, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Fecal-oral
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Microscopy of duodenal aspirates. Inform laboratory if this organism is suspected. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	<b>Albendazole</b> 400 mg PO BID X 3 weeks. Add Fumagillin for ocular disease <i>S. intestinalis</i> may respond to <b>Albendazole</b> and Fumagillin <b>Nitazoxanide</b> has been used for <i>E. bienewisi</i> . <sup>1</sup>
<b>Typical Pediatric Therapy</b>	<b>Albendazole</b> 200 mg PO BID X 3 weeks. Add Fumagillin for ocular disease <i>S. intestinalis</i> may respond to <b>Albendazole</b> and Fumagillin <b>Nitazoxanide</b> has been used for <i>E. bienewisi</i> .
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Self-limited diarrhea, traveler's diarrhea or asymptomatic carriage</li> <li>- Immunocompromised patients present with chronic diarrhea, cholangitis, cholecystitis, sinusitis or pneumonia</li> <li>- Ocular microsporidiosis is associated with keratoconjunctivitis</li> <li>- Hepatitis or myositis are reported in some cases</li> </ul>
<b>Synonyms</b>	Anncaliia, Brachiola, Encephalitozoon, Enterocytozoon, Microsporidium, Nosema, Pleistophora, Trachipleistophora, Tubulinosema, Vittaforma. ICD9: 136.8 ICD10: A07.8

### References

1. Drug Resist Updat 2000 Dec ;3(6):384-399.

## Molluscum contagiosum

<b>Agent</b>	VIRUS - DNA. Poxviridae. Molluscipoxvirus. Molluscum contagiosum virus
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Contact, Sexual contact, Vertical transmission
<b>Incubation Period</b>	2-7 w (range 14 to 180d)
<b>Diagnostic Tests</b>	Histology of excised material. Nucleic acid amplification
<b>Typical Adult Therapy</b>	Cryotherapy; excision Topical Catharidin and Podophyllotoxin have been used successfully in children <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- One or more raised, flesh-colored skin lesions with depressed center - Lesions persist for 6 to 12 weeks - Disseminated and indolent forms encountered, particularly in immune-suppressed patients
<b>Synonyms</b>	Water warts. ICD9: 078.0 ICD10: B08.1

## Molluscum contagiosum in Ukraine

### Prevalence surveys

Years	Region	Study Group	%	Notes
2013 - 2018	Ternopil	patients - STD	0.7	Survey of adults with gonorrhea <sup>3</sup>

### References

1. J Am Acad Dermatol 2000 Sep ;43(3):503-7.
2. Dermatology 1994 ;189(1):65-8.
3. J Med Life 2020 Jan-Mar;13(1):75-81.

## Mucormycosis

<b>Agent</b>	FUNGUS. Zygomycota, Zygomycetes, Mucorales: <i>Mucor</i> spp., <i>Rhizopus</i> spp., <i>Lichtheimia</i> (formerly <i>Absidia</i> ) spp, <i>Saksenaea</i> spp, et al
<b>Reservoir</b>	Saprophytes
<b>Vector</b>	None
<b>Vehicle</b>	Air, Bandages, Contact, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Fungal smear and culture.
<b>Typical Adult Therapy</b>	Liposomal <b>Amphotericin B</b> 5 mg/kg/d IV OR <b>Amphotericin B</b> deoxycholate 1 mg/kg/d IV  Followed by <b>Posaconazole</b> 300 mg PO BID X 1 day, then 300 mg PO daily OR <b>Isavuconazole</b> 200 mg PO TID X 2 days, then 200 mg PO daily  Excision as indicated <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	Liposomal <b>Amphotericin B</b> 5 mg/kg/d IV OR <b>Amphotericin B</b> deoxycholate 1 mg/kg/d IV  Excision as indicated
<b>Clinical Hints</b>	- Occurs in the setting of preexisting acidosis (diabetes, uremia) - Periorbital pain, sinusitis, and palatal, nasal or cerebral infarcts - Pulmonary infection may complicate leukemia
<b>Synonyms</b>	Absidia, Actinomucor, Apophysomyces, Black fungus, Cokeromyces, Cunninghamella, Hormographiella, Lichtheimia, Mucor, Mycocladus, Phycomycosis, Rhizomucor, Rhizopus, Saksenaea, Syncephalastrum, Zygomycosis. ICD9: 117.7 ICD10: B46

## Mucormycosis in Ukraine

2012 - The incidence of mucormycosis in Ukraine was estimated at 90 cases (0.2 per 100,000) per year.<sup>3</sup>

### References

1. Infect Dis Clin North Am 2016 Mar ;30(1):143-63.
2. Lancet Infect Dis 2019 Dec ;19(12):e405-e421.
3. Mycoses 2015 Oct ;58 Suppl 5:94-100.

## Mumps

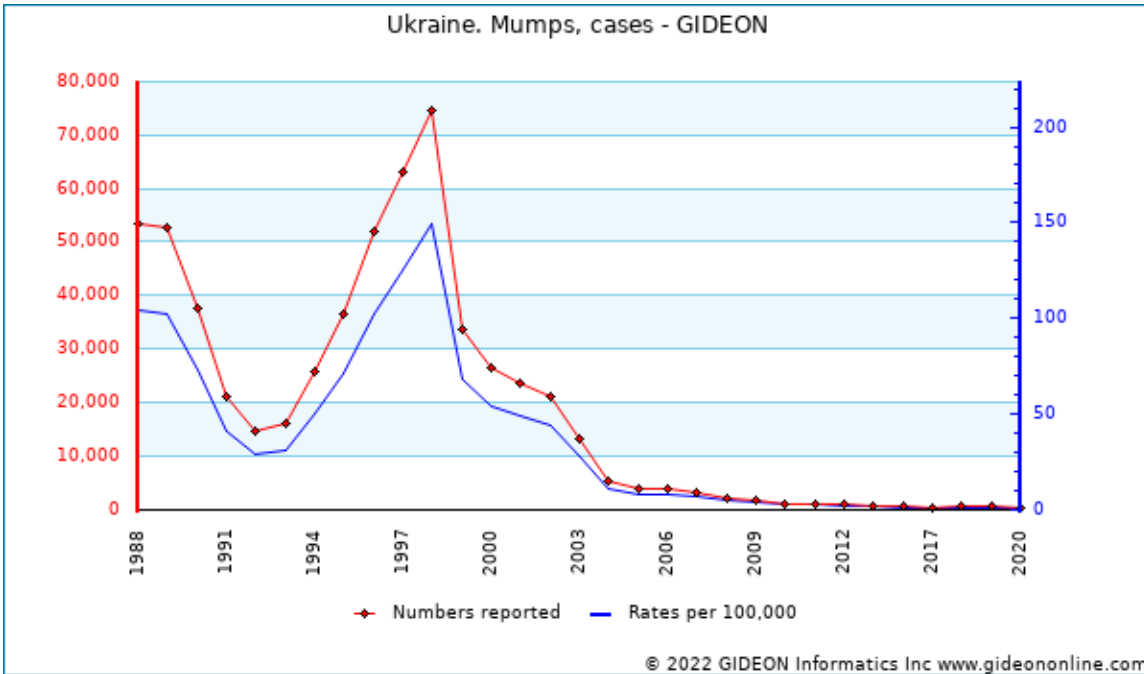
<b>Agent</b>	VIRUS - RNA. Mononegavirales Paramyxoviridae, Paramyxovirinae, Rubulavirus: Mumps virus
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Aerosol, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	14d - 24d (range 12d - 24d)
<b>Diagnostic Tests</b>	Viral culture (saliva, urine, CSF) indicated only in complicated cases. Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Respiratory isolation Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Vaccine</b>	<a href="#">Measles-Mumps-Rubella vaccine</a> <a href="#">Mumps vaccine</a> <a href="#">Rubella - Mumps vaccine</a>
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Fever and parotitis</li> <li>- Orchitis (20% of post-pubertal males)</li> <li>- Meningitis (clinically apparent in 1% to 10%)</li> <li>- Oophoritis, or encephalitis (0.1%)</li> <li>- Most cases resolve within 1 to 2 weeks</li> </ul>
<b>Synonyms</b>	Bof, Epidemic parotitis, Fiebre urliana, Infectious parotitis, Kusma, Oreillons, Paperas, Parotidite epidemica, Parotiditis, Parotite epidemica, Passjuka. ICD9: 072 ICD10: B26

## Mumps in Ukraine

### Vaccine Schedule:

BCG - 3 days  
 DT - 6 years  
 DTP - 2,4,6,18 months  
 DTPHibHepB - 2 months  
 HepB - birth 1,6 months  
 HIB - 2,4,12 months  
 IPV - 2,4 months  
 MMR - 12 months; 6 years  
 OPV - 6, 18 months; 6, 14 years  
 Td - 16,26,36,46,56 years

Vaccine (%) coverage was 95.7 in 2003.



Graph: Ukraine. Mumps, cases

**Notable outbreaks**

Years	Region	Cases	Notes
2000 - 2002	Lviv	10,894	<a href="#">1</a>
2006	Zakarpattia	207	<a href="#">2</a>

**References**

1. [Eur J Clin Microbiol Infect Dis 2008 Dec ;27\(12\):1171-6.](#)
2. [ProMED <promedmail.org> archive: 20061213.3507](#)

**Myalgic encephalomyelitis**

<b>Agent</b>	UNKNOWN
<b>Reservoir</b>	Unknown
<b>Vector</b>	None
<b>Vehicle</b>	Unknown
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Clinical diagnosis; ie, discount other diseases.
<b>Typical Adult Therapy</b>	Supportive; ? immune modulators (experimental)
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Unexplained depression, fatigue, cognitive disorders and sleep disturbance</li><li>- Recurrent bouts of pharyngitis and adenopathy</li><li>- Rheumatological symptoms and fever persist more than six months</li></ul>
<b>Synonyms</b>	Akureyri disease, Atypical poliomyelitis, Chronic fatigue syndrome, Effort syndrome, Epidemic neuromyasthenia, Fabricula, Iceland disease, Royal Free disease, Systemic exercise intolerance disease, Tapanui disease. ICD9: 780.71 ICD10: G93.3



## Mycetoma

<b>Agent</b>	BACTERIUM OR FUNGUS. <i>Nocardia</i> spp, <i>Madurella mycetomatis</i> , <i>Actinomadura pelletieri</i> , <i>Streptomyces somaliensis</i> , et al
<b>Reservoir</b>	Soil, Vegetation
<b>Vector</b>	None
<b>Vehicle</b>	Contact, Wound, Soil
<b>Incubation Period</b>	2w - 2y
<b>Diagnostic Tests</b>	Bacterial and fungal culture of material from lesion.
<b>Typical Adult Therapy</b>	Antimicrobial or antifungal agent as determined by culture. Excision as indicated <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Most patients are males age 20 to 40 (ie, occupational exposure)</li> <li>- Painless, chronic, draining, fistulous subcutaneous nodule - usually involving lower extremity</li> <li>- Osteolytic lesions may be noted on x-ray</li> <li>- Usually no fever</li> </ul>
<b>Synonyms</b>	Actinomadura, Chaetomium atrobrunneum, Coelomycetes, Curvularia lunata, Cyphellophora, Diaporthe, Emarellia, Fusarium chlamydosporum, Fusarium subglutinans, Gloniopsis, Gordonia westfalica, Leptosphaeria tompkinsii, Madura foot, Madura-Fuss, Madurella, Medicopsis, Mycetom, Nigrograna, Paraconiothyrium, Peyronellaea, Pleurostomophora, Trematospheria, White grain eumycetoma. ICD9: 039.4,117.4 ICD10: B47

### References

1. JBI Database System Rev Implement Rep 2018 Jul ;16(7):1519-1536.
2. Cutis 2017 Feb ;99(2):E11-E15.
3. JBI Database System Rev Implement Rep 2016 11 ;14(11):91-98.

## Mycobacteriosis - M. marinum

<b>Agent</b>	BACTERIUM. Actinomycetes, <i>Mycobacterium marinum</i> An aerobic acid-fast bacillus
<b>Reservoir</b>	Fresh and salt water (swimming pools, aquaria), Fish (ornamental, salmon, sturgeon, bass), Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Water (per areas of minor skin trauma), Contact
<b>Incubation Period</b>	5d - 270d (median 21d)
<b>Diagnostic Tests</b>	Mycobacterial culture from lesion. Alert laboratory when this organism is suspected.
<b>Typical Adult Therapy</b>	<a href="#">Clarithromycin</a> 500 mg BID X 3-4m AND. OR <a href="#">Rifampin</a> 600 mg/day OR <a href="#">Ethambutol</a> 15 mg/kg/day X 3-4m OR <a href="#">Rifampin</a> 600 mg/d + <a href="#">Ethambutol</a> 15 mg/kg/d X 3-4m OR <a href="#">Minocycline</a> 100 mg /day X 3m OR <a href="#">Sulfamethoxazole / Trimethoprim</a> 160/800 mg BID X 3-4m <sup>1</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Sulfamethoxazole / Trimethoprim</a> 5 mg-25 mg/kg BID X 6w. Alternative <a href="#">Minocycline</a> (Age >= 8)
<b>Clinical Hints</b>	- Onset weeks after exposure to swimming pool, aquarium, other water source - Violaceous papule, ulcer, plaque, psoriaform lesion - Commonly involves the elbow, knee, hand or foot
<b>Synonyms</b>	Aquarium granuloma, Fish fanciers' finger syndrome, Fish tank granuloma, Mariner's TB, <i>Mycobacterium balnei</i> , <i>Mycobacterium marinum</i> , <i>Mycobacterium scrofulaceum</i> , Spam, Swimming pool granuloma. ICD9: 031.1 ICD10: A31.1

### References

1. [Expert Opin Pharmacother 2009 Dec ;10\(17\):2787-99.](#)

**Mycobacteriosis - M. scrofulaceum**

<b>Agent</b>	BACTERIUM. Actinomycetes, <i>Mycobacterium scrofulaceum</i> An aerobic acid-fast bacillus
<b>Reservoir</b>	Water (lakes, rivers), Soil, Raw milk, Plant material
<b>Vector</b>	None
<b>Vehicle</b>	Water, Soil, Areas of minor trauma, Contact
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Culture of tissue or aspirates.
<b>Typical Adult Therapy</b>	Excision. Drugs ( <a href="#">Isoniazid</a> - <a href="#">Rifampin</a> - <a href="#">Streptomycin</a> - <a href="#">Cycloserine</a> ) are rarely indicated <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Most common during early childhood.</li><li>- Painless lymphadenopathy, most commonly unilateral and submandibular</li><li>- In contrast, true tuberculosis involves the lower neck and produces a strongly positive tuberculin reaction and/or suggestive chest X ray</li></ul>
<b>Synonyms</b>	ICD9: 017.2 ICD10: A18.4

**References**

1. [Biomed Res Int 2017 ;2017:1584658.](#)
2. [Expert Opin Pharmacother 2012 May ;13\(7\):967-86.](#)
3. [Expert Opin Pharmacother 2009 Dec ;10\(17\):2787-99.](#)

## Mycobacteriosis - miscellaneous nontuberculous

<b>Agent</b>	BACTERIUM. Actinomycetes, <i>Mycobacterium</i> spp. - over 130 species as of 2016 An aerobic acid-fast bacillus
<b>Reservoir</b>	Water, Soil, Fish, Mammal, Bird, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Air, Water, Milk ( <i>M. bovis</i> ), Contact, Ingestion, Trauma, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Microscopy & culture of tissue, secretions, blood. Nucleic acid amplification. Inform laboratory if suspected
<b>Typical Adult Therapy</b>	Drug, route and duration appropriate to clinical setting and species (in Drugs module, scroll through upper left box) <a href="#">1</a> <a href="#">2</a> <a href="#">3</a>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Pneumonia, or chronic granulomatous infection of various tissues</li> <li>- Systemic disease may complicate immune suppression</li> <li>- <i>Mycobacterium avium-intracellulare</i> infection characterized by aggressive course and resistance to most antimycobacterial drugs</li> </ul>
<b>Synonyms</b>	<p>Mycobacterioides abscessus, Mycobacterium abscessus, Mycobacterium avium, Mycobacterium avium-intracellulare, Mycobacterium chimaera, Mycobacterium franklinii, Mycobacterium immunogenum, Mycobacterium jaccussii, Mycobacterium kyorinense, Mycobacterium xenopi, Segniliparus.</p> <p>ICD9: 031.9,031.2 ICD10: A31.0,A31.1,A31.8</p>

### References

1. [Semin Respir Crit Care Med 2018 Jun ;39\(3\):351-361.](#)
2. [Biomed Res Int 2017 ;2017:1584658.](#)
3. [Expert Opin Pharmacother 2009 Dec ;10\(17\):2787-99.](#)

## Mycoplasma (miscellaneous) infection

<b>Agent</b>	BACTERIUM. Mycoplasmatales <i>Mycoplasma genitalium</i> , <i>Mycoplasma hominis</i> , <i>Mycoplasma fermentans</i> , <i>Mycoplasma penetrans</i> , <i>Mycoplasma parvum</i> , <i>Ureaplasma urealyticum</i> <i>Spiroplasma</i> spp.
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Secretion, Sexual contact, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Culture (urine, pharynx). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	<a href="#">Azithromycin</a> 1 g PO once OR <a href="#">Moxifloxacin</a> 400 mg PO daily X 7 days OR <a href="#">Doxycycline</a> 100 mg PO BID X 7 days OR <a href="#">Pristinamycin</a> 1 g PO Q6h X 10 days <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Azithromycin</a> 10 mg/kg PO once
<b>Clinical Hints</b>	- Urethritis, vaginitis - Neonatal pneumonia - Rarely stillbirth, prematurity or infertility
<b>Synonyms</b>	Acholeplasma laidlawii, Candidatus Mycoplasma haemohominis, 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, Spiroplasma infection, T Mycoplasmas, T strains, Ureaplasma parvum, Ureaplasma urealyticum. ICD9: 041.81 ICD10: A49.3

### Mycoplasma (miscellaneous) infection in Ukraine

#### Prevalence surveys

Years	Region	Study Group	%	Notes
2021*	Kyiv	women	19.8	<i>Mycoplasma genitalium</i> infection was identified in 19.8% of women with a past history of sexually-transmitted infection <sup>3</sup>

\* indicates publication year (not necessarily year of survey)

#### References

1. J Eur Acad Dermatol Venereol 2016 Oct ;30(10):1650-1656.
2. MMWR Recomm Rep 2015 Jun 05;64(RR-03):1-137.
3. Wiad Lek 2021 ;74(4):896-901.

## Mycoplasma pneumoniae infection

<b>Agent</b>	BACTERIUM. Mollicutes. <i>Mycoplasma pneumoniae</i>
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Droplet, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	6d - 23d
<b>Diagnostic Tests</b>	Culture (sputum, throat). Serology. Nucleic acid amplification (sputum, blood).
<b>Typical Adult Therapy</b>	<a href="#">Azithromycin</a> 500 mg, followed by 250 mg PO daily X 5 days. OR <a href="#">Doxycycline</a> 100 mg PO BID X 7d OR <a href="#">Levofloxacin</a> 750 mg PO X 7 d <sup>1 2 3 4</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Azithromycin</a> 10 mg/kg PO day 1; 5 mg/kg PO days 2 to 5 OR <a href="#">Erythromycin</a> 10 mg/kg PO QID X 10 d OR <a href="#">Clarithromycin</a> 7.5 mg/kg PO BID X 10 d OR <a href="#">Doxycycline</a> 2 mg/kg PO BID (maximum 200 mg/d) X 10 d
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Coryza, "hacking" cough and subsegmental pulmonary infiltrate</li> <li>- Bullous otitis media is often present</li> <li>- Most patients below age 30</li> <li>- Cold agglutinins neither sensitive nor specific, and appear only during second week</li> </ul>
<b>Synonyms</b>	Mycoplasma pneumoniae, Primary atypical pneumonia. ICD9: 041.81,483.0 ICD10: B96.0

### References

1. [Clin Microbiol Rev 2017 Jul ;30\(3\):747-809.](#)
2. [Clin Respir J 2017 Jul ;11\(4\):419-429.](#)
3. [Cochrane Database Syst Rev 2015 Jan 08;1:CD004875.](#)
4. [Infect Dis Rep 2021 Sep 02;13\(3\):811-820.](#)

Myiasis	
Agent	PARASITE - Insecta (Diptera) larvae
Reservoir	Mammal, Zoonotic
Vector	Arthropod
Vehicle	Fly eggs deposited by biting arthropod
Incubation Period	1w - 3m
Diagnostic Tests	<p>Identification of extracted maggot.</p> <p>Dermatobia hominis larvae: length - 13 to 25 mm</p> <p>Cordylobia anthropophaga larvae: length - 11 to 15 mm</p>
Typical Adult Therapy	Removal of maggot
Typical Pediatric Therapy	As for adult
Clinical Hints	<ul style="list-style-type: none"> <li>- Fly larvae seen in various body regions</li> <li>- Pruritic or painful draining nodule</li> <li>- Fever and eosinophilia may be present</li> <li>- Instances of brain, eye, middle ear and other deep infestations are described.</li> </ul>
Synonyms	<p>Calliphora, Cayor Worm, Chrysomya, Chrysomyia, Clogmia, Cochliomyia, Cordylobia, Cuterebrosis, Dermatobia, Eristalis, Fannia, Furuncular myiasis, Gasterophilus, Hypoderma, Lucilia, Lund's fly, Maggot infestation, Megaelia, Musca, Muscina, Oedemagena, Oestrus, Ophthalmomyiasis, Palpada, Parasarcophaga, Psychoda, Rectal myiasis, Sarcophaga, Screw worm, Telmatoscopus, Urinary myiasis, Vaginal myiasis, Wohlfarthia.</p> <p>ICD9: 134.0 ICD10: B87</p>

## Necrotizing skin/soft tissue infx.

<b>Agent</b>	BACTERIUM. <i>Streptococcus pyogenes</i> , <i>Clostridium perfringens</i> , mixed anaerobic and/or gram-negative bacilli
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Endogenous
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Clinical features. Smear and culture (including anaerobic culture) of exudate.
<b>Typical Adult Therapy</b>	Debridement and parenteral antibiotics directed by smear and culture results. Hyperbaric oxygen in more severe infections
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- At least seven distinct syndromes are described</li> <li>- Local pain and swelling, skin discoloration or edema</li> <li>- Gas formation, foul odor and variable degrees of systemic toxicity</li> </ul>
<b>Synonyms</b>	Anaerobic cellulitis, Chancrum oris, Clostridial cellulitis, Clostridium novyi, Fasciitis, Fournier's gangrene, Gangrenous cellulitis, Gangrenous stomatitis, Invasive group A strep. Infections, Meleney's synergistic gangrene, Necrotizing fasciitis, Noma, Streptococcal fasciitis, Synergistic necrotizing cellulitis. ICD9: 686.8,528.1 ICD10: M72.6,A69.0



## Neutropenic typhlitis

Agent	BACTERIUM. <i>Clostridium septicum</i> (occasionally <i>Clostridium tertium</i> , <i>Clostridium sporogenes</i> , <i>Paenibacillus sordellii</i> or <i>Clostridium tertium</i> )
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 <i>Pseudomonas aeruginosa</i> ; ie Piperacillin / Tazobactam (or Imipenem or Meropenem) OR Cefepime + Metronidazole Role of surgery is controversial <sup>1 2</sup>
Typical Pediatric Therapy	As for adult
Clinical Hints	<ul style="list-style-type: none"><li>- Condition affects neutropenic (leukemic, genetic, etc) patients</li><li>- Fever, abdominal pain, diarrhea (occasionally bloody) and right lower quadrant signs</li><li>- Infection may spread hematogenously to the extremities</li><li>- Case-fatality rate is 50% to 75%</li></ul>
Synonyms	Neutropenic enterocolitis. ICD9: 540.0 ICD10: A04.8

### References

1. World J Gastroenterol 2017 Jan 07;23(1):42-47.
2. Acta Paediatr 2012 Mar ;101(3):308-12.

## Nocardiosis

<b>Agent</b>	BACTERIUM. Actinomycetes, <i>Nocardia</i> spp. An aerobic gram positive bacillus (acid-fast using special technique)
<b>Reservoir</b>	Soil
<b>Vector</b>	None
<b>Vehicle</b>	Air, Dust, Wound, Contact, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	Days to weeks
<b>Diagnostic Tests</b>	Culture and gram stain of exudates, sputa, tissue specimens. Advise laboratory when <i>Nocardia</i> suspected.
<b>Typical Adult Therapy</b>	Lymphadenitis or skin / soft tissue: <a href="#">Sulfamethoxazole / Trimethoprim</a> OR <a href="#">Minocycline</a> Pneumonia: <a href="#">Sulfamethoxazole / Trimethoprim</a> + <a href="#">Imipenem</a> ; OR <a href="#">Imipenem</a> + <a href="#">Amikacin</a> Brain abscess: <a href="#">Sulfamethoxazole / Trimethoprim</a> + <a href="#">Imipenem</a> ; OR <a href="#">Linezolid</a> + <a href="#">Meropenem</a> <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Pneumonia, lung abscess, brain abscess, or other chronic suppurative infection - Often occurs in the setting of immune suppression.
<b>Synonyms</b>	<i>Nocardia</i> , Nocardiose. ICD9: 039 ICD10: A43

### References

1. [Antimicrob Agents Chemother 2014 ;58\(2\):795-800.](#)
2. [Expert Opin Pharmacother 2013 Dec ;14\(17\):2387-98.](#)
3. [Mayo Clin Proc 2012 Apr ;87\(4\):403-7.](#)

**Onchocerciasis - zoonotic**

<b>Agent</b>	PARASITE - Nematoda. Secernentea: <i>Onchocerca lupi</i> , et. al.
<b>Reservoir</b>	Cattle, Horse, Deer, Boar, Dog, Wolf, Zoonotic
<b>Vector</b>	Black fly ( <i>Simulium</i> spp.)
<b>Vehicle</b>	None
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Identification of excised worm Moniliformis moniliformis adult female - size unknown; male - 43 to 50 mm
<b>Typical Adult Therapy</b>	Excision
<b>Typical Pediatric Therapy</b>	As of adult
<b>Clinical Hints</b>	- May be history of animal contact - Subcutaneous or subconjunctival nodule, or eye-worm
<b>Synonyms</b>	Dipetalonema arbuta, Dipetalonema sprengi, Onchocerca cervicalis, Onchocerca dewittei, Onchocerca guttarosa, Onchocerca jakutensis, Onchocerca lupi, Onchocerca reticulata, Pelecitus. ICD9: 123.8 ICD10: B71.1.

**Onchocerciasis - zoonotic in Ukraine**

1965 - A case of infection of an eye tendon by a zoonotic *Onchocerca* species was reported from Crimea.

## Opisthorchiasis

<b>Agent</b>	PARASITE - Platyhelminthes, Trematoda. Plagiorchiida, Opisthorchiidae: <i>Opisthorchis felinus</i> , <i>O. guayaquilensis</i> , <i>O. viverrini</i>
<b>Reservoir</b>	Cat, Civet, Dog, Fish-eating mammal, Snail ( <i>Bythnia</i> ), Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Fresh-water fish
<b>Incubation Period</b>	21d - 28d (range 7d - years)
<b>Diagnostic Tests</b>	Identification of ova in stool or duodenal aspirate. PCR examination of stool.
<b>Typical Adult Therapy</b>	Praziquantel 25 mg/kg TID X 2d <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Initial symptoms appear 3 to 4 weeks after ingestion of undercooked fresh-water fish - Right upper quadrant abdominal pain, hepatomegaly, cholangitis and eosinophilia - Chronic infection is associated with development of cholangiocarcinoma
<b>Synonyms</b>	Amphimerus, Cat liver fluke, Centrocestus, Opisthorchis, Opisthorchis felinus, Opisthorchis guayaquilensis, Opisthorchis viverrini, Siberian river fluke. ICD9: 121.0 ICD10: B66.0

## Opisthorchiasis in Ukraine

1989 (publication year) - Opisthorchiasis is common in the Dnieper watershed area (Vorskla, Psyol, Khorol, Sula, Seym, Snov and Desna rivers) in the Sumy, Chernigov, and Poltava regions of Ukraine.<sup>4</sup>

### Prevalence surveys

Years	Region	Study Group	%	Notes
1990*	Chernigov	general population	0.55	0.55% of persons and 61.5% of villages in Chernigov Province (1990 publication) <sup>5</sup>

\* indicates publication year (not necessarily year of survey)

### Reservoirs

- 1970 (publication year) - *Bythnia leachi* was identified as a mollusk reservoir in tributaries of the Dnieper river.<sup>6</sup>
- 1984 (publication year) - *Bythnia inflata* was identified as a mollusk reservoir in tributaries of the Dnieper river.<sup>7</sup>

### Notable outbreaks

Years	Source	Notes
1997*	seafood - fish	<sup>8</sup>

\* indicates publication year (not necessarily year of outbreak)

### References

1. PLoS Negl Trop Dis 2012 ;6(7):e1726.
2. Infect Chemother 2013 Mar ;45(1):32-43.
3. Arzneimittelforschung 1984 ;34(9B):1127-9.
4. Med Parazitol (Mosk) 1989 Mar-Apr;(2):9-14.
5. Med Parazitol (Mosk) 1990 Jul-Aug;(4):21-2.
6. Med Parazitol (Mosk) 1970 Nov-Dec;39(6):687-90.
7. Med Parazitol (Mosk) 1984 Nov-Dec;(6):18-22.
8. Lik Sprava 1997 May-Jun;(3):146-9.

## Orbital and eye infection

<b>Agent</b>	BACTERIUM OR FUNGUS. <i>Streptococcus pyogenes</i> , oral anaerobes, <i>Aspergillus</i> spp., facultative gram-negative bacilli, et al
<b>Reservoir</b>	Endogenous, Introduced flora (trauma, surgery)
<b>Vector</b>	None
<b>Vehicle</b>	Trauma, Surgery, Contiguous (sinusitis), Hematogenous
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Imaging techniques (CT or MRI). Culture of aspirates or surgical material.
<b>Typical Adult Therapy</b>	Local and systemic antimicrobial agents appropriate for species and severity <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Proptosis, chemosis, extraocular palsy, or hypopyon</li> <li>- Associated with sinusitis, bacteremia, eye trauma or surgery</li> <li>- Infection may involve the eye (endophthalmitis); periosteum (peri-orbital infection); orbit (orbital cellulitis); or multiple structures (panophthalmitis).</li> </ul>
<b>Synonyms</b>	Bacterial keratitis, Ceratite, Cheratite, Endophthalmitis, Eye infection, Keratite, Keratitis, Orbital infection, Panophthalmitis, Queratitis. ICD9: 360.0 ICD10: H05.0

### References

1. 2018 01 ;
2. Pharmaceutics 2018 May 29;10(2)
3. Clin Microbiol Rev 2017 07 ;30(3):597-613.

**Orf**

<b>Agent</b>	VIRUS - DNA. Poxviridae, Parapoxvirus: Orf virus
<b>Reservoir</b>	Sheep, Goat, Reindeer, Musk ox, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Contact, Secretions, Fomite, Cat-scratch
<b>Incubation Period</b>	3d - 6d (range 2d - 7d)
<b>Diagnostic Tests</b>	Biosafety level 3. Viral culture (skin lesion or exudate). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Skin / lesion contact precautions Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Skin pustule or ulcer following contact with sheep or goats - Most lesions are limited to finger or hand - Heals without scarring within 6 weeks
<b>Synonyms</b>	Contagious ecthyma, Contagious pustular dermatitis, Ecthyma contagiosum, Ovine pustular dermatitis, Scabby mouth. ICD9: 078.89 ICD10: B08.0

## Ornithosis

<b>Agent</b>	BACTERIUM. Chlamydiaceae, <i>Chlamydiae</i> , <i>Chlamydia (Chlamydophila) psittaci</i>
<b>Reservoir</b>	Parakeet, Parrot, Pigeon, Turkey, Duck, Cat, Sheep, Goat, Cattle, Dog, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Bird droppings, Dust, Air, Aerosol from cat, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	7d - 14d (range 4d - 28d)
<b>Diagnostic Tests</b>	Serology. Culture (available in special laboratories) rarely indicated.
<b>Typical Adult Therapy</b>	<a href="#">Doxycycline</a> 100 mg PO BID X 10d. OR <a href="#">Azithromycin</a> 1 g, then 0.5 g daily X 4 days OR <a href="#">Clarithromycin</a> 0.5 g BID OR <a href="#">Erythromycin</a> 500 mg PO QID X 10d. OR <a href="#">Levofloxacin</a> 750 mg PO X 7 days <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Azithromycin</a> 10 mg/kg PO day 1; 5 mg/kg PO days 2 to 5 OR <a href="#">Erythromycin</a> 10 mg/kg QID X 10d  Alternative (Age >=8 years): <a href="#">Doxycycline</a> 100 mg PO BID X 10d.
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Headache, myalgia and pneumonia</li> <li>- Relative bradycardia is common</li> <li>- Hepatomegaly or splenomegaly common</li> <li>- Onset 1 to 4 weeks following contact with pigeons, psittacine birds or domestic fowl</li> <li>- Case-fatality rate without treatment is 20%</li> </ul>
<b>Synonyms</b>	<i>Chlamydia abortus</i> , <i>Chlamydia gallinacea</i> , <i>Chlamydophila abortus</i> , <i>Chlamydophila psittaci</i> , Ornitose, Papegojsjuka, Parrot fever, Psitacosis, Psittacosis, Psittakose. ICD9: 073 ICD10: A70

### Ornithosis in Ukraine

#### Seroprevalence surveys

6.5% of rural populations, 8.4% of poultry-farm workers, 15.1% of cattle-breeding farm workers, 53.7% of pigeons, 13.7% of hens and 24.9% of ducks (1979 publication)<sup>4</sup>

Years	Region	Study Group	%	Notes
1979*	Multiple locations	various	6.5-53.7	6.5% of rural populations, 8.4% of poultry-farm workers, 15.1% of cattle-breeding farm workers, 53.7% of pigeons, 13.7% of hens and 24.9% of ducks (1979 publication) <sup>5</sup>

\* indicates publication year (not necessarily year of survey)

#### Notable outbreaks

Years	Region	Setting	Notes
1963*	Kremenets	bird station	Outbreak at a bird station in Kremenets, western Ukraine. <sup>6</sup>

\* indicates publication year (not necessarily year of outbreak)

#### References

1. [Infect Dis Clin North Am 2010 Mar ;24\(1\):7-25.](#)
2. [Clin Microbiol Infect 2009 Jan ;15\(1\):11-7.](#)
3. [Semin Respir Infect 1997 Mar ;12\(1\):7-11.](#)
4. [J Hyg Epidemiol Microbiol Immunol 1979 ;23\(2\):168-73.](#)
5. [J Hyg Epidemiol Microbiol Immunol 1979 ;23\(2\):168-73.](#)
6. [Zh Mikrobiol Epidemiol Immunobiol 1963 Aug ;40:141-2.](#)

## Osteomyelitis

<b>Agent</b>	BACTERIUM OR FUNGUS. <i>Staphylococcus aureus</i> , facultative gram-negative bacilli, <i>Candida albicans</i> , etc
<b>Reservoir</b>	Endogenous
<b>Vector</b>	None
<b>Vehicle</b>	Trauma, Surgery, Hematogenous
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Radiography, including bone scan. Culture of biopsy material.
<b>Typical Adult Therapy</b>	Systemic antimicrobial agent(s) appropriate to known or suspected pathogen. Surgery as indicated <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Limb pain or gait disturbance, often associated with obscure fever</li><li>- May be preceded by infection of skin, soft tissues or joint; or result from bacteremia</li><li>- X-ray changes are not apparent for at least 10 days in acute infection</li></ul>
<b>Synonyms</b>	Osteomielite, Osteomielitis, Osteomyelite, Paravertebral abscess. ICD9: 015,730.9 ICD10: M86

### References

1. Rev Recent Clin Trials 2017 ;12(4):260-268.
2. Infect Dis Clin North Am 2017 06 ;31(2):325-338.



## Otitis media

<b>Agent</b>	BACTERIUM OR VIRUS. <i>Haemophilus influenzae</i> & <i>Streptococcus pneumoniae</i> in most acute cases; RSV, Parainfluenza, et al
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	None
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Clinical findings. Culture of middle ear fluid if available.
<b>Typical Adult Therapy</b>	If evidence of bacterial infection (severe otalgia >48 hours / fever >39 C): <a href="#">Amoxicillin / Clavulanate</a> 1,000/62.5 mg BID X 3 days Alternatives: <a href="#">Cefdinir</a> , <a href="#">Cefpodoxime</a> , <a href="#">Cefprozil</a> , fluoroquinolone <sup>1 2 3 4</sup>
<b>Typical Pediatric Therapy</b>	If evidence of bacterial infection (severe otalgia >48 hours / fever >39 C): <a href="#">Amoxicillin / Clavulanate</a> 45/3.2 mg/kg BID X 3 days
<b>Vaccine</b>	<a href="#">Pneumococcal conjugate vaccine</a>
<b>Clinical Hints</b>	- 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.
<b>Synonyms</b>	Otitis media aguda. ICD9: 382.0 ICD10: H65,H66

## References

1. [J Med Microbiol 2018 Oct ;67\(10\):1417-1425.](#)
2. [BMJ Open 2018 Jun 08;8\(6\):e021133.](#)
3. [Pediatr Clin North Am 2018 02 ;65\(1\):105-123.](#)
4. [2018 01 ;](#)

## Parainfluenza virus infection

<b>Agent</b>	VIRUS - RNA. Paramyxoviridae: Respirovirus - Human Parainfluenza virus 1 and 3. Rubulavirus - Human Parainfluenza virus 2 and 4.
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Droplet, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	3d - 8d
<b>Diagnostic Tests</b>	Viral culture (respiratory secretions). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Respiratory precautions Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Upper respiratory infection - often croup or laryngitis</li> <li>- Most common during infancy</li> <li>- Older children develop a "cold-like" illness</li> <li>- Complicated by pneumonia in 7% to 17% of cases</li> </ul>
<b>Synonyms</b>	Human respirovirus, Human rubulavirus, Parainfluenza, Respirovirus, Rubulavirus, Sendai. ICD9: 078.89,480.2 ICD10: J12.2

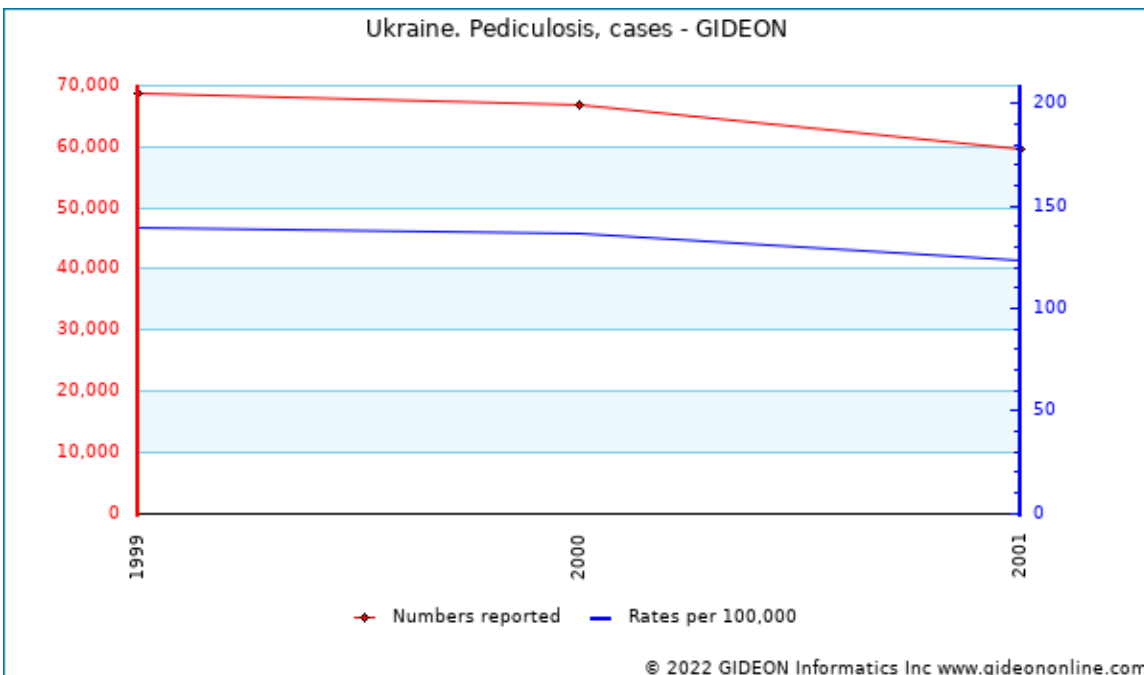
**Parvovirus B19 infection**

<b>Agent</b>	VIRUS - DNA. Parvoviridae, Parvovirinae: Erythrovirus B19
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Droplet, Breastfeeding, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	4d - 14d (range 3d - 21d)
<b>Diagnostic Tests</b>	Serology. Nucleic acid amplification (testing should be reserved for the rare instance of complicated infection).
<b>Typical Adult Therapy</b>	Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Erythema infectiosum (erythema of cheeks; lacelike or morbilliform rash on extremities)</li><li>- Febrile polyarthralgia</li><li>- Bone marrow aplasia/hypoplasia may be present</li></ul>
<b>Synonyms</b>	Duke's disease, Erythema infantum febrile, Erythema infectiosum, Erythema simplex marginatum, Erythrovirus B19, Fifth disease, Fourth disease, Funfte Krankheit, Parascariatina, Parvovirus 4, Parvovirus B19, Sticker's disease. ICD9: 057.0 ICD10: B08.3

## Pediculosis

<b>Agent</b>	PARASITE - Insecta. Anoplura: <i>Pediculus humanus humanus</i> (body louse) <i>Pediculus humanus capitis</i> (head louse) <i>Pthirus pubis</i> (pubic louse)
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Contact
<b>Incubation Period</b>	7d
<b>Diagnostic Tests</b>	Identification of adults and "nits" with the help of a louse comb
<b>Typical Adult Therapy</b>	Permethrin 1%; or Malathion 0.5%; or Lindane OR Ivermectin 200 mcg/kg PO <sup>1 2 3 4</sup>
<b>Typical Pediatric Therapy</b>	Permethrin 1%; or Malathion 0.5% OR Ivermectin 200 mcg/kg PO (> 15 kg body weight)
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Pruritus</li> <li>- Adult insects or nits may be visible</li> <li>- Body louse (rarely the head louse) transmits such diseases as epidemic typhus, trench fever and relapsing fever</li> </ul>
<b>Synonyms</b>	Crab louse, Kopflaus, Lausebefall, Pediculose, Pediculosis corporis, Pediculus capitis, Pediculus corporis, Pediculus humanis corporis, Pedikulose, Pidocci, Pou de tete, Pthirus pubis. ICD9: 132 ICD10: B85

### Pediculosis in Ukraine



Graph: Ukraine. Pediculosis, cases

## References

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1. J Eur Acad Dermatol Venereol 2017 Sep ;31(9):1425-1428.
2. Pediatr Dermatol 2016 Sep ;33(5):466-72.
3. Pediatrics 2015 May ;135(5):e1355-65.
4. Clin Dermatol 2015 May-Jun;33(3):347-54.

## Pentastomiasis - Linguatula

<b>Agent</b>	PARASITE - Pentastomid worm. <i>Linguatula serrata</i>
<b>Reservoir</b>	Herbivore, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Meat (liver or lymph nodes of sheep/goat)
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Identification of parasite in nasal discharge. Linguatula serrata adult: female - 80 to 120 mm; male - 18 to 25 mm
<b>Typical Adult Therapy</b>	No specific therapy available <sup>1</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- May follow ingestion of undercooked liver.</li><li>- Pharyngeal or otic itching</li><li>- Cough, rhinitis or nasopharyngitis</li></ul>
<b>Synonyms</b>	Linguatula, Marrara syndrome. ICD9: 128.8 ICD10: B83.8

### References

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1. [Med Mal Infect 2016 Sep ;46\(6\):269-75.](#)

**Pericarditis - bacterial**

<b>Agent</b>	BACTERIUM. <i>Streptococcus pneumoniae</i> , <i>Staphylococcus aureus</i> , et al
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Endogenous
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Ultrasonography and cardiac imaging techniques. Culture of pericardial fluid (include mycobacterial culture).
<b>Typical Adult Therapy</b>	Antimicrobial agent(s) appropriate to known or anticipated pathogen. Drainage as indicated <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Fever, chest pain and dyspnea</li><li>- Patients are acutely ill and have overt signs such as venous distention</li><li>- Enlarged cardiac "shadow"</li><li>- Concurrent pneumonia or upper respiratory infection may be present</li><li>- Case-fatality rate is 20%</li></ul>
<b>Synonyms</b>	Bacterial pericarditis, Pericardite. ICD9: 074.23,074.2,115.03,420 ICD10: I30

**References**

1. [Cardiol Clin 2017 Nov ;35\(4\):615-622.](#)
2. [JAMA 2015 Oct 13;314\(14\):1498-506.](#)

**Perinephric abscess**

<b>Agent</b>	BACTERIUM OR FUNGUS. <i>Escherichia coli</i> , other facultative gram negative bacilli, <i>Candida albicans</i> , et al
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	None
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Urine and blood culture. Renal imaging (CT, etc).
<b>Typical Adult Therapy</b>	Antimicrobial agent(s) appropriate to known or anticipated pathogen. Surgery as indicated <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Unexplained fever, leukocytosis and flank pain</li><li>- Patients are typically over age 50, and often diabetic</li><li>- Consider in the patient with nonresponsive "pyelonephritis" or a renal mass</li></ul>
<b>Synonyms</b>	ICD9: 590.2 ICD10: N15.1

**References**

1. [Urologia 2014 Jul-Sep;81\(3\):144-7.](#)

2. [BJU Int 2011 Apr ;107 Suppl 3:20-3.](#)



**Perirectal abscess**

<b>Agent</b>	BACTERIUM. Various (often mixed anaerobic and aerobic flora)
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Endogenous
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Culture of drainage material.
<b>Typical Adult Therapy</b>	Surgical drainage and antibiotics effective against fecal flora <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Anal or perianal pain with fever and a tender mass - Granulocytopenic patients commonly develop small, soft and less overt abscesses - often due to <i>Pseudomonas aeruginosa</i> .
<b>Synonyms</b>	ICD9: 566 ICD10: K61

**References**

1. Med Clin North Am 2014 May ;98(3):609-23.
2. Clin Colon Rectal Surg 2007 May ;20(2):102-9.

**Peritonitis - bacterial**

<b>Agent</b>	BACTERIUM. Various (often mixed anaerobic and aerobic flora)
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Endogenous
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Culture of blood and peritoneal fluid. Peritoneal fluid cell count may also be useful.
<b>Typical Adult Therapy</b>	Antimicrobial agent(s) appropriate to known or anticipated pathogens. Surgery as indicated <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Abdominal pain and tenderness</li><li>- Vomiting, absent bowel sounds, guarding and rebound</li><li>- Diarrhea may be present in children</li><li>- Underlying visceral infection or perforation, trauma, hepatic cirrhosis (spontaneous peritonitis) etc.</li></ul>
<b>Synonyms</b>	Acute peritonitis, Bacterial peritonitis, Peritonite. ICD9: 567 ICD10: K65

**References**

1. [BMJ 2018 06 18;361:k1407.](#)

2. [World J Emerg Surg 2017 ;12:29.](#)

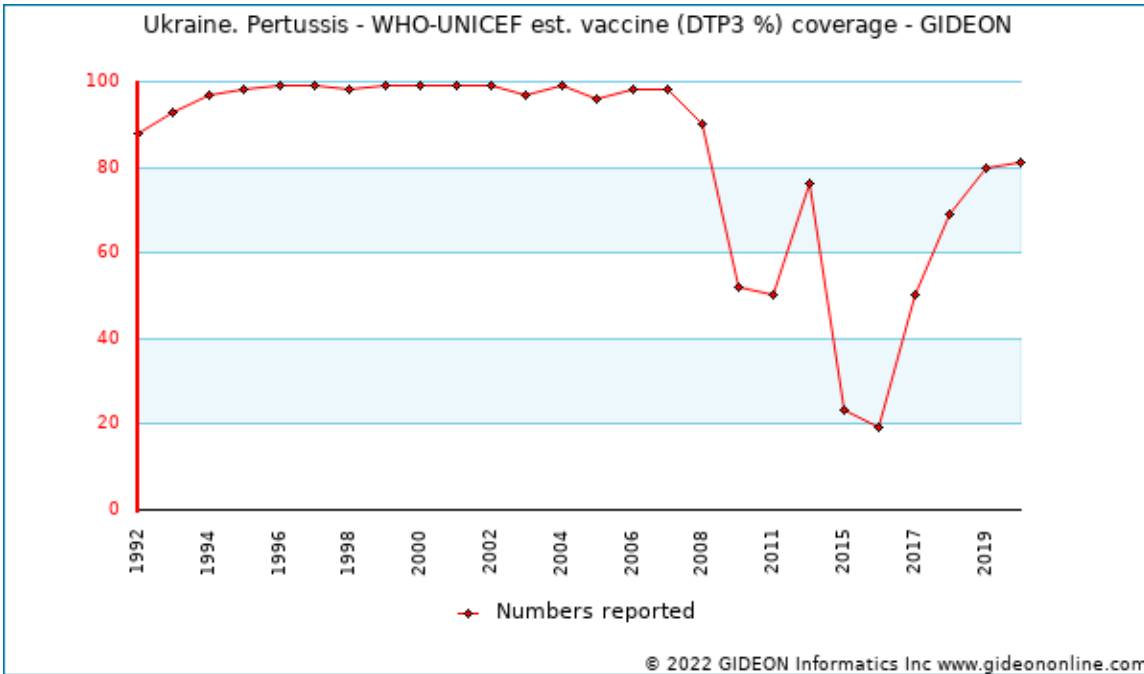
## Pertussis

<b>Agent</b>	BACTERIUM. <i>Bordetella pertussis</i> An aerobic gram-negative coccobacillus
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Air, Infected secretions, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	7d - 10d (range 5d - 21d)
<b>Diagnostic Tests</b>	Culture & direct fluorescence (nasopharynx). Alert laboratory when suspected. Serology.
<b>Typical Adult Therapy</b>	Respiratory precautions. <a href="#">Azithromycin</a> 500 mg PO X 1, then 250 mg daily X 4 days OR <a href="#">Clarithromycin</a> 500 mg PO BID X 7 days OR <a href="#">Sulfamethoxazole / Trimethoprim</a> 800/160 mg PO BID X 14 days <sup>1</sup>
<b>Typical Pediatric Therapy</b>	Respiratory precautions: <a href="#">Azithromycin</a> (age 6 mo): 10 mg/kg PO X 1, then 5 mg/kg daily X 4 days OR <a href="#">Clarithromycin</a> 15/mg/kg PO BID X 7 days OR <a href="#">Sulfamethoxazole / Trimethoprim</a> TMP 4 mg/kg PO BID X 14 days
<b>Vaccine</b>	<a href="#">DTaP vaccine</a> <a href="#">DTP vaccine</a>
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Coryza, paroxysmal cough</li> <li>- May be associated with pneumonia or otitis</li> <li>- Prominent lymphocytosis</li> <li>- Most often diagnosed in young children, but may present as indolent cough in adults</li> <li>- Epistaxis and subconjunctival hemorrhage often noted</li> <li>- Seizures (below age 2)</li> <li>- Case-fatality rate is 0.5%</li> </ul>
<b>Synonyms</b>	Bordetella holmesii, Bordetella parapertussis, Bordetella pertussis, Chincofe, Chyncough, Coqueluche, Keichhusten, Keuchhusten, Kichhosta, Kikhosta, Kikhoste, Kinkhoest, Kinkhost, Kirkhosta, Parapertussis, Pertosse, Syndrome coqueluchoide, Tos convulsa, Tos farina, Tosse convulsa, Tussis convulsa, Whooping cough. ICD9: 033 ICD10: A37

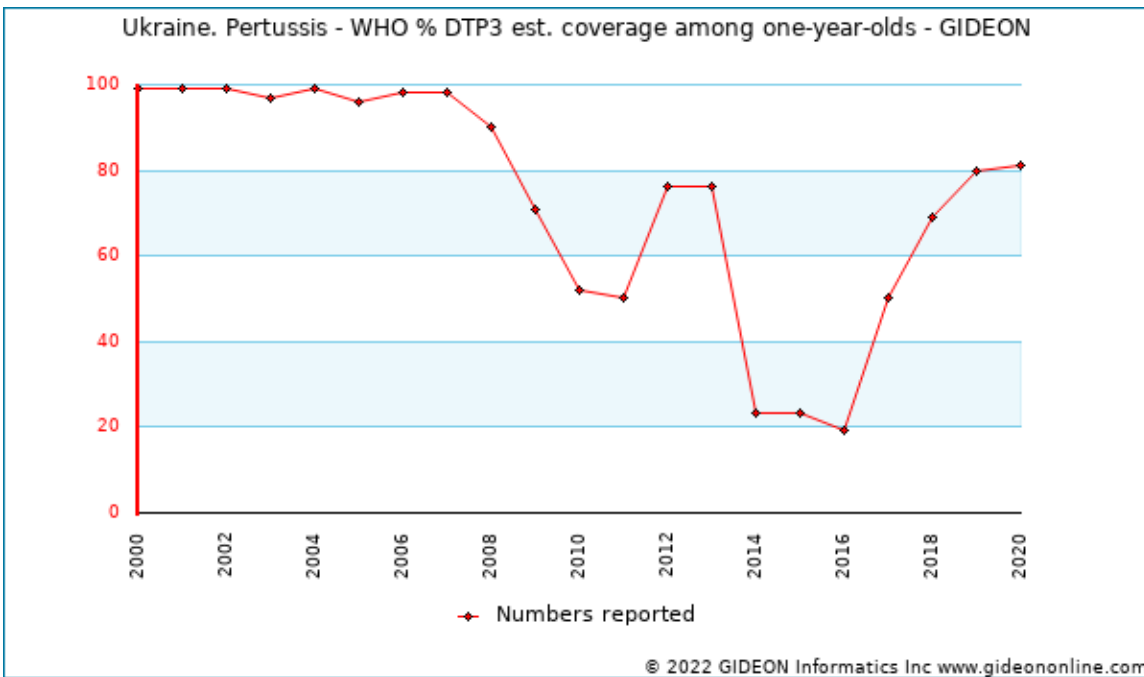
### Pertussis in Ukraine

**Vaccine Schedule:**

- BCG - 3 days
- DT - 6 years
- DTP - 2,4,6,18 months
- DTPHibHepB - 2 months
- HepB - birth 1,6 months
- HIB - 2,4,12 months
- IPV - 2,4 months
- MMR - 12 months; 6 years
- OPV - 6, 18 months; 6, 14 years
- Td - 16,26,36,46,56 years

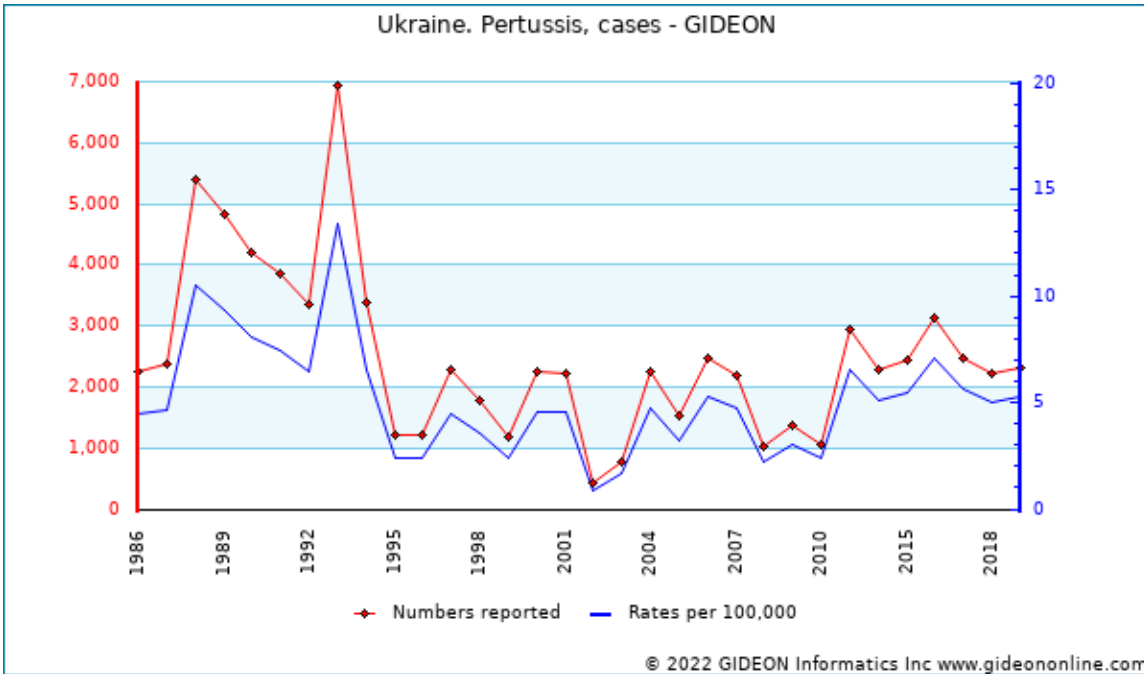


Graph: Ukraine. Pertussis - WHO-UNICEF est. vaccine (DTP3 %) coverage



Graph: Ukraine. Pertussis - WHO % DTP3 est. coverage among one-year-olds

- 1995 to 2017 - Rates of pertussis in Ukraine follow a five-year cycle. <sup>2</sup>



Graph: Ukraine. Pertussis, cases

Notes:

1. Nine pertussis deaths were reported in 1981, 8 in 1982, and 12 in 1985.

References

1. MMWR Recomm Rep 2005 Dec 09;54(RR-14):1-16.
2. Wiad Lek 2021 ;74(7):1628-1633.

**Pharyngeal and cervical space infx.**

<b>Agent</b>	BACTERIUM. <i>Streptococcus pyogenes</i> , mixed oral anaerobes, etc.
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Endogenous
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Careful examination of region and X-ray (or CT scan). Smear and culture of pus if available.
<b>Typical Adult Therapy</b>	Surgical drainage and parenteral antibiotics effective against oral flora <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Fever, painful swelling and displacement of the tongue, fauces and other intraoral structures - Dysphagia, dyspnea or jugular phlebitis may ensue in more virulent infections
<b>Synonyms</b>	Cervical space infection, Descending necrotizing mediastinitis, Lemmier's syndrome, Ludwig's angina, Post-anginal septicemia, Quinsy. ICD9: 682.0,682.1 ICD10: J36,J39.0,J39.1

**References**

1. Eur Arch Otorhinolaryngol 2009 Mar ;266(3):315-23.
2. Infect Dis Clin North Am 2007 Jun ;21(2):523-41, viii.

**Pharyngitis - bacterial**

<b>Agent</b>	BACTERIUM. Most often <i>Streptococcus pyogenes</i> ; <i>Streptococcus</i> groups B, C, F and G are occasionally isolated
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Droplet, Rarely food, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	1d - 5d
<b>Diagnostic Tests</b>	Throat swab for culture or antigen detection (group A Streptococcus) ASLO titer may not indicate current infection
<b>Typical Adult Therapy</b>	Penicillin G or Penicillin V or other antistreptococcal antibiotic to maintain serum level for 10 days <sup>1</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Purulent pharyngitis and cervical lymphadenopathy usually indicate streptococcal etiology - Viruses (mononucleosis, Enteroviruses) and other bacteria (gonorrhea, diphtheria) should also be considered
<b>Synonyms</b>	Acute pharyngitis, Bacterial pharyngitis, Mal di gola batterica, Oral thrush, Streptococcal pharyngitis, Tonsillitis - bacterial, Vincent's angina. ICD9: 034.0,462 ICD10: J02,J03

**References**

1. [PLoS Negl Trop Dis 2018 03 ;12\(3\):e0006335.](#)

**Philophthalmosis**

<b>Agent</b>	PARASITE - Platyhelminthes, Trematoda. <i>Philophthalmus gralli</i> , <i>Ph. lucipetus</i> , <i>Ph. lacrimosus</i>
<b>Reservoir</b>	Bird, Snail, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Aquatic plants
<b>Incubation Period</b>	Unknown Less than 24 hours in birds
<b>Diagnostic Tests</b>	Identification of excised worm Philophthalmus gralli adult length - 2.5 to 3.4 mm
<b>Typical Adult Therapy</b>	Removal of worm
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Conjunctivitis and lacrimation - Presence of an adult worm in the conjunctival sac
<b>Synonyms</b>	Oriental avian eye fluke, Oriental eye fluke, Philophthalmus. ICD9: 121.8 ICD10: b66.8



**Pityriasis rosea**

<b>Agent</b>	UNKNOWN. Human herpesvirus 7 has been implicated
<b>Reservoir</b>	Unknown
<b>Vector</b>	Unknown
<b>Vehicle</b>	Unknown
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Clinical features.
<b>Typical Adult Therapy</b>	Supportive; ultraviolet B exposure is suggested <a href="#">Acyclovir</a> 400 mg PO TID X 7 days has been used in severe cases <sup>1</sup>
<b>Typical Pediatric Therapy</b>	Supportive; ultraviolet B exposure is suggested
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Herald patch followed by crops of pruritic, salmon-colored macules and papules</li><li>- Systemic symptoms are rare</li><li>- Illness resolves after 3 to 8 weeks</li></ul>
<b>Synonyms</b>	ICD9: 696.3 ICD10: L42

**References**

1. [J Eur Acad Dermatol Venereol 2011 Jan ;25\(1\):24-6.](#)

## Plague

<b>Agent</b>	BACTERIUM. <i>Yersinia pestis</i> A facultative gram-negative bacillus
<b>Reservoir</b>	Rodent, Rabbit, Cat, Dog, Sheep, Wild carnivore, Zoonotic
<b>Vector</b>	Flea ( <i>Pulex</i> ; <i>Xenopsylla</i> )
<b>Vehicle</b>	Air, Contact, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	2d - 7d (range 1d - 14d)
<b>Diagnostic Tests</b>	Culture (blood, sputum, pus). Fluorescent (DFA) staining of pus. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Strict isolation.  Ciprofloxacin 400 mg Q8h IV or 750 mg Q12h PO OR 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 15 mg/kg PO QID <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	Strict Isolation.  Ciprofloxacin 10 mg/kg Q8h or Q12h IV or 15 mg/kg Q8h or Q12h PO OR 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
<b>Vaccine</b>	Plague vaccine
<b>Clinical Hints</b>	- History of rodent contact or exposure to other cases - Suppurative lymphadenitis with septicemia - Hemorrhagic pneumonia in some cases - Case-fatality rates for bubonic plague without therapy are 50% to 60%
<b>Synonyms</b>	Black death, Black plague, Bubonic plague, Glandular plague, Hemorrhagic plague, Peste, Pneumonic plague, Saint Roch's disease, Yersinia pestis. ICD9: 020 ICD10: A20

Although Plague is not endemic to Ukraine, imported, expatriate or other presentations of the disease have been associated with this country.

### Plague in Ukraine

Ukraine. Plague, cases: None reported between 1987 and 2018  
1941 to 2008 - Arthropods accounted for 66.3% of field isolates of *Francisella tularensis* in Ukraine, mammals 20.1%, water 12.7% and farm produce 0..94%..<sup>4</sup>

#### Notable outbreaks

Years	Notes
1770 - 1774	Outbreak reported - additional details unavailable. <sup>5 6</sup>

#### References

1. J Clin Microbiol 2018 Jan ;56(1)
2. Expert Rev Anti Infect Ther 2013 Aug ;11(8):817-29.
3. Clin Infect Dis 2020 May 21;70(Supplement\_1):S3-S10.
4. Parasit Vectors 2014 Oct 16;7:453.

5. Zh Mikrobiol Epidemiol Immunobiol 1978 Sep ;(9):140-5.
6. Sov Stud Hist 1987 ;25(4):33-43.

## Plesiomonas infection

<b>Agent</b>	BACTERIUM. <i>Plesiomonas shigelloides</i> A facultative gram-negative bacillus
<b>Reservoir</b>	Fish Animal, Soil, Reptile, Bird, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Water, Food
<b>Incubation Period</b>	1d - 2d
<b>Diagnostic Tests</b>	Stool culture - alert laboratory when this organism is suspected. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Stool precautions. Ciprofloxacin 400 mg IV or 750 mg PO, BID Alternatives: Sulfamethoxazole / Trimethoprim, Amoxicillin / Clavulanate, Ceftriaxone <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	Stool precautions. Sulfamethoxazole / Trimethoprim, Amoxicillin / Clavulanate, Ceftriaxone
<b>Clinical Hints</b>	- In many cases, follows ingestion of shellfish or recent travel to developing countries - Fever, abdominal pain, vomiting and severe diarrhea - Symptoms often persist for 2 to 4 weeks
<b>Synonyms</b>	Plesiomonas shigelloides. ICD9: 008.8 ICD10: A04.8

### References

1. Antimicrob Agents Chemother 1989 Sep ;33(9):1609-10. ;27(2):129-39.
2. Comp Immunol Microbiol Infect Dis 2004 Mar
3. J Antimicrob Chemother 2001 Dec ;48(6):803-11.

**Pleurodynia**

<b>Agent</b>	VIRUS - RNA. Picornaviridae: Coxsackievirus
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Air, Fecal-oral, Fomite, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	3d - 5d
<b>Diagnostic Tests</b>	Viral culture (throat, stool). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- A late summer illness in temperate regions</li><li>- Sore throat followed by pleuritic chest pain</li><li>- Pain is often recurrent and appears in "waves" - local pressure on affected area may elicit the pain</li><li>- Usually resolves within one week.</li></ul>
<b>Synonyms</b>	Balme disease, Bamble 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

## Pneumocystis pneumonia

<b>Agent</b>	FUNGUS. Ascomycota, Archiascomycetes, Pneumocystidales: <i>Pneumocystis jiroveci</i> (now distinct from <i>Pneumocystis carinii</i> )
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Air, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	4d - 8w
<b>Diagnostic Tests</b>	Identification of organisms in induced sputum, bronchial washings, tissue. Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Therapy: <a href="#">Sulfamethoxazole / Trimethoprim</a> 25 mg/5 mg/kg QID X 14d. OR <a href="#">Pentamidine</a> 4 mg/kg/d X 14d. OR <a href="#">Dapsone</a> + Trimethoprim. OR <a href="#">Atovaquone</a> OR <a href="#">Primaquine</a> + <a href="#">Clindamycin</a>  Prophylaxis - similar, but at altered dosage. <a href="#">Dapsone</a> also used. <sup>1 2 3 4</sup>
<b>Typical Pediatric Therapy</b>	Therapy: <a href="#">Sulfamethoxazole / Trimethoprim</a> 25 mg/5 mg/kg QID X 14d. OR <a href="#">Pentamidine</a> 4 mg/kg/d X 14d. OR <a href="#">Dapsone</a> + Trimethoprim. OR <a href="#">Atovaquone</a> OR <a href="#">Primaquine</a> + <a href="#">Clindamycin</a>  Prophylaxis - similar, but at altered dosage.
<b>Clinical Hints</b>	- Dyspnea, hypoxia and interstitial pneumonia - Usually encountered in the setting of severe immune suppression (AIDS, leukemia, etc) - Roentgenographic findings (typically bilateral alveolar pattern) may appear after several days
<b>Synonyms</b>	PCP, <i>Pneumocystis carinii</i> , <i>Pneumocystis jiroveci</i> . ICD9: 136.3 ICD10: B59

### Pneumocystis pneumonia in Ukraine

2012 - The incidence of *Pneumocystis* pneumonia in Ukraine was estimated at 6,152 cases (13.5 per 100,000) per year. <sup>5</sup>

#### Prevalence surveys

Years	Study Group	%	Notes
2013 - 2015	patients - HIV / AIDS	13.7	<sup>6</sup>

#### References

1. 2018 01 ;
2. Clin Chest Med 2017 Sep ;38(3):465-477.
3. Expert Rev Anti Infect Ther 2017 09 ;15(9):873-892.
4. Open Forum Infect Dis 2020 May ;7(5):ofaa112.
5. Mycoses 2015 Oct ;58 Suppl 5:94-100.
6. Folia Parasitol (Praha) 2021 Jul 07;68

**Pneumonia - bacterial**

<b>Agent</b>	BACTERIUM. <i>Streptococcus pneumoniae</i> , <i>Klebsiella pneumoniae</i> ssp <i>pneumoniae</i> , other aerobic and facultative gram negative bacilli, etc.
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Droplet, Endogenous, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	1d - 3d
<b>Diagnostic Tests</b>	Culture of sputum, blood. Analyze ("grade") sputum cytology to assess significance of culture.
<b>Typical Adult Therapy</b>	Antimicrobial agent(s) appropriate to known or suspected pathogen
<b>Typical Pediatric Therapy</b>	As for adult
<b>Vaccine</b>	<a href="#">Pneumococcal conjugate vaccine</a> <a href="#">Pneumococcal vaccine</a>
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Rigors, pleuritic pain, hemoptysis, lobar infiltrate and leukocytosis</li> <li>- Empyema and lung abscess suggest etiology other than pneumococcus</li> <li>- Foul sputum with mixed flora may herald anaerobic (aspiration) pneumonia</li> </ul>
<b>Synonyms</b>	Bacterial pneumonia, Empiema, Emphyem, Emphyem, Emphyema, Emphyeme, Lung abscess, Neumonia, Pleurisy, Pneumococcal infection - invasive, Pneumococcal pneumonia, Polmonite batterica, Streptococcus pneumoniae, Streptococcus pneumoniae - invasive. ICD9: 481,482,483,484 ICD10: J13,J14,J15,J17,J18,J85,J86

## Poliomyelitis and acute flaccid paralysis

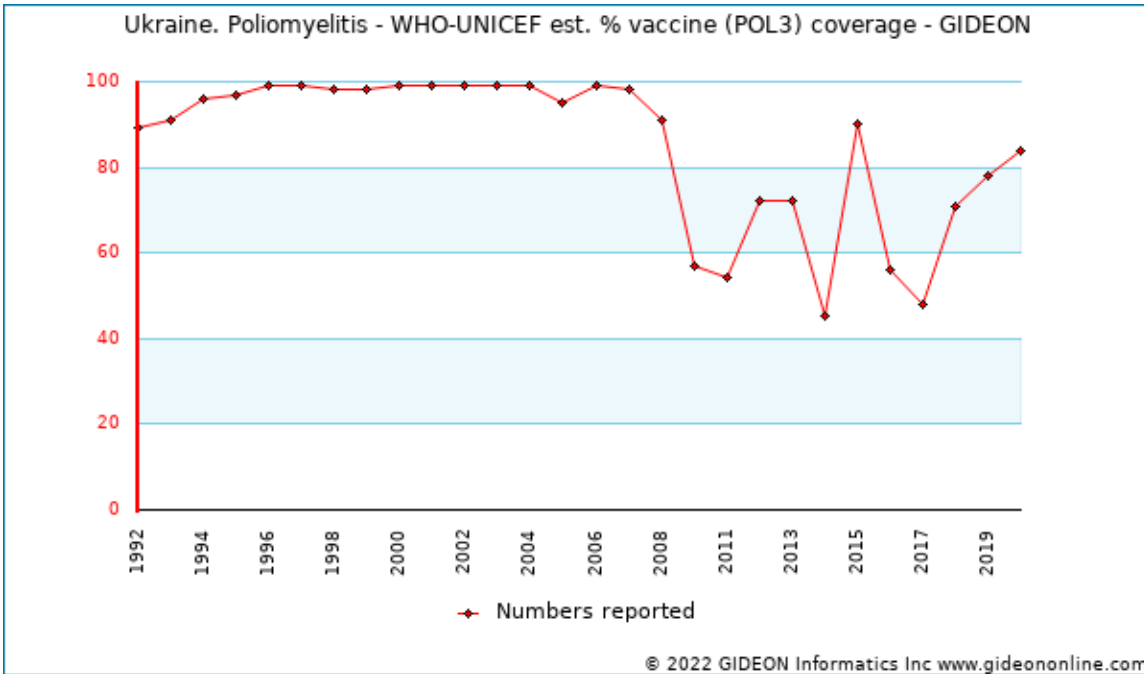
<b>Agent</b>	VIRUS - RNA. Picornaviridae, Picornavirus: Polio virus
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Fecal-oral, Dairy products, Food, Water, Fly, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	7d - 14d (range 3d - 35d)
<b>Diagnostic Tests</b>	Viral culture (pharynx, stool). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Stool precautions Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Vaccine</b>	<a href="#">Poliomyelitis - injectable vaccine</a> <a href="#">Poliomyelitis - oral vaccine</a>
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Sore throat, headache, vomiting and myalgia followed by flaccid paralysis</li> <li>- Meningeal involvement in 1% of cases</li> <li>- Paralysis in only 0.1% of cases</li> <li>- Paralysis tends to be more extensive in adult patients</li> </ul>
<b>Synonyms</b>	Acute flaccid paralysis, Heine-Medin disease, Infantile paralysis, Kinderlahmung, Kinderverlamming, Paralisi infantile, Paralisis flaccida, Paralisis flaccida aguda, PFA (Paralisis Flaccidas Agudas), Polio, Poliomyelite, Poliomyelitt. ICD9: 045 ICD10: A80

## Poliomyelitis and acute flaccid paralysis in Ukraine

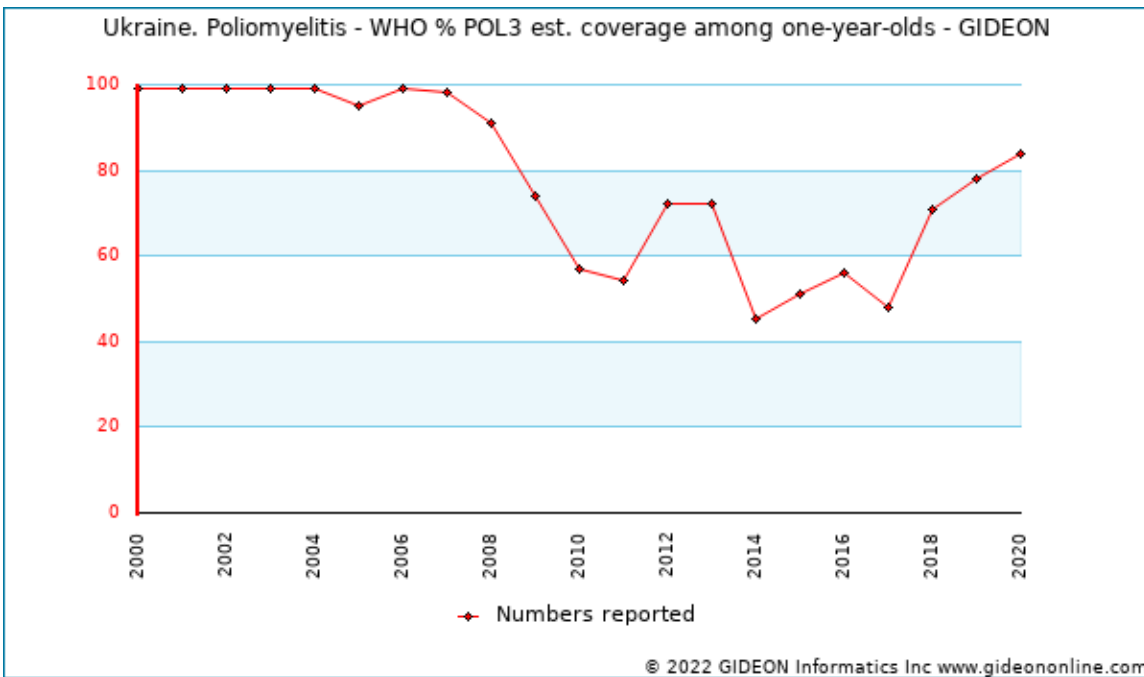
### Vaccine Schedule:

BCG - 3 days  
 DT - 6 years  
 DTP - 2,4,6,18 months  
 DTPHibHepB - 2 months  
 HepB - birth 1,6 months  
 HIB - 2,4,12 months  
 IPV - 2,4 months  
 MMR - 12 months; 6 years  
 OPV - 6, 18 months; 6, 14 years  
 Td - 16,26,36,46,56 years

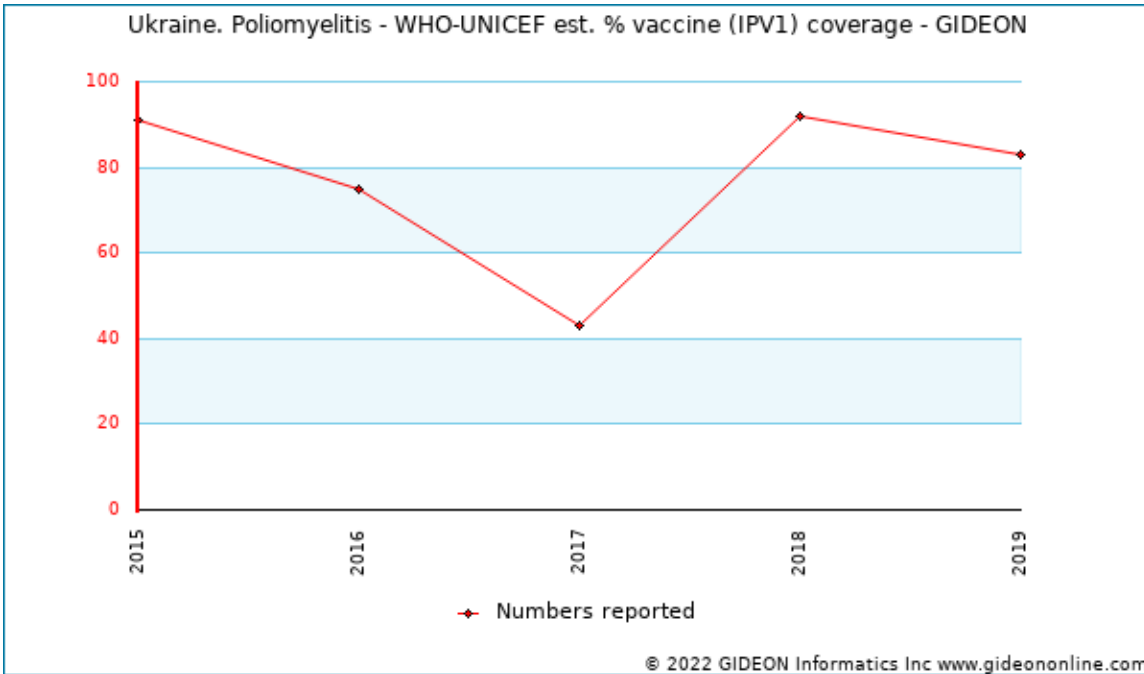




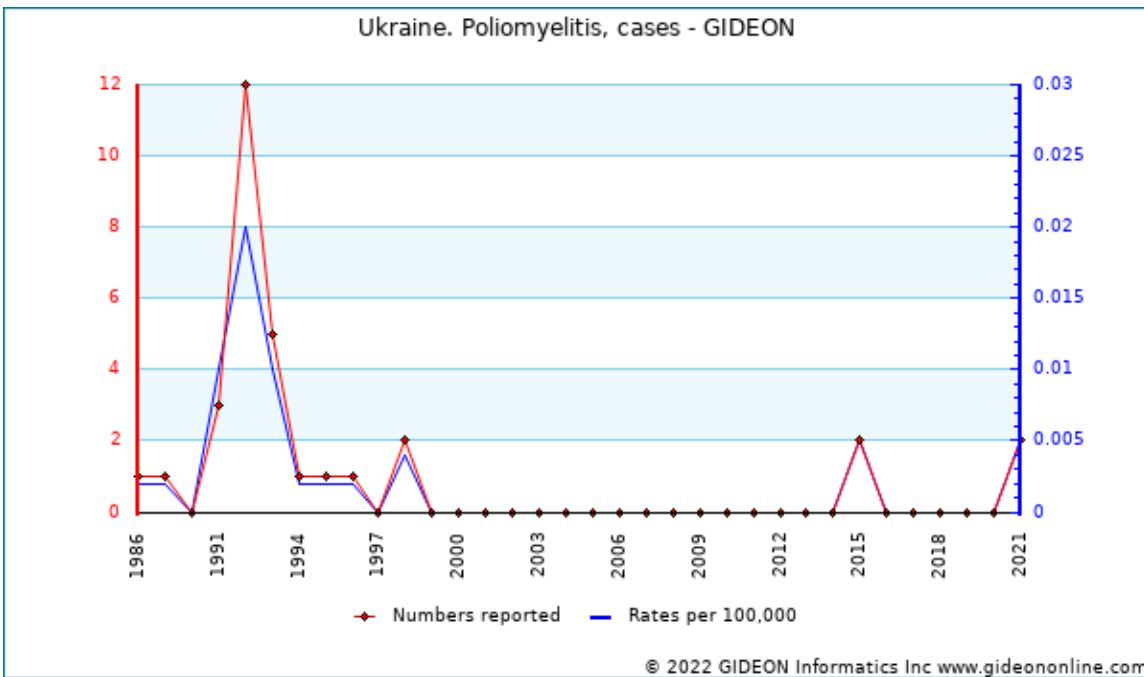
Graph: Ukraine. Poliomyelitis - WHO-UNICEF est. % vaccine (POL3) coverage



Graph: Ukraine. Poliomyelitis - WHO % POL3 est. coverage among one-year-olds



Graph: Ukraine. Poliomyelitis - WHO-UNICEF est. % vaccine (IPV1) coverage



Graph: Ukraine. Poliomyelitis, cases

Notes:

Individual years:

1999 - Four cases of vaccine-associated poliomyelitis were reported by the Health Ministry.

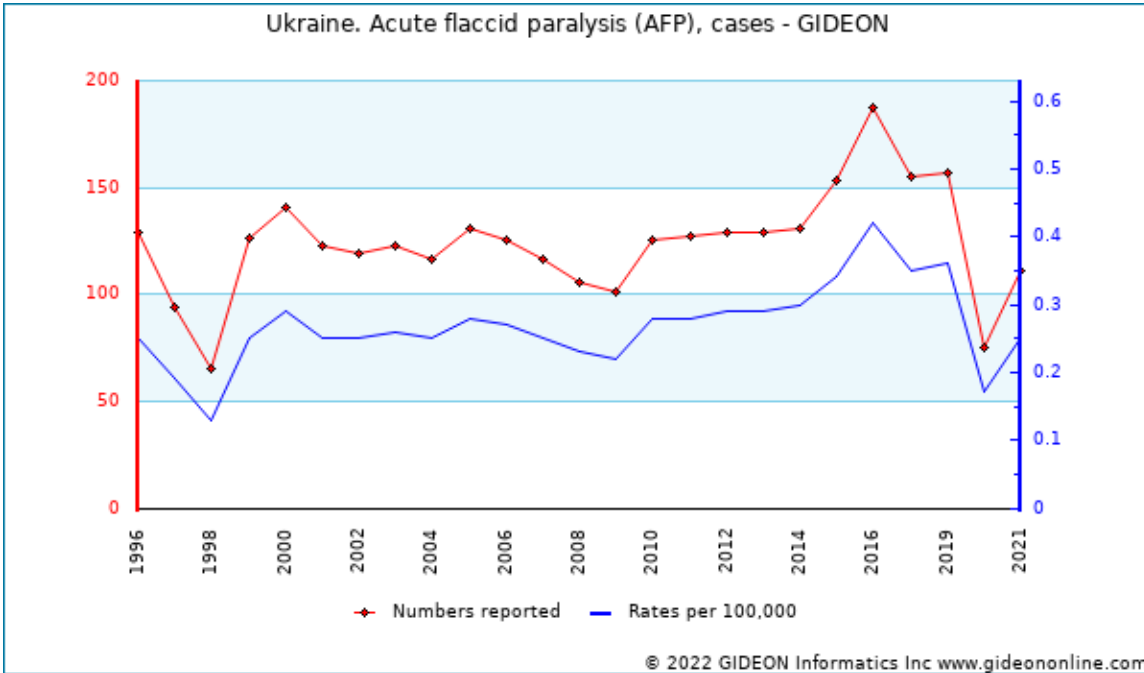
2000 - Six cases of vaccine-associated poliomyelitis were reported by the Health Ministry.

2015 - Two cases of vaccine-associated poliomyelitis were reported. <sup>1</sup>

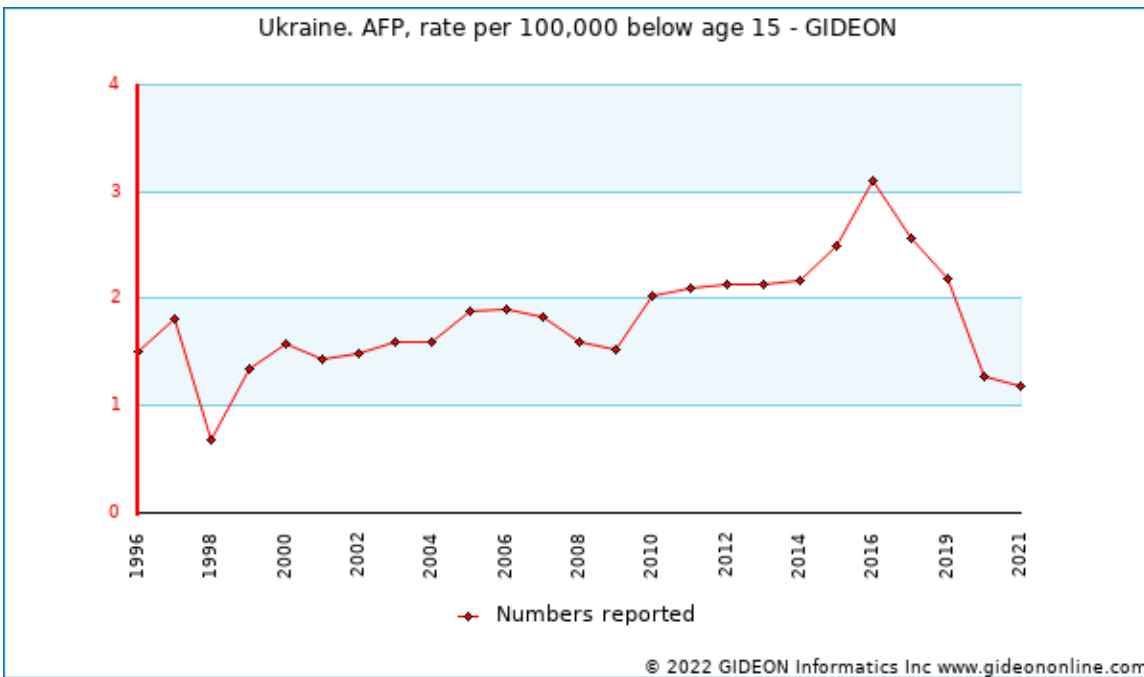
2019 - A case of vaccine-associated poliomyelitis was reported in October. <sup>2</sup>

2021 - One case was reported - acute flaccid paralysis due to poliovirus type 2 in an unvaccinated child. <sup>3</sup>

Poliomyelitis viruses accounted for 38.8% of aseptic meningitis in Odessa during 1979 to 1983. <sup>4</sup>



Graph: Ukraine. Acute flaccid paralysis (AFP), cases



Graph: Ukraine. AFP, rate per 100,000 below age 15

**Notable outbreaks**

Years	Region	Cases	Pathogen	Population	Notes
2015	Zakarpattia	2	VDPV1	children	Outbreak of vaccine-derived poliovirus infection related to under-vaccination in the community <sup>5</sup>

### References

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1. ProMED <promedmail.org> archive: 20191029.6751145
2. ProMED <promedmail.org> archive: 20191029.6751145
3. ProMED <promedmail.org> archive: 20211129.8699938
4. Vopr Virusol 1987 Jul-Aug;32(4):459-64.
5. Vaccine 2017 08 24;35(36):4769-4776.

## Protothecosis and chlorellosis

<b>Agent</b>	ALGA. <i>Prototheca wickerhamii</i> ; rarely <i>Pr. zopfii</i> , <i>Pr. cutis</i> Achloric algae  Chlorella spp. contain chloroplasts
<b>Reservoir</b>	Rare animal pathogens (cat, dog, cattle wild mammals), Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Water, Sewage, Food, Skin trauma
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Culture on fungal media. Biopsy. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Surgical excision.  There are anecdotal reports of successful therapy with <a href="#">Amphotericin B</a> , <a href="#">Ketoconazole</a> and <a href="#">Itraconazole</a> (latter 200 mg/day X 2 months) or <a href="#">Voriconazole</a> <sup>1</sup>
<b>Typical Pediatric Therapy</b>	As for adult ( <a href="#">Itraconazole</a> 2 mg/kg/day X 2 months)
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- May follow immune suppression or skin trauma</li> <li>- Dermal papules, plaques, eczematoid or ulcerated lesions</li> <li>- Olecranon bursitis is common</li> <li>- Systemic infection reported in some cases</li> </ul>
<b>Synonyms</b>	Chlorellosis, Prototheca, Protothecosis. ICD9: 136.8 ICD10: B99

### References

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1. [Mycopathologia 2018 Aug 16](#);

## Pseudocowpox

<b>Agent</b>	VIRUS - DNA. Poxviridae, Parapoxvirus: Pseudocowpox virus
<b>Reservoir</b>	Cattle, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Contact
<b>Incubation Period</b>	5d - 14d
<b>Diagnostic Tests</b>	Biosafety level 3. Viral culture (skin lesion or exudate). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Skin / lesion precautions Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Umbilicated nodule on the hand following contact with cattle - Mild regional lymphadenopathy
<b>Synonyms</b>	Bovine papular stomatitis, Farmyard pox, Milker's nodule, Noduli mulgentinum, Paravaccinia, Sealpox. ICD9: 051.1 ICD10: B08.0

## Pseudorabies virus infection

<b>Agent</b>	VIRUS - DNA Herpesviridae, Alphaherpesvirinae: Suid herpesvirus 1
<b>Reservoir</b>	Pig, Panther, Raccoon, Coyote, Cattle, Deer, Mink, Fox, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Aerosol or secretions from animal
<b>Incubation Period</b>	3d-14d
<b>Diagnostic Tests</b>	Serology, Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Disease follows contact (ie, occupational injury) associated with pigs</li> <li>- Headache, fever, seizures, coma.</li> <li>- Lymphocytic pleocytosis of CSF</li> <li>- Severe pneumonia during hospitalization is common</li> <li>- Endophthalmitis or retinitis in some cases.</li> </ul>
<b>Synonyms</b>	Aujeszky's disease, Suid herpesvirus type 1. ICD9: 078.89 ICD10: B33.8

**Pyodermas (impetigo, abscess, etc)**

<b>Agent</b>	BACTERIUM. Various ( <i>Staphylococcus aureus</i> & <i>Streptococcus pyogenes</i> predominate)
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Endogenous, Secretions, Contact, Trauma
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Clinical diagnosis usually sufficient. Aspiration of lesion for smear and culture may be helpful in some cases.
<b>Typical Adult Therapy</b>	Skin / lesion precautions Antibiotic directed at likely pathogens (Group A Streptococcus and Staphylococcus aureus)
<b>Typical Pediatric Therapy</b>	Skin / lesion precautions As for adult
<b>Clinical Hints</b>	- Impetigo is characterized by vesicles which progress to pustules ("honey-colored pus") - Highly contagious - May be complicated by acute glomerulonephritis
<b>Synonyms</b>	Acne vulgaris, Carbonchio, Carbuncle, Follicolite, Follicolite, Folliculite, Folliculitis, Follikulitis, Foroncolosi, Foronculose, Foruncolosi, Furunculosis, Furunkulose, Furunulose, Hydradenitis, Impetigine, Impetigo, Paronychia, Pyoderma. ICD9: 680,684,686 ICD10: L01,L02,L08.0,L73.2



## Pyomyositis

Agent	BACTERIUM. Usually <i>Staphylococcus aureus</i>
Reservoir	Human
Vector	None
Vehicle	Endogenous
Incubation Period	Variable
Diagnostic Tests	Ultrasonography or CT scan.
Typical Adult Therapy	Antibiotic directed at confirmed or suspected pathogen (usually <i>Staphylococcus aureus</i> ); drainage <sup>1</sup>
Typical Pediatric Therapy	As for adult
Clinical Hints	<ul style="list-style-type: none"><li>- Pain, swelling and "woody" induration of a large muscle (usually lower limb or trunk)</li><li>- Associated with fever and leukocytosis</li><li>- Often follows trauma to the involved region</li><li>- Lymphadenopathy uncommon; leucocytosis in most cases.</li></ul>
Synonyms	Purulent infectious myositis, Tropical pyomyositis. ICD9: 040.81 ICD10: M60.0

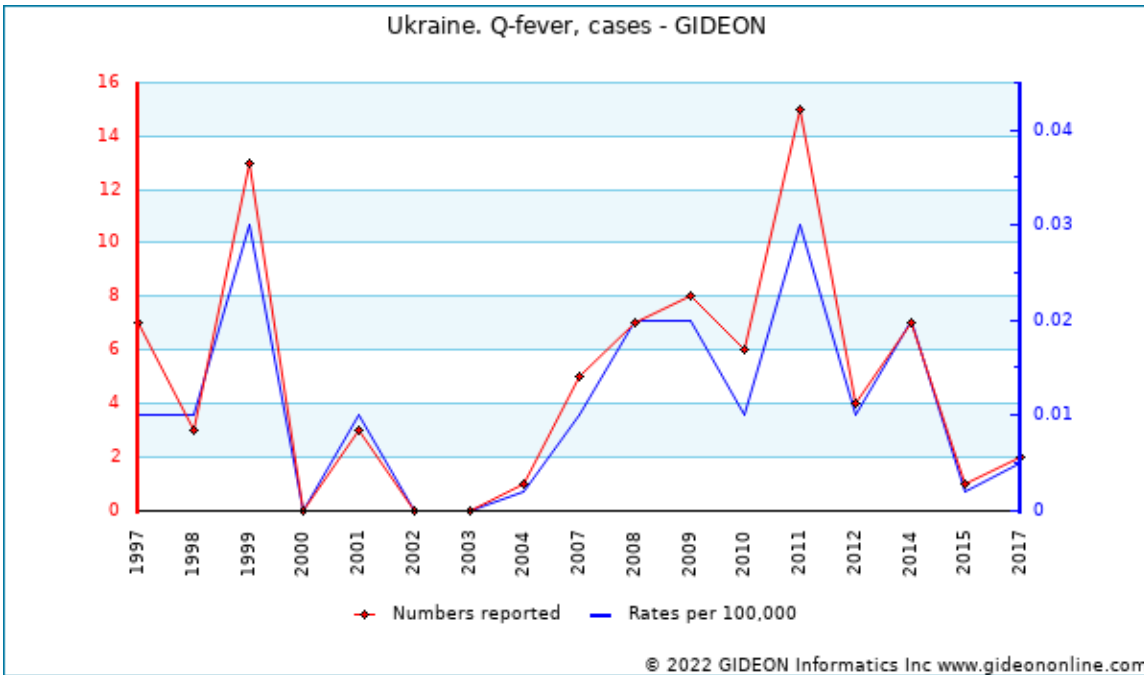
### References

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1. Clin Microbiol Rev 2008 Jul ;21(3):473-94.

Q-fever	
Agent	BACTERIUM. <i>Coxiella burnetii</i> Intracellular organism related to <a href="#">Rickettsiae</a>
Reservoir	Cattle, Sheep, Goat, Bird, Fish, Rodent, Rabbit, Tick, Bandicoot, Marsupial, Dog, Cat, Horse, Zoonotic
Vector	None
Vehicle	Air, Dust, Secretions, Dairy products, Respiratory or pharyngeal acquisition
Incubation Period	18d - 21d (range 4d - 40d)
Diagnostic Tests	Serology. Culture possible in specialized laboratories. Nucleic acid amplification.
Typical Adult Therapy	<a href="#">Doxycycline</a> 100 mg BID X 2w OR <a href="#">Trimethoprim</a> /Sulfamethoxazole 160/800 mg PO BID X 2w  Add <a href="#">Hydroxychloroquine</a> 600 mg per day if endocarditis <sup>1 2 3</sup>
Typical Pediatric Therapy	Age < 8 years: <a href="#">Trimethoprim</a> /Sulfamethoxazole TMP 4-6 mg/kg PO BID X 2 weeks Age >= 8 years: <a href="#">Doxycycline</a> 100 mg BID X 2 weeks
Vaccine	<a href="#">Q fever vaccine</a>
Clinical Hints	<ul style="list-style-type: none"> <li>- Proximity to farming or animals during 2 to 4 weeks preceding illness</li> <li>- Headache, myalgia, cough and hepatic dysfunction</li> <li>- Hepatosplenomegaly, "F.U.O." and endocarditis are encountered</li> <li>- Most infections resolve in 1 to 2 weeks</li> <li>- Case-fatality rate is 1.5%</li> </ul>
Synonyms	Balkan grippe, Candidatus <i>Coxiella massiliensis</i> , <i>Coxiella burnetii</i> , Febbre australiana, Febre Q, Nine Mile fever, Q-Fieber, Q-koorts, Query fever, Red River fever. ICD9: 083.0 ICD10: A78

**Q-fever in Ukraine**



Graph: Ukraine. Q-fever, cases

**Seroprevalence surveys**

Years	Region	Study Group	%	Notes
1975 - 1977	Carpathian Region	general population	10.1	10.1% of the population in the Carpathian region 1975 to 1977 <sup>4</sup>
1994	Carpathian Region	general population	2.8	2.8% of individuals in the Carpathian region in 1994 <sup>5</sup>
2011*	Western Region	general population	3.6	3.6% of healthy individuals in the western region (2011 publication)
1983*	Kharkov	animal contact	5.2-8.7	6.9% of workers in meat-packing factories, 8.7% among workers in fur- and wool-treating, 5.2% among stock breeders (Kharkov region, 1983 publication) <sup>6</sup>

\* indicates publication year (not necessarily year of survey)

**References**

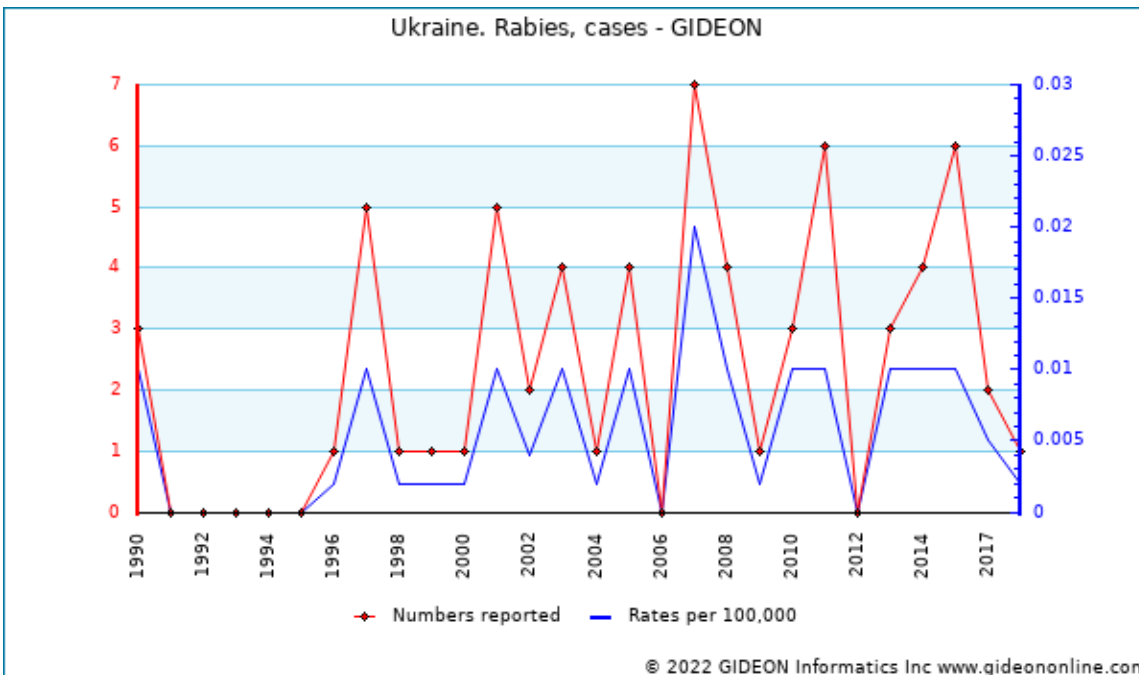
1. Expert Rev Anti Infect Ther 2013 Nov ;11(11):1207-14.
2. J Infect 2015 Jun ;71 Suppl 1:S2-9.
3. Recent Pat Antiinfect Drug Discov 2014 ;9(2):104-11.
4. Mikrobiol Z 1997 Sep-Oct;59(5):46-52.
5. Mikrobiol Z 1997 Sep-Oct;59(5):46-52.
6. Zh Mikrobiol Epidemiol Immunobiol 1983 Jul ;(7):109-12.

## Rabies

<b>Agent</b>	VIRUS - RNA. Rhabdoviridae, Mononegavirales, Lyssavirus: Rabies virus. Other human Lyssaviruses = Mokola, Duvenhage, European Bat (EBL)
<b>Reservoir</b>	Dog, Fox, Skunk, Jackal, Wolf, Cat, Raccoon, Mongoose, Bat, Rodent, Rabbit, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Saliva, Bite, Transplants, Air (bat aerosol), Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	1m - 3m (range 4d to 19 years !)
<b>Diagnostic Tests</b>	Viral culture & direct immunofluorescence of saliva, CSF, corneal smears. Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Strict isolation  Supportive. The Milwaukee protocol (prolonged deep sedation and support) was apparently successful in some cases, but has since been abandoned..  See Vaccines module for pre- and post-exposure schedules <a href="#">1</a> <a href="#">2</a> <a href="#">3</a> <a href="#">4</a> <a href="#">5</a>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Vaccine</b>	<a href="#">Rabies immune globulin</a> <a href="#">Rabies vaccine</a>
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Follows animal bite (rarely lick) - often after months</li> <li>- Agitation, confusion, seizures, painful spasms of respiratory muscles</li> <li>- Progressive paralysis, coma and death</li> <li>- Case-fatality rate exceeds 99.9%</li> </ul>
<b>Synonyms</b>	Aravan, Australian bat lyssavirus, Ballina, BBLV, Bokeloh bat lyssavirus, Duvenhage, EBL, European bat 1 Lyssavirus, European bat 2 Lyssavirus, European bat Lyssavirus, Gannorow bat lyssavirus, Hondsdolheid, Hydrophobia, Ikoma lyssavirus, Irkut, Khujand, Kotolahti bat lyssavirus, Lleida bat lyssavirus, Lyssa, Matlo bat lyssavirus, Mokola, Pteropus lyssavirus, Rabia, Rage, Raiva, Saint Hubert's disease, Shimoni bat virus, Taiwan bat lyssavirus, Tollwut, West Caucasian bat, Wutkrankheit. ICD9: 071 ICD10: A82

### Rabies in Ukraine

Each year, 120,000 to 140,000 people in Ukraine are treated for animal bites. [6](#)



Graph: Ukraine. Rabies, cases

Notes:

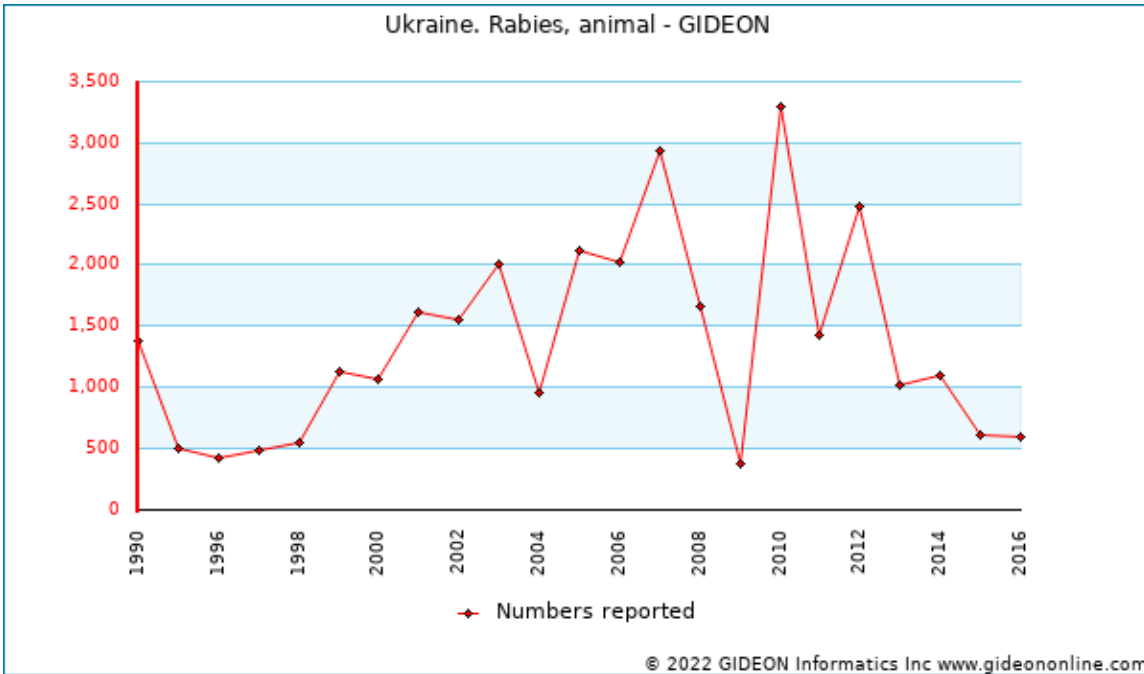
1. Molecular epidemiology of rabies viruses in Ukraine (2012 publication) - see reference <sup>7</sup>  
 Individual years:  
 1977 - A case of human rabies (EBLV1) in Voroshilovgrad followed the bite of a rabid bat. <sup>8</sup>  
 2008 - A case of human rabies in Kharkov followed the bite of a dog which had received an unapproved vaccine. <sup>9</sup>  
 2010 - A case of human rabies in the Donetsk region followed the bite of a dog. <sup>10</sup>  
 2013 - Three cases were reported to September - in Donetsk, Kharkiv and Kyiv regions. <sup>11</sup>
  - 2011 - Four incidents of exposure to rabid cats were reported in Kharkiv <sup>12 13</sup>

**Cross-border events**

*Includes rabies in imported animals*

Years	Acquired by **	Originated in **	Cases	Deaths	Notes
2007	Russian Federation	Ukraine	1	1	Acquired from a fox. <sup>14</sup>

\*\* Country or Nationality



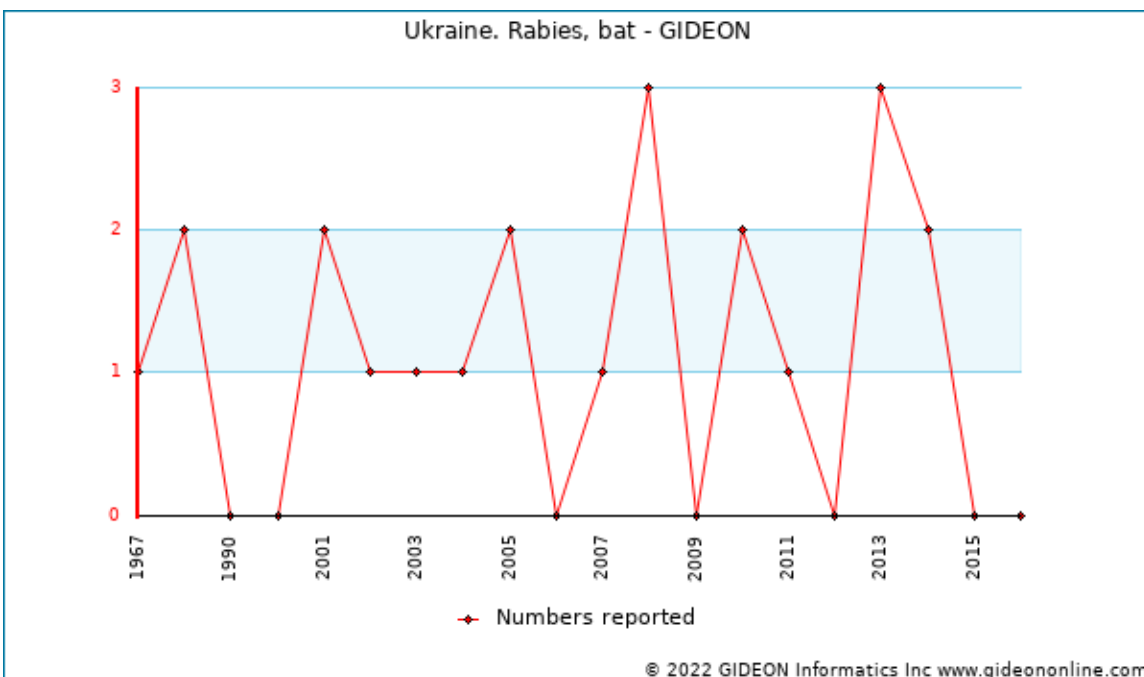
Graph: Ukraine. Rabies, animal

Notes:

Individual years:

- 2001 - 582 foxes, 377 cats, 342 cattle.
- 2002 - 593 foxes, 336 cats, 281 cattle
- 2003 - 898 foxes, 426 cats, 287 cattle
- 2005 - A rabid wolf attacked four individuals in Kherson region.

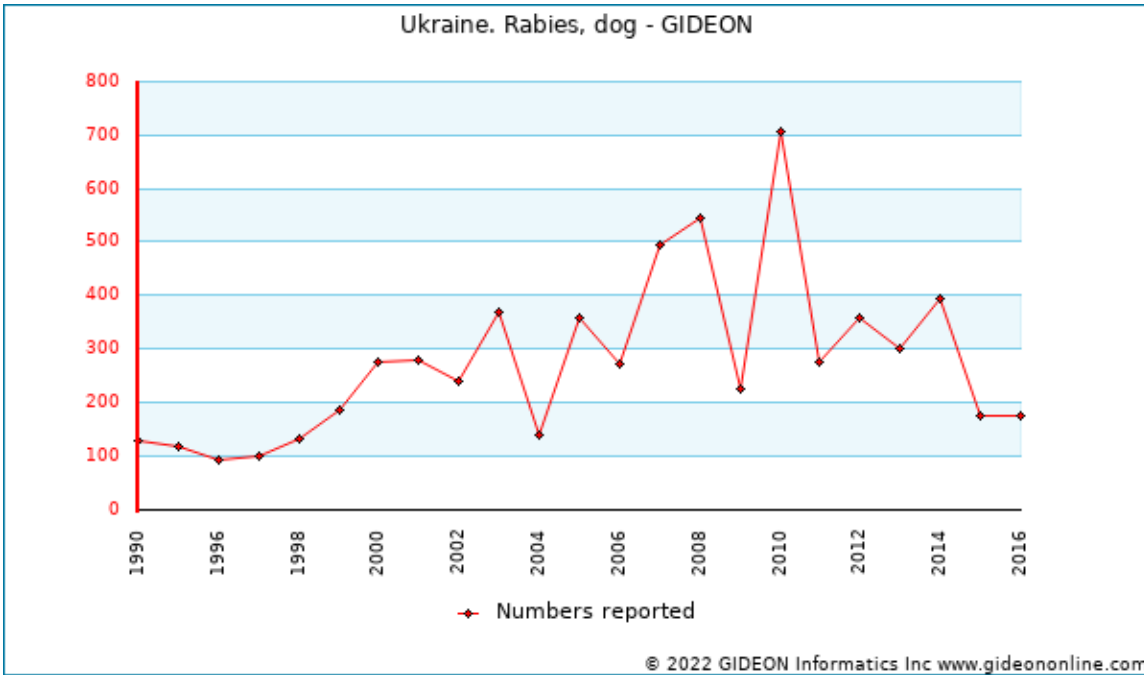
- 2012 to 2016 - 427 rabid animals were identified in Volyn, Lviv, and Zakarpattia oblasts. <sup>15</sup>



Graph: Ukraine. Rabies, bat

Notes:

1. Four rabid bats were reported during 1977 to 1998.
2. Six rabid bats were identified in caves in the Novosibirsk region of southwest Siberia during 2002. <sup>16</sup>
3. Rabies virus has also been identified in bats (*Nyctalus noctula* and *Vespertilio murinus*) from tree hollows on the Pripyat river, Volynsky region. <sup>17</sup>



Graph: Ukraine. Rabies, dog

Notable outbreaks

Years	Region	Population	Notes
2010	Multiple locations	foxes	Outbreaks in Donetsk and Zhytomyr Oblasts <sup>18 19</sup>

References

1. N Engl J Med 2005 Jun 16;352(24):2508-14.
2. Curr Infect Dis Rep 2009 Jul ;11(4):296-301.
3. Clin Infect Dis 2011 Sep ;53(6):572-4.
4. Curr Infect Dis Rep 2016 Nov ;18(11):38.
5. Am J Trop Med Hyg 2018 Nov 05;
6. ProMED <promedmail.org> archive: 20130929.1974826
7. Arch Virol 2012 Sep ;157(9):1689-98.
8. Dev Biol (Basel) 2006 ;125:273-82.
9. ProMED <promedmail.org> archive: 20080123.0287
10. ProMED <promedmail.org> archive: 20101008.3663
11. ProMED <promedmail.org> archive: 20130929.1974826
12. ProMED <promedmail.org> archive: 20111029.3219
13. ProMED <promedmail.org> archive: 20110306.0744
14. J Travel Med 2011 Nov-Dec;18(6):402-7.
15. Front Vet Sci 2019 ;6:290.
16. ProMED <promedmail.org> archive: 20030525.1291
17. Acta Virol 1991 May ;35(3):226-31.
18. ProMED <promedmail.org> archive: 20100910.3263
19. ProMED <promedmail.org> archive: 20100609.1919

**Rat bite fever - spirillary**

<b>Agent</b>	BACTERIUM. <i>Spirillum minus</i> An aerobic gram-negative spirochete
<b>Reservoir</b>	Rat, Mouse, Cat, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Bite
<b>Incubation Period</b>	7d - 21d (range 5d - 40d)
<b>Diagnostic Tests</b>	Dark-field exam of wound. Animal inoculation.
<b>Typical Adult Therapy</b>	<a href="#">Amoxicillin / Clavulanate</a> 875 / 125 mg PO BID X 7d. OR Procaine <a href="#">Penicillin G</a> 600,000u IM q12h X 7d. OR <a href="#">Doxycycline</a> 200 mg BID X 7d
<b>Typical Pediatric Therapy</b>	<a href="#">Amoxicillin / Clavulanate</a> 10 mg/kg PO BID X 7d OR Procaine <a href="#">Penicillin G</a> 25,000u/kg IM q12h X 7d
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Symptoms begin 1 to 3 weeks following rat bite</li><li>- Lymphadenopathy, myalgia, maculopapular rash and recurrent fever</li><li>- Infection resolves after 3 to 6 days</li><li>- Case-fatality rate is 6%</li></ul>
<b>Synonyms</b>	Sodoku, Spirillosis, Spirillum minor, Spirillum minus. ICD9: 026.0 ICD10: A25.0



**Rat bite fever - streptobacillary**

<b>Agent</b>	BACTERIUM. <i>Streptobacillus moniliformis</i> A facultative gram-negative bacillus
<b>Reservoir</b>	Rat, Squirrel, Weasel, Turkey, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Secretions, Bite, Dairy products
<b>Incubation Period</b>	3d - 10d (range 1d - 22d)
<b>Diagnostic Tests</b>	Culture of blood or joint fluid. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	<a href="#">Amoxicillin / Clavulanate</a> 875 /1 25 mg PO BID X 7d. OR <a href="#">Doxycycline</a> 100 mg PO BID X 7d <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Amoxicillin / Clavulanate</a> 10 mg/kg TID X 7d. OR (if age>8 years) <a href="#">Doxycycline</a> 2 mg/kg PO BID X 7 days (maximum 200 mg/day)
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- History of a rat bite during the preceding 1 to 3 weeks in most cases</li><li>- Headache, myalgia, maculopapular rash and arthralgia or arthritis</li><li>- Infection has also been acquired from contaminated milk</li><li>- The case-fatality rate is 10%.</li></ul>
<b>Synonyms</b>	Haverhill fever, Streptobacillosis, <i>Streptobacillus moniliformis</i> , <i>Streptobacillus notomytis</i> . ICD9: 026.1 ICD10: A25.1

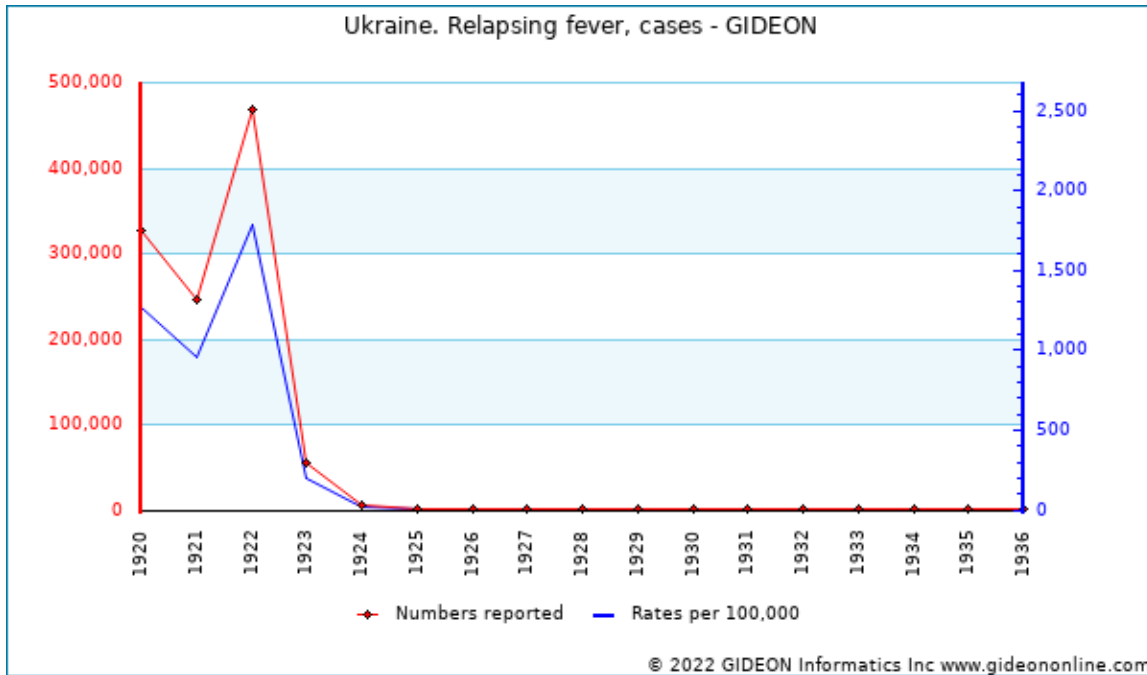
**References**

1. [Clin Microbiol Rev 2007 Jan ;20\(1\):13-22.](#)
2. [Vet Microbiol 2009 Jan 13;133\(3\):211-28.](#)

## Relapsing fever

<b>Agent</b>	BACTERIUM. <i>Borrelia</i> spp. A microaerophilic spirochete
<b>Reservoir</b>	Human, Tick, Rodent, Zoonotic
<b>Vector</b>	Tick ( <i>Ornithodoros</i> ), Louse ( <i>Pediculus</i> )
<b>Vehicle</b>	Blood, Blood products
<b>Incubation Period</b>	7d - 8d (range 2d - 18d)
<b>Diagnostic Tests</b>	Examination of blood smears (thick and thin smears).- less sensitive for <i>B. miyamotoi</i> infection Some species ( <i>B. hermsii</i> ) may grow in BSK II medium.
<b>Typical Adult Therapy</b>	<a href="#">Doxycycline</a> 100 mg PO BID X 10d. OR <a href="#">Ceftriaxone</a> 2 g IV daily X 10d  Louse-borne infection: A single dose of Procaine <a href="#">Penicillin G</a> 800000 units IM OR <a href="#">Tetracycline</a> 500 mg PO OR <a href="#">Erythromycin</a> 500 mg PO may suffice for louse-borne infection <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	>8 years <a href="#">Doxycycline</a> 100 mg PO BID X 10d OR <a href="#">Ceftriaxone</a> 50-75 mg/kg/d IV X 10d OR <a href="#">Penicillin G</a> 50-100000 units/kg IV QID X 10d
<b>Clinical Hints</b>	- Headache, myalgia, hepatosplenomegaly and rash - Relapsing illness  Louse-borne (vs. tick borne) infection characterized by: - higher case-fatality rate - fewer relapses - higher incidence of hepatosplenomegaly, jaundice and neurological complications
<b>Synonyms</b>	Bilious typhoid, <i>Borrelia anserina</i> , <i>Borrelia braziliensis</i> , <i>Borrelia caucasica</i> , <i>Borrelia coriaceae</i> , <i>Borrelia crocidurae</i> , <i>Borrelia dipodilli</i> , <i>Borrelia duttonii</i> , <i>Borrelia graingeri</i> , <i>Borrelia hispanica</i> , <i>Borrelia latyschewii</i> , <i>Borrelia mazzottii</i> , <i>Borrelia merionesi</i> , <i>Borrelia microti</i> , <i>Borrelia miyamotoi</i> , <i>Borrelia parkeri</i> , <i>Borrelia persica</i> , <i>Borrelia queenslandica</i> , <i>Borrelia recurrentis</i> , <i>Borrelia theileri</i> , <i>Borrelia turicatae</i> , <i>Borrelia uzbekistana</i> , <i>Borrelia venezuelensis</i> , Borreliosis, Candidatus <i>Borrelia algerica</i> , Candidatus <i>Borrelia fainii</i> , Candidatus <i>Borrelia kalaharica</i> , Famine fever, Febbre recidiva, Febbre ricorrente, Febris recurrens, Fiebre recurrenente, Lauseruckfallfieber, Mianeh fever, Persistent syndrome, Ruckfall fieber, Tilbakefallsfeber, Tilbakefallsfever, Vagabond fever, Yellow famine fever, Yellow plague. ICD9: 087.9,087.0,087.1 ICD10: A68

## Relapsing fever in Ukraine



Graph: Ukraine. Relapsing fever, cases

### Prevalence surveys

Years	Region	Study Group	%	Notes
2017*	Kiev	ticks	1.1-7.7	1.1% of <i>Ixodes ricinus</i> ( <i>Borrelia miyamotoi</i> ) <sup>4</sup>
2017	Ternopil	ticks	5.8	5.8% of <i>Ixodes</i> ticks ( <i>Borrelia miyamotoi</i> ) <sup>5</sup>

\* indicates publication year (not necessarily year of survey)

*Borrelia caucasica* (local vector *Ornithodoros verrucosus*) is identified as an agent of relapsing fever in Ukraine. <sup>6</sup>

Also see note for Russian Federation.

### References

1. Curr Opin Infect Dis 2009 Oct ;22(5):443-9.
2. Clin Lab Med 2015 Dec ;35(4):867-82.
3. Infect Dis Clin North Am 2008 Sep ;22(3):449-68, viii.
4. Ticks Tick Borne Dis 2018 02 ;9(2):404-409.
5. Wiad Lek 2019 ;72(2):224-228.
6. J Infect Dis 2019 Oct 01;

## Respiratory syncytial virus infection

<b>Agent</b>	VIRUS - RNA. Paramyxoviridae, Pneumovirinae: Human respiratory syncytial virus
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Droplet, Infected secretions (hands), Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	2d - 8d
<b>Diagnostic Tests</b>	Viral culture or DFA (nasal and other respiratory secretions). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Respiratory precautions <a href="#">Ribavirin</a> aerosol 20 mg/ml for 12h/d X 3 to 5d (has been used in severe infections). Effectiveness not proven <sup>1 2 3 4 5</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Vaccine</b>	<a href="#">RSV immune globulin</a>
<b>Clinical Hints</b>	- Most cases occur during infancy - Rhinorrhea, cough, wheezing, bronchiolitis and respiratory distress
<b>Synonyms</b>	Chimpanzee coryza agent, Human orthopneumovirus, Respiratory syncytial virus, RSV. ICD9: 079.6,480.1 ICD10: B97.4,J12.1

### Respiratory syncytial virus infection in Ukraine

#### Prevalence surveys

Years	Region	Study Group	%	Notes
2018 - 2020	Kyiv	children - respiratory	13.2	Survey of children with acute respiratory infection <sup>6</sup>

#### References

1. Clin Infect Dis 2018 Sep 08;
2. Curr Opin Infect Dis 2017 Dec ;30(6):573-578.
3. Clin Ther 2018 Aug 01;
4. Transplant Proc 2021 Oct 06;
5. Influenza Other Respir Viruses 2022 Feb 12;
6. Wiad Lek 2021 ;74(6):1389-1395.

## Respiratory viruses - miscellaneous

<b>Agent</b>	VIRUS - RNA and DNA Paramyxoviridae: Mononegavirales Human Metapneumovirus  Coronaviridae: New Haven Coronavirus, HKU1 Human coronavirus OC43 Human coronavirus 229 E Human coronavirus NL63  Parvovirinae: Human Bocavirus
<b>Reservoir</b>	Human Mammal
<b>Vector</b>	None
<b>Vehicle</b>	Droplet, Secretions (on hands), Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Viral culture. Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Respiratory precautions  NA
<b>Typical Pediatric Therapy</b>	NA
<b>Clinical Hints</b>	- Rhinorrhea, cough, wheezing, bronchiolitis and respiratory distress - Age distribution and prominence of specific signs / symptoms vary among the specific viruses in this category
<b>Synonyms</b>	Acanthamoeba polyphaga mimivirus, Bat reovirus, Bocaparvovirus, Bocavirus, Bradford coccus, Canine coronavirus, Cardiovirus, Coronavirus HKU1, Coronavirus NL63, Encephalomyocarditis Virus, HCoV-HKU1, HCoV-NL63, HCoV-OC43, HK23629/07, HKU1, HRV-A, HRV-B, HRV-C, Human Bocavirus, Human coronavirus NL63, Human CoV 229E, Human CoV OC43, Human metapneumovirus, Human rhinovirus, Kampar, Karolinska Institutet virus, KI virus, Mamamalian orthoreovirus, Melaka, Metapneumovirus, Mimivirus, New Haven coronavirus, Porcine delta coronavirus, Pteropine orthoreovirus, Pulau, Rhinovirus, Small Anellovirus, Sosuga, Tioman virus, Torque tenovirus, Torquetenovirus, Washington University virus, WU polyomavirus, WU virus. ICD9: 079.89 ICD10: B34.2,J12.8

### Respiratory viruses - miscellaneous in Ukraine

#### Prevalence surveys

Years	Region	Study Group	%	Notes
2018 - 2020	Kyiv	children - respiratory	65.5	Viruses were identified in throat swabs from 65.5% of children with acute respiratory infection; Rhinovirus 27,1%, Adenovirus 13.4%, RSV 13.2% and Influenza A 10.7% <sup>1</sup>

#### References

1. Wiad Lek 2021 ;74(6):1389-1395.

## Reye's syndrome

Agent	UNKNOWN
Reservoir	Unknown
Vector	None
Vehicle	Unknown
Incubation Period	Unknown
Diagnostic Tests	Clinical diagnosis.
Typical Adult Therapy	Management of increased intracranial pressure, fluid and electrolyte balance as appropriate <sup>1</sup>
Typical Pediatric Therapy	As for adult
Clinical Hints	<ul style="list-style-type: none"><li>- Follows viral infection; aspirin ingestion is often implicated.</li><li>- Vomiting, lethargy, coma, seizures</li><li>- Hepatomegaly, hypoglycemia and elevated blood ammonia concentration</li><li>- Patients are usually anicteric</li></ul>
Synonyms	Reye syndrome. ICD9: 331.81 ICD10: G93.7

### References

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1. [Ann Neurol 1980 Jan ;7\(1\):2-4.](#)

## Rheumatic fever

Agent	BACTERIUM. <i>Streptococcus pyogenes</i> A facultative gram-positive coccus
Reservoir	Human
Vector	None
Vehicle	Droplet
Incubation Period	1w - 5w
Diagnostic Tests	Clinical diagnosis.
Typical Adult Therapy	Supportive; NSAIDs  Eradication of GAS colonization: Benzathine <a href="#">Penicillin G</a> 1.2 million units IM once OR <a href="#">Penicillin V</a> 500 mg PO BID X 10d OR <a href="#">Azithromycin</a> 500 mg PO daily X 3d <sup>1 2 3</sup>
Typical Pediatric Therapy	Supportive; NSAIDs  Eradication of GAS colonization: Benzathine <a href="#">Penicillin G</a> 50000 units/kg IM once OR <a href="#">Penicillin V</a> 25 mg/kg PO TID X 10d
Clinical Hints	<ul style="list-style-type: none"> <li>- In most cases, illness follows overt pharyngitis, after 1 to 5 weeks</li> <li>- Migratory arthritis, fever, carditis, chorea</li> <li>- Subcutaneous nodules, erythema marginatum and leukocytosis</li> <li>- An attack of rheumatic fever will persist for approximately 3 months</li> </ul>
Synonyms	Febbre reumatica. ICD9: 390,391 ICD10: I00,I01,I02

### References

1. [Lancet 2018 07 14;392\(10142\):161-174.](#)
2. [PLoS Negl Trop Dis 2018 03 ;12\(3\):e0006335.](#)
3. [Curr Treat Options Cardiovasc Med 2017 Feb ;19\(2\):15.](#)

## Rhinoscleroma and ozena

<b>Agent</b>	BACTERIUM. <i>Klebsiella pneumoniae</i> ssp <i>ozaenae</i> and <i>Klebsiella pneumoniae</i> ssp <i>rhinoscleromatis</i> Facultative gram-negative bacilli
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Secretions, Contact, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Culture. Biopsy. Nucleic acid amplification. Advise laboratory when this diagnosis is suspected.
<b>Typical Adult Therapy</b>	Rhinoscleroma: <a href="#">Ciprofloxacin</a> 750 mg PO BID X 3 months  Ozena: <a href="#">Ciprofloxacin</a> 750 mg PO BID X 3 months or <a href="#">Sulfamethoxazole</a> / <a href="#">Trimethoprim</a> X 3 months <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Ciprofloxacin</a> or <a href="#">Sulfamethoxazole</a> / <a href="#">Trimethoprim</a> for 3 months. <a href="#">Amoxicillin</a> /Clavulanate has been used successfully.
<b>Clinical Hints</b>	Rhinoscleroma: - Chronic fetid nasal discharge - A crusting mass may develop in the nose - Infection may extend to the larynx, trachea of paranasal sinuses  Ozena: - Chronic rhinitis progressing to atrophy of the nasal mucosa - Extension to the larynx and systemic infection have been reported
<b>Synonyms</b>	<i>Klebsiella pneumoniae</i> ssp <i>ozaenae</i> , Ozena, Respiratory scleroma, Rhinoscleroma. ICD9: 040.1 ICD10: J31.0

### References

1. Arch Pathol Lab Med 2018 Aug 31;
2. *Pediatr Infect Dis J* 2014 Jul ;33(7):774-5.



## Rhinosporidiosis

Agent	PROTOCTISTA <i>Rhinosporidium seeberi</i> (may in fact be <i>Microcystis</i> , a cyanobacterium)
Reservoir	Water, Soil, Vegetation
Vector	None
Vehicle	Aerosol from soil or water, Respiratory or pharyngeal acquisition
Incubation Period	2w - 6m
Diagnostic Tests	Histology of resected material (organism does not grow in-vitro).
Typical Adult Therapy	Excision <a href="#">Dapsone</a> has been used in cases of disseminated disease, in some cases combined with <a href="#">Cycloserine</a> and <a href="#">Ketoconazole</a> <sup>1</sup>
Typical Pediatric Therapy	As for adult
Clinical Hints	- Friable, painless vascular masses of nose, conjunctivae and larynx - Recurrence is common
Synonyms	Oculosporidiosis, Rhinosporidium seeberi. ICD9: 117.0 ICD10: B48.1

### References

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1. [Trop Doct 2013 Jul ;43\(3\):110-2.](#)

## Rhodococcus equi infection

<b>Agent</b>	BACTERIUM. <i>Rhodococcus equi</i> An aerobic gram-positive coccobacillus
<b>Reservoir</b>	Farm animal, Farm soil, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Inhalation, Contact, Ingestion
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Culture of blood, body fluids and secretions. Advise laboratory when these organisms are suspected.
<b>Typical Adult Therapy</b>	Two drugs from the following, administered for two months: <a href="#">Levofloxacin</a> , <a href="#">Rifampin</a> , <a href="#">Azithromycin</a> , <a href="#">Ciprofloxacin</a> , <a href="#">Imipenem</a> , <a href="#">Vancomycin</a> <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	Two drugs from the following, administered for two months: <a href="#">Levofloxacin</a> , <a href="#">Rifampin</a> , <a href="#">Azithromycin</a> , <a href="#">Imipenem</a> , <a href="#">Vancomycin</a>
<b>Clinical Hints</b>	- 40% of patients recall recent contact with farm or farm animals - Most often presents as pleuropulmonary infection in an immune-suppressed individual
<b>Synonyms</b>	Rhodococcus. ICD9: 027.9 ICD10: A92.8

### References

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1. [Antimicrob Agents Chemother 2019 Jan ;63\(1\)](#)
2. [J Antimicrob Chemother 2014 Apr ;69\(4\):1045-9.](#)

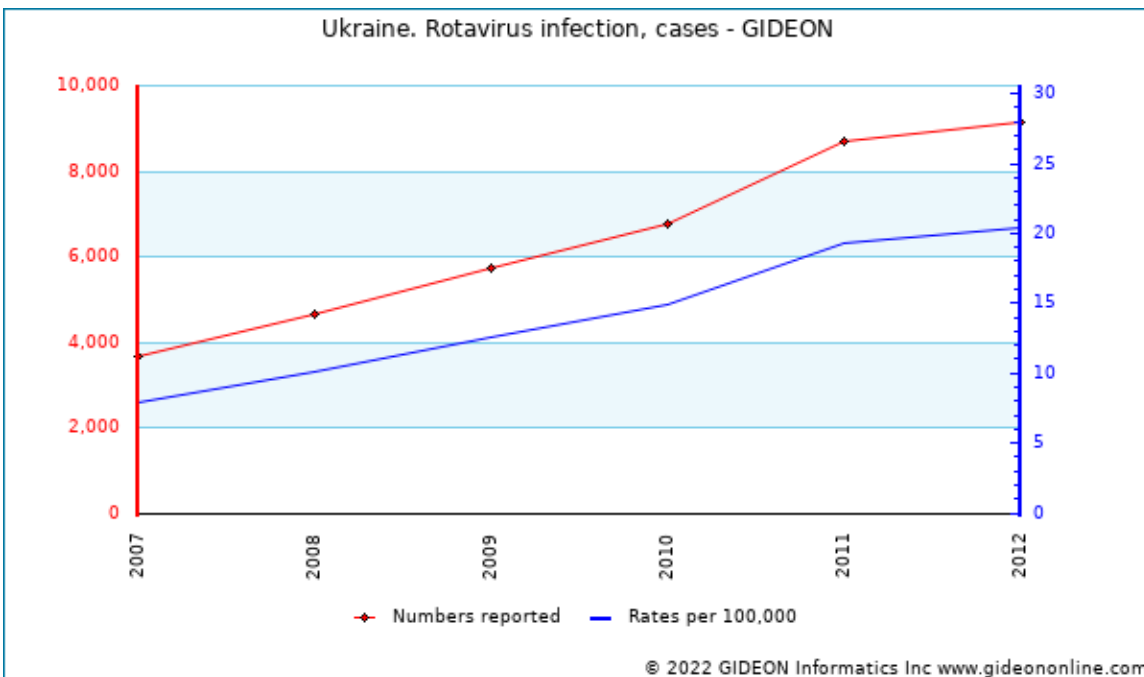
**Rickettsialpox**

<b>Agent</b>	BACTERIUM. <i>Rickettsia akari</i>
<b>Reservoir</b>	Mouse ( <i>Mus musculus</i> ), Dog, Mite, Zoonotic
<b>Vector</b>	Mite ( <i>Allodermanyssus sanguineus</i> )
<b>Vehicle</b>	None
<b>Incubation Period</b>	9d - 14d (range 7d - 24d)
<b>Diagnostic Tests</b>	Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	<b>Doxycycline</b> 100 mg PO BID X 3 to 5d. OR <b>Chloramphenicol</b> 500 mg PO QID X 3 to 5d
<b>Typical Pediatric Therapy</b>	<b>Doxycycline</b> 2 mg/kg PO BID X 3 to 5d (maximum 200 mg/day). OR <b>Chloramphenicol</b> 10 mg/kg PO QID X 3 to 5d
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Dermal eschar followed by fever, headache, myalgia, cough, photophobia and a papular or vesicular rash</li><li>- Infection resolves in 3 to 10 days</li><li>- Fatality and residua have not been reported</li></ul>
<b>Synonyms</b>	Kew Gardens fever, <i>Rickettsia akari</i> . ICD9: 083.2 ICD10: A79.1

## Rotavirus infection

<b>Agent</b>	VIRUS - RNA. Reoviridae: Rotavirus
<b>Reservoir</b>	Human, Pig, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Fecal-oral, Water
<b>Incubation Period</b>	2.0 d (range 12h - 3d)
<b>Diagnostic Tests</b>	Stool assay for viral antigen. Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Stool precautions Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Vaccine</b>	<a href="#">Rotavirus vaccine</a>
<b>Clinical Hints</b>	- 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
<b>Synonyms</b>	Rotavirus. ICD9: 008.61 ICD10: A08.0

### Rotavirus infection in Ukraine



Graph: Ukraine. Rotavirus infection, cases

### Prevalence surveys

Years	Region	Study Group	%	Notes
2007	Georgia	children - gastrointestinal	33	33% (approximate) of pediatric hospitalizations for acute gastroenteritis (Georgia, Tajikistan, and Ukraine, 2007) <sup>1</sup>
2007 - 2015	Multiple locations	children - gastrointestinal	42-54	42% of children ages 0 to 59 months hospitalized for acute gastroenteritis in Odessa, and 54% in Kyiv <sup>2</sup>

**Notable outbreaks**

Years	Region	Setting	Cases	Notes
2011	Lugansk	multiple settings	27	Outbreaks in a mine (22 cases) and a kindergarten (5 cases) <sup>3</sup>

**References**

1. J Infect Dis 2009 Nov 01;200 Suppl 1:S203-14.
2. Vaccine 2017 Nov 29;
3. ProMED <promedmail.org> archive: 20110402.1023

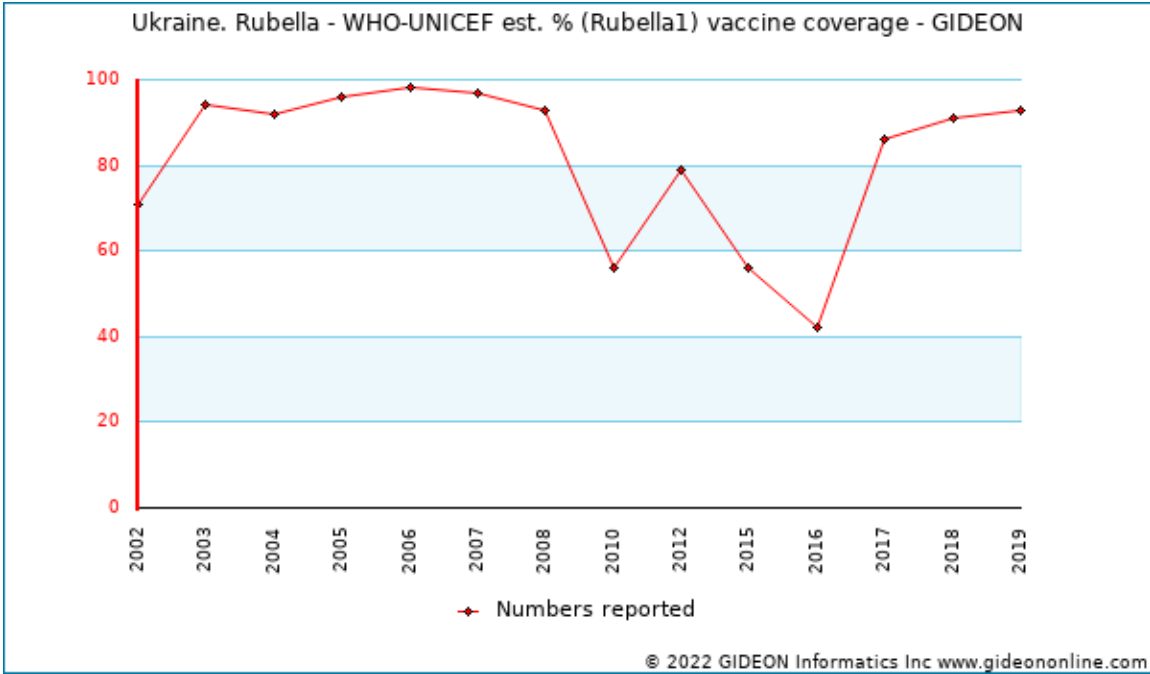
Rubella	
Agent	VIRUS - RNA. Togaviridae: Rubivirus, Rubella virus
Reservoir	Human
Vector	None
Vehicle	Contact, Air, Transplacental, Breastfeeding, Respiratory or pharyngeal acquisition
Incubation Period	16d - 18d (range 14d - 23d)
Diagnostic Tests	Viral culture (throat, urine). Serology. Nucleic acid amplification.
Typical Adult Therapy	Respiratory precautions. Supportive
Typical Pediatric Therapy	As for adult
Vaccines	<a href="#">Measles-Mumps-Rubella vaccine</a> <a href="#">Measles-Rubella vaccine</a> <a href="#">Rubella - Mumps vaccine</a> <a href="#">Rubella vaccine</a>
Clinical Hints	<ul style="list-style-type: none"> <li>- Maculopapular rash following a one-day prodrome of coryza and headache</li> <li>- Post auricular lymphadenopathy</li> <li>- Arthralgia and arthritis are encountered in adults</li> <li>- Severe thrombocytopenia or encephalitis may follow acute infection</li> <li>- Congenital rubella characterized by hearing loss, congenital heart disease, cataracts, mental retardation and other abnormalities</li> </ul>
Synonyms	Epidemic roseola, German measles, Roda hund, Rode hond, Rode hunder, Rodehond, Rosolia, Roteln, Rubeola [Spanish], Three-day measles. ICD9: 056 ICD10: B06

## Rubella in Ukraine

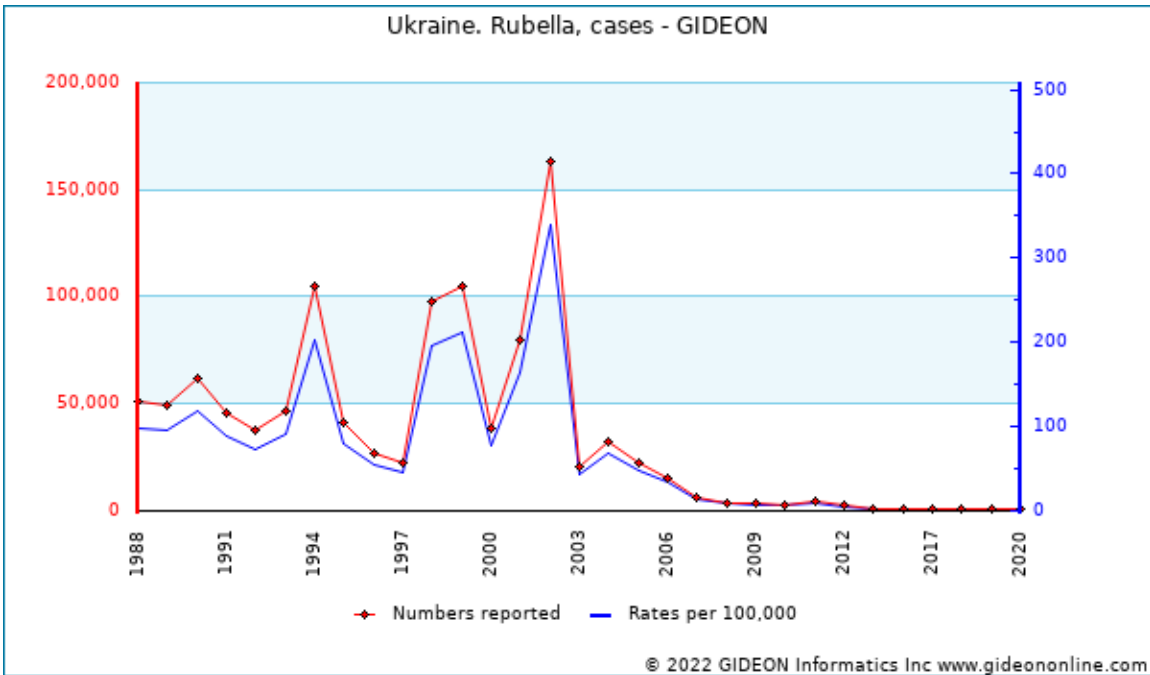
### Vaccine Schedule:

BCG - 3 days  
 DT - 6 years  
 DTP - 2,4,6,18 months  
 DTPHibHepB - 2 months  
 HepB - birth 1,6 months  
 HIB - 2,4,12 months  
 IPV - 2,4 months  
 MMR - 12 months; 6 years  
 OPV - 6, 18 months; 6, 14 years  
 Td - 16,26,36,46,56 years

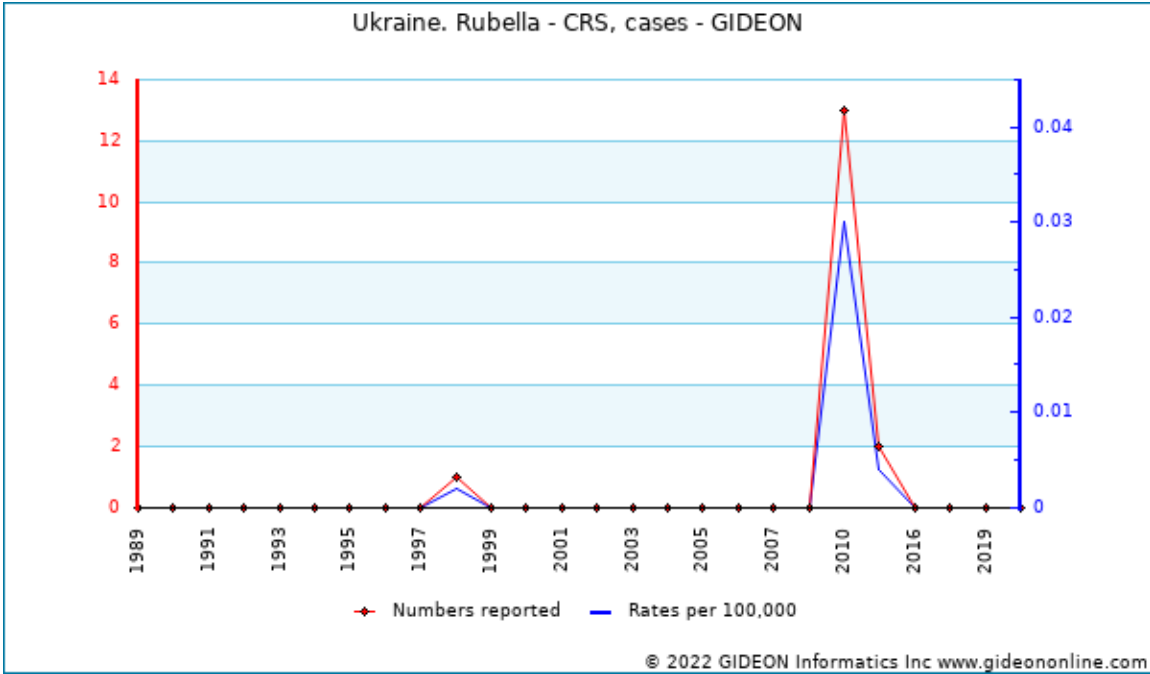
Rubella-containing vaccine was introduced into the routine immunization schedule in 2001. <sup>1</sup>



Graph: Ukraine. Rubella - WHO-UNICEF est. % (Rubella1) vaccine coverage



Graph: Ukraine. Rubella, cases



Graph: Ukraine. Rubella - CRS, cases

**Notable outbreaks**

Years	Region	Cases	Notes
2011	Lviv	18	<sup>2</sup>

**References**

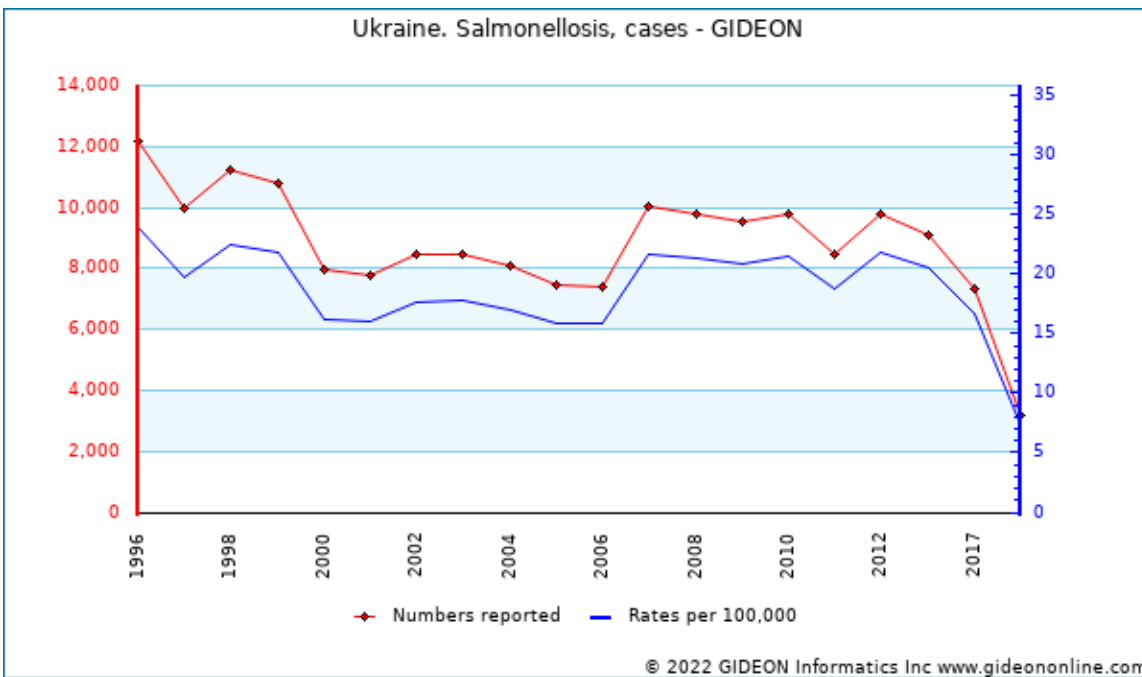
1. MMWR Morb Mortal Wkly Rep 2021 Jun 11;70(23):833-839.
2. ProMED <promedmail.org> archive: 20110211.0472



## Salmonellosis

<b>Agent</b>	BACTERIUM. <i>Salmonella</i> A facultative gram-negative bacillus
<b>Reservoir</b>	Mammal, Bird, Reptile, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Food, Milk, Eggs, Poultry Shellfish, Meat, Vegetables, Fruit, Fecal-oral Breastfeeding, Fly
<b>Incubation Period</b>	12h - 36h (range 6h - 6d)
<b>Diagnostic Tests</b>	Culture (stool, blood, infected tissue). Serology.
<b>Typical Adult Therapy</b>	Stool precautions. Therapy not indicated for uncomplicated diarrhea; if necessary, treat per antibiogram <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Onset 12 to 24 hours after ingestion of eggs, meat, poultry - Fever, chills and watery diarrhea - Fecal leucocytes present - Fever resolves in 2 days; but diarrhea may persist for up to 7 days (occasionally weeks)
<b>Synonyms</b>	Salmonellosen, Salmonellosi. ICD9: 003 ICD10: A02

### Salmonellosis in Ukraine



Graph: Ukraine. Salmonellosis, cases

- 2011 to 2018 - Analysis of salmonellosis in Ukraine - incidence and risk factors. <sup>4</sup>

**Notable outbreaks**

Years	Region	Setting	Cases	Source	Population	Notes
2007	Cherkassy		85		poultry workers	<a href="#">5</a>
2011			14	poultry		Outbreak associated with contaminated poultry products. Two months later, 30,000 tons of contaminated poultry products were identified <a href="#">6</a>
2017	Lviv		71	seafood - fish		Outbreak associated with contaminated smoked fish <a href="#">7</a> <a href="#">8</a> <a href="#">9</a>
2019	Rivne	restaurant	84			<a href="#">10</a>
2021	Kharkiv	restaurant	89	seafood - sushi		<a href="#">11</a>

**References**

1. N Engl J Med 1969 Sep 18;281(12):636-40.
2. Cochrane Database Syst Rev 2000 ;(2):CD001167.
3. Expert Rev Anti Infect Ther 2016 ;14(2):193-206.
4. Folia Med Cracov 2021 ;61(2):91-102.
5. ProMED <promedmail.org> archive: 20070706.2147
6. ProMED <promedmail.org> archive: 20120130.1026903
7. ProMED <promedmail.org> archive: 20170926.5342314
8. ProMED <promedmail.org> archive: 20170927.5344017
9. ProMED <promedmail.org> archive: 20171010.5370467
10. ProMED <promedmail.org> archive: 20190722.6581355
11. ProMED <promedmail.org> archive: 20210708.8504631

## Sarcocystosis

<b>Agent</b>	PARASITE - Protozoa. Coccidea, Eimeriida: <i>Sarcocystis bovi</i> hominis or <i>S. sui</i> hominis
<b>Reservoir</b>	Cattle, Pig, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Meat, Water
<b>Incubation Period</b>	9d - 39d
<b>Diagnostic Tests</b>	Identification of cysts in stool.
<b>Typical Adult Therapy</b>	Supportive <sup>1</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- Diarrhea and abdominal pain of varying severity - Muscle pain and eosinophilia occasionally encountered
<b>Synonyms</b>	Isospora hominis, Kudoa, Sarcocystiasis, Sarcocystis, Sarcocystis bovihominis, Sarcocystis cruzi, Sarcocystis fayeri, Sarcocystis hominis, Sarcocystis nesbitti, Sarcocystis sui hominis, Sarcosporidiosis. ICD9: 136.5 ICD10: A07.8

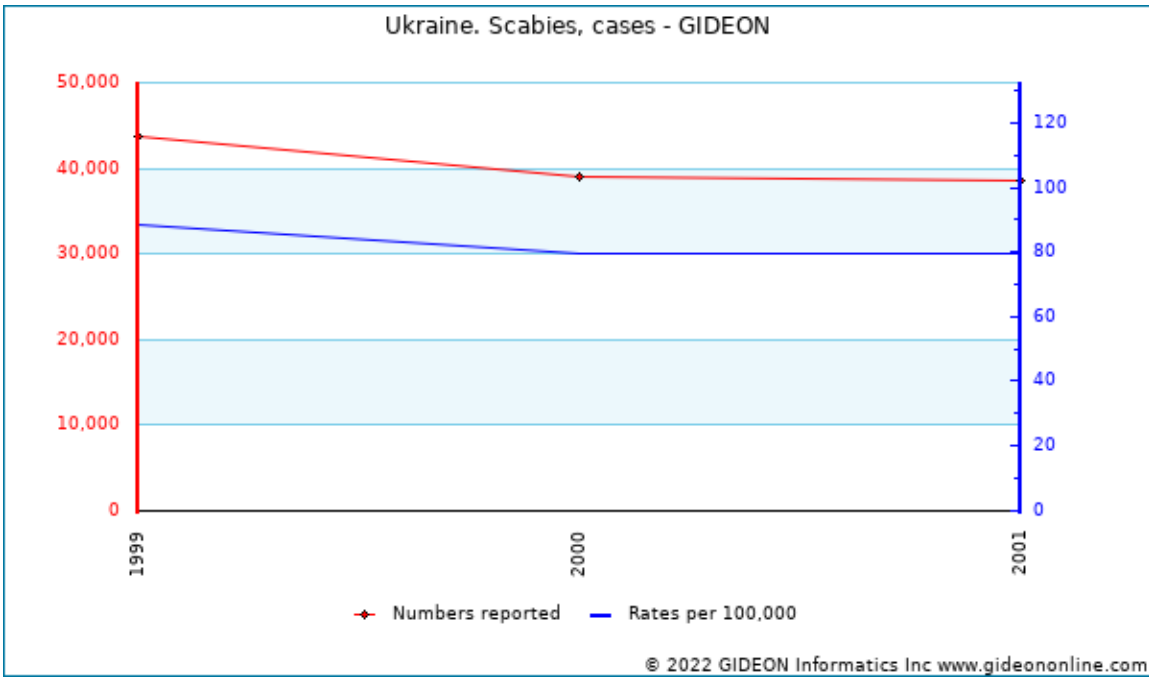
### References

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1. Clin Microbiol Rev 2015 Apr ;28(2):295-311.

Scabies	
Agent	PARASITE - Arthropod. Arachnid, Acari (Mite), Sarcoptidae: <i>Sarcoptes scabiei</i>
Reservoir	Human
Vector	None
Vehicle	Contact, Sexual contact
Incubation Period	1d - 42d
Diagnostic Tests	Identification of mites in skin scrapings. Dermoscopy PCR of skin flakes
Typical Adult Therapy	Isolation until treated. Towel, bedding precautions  Permethrin 5% as single application OR Ivermectin 150 to 200 mcg/kg PO as single dose OR Ivermectin 1% as single application  Second treatment course may be necessary <sup>1 2</sup>
Typical Pediatric Therapy	Permethrin 5% as single application OR Ivermectin 200 mcg/kg PO (> 15 kg body weight) OR Ivermectin 1% as single application
Clinical Hints	- Intensely pruritic papules, vesicles and burrows - Nodular and bullous lesions are also encountered - Lesions prominent at interdigital webs, wrists, elbows, axillae, perineal region, buttocks and penis - Pruritus is most intense at night - Severe psoriaform infestation (Norwegian scabies) may affect debilitated and immunosuppressed individuals
Synonyms	Anthrenus dermatitis, Carpet beetle, Cheyletiella, Cheyletiella infestation, Escabiose, Escabiosis, Histiostomatid mites, Itch mite, Kraetze, Kratze, Mange, Ornithonyssus, Pyemotes, Sarcoptes scabiei, Sarna, Scabbia, Skabies, Tropical rat mite. ICD9: 133 ICD10: B86

**Scabies in Ukraine**



Graph: Ukraine. Scabies, cases

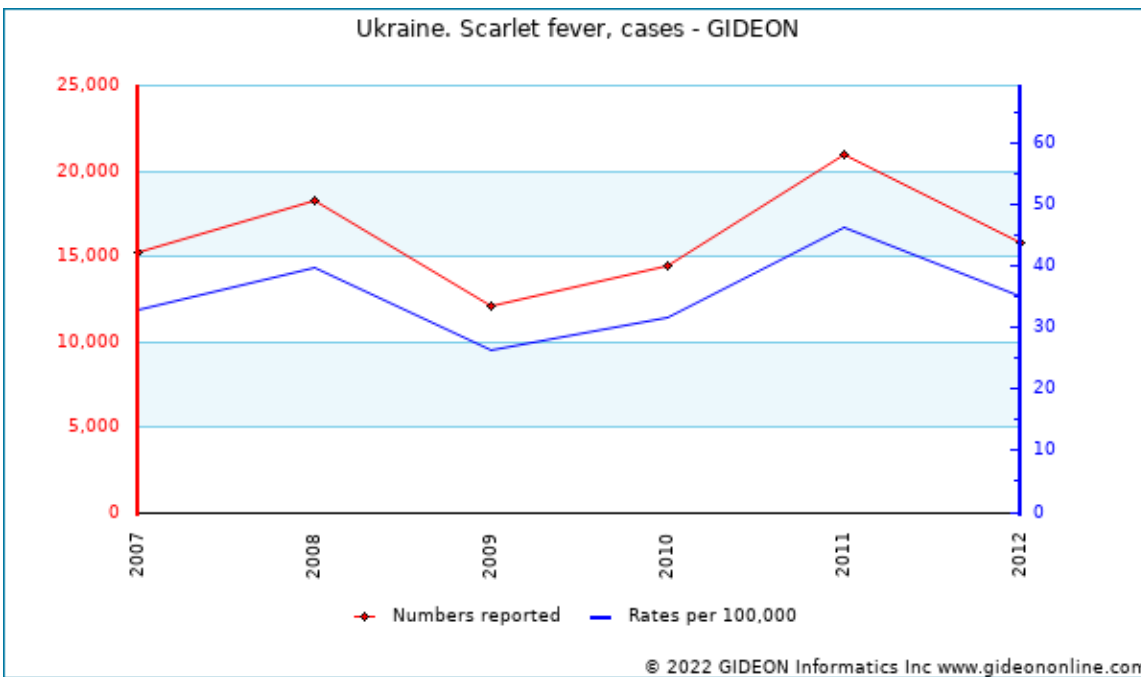
**References**

1. Indian J Dermatol Venereol Leprol 2012 Sep-Oct;78(5):605-10.
2. PLoS Med 2021 11 ;18(11):e1003849.

## Scarlet fever

Agent	BACTERIUM. <i>Streptococcus pyogenes</i> A facultative gram-positive coccus
Reservoir	Human
Vector	None
Vehicle	Secretions, Food, Respiratory or pharyngeal acquisition
Incubation Period	1d - 4d
Diagnostic Tests	Typical clinical features associated with group A streptococcal pharyngitis.
Typical Adult Therapy	Benzathine <b>Penicillin G</b> 1.2 million units IM as single dose <sup>1</sup>
Typical Pediatric Therapy	Benzathine <b>Penicillin G</b> : Weight <14kg: 300,000 units IM Weight 14 to 28kg: 600,000 units IM Weight >28kg: 1.2 million units IM
Clinical Hints	<ul style="list-style-type: none"> <li>- Overt exudative pharyngitis</li> <li>- Appearance of a florid desquamative erythematous rash within 24 to 48 hours</li> <li>- Facial flushing and circum-oral pallor</li> <li>- Lingual desquamation ("strawberry tongue")</li> </ul>
Synonyms	Escarlatina, Lanhousha, Scarlattina, Scharlach. ICD9: 034.1 ICD10: A38

### Scarlet fever in Ukraine



Graph: Ukraine. Scarlet fever, cases

**References**

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1. [Drug Ther Bull 2017 Sep ;55\(9\):102.](#)

**Septic arthritis**

<b>Agent</b>	BACTERIUM or FUNGUS. Gram positive cocci most common; gram negative bacilli, gonococci, <a href="#">mycobacteria</a> , fungi, et al
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Endogenous
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Smear and culture of joint fluid. Cytological and chemical analysis of joint fluid also useful.
<b>Typical Adult Therapy</b>	Antimicrobial agent(s) directed at known or likely pathogen <sup>1</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Fever (60% to 80%) associated with swelling, erythema and tenderness</li><li>- Usually involves a single joint, most commonly knee (elbow or ankle in children)</li><li>- Mean fluid leukocyte count in acute bacterial forms is 50,000 per cu mm</li></ul>
<b>Synonyms</b>	ICD9: 015 ICD10: M00

**References**

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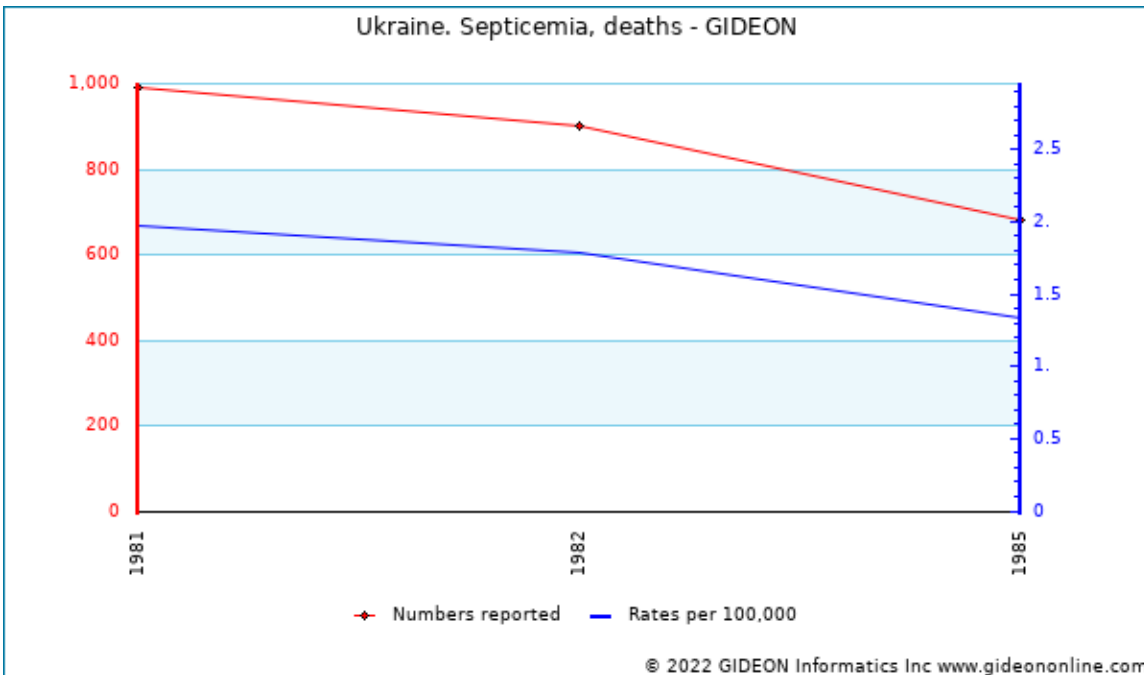
1. [Pediatric Health Med Ther 2017 ;8:65-68.](#)



## Septicemia - bacterial

<b>Agent</b>	BACTERIUM. <i>Escherichia coli</i> , <i>Staphylococcus aureus</i> , facultative gram negative bacilli, et al
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Endogenous
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Culture of blood and sepsis source.
<b>Typical Adult Therapy</b>	Antimicrobial agent(s) directed at known or likely pathogen
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Fever, rigors, leukocytosis, tachypnea, mental changes</li> <li>- Hypotension, acidosis and bleeding diathesis herald septic shock</li> <li>- Additional signs (eg, urinary infection, phlebitis, etc) may point to the source of infection</li> </ul>
<b>Synonyms</b>	Sepsis, Septicaemia, Septicemia, Septicemie, Septikemie, Setticia.
	ICD9: 036.2,036.3,038
	ICD10: A40,A41

### Septicemia - bacterial in Ukraine

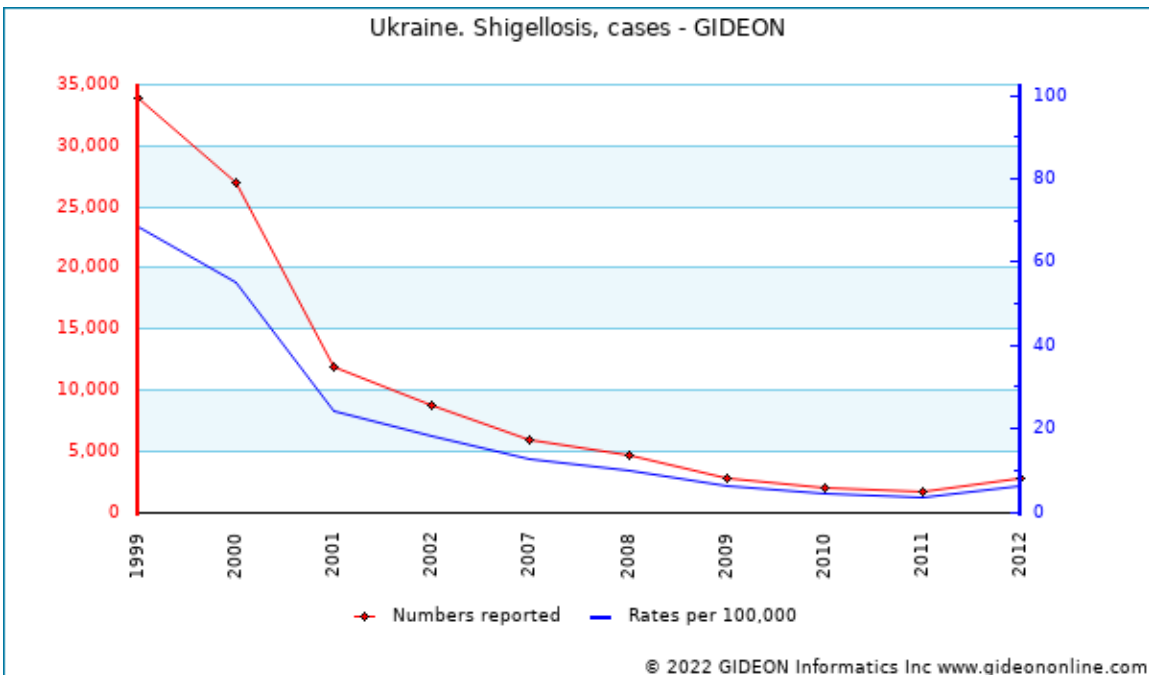


Graph: Ukraine. Septicemia, deaths

## Shigellosis

<b>Agent</b>	BACTERIUM. <i>Shigella sonnei</i> , <i>Shigella flexneri</i> , <i>Shigella boydii</i> or <i>Shigella dysenteriae</i> A facultative gram-negative bacillus
<b>Reservoir</b>	Human, Non-human primate
<b>Vector</b>	None
<b>Vehicle</b>	Fecal-oral, Water, Dairy products, Fomite, Fly, Vegetables
<b>Incubation Period</b>	48h - 72h (range 7h - 1w)
<b>Diagnostic Tests</b>	Stool culture.
<b>Typical Adult Therapy</b>	Stool precautions. Choice of antimicrobial agent based on regional susceptibility patterns. Continue treatment for five days <sup>1 2 3 4</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Watery or bloody diarrhea, tenesmus, abdominal pain and headache</li> <li>- Colonic hyperemia and abundant fecal leucocytes are present</li> <li>- Usually resolves in 3 days, but may persist for up to 14</li> <li>- Reported case fatality rate is 1% - severity and mortality highest with <i>Shigella dysenteriae</i> infection</li> </ul>
<b>Synonyms</b>	Bacillaire dysenterie, Bacillary dysentery, Dissenteria batterica, Dysenteria bacillaris, Leptospiroenerkrankung, Ruhr, Shigella, Shigellose, Shigelose, Übertragbare Ruhr. ICD9: 004 ICD10: A03

### Shigellosis in Ukraine



Graph: Ukraine. Shigellosis, cases

#### Notable outbreaks

Years	Region	Setting	Cases	Source	Population	Notes
2000	Pavlohrad			water		5
2009	Crimea		195			6
2013	Odessa	kindergarten	20		children	

### References

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1. Paediatr Int Child Health 2018 Nov ;38(sup1):S50-S65.
2. Lancet 2018 02 24;391(10122):801-812.
3. Lancet Glob Health 2017 12 ;5(12):e1235-e1248.
4. Expert Rev Anti Infect Ther 2016 ;14(2):193-206.
5. ProMED <promedmail.org> archive: 20000309.0322
6. ProMED <promedmail.org> archive: 20090921.3319

**Sindbis**

<b>Agent</b>	VIRUS - RNA. Togaviridae, Alphavirus: Sindbis virus
<b>Reservoir</b>	Wild bird, Zoonotic
<b>Vector</b>	Mosquito ( <i>Culex univittatus</i> and <i>Cx. tritaeniorhyncus</i> )
<b>Vehicle</b>	None
<b>Incubation Period</b>	3d - 6d
<b>Diagnostic Tests</b>	Biosafety level 2. Viral culture (blood, vesicle fluid). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Fever, myalgia and arthritis</li><li>- Papular-to-vesicular rash</li><li>- Arthralgias may persist for more than three years</li><li>- Fatality not reported</li></ul>
<b>Synonyms</b>	Babanki, Whataroa. ICD9: 078.89 ICD10: A92.8

## Sinusitis

<b>Agent</b>	BACTERIUM. Various ( <i>Haemophilus influenzae</i> & <i>Streptococcus pneumoniae</i> in most acute cases)
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	None
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Imaging techniques. Culture of sinus drainage.
<b>Typical Adult Therapy</b>	<a href="#">Amoxicillin / Clavulanate</a> 2000 / 125 mg BID X 7 days Drainage as indicated Alternatives: <a href="#">Levofloxacin</a> , <a href="#">Clindamycin</a> , <a href="#">Cefuroxime</a> , <a href="#">Cefdinir</a> <sup>1</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Amoxicillin / Clavulanate</a> 22.5 to 45 mg/kg (Amoxicillin) BID X 7 days Drainage as indicated Alternatives: <a href="#">Clindamycin</a> , <a href="#">Cefuroxime</a> , <a href="#">Cefdinir</a>
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Sinusitis often follows upper respiratory infections</li><li>- Headache, fever and local tenderness are common</li><li>- The precise presentation varies with patient age and anatomic localization</li></ul>
<b>Synonyms</b>	Acute sinusitis, Mastoidite, Mastoiditis, Rhinosinusitis, Sinusite. ICD9: 473.9,383.0,461 ICD10: H70,J01

### References

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1. [Cochrane Database Syst Rev 2018 09 10;9:CD006089.](#)

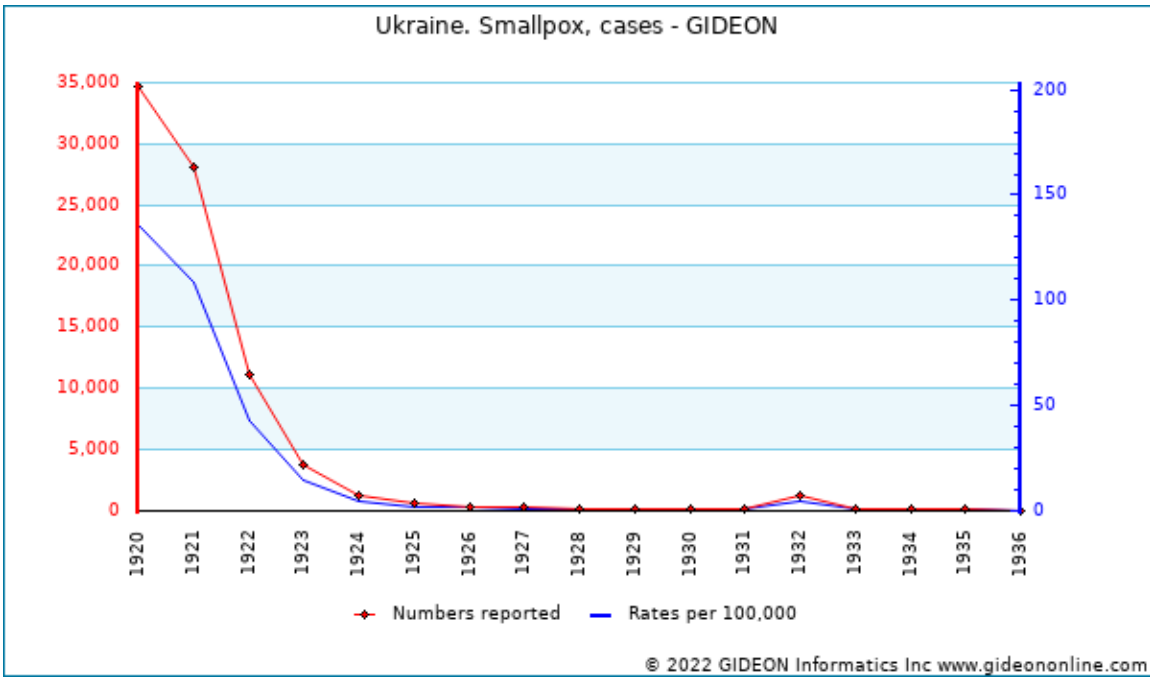
## Smallpox

<b>Agent</b>	VIRUS - DNA. Poxviridae, Orthopoxvirus: Variola virus
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Contact, Secretions, Fomite, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	7d - 17d
<b>Diagnostic Tests</b>	Biosafety level 3. Culture and electron microscopy of skin lesions. Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Strict isolation  Brincidofovir 200 mg PO weekly X 2 doses OR Tecovirimat 400 to 600 mg PO once daily X 14 days Cidofovir is effective in vitro <sup>1</sup>
<b>Typical Pediatric Therapy</b>	Strict isolation  Brincidofovir <48 kg: 4 mg/kg PO weekly X 2 doses OR Tecovirimat 13 to <25 kg: 200 mg BID 25 to <40 kg: 400 mg BID
<b>Vaccine</b>	Smallpox + Monkeypox Smallpox vaccine
<b>Clinical Hints</b>	- Fever, myalgia, headache with pustular or hemorrhagic rash - Disease resolves in 2 to 3 weeks - Reported case-fatality rate is 25% for severe form (variola major) and 1% for minor form; - The last naturally-acquired case was reported in Somalia in 1977
<b>Synonyms</b>	Alastrim, Eczema vaccinatum, Kopfer, Smallpox, Vailo, Variola, Variola minor, Varioloid. ICD9: 050 ICD10: B03

**Not currently endemic to any country.**

Although Smallpox is not endemic to Ukraine, imported, expatriate or other presentations of the disease have been associated with this country.

**Smallpox in Ukraine**



Graph: Ukraine. Smallpox, cases

**References**

1. [N Engl J Med 2018 07 05;379\(1\):44-53.](#)

## Sporotrichosis

<b>Agent</b>	FUNGUS. Ascomycota, Euecomycetes, Ophiostomatales: <i>Sporothrix schenckii</i> , <i>S. brasiliensis</i> and <i>S. globosa</i> A dimorphic dematiaceous fungus
<b>Reservoir</b>	Soil, Vegetation, Wood
<b>Vector</b>	None
<b>Vehicle</b>	Trauma, Contact, Air, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	1w - 3m
<b>Diagnostic Tests</b>	Fungal culture. Serologic tests available in some centers.
<b>Typical Adult Therapy</b>	<a href="#">Itraconazole</a> 100 to 200 mg PO daily X 3 to 6 months. OR <a href="#">Fluconazole</a> 400 mg PO daily X 6 months. OR Potassium iodide 1 to 5 ml PO TID X 3 to 6 months OR Liposomal <a href="#">Amphotericin B</a> (severe disease) 3-5 mg/kg/d IV, then <a href="#">Itraconazole</a> 200 mg PO BID for at least 1 year <sup>1</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Itraconazole</a> 2 mg/kg PO daily X 3 to 6 months. OR <a href="#">Fluconazole</a> 3 mg/kg PO daily X 6 months. OR Potassium iodide 1-2 drops/year age (maximum 30-40 drops) PO TID X 3 to 6 months OR Liposomal <a href="#">Amphotericin B</a> (severe disease) 3-5 mg/kg/d IV, then <a href="#">Itraconazole</a> 3-5 mg/kg PO BID for at least 1 year
<b>Clinical Hints</b>	- Recent contact with flowers, thorns, trees or other plant material (occasionally cats) - Draining nodules which appear along the course of lymphatics - Eye, brain, testis, bone and other tissues may be involved
<b>Synonyms</b>	Rose gardener's disease, Schenck's disease, <i>Sporothrix brasiliensis</i> , <i>Sporothrix chiensis</i> , <i>Sporothrix globosa</i> , <i>Sporothrix mexicana</i> , <i>Sporothrix schenckii</i> , Sporotrichose. ICD9: 117.1 ICD10: B42

## References

1. [Clin Infect Dis 2007 Nov 15;45\(10\):1255-65.](#)



## Spotted fevers - Old World

<b>Agent</b>	BACTERIUM. <i>Rickettsia conorii</i> subsp. <i>conorii</i> , <i>R. aeschlimannii</i> , <i>R. helvetica</i> , <i>R. massiliae</i> , <i>R. monacensis</i> , <i>R. slovakia</i>
<b>Reservoir</b>	Dog, Rodent, Tick, Zoonotic
<b>Vector</b>	Tick ( <i>Rhipicephalus sanguineus</i> , <i>Hyalomma</i> spp, <i>Boophilus</i> spp, <i>Dermacentor</i> spp, et al)
<b>Vehicle</b>	None
<b>Incubation Period</b>	6d - 7d (range 3d - 18d)
<b>Diagnostic Tests</b>	Serology. Demonstration of rickettsiae by immunofluorescence or culture. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Doxycycline 100 mg PO BID X 3 to 5d. OR Chloramphenicol 500 mg PO QID X 3 to 5d <sup>1</sup>
<b>Typical Pediatric Therapy</b>	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
<b>Clinical Hints</b>	- Patient may recall tick bite or dog contact during the preceding 1 to 3 weeks - Headache, myalgia, maculopapular rash - An eschar may be identifiable - Untreated disease resolves within two weeks - Case-fatality rates of 2% to 3% are reported
<b>Synonyms</b>	Boutonneuse fever, Candidatus <i>Rickettsia kellyi</i> , Candidatus <i>Rickettsia tarasevichiae</i> , Candidatus <i>Rickettsia xinyangensis</i> , DEBONEL, Febre escaro-nodular, Febre escaronodular, Indian tick typhus, Kenya tick typhus, Marseilles fever, Mediterranean spotted fever, <i>R. aeschlimannii</i> , <i>Rickettsia aeschlimannii</i> , <i>Rickettsia conorii</i> subsp <i>conorii</i> , <i>Rickettsia conorii</i> subsp <i>indica</i> , <i>Rickettsia gravesii</i> , <i>Rickettsia helvetica</i> , <i>Rickettsia massiliae</i> , <i>Rickettsia monacensis</i> , <i>Rickettsia raoultii</i> , <i>Rickettsia slovakia</i> , <i>Rickettsia</i> sp. XY99, <i>Rickettsia tamurae</i> , Thai spotted fever, TIBOLA, Tick-borne lymphadenopathy. ICD9: 082.1 ICD10: A77.1

### Spotted fevers - Old World in Ukraine

#### Time and Place

Outbreaks were described in the Black Sea area during 1940 to 1950.

- An outbreak occurred in Crimea during 1947 to 1957.
- Only sporadic cases were encountered during 1958 to 1995
- 40 cases were diagnosed in Central Crimea in 1996<sup>2</sup> ; over 70 in 1997.

#### Prevalence surveys

Years	Region	Study Group	%	Notes
1997	Crimea	ticks	8	8% of <i>Rhipicephalus sanguineus</i> from Crimea (1997) <sup>3</sup>
2006	Kharkiv	ticks	6	6.0% of <i>Ix. ricinus</i> (1.2% <i>Rickettsia helvetica</i> and 4.8% <i>R. monacensis</i> ) (Kharkiv region, 2006) <sup>4</sup>
2018	Multiple locations	ticks	25-28	25% / 28% of <i>Ixodes ricinus</i> / <i>Dermacentor reticulatus</i> ticks <sup>5</sup>
2019*	Multiple locations	ticks	35.7-53	53.0% / 35.7% of <i>Dermacentor reticulatus</i> ticks from Chernobyl exclusion zone / Kiev ( <i>Rickettsia raoultii</i> ) <sup>6</sup>

\* indicates publication year (not necessarily year of survey)

#### Pathogens and Vectors

- 2010 to 2011 - *Rickettsia helvetica*, *Ri. monacensis* and *Ri. raoultii* have been identified in ticks infesting dogs in Kiev.<sup>7</sup>
- 2010 - *Rickettsia raoultii* was identified in *Dermacentor reticulatus* ticks in the Chernobyl Exclusion zone<sup>8</sup>

## References

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1. [Expert Rev Anti Infect Ther 2012 Dec ;10\(12\):1425-37.](#)
2. [Lik Sprava 2002 ;\(7\):76-80.](#)
3. [Emerg Infect Dis 1999 Nov-Dec;5\(6\):811-4.](#)
4. [Clin Microbiol Infect 2009 Dec ;15 Suppl 2:32-3.](#)
5. [Ticks Tick Borne Dis 2020 Oct 04;12\(1\):101586.](#)
6. [Vector Borne Zoonotic Dis 2019 May 21;](#)
7. [Ticks Tick Borne Dis 2013 Feb ;4\(1-2\):152-5.](#)
8. [Emerg Infect Dis 2016 12 ;22\(12\):2214-2215.](#)

## Staphylococcal food poisoning

<b>Agent</b>	BACTERIUM. <i>Staphylococcus aureus</i> exotoxins
<b>Reservoir</b>	Human (nares, hands), Cattle (udder), Dog/Cat (nasopharyngeal)
<b>Vector</b>	None
<b>Vehicle</b>	Food (creams, gravies, sauces)
<b>Incubation Period</b>	2h - 4h (range 30 min - 9h)
<b>Diagnostic Tests</b>	Identification of bacterium in food.
<b>Typical Adult Therapy</b>	Supportive <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Onset 1 to 6 hours after food ingestion</li><li>- "Explosive" diarrhea and vomiting</li><li>- Usually no fever</li><li>- No fecal leucocytes</li><li>- Resolves within 1 to 2 days</li><li>- Fatality is rarely reported</li></ul>
<b>Synonyms</b>	Staphylococcus aureus food poisoning. ICD9: 005.0 ICD10: A05.0

### References

1. [World J Pediatr 2018 04 ;14\(2\):116-120.](#)
2. [J Infect 2015 Jun ;71 Suppl 1:S76-9.](#)

## Staphylococcal scalded skin syndrome

Agent	BACTERIUM. <i>Staphylococcus aureus</i> phage group 2 A facultative gram-positive coccus
Reservoir	Human
Vector	None
Vehicle	Contact, Secretions
Incubation Period	1d - 4d
Diagnostic Tests	Typical clinical features; Recovery of <i>S. aureus</i> from localized wound or blood ; skin biopsy may be helpful
Typical Adult Therapy	Fluid replacement (as for burn) ; Intravenous <b>Nafcillin</b> or <b>Oxacillin</b> , in addition to application of anti-staphylococcal drug to local source infection; <b>Vancomycin</b> if MRSA <b>Clindamycin</b> used to interfere with toxin production.
Typical Pediatric Therapy	Fluid replacement (as for thermal burn) ; Intravenous <b>Nafcillin</b> , <b>Oxacillin</b> or <b>Cefazolin</b> - in addition to application of anti-staphylococcal drug to local source infection. <b>Vancomycin</b> if MRSA
Clinical Hints	- Acute, generalized exfoliative dermatitis which occurs primarily in infants and young children - A pre-existing localized skin infection is present in most cases
Synonyms	Lyell disease, Ritter disease, Ritter von Ritterschein disease, Scalded skin syndrome, SSSS. ICD9: 695.81 ICD10: L00

## Streptococcus suis infection

<b>Agent</b>	BACTERIUM. <i>Streptococcus suis</i> I and <i>Streptococcus suis</i> II A facultative gram-positive coccus
<b>Reservoir</b>	Pig, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Air, Secretions, Meat, Wound, Contact
<b>Incubation Period</b>	Unknown. Probably hours to few days
<b>Diagnostic Tests</b>	Culture of blood, tissue, body fluids
<b>Typical Adult Therapy</b>	Systemic antibiotic. Usually susceptible in vitro to Penicillin, <a href="#">Amoxicillin</a> , <a href="#">Chloramphenicol</a> and <a href="#">Gentamicin</a> <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	Systemic antibiotic
<b>Clinical Hints</b>	- Disease appears hours to a few days after contact with pigs or pig products - Severe multisystem illness, hemorrhagic diatheses, deafness or meningitis
<b>Synonyms</b>	<i>Streptococcus suis</i> . ICD9: 027.8 ICD10: A48.8

### References

1. [Vet Microbiol 2018 Aug ;222:109-113.](#)

2. [Vet Microbiol 2016 Oct 15;194:5-10.](#)

## Strongyloidiasis

<b>Agent</b>	PARASITE - Nematoda. Secernentea: <i>Strongyloides stercoralis</i> ( <i>Strongyloides fulleborni</i> is occasionally implicated in systemic disease)
<b>Reservoir</b>	Human, Dog, Monkey (for <i>Strongyloides fulleborni</i> ), Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Skin contact, Soil, Feces, Autoinfection, Sexual contact
<b>Incubation Period</b>	14d - 30d
<b>Diagnostic Tests</b>	Identification of larvae (or ova, for <i>Strongyloides fulleborni</i> ) in stool or duodenal aspirate. Serology.
<b>Typical Adult Therapy</b>	<b>Ivermectin</b> 200 micrograms/kg/d PO daily X 2d OR <b>Albendazole</b> 400 mg/d X 3d (7 days for hyperinfection syndrome) OR <b>Moxidectin</b> 8 mg PO once <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	<b>Ivermectin</b> 200 micrograms/kg/d PO daily X 2d OR <b>Albendazole</b> 200 mg/d X 3d (7 days for hyperinfection syndrome) OR <b>Moxidectin</b> (age >12 years) 8 mg PO once
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Diarrhea</li> <li>- Gluteal or perineal pruritus and rash</li> <li>- Eosinophilia often present</li> <li>- Widespread dissemination encountered among immune-suppressed patients (case-fatality rate for this complication = 80%)</li> </ul>
<b>Synonyms</b>	Anguilluliasis, Anguillulosis, Cochin China gastroenteritis, Diploscapter, Halicephalobus, Larva currens, Leptodera intestinals, Leptodera stercoralis, Lungworm, Metastrongylus, Micronema, Pseudo-rhabdis stercoralis, Rhabditis stercoralis, Rhabdonema intestinale, Rhabdonema stercoralis, Strongyloides fulleborni, Strongyloides stercoralis, Strongyloidose, Threadworm, Turbatrix. ICD9: 127.2 ICD10: B78

### References

1. Clin Infect Dis 2017 Jul 15;65(2):276-281.
2. Int J Antimicrob Agents 2008 Jan ;31(1):46-9.

## Subdural empyema

Agent	BACTERIUM. <i>Haemophilus influenzae</i> , 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 <sup>1 2</sup>
Typical Pediatric Therapy	As for adult
Clinical Hints	<ul style="list-style-type: none"><li>- Fever, severe headache, vomiting</li><li>- Signs of meningeal irritation and increased cerebrospinal fluid pressure</li><li>- May follow head trauma, meningitis, otitis or sinusitis</li><li>- Case-fatality rates vary from 15% (patient alert) to 60% (comatose)</li></ul>
Synonyms	ICD9: 324.9 ICD10: G06.1,G06.2

### References

1. [Infection 2018 Dec ;46\(6\):785-792.](#)

2. [World Neurosurg 2016 Mar ;87:663.e1-8.](#)

## Suppurative parotitis

Agent	BACTERIUM. Most commonly <i>Staphylococcus aureus</i>
Reservoir	Human
Vector	None
Vehicle	Endogenous
Incubation Period	Unknown
Diagnostic Tests	Clinical features (local swelling and purulent discharge from salivary ducts). Stain and culture of discharge.
Typical Adult Therapy	Surgical drainage and aggressive parenteral antistaphylococcal therapy <sup>1 2 3</sup>
Typical Pediatric Therapy	As for adult
Clinical Hints	- Consider in patient with unexplained fever in the setting of malnutrition, dehydration and obtundation - Local swelling and discharge of pus from salivary duct
Synonyms	Parotitis, bacterial. ICD9: 527.2 ICD10: K11.3

### References

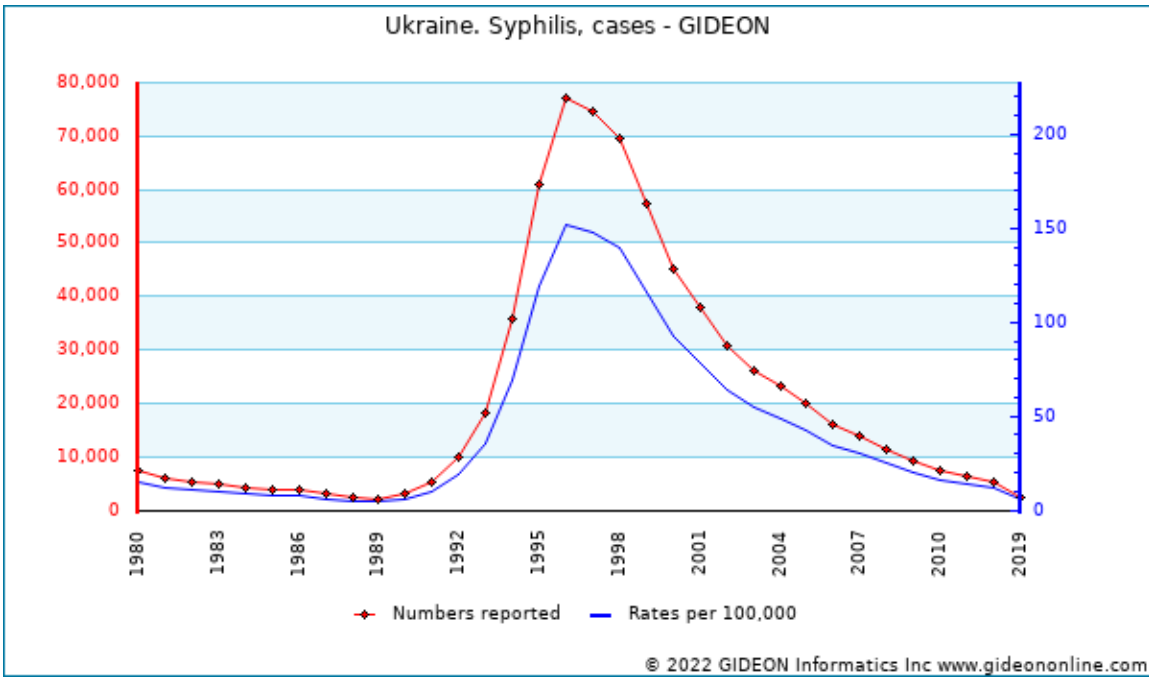
1. Eur Arch Otorhinolaryngol 2009 Mar ;266(3):315-23.
2. Infect Dis Clin North Am 2007 Jun ;21(2):523-41, viii.
3. J Craniofac Surg 2003 Jan ;14(1):37-40.



## Syphilis

<b>Agent</b>	BACTERIUM. <i>Treponema pallidum</i> subsp. <i>pallidum</i> A microaerophilic gram-negative spirochete
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Sexual contact, Secretions, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	2w - 4w (range 10d - >8w)
<b>Diagnostic Tests</b>	Dark field microscopy (chancre). VDRL confirmed by antitreponemal test (FTA, MHTP). Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Primary, secondary or early (< 1 year) latent: Benzathine <b>Penicillin G</b> 2.4 million units IM  Other stages: Repeat dosage at one and two weeks  Alternatives: <b>Tetracycline</b> , <b>Ceftriaxone</b> <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	Primary, secondary or early (< 1 year) latent: Benzathine <b>Penicillin G</b> : Weight <14 kg: 600,000u IM Weight 14 to 28 kg: 1,200,000u IM  Other stages: Repeat dosage at one and two weeks
<b>Clinical Hints</b>	- Firm, painless chancre (primary syphilis) - Fever, papulosquamous rash and multisystem infection (secondary syphilis) - Late necrotic lesions of brain, aorta, bone or other organs (tertiary syphilis)
<b>Synonyms</b>	Canton rash, Chinese ulcer, Christian disease, French disease, German sickness, Harde sjanker, Lues, Neopolitan itch, Polish sickness, Sifilide, Sifilis, Spanish pockes, Syphilis, Treponema pallidum. ICD9: 090,091,092,093,094,095,096,097 ICD10: A50,A51,A52,A53

## Syphilis in Ukraine

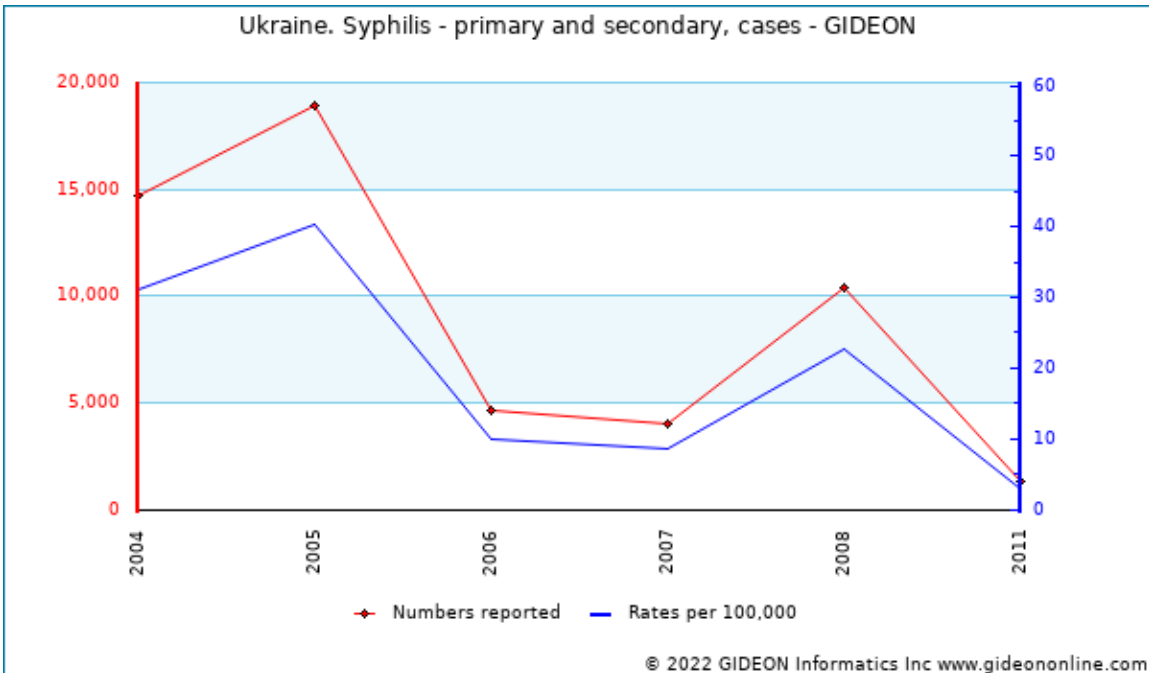


Graph: Ukraine. Syphilis, cases

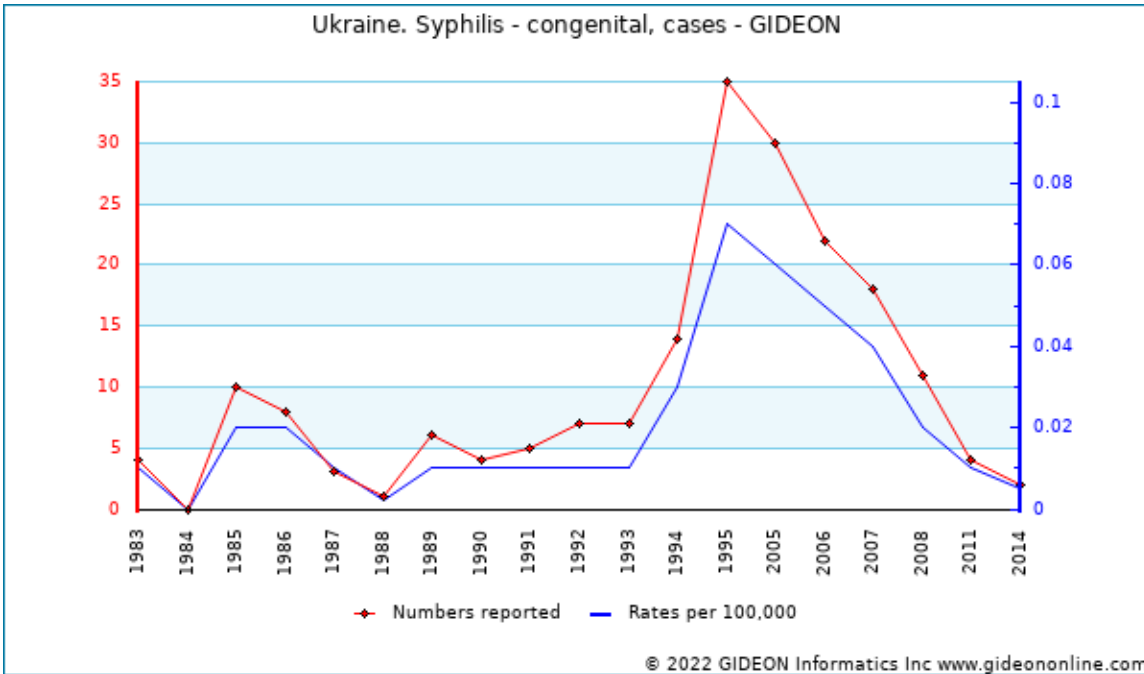
Notes:

Individual years:

1996 - 63.3 per 100,000 among girls ages 16 to 18 <sup>4</sup>



Graph: Ukraine. Syphilis - primary and secondary, cases



Graph: Ukraine. Syphilis - congenital, cases

**Seroprevalence surveys**

Years	Region	Study Group	%	Notes
2013*	Nationwide	prisoners	10	10% of prisoners at the time of release (2013 publication) <sup>5</sup>
1999 - 2005		pregnant women	1.5	1.5% of pregnant HIV-infected women (1999 to 2005) <sup>6</sup>
2010	Nationwide	blood donors	0.747	0.747% of blood donors in 2010 <sup>7</sup>
2012	Nationwide	blood donors	0.546	0.546% in 2012 <sup>8</sup>
2013 - 2018	Ternopil	patients - STD	0.7	Survey of adults with gonorrhoea <sup>9</sup>

\* indicates publication year (not necessarily year of survey)

**Notable outbreaks**

Years	Cases	Notes
1996	77,098	<sup>10</sup>

**References**

- Emerg Med Clin North Am 2018 Nov ;36(4):767-776.
- 2016 ;
- Clin Infect Dis 2015 Dec 15;61 Suppl 8:S818-36.
- Entre Nous Cph Den 1999 ;(45):13-4.
- PLoS One 2013 ;8(3):e59643.
- Eur J Epidemiol 2007 ;22(12):925-36.
- Lik Sprava 2014 Sep-Oct;(9-10):152-8.
- Lik Sprava 2014 Sep-Oct;(9-10):152-8.
- J Med Life 2020 Jan-Mar;13(1):75-81.
- Sex Transm Infect 1998 Jun ;74(3):165-6.

Taeniasis	
Agent	PARASITE - Platyhelminthes, Cestoda. Cyclophyllidea, Taeniidae: <i>Taenia solium</i> & <i>T. saginata</i> (other species occasionally encountered)
Reservoir	Cattle, Pig, Zoonotic
Vector	None
Vehicle	Meat
Incubation Period	6w - 14w
Diagnostic Tests	Identification of ova or proglottids in feces.
Typical Adult Therapy	<a href="#">Praziquantel</a> 10 mg/kg PO as single dose OR <a href="#">Niclosamide</a> 2 g PO once <sup>1 2 3</sup>
Typical Pediatric Therapy	<a href="#">Praziquantel</a> 10 mg/kg PO as single dose OR <a href="#">Niclosamide</a> : weight 11-34 kg - 1 g PO as single dose weight >34 kg - 1.5 g PO as single dose
Clinical Hints	- Vomiting and weight loss - Often symptomatic or first recognized due to passage of proglottids - Parasite may survive for over 25 years in the human intestine
Synonyms	Bandwurm [Taenia], Drepanidotaenia, Gordiid worm, Hair snake, Hydatigera taeniaeformis, Mesocestoides, Raillietina, Taenia asiatica, Taenia longihamatus, Taenia saginata, Taenia saginata asiatica, Taenia solium, Taenia sui hominis, Taenia taeniaeformis, Taeniarhynchiasis, Tapeworm (pork or beef), Tenia. ICD9: 123.0,123.2 ICD10: B68

### References

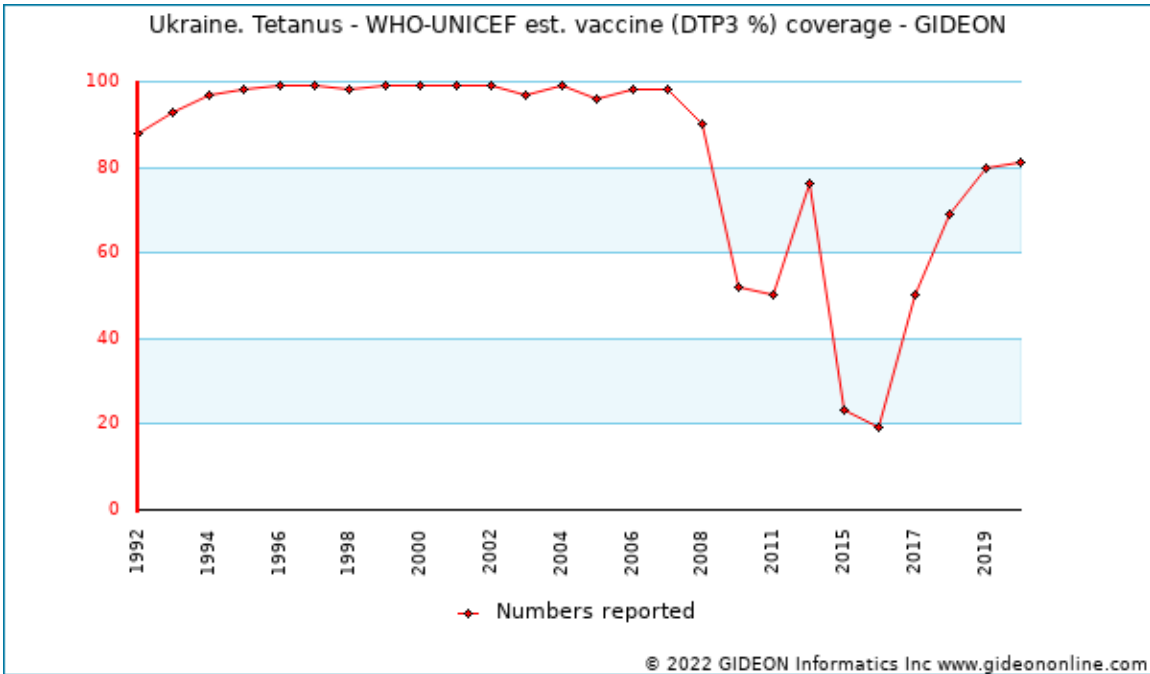
1. [Risk Manag Healthc Policy 2017 ;10:107-116.](#)
2. [Infect Disord Drug Targets 2010 Oct ;10\(5\):313-21.](#)
3. [Curr Opin Infect Dis 2007 Oct ;20\(5\):524-32.](#)

Tetanus	
Agent	BACTERIUM. <i>Clostridium tetani</i> An anaerobic gram-positive bacillus
Reservoir	Animal feces, Soil
Vector	None
Vehicle	Trauma
Incubation Period	6d - 8d (range 1d - 90d)
Diagnostic Tests	Isolation of <i>C. tetani</i> from wound is rarely helpful. Serology (specimen taken before administration of antitoxin).
Typical Adult Therapy	Human antitoxin (see Vaccine module).  Metronidazole 500 mg IV q6h OR Penicillin G (4 million u IV q4h) OR Doxycycline (100 mg IV BID).  Diazepam (30 to 240 mg daily). Tracheostomy, hyperalimentation Active immunization should be started at the time of diagnosis <sup>1</sup>
Typical Pediatric Therapy	Human antitoxin (see Vaccine module).  Metronidazole (30 mg/kg daily); OR Penicillin G (300,000 units/kilo daily).  Diazepam. Tracheostomy, hyperalimentation Active immunization should be started at the time of diagnosis
Vaccines	DT vaccine DTaP vaccine DTP vaccine Td vaccine Tetanus immune globulin Tetanus vaccine
Clinical Hints	- Trismus, facial spasm, opisthotonus and tachycardia - Recurrent tonic spasms of skeletal muscle - Sensorium is clear - Disease may persist for 4 to 6 weeks - Case fatality rates of 10% to 40% are reported
Synonyms	Lockjaw, Starrkrampf, Stelkrampf, Tetano, Tetanos. ICD9: 037,771.3 ICD10: A33,A34,A35

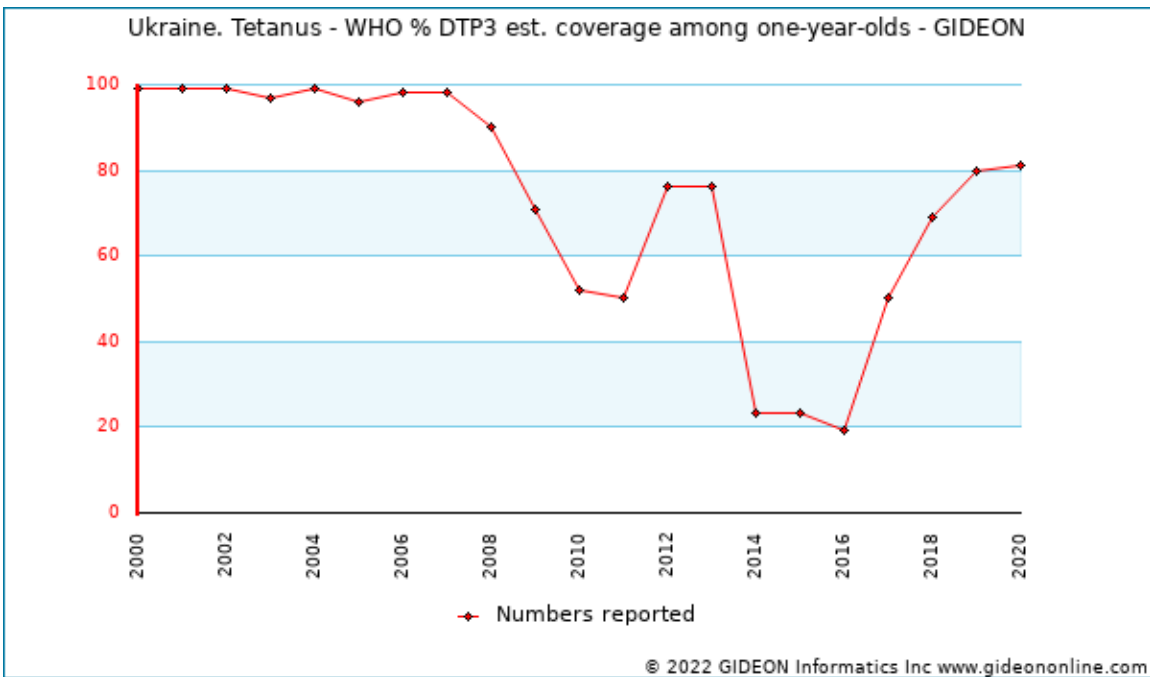
## Tetanus in Ukraine

### Vaccine Schedule:

BCG - 3 days  
 DT - 6 years  
 DTP - 2,4,6,18 months  
 DTPHibHepB - 2 months  
 HepB - birth 1,6 months  
 HIB - 2,4,12 months  
 IPV - 2,4 months  
 MMR - 12 months; 6 years  
 OPV - 6, 18 months; 6, 14 years  
 Td - 16,26,36,46,56 years



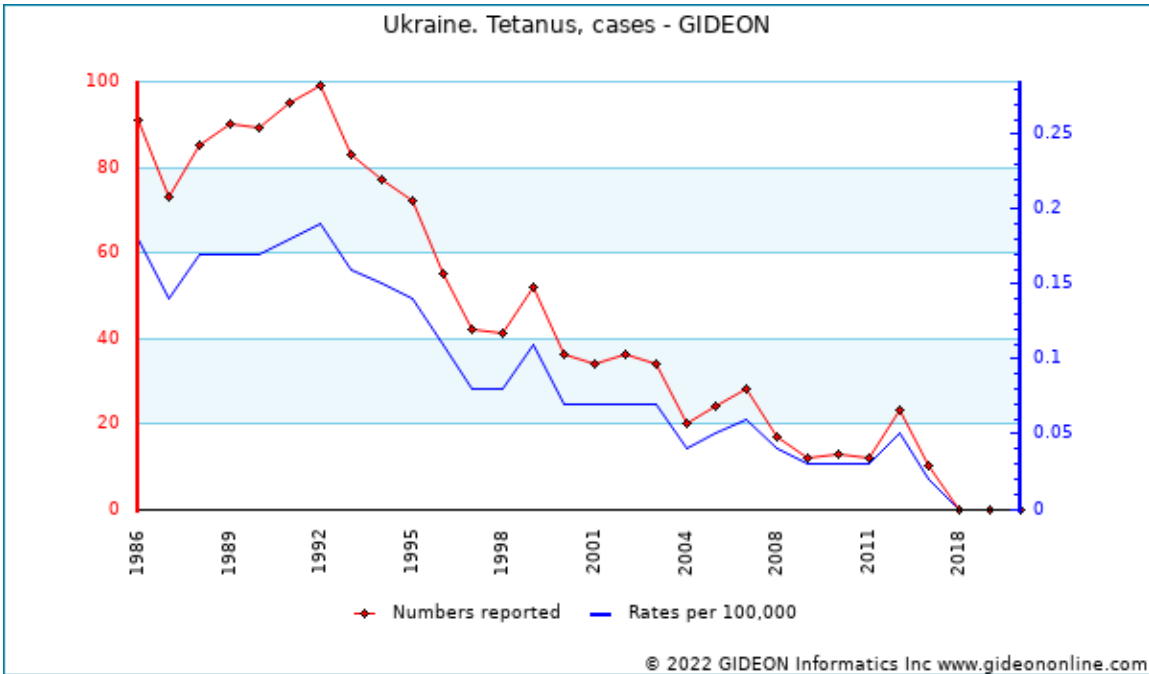
Graph: Ukraine. Tetanus - WHO-UNICEF est. vaccine (DTP3 %) coverage



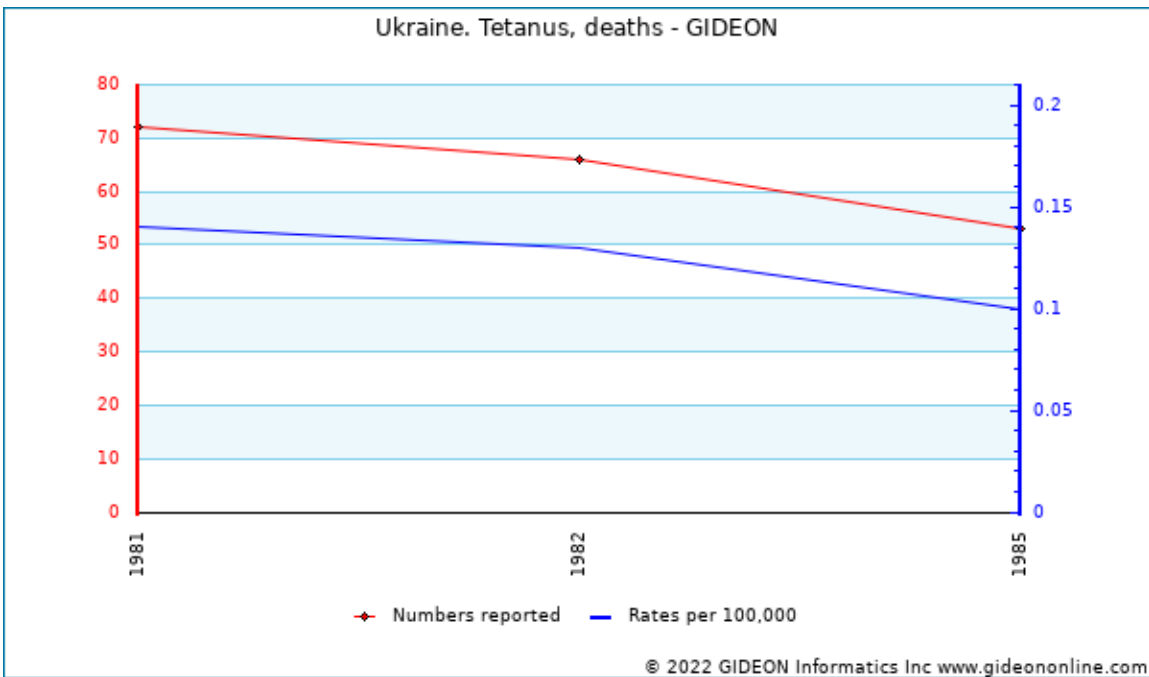
Graph: Ukraine. Tetanus - WHO % DTP3 est. coverage among one-year-olds

**Seroprevalence surveys**

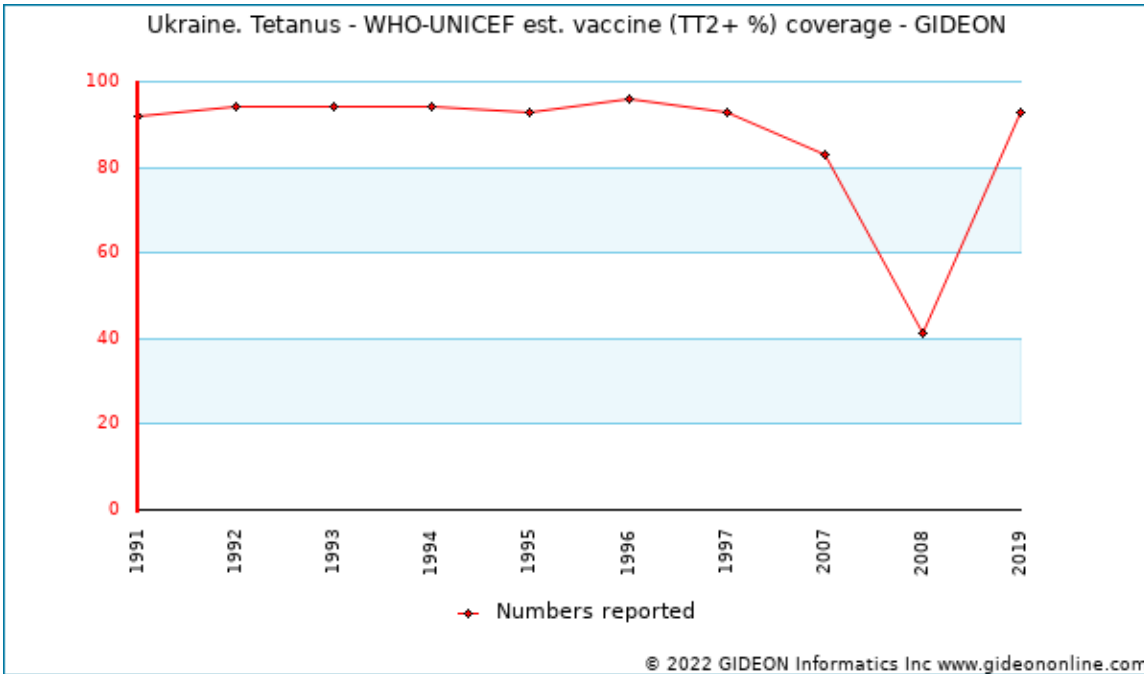
Years	Region	Study Group	%	Notes
2017	Multiple locations	children	61.6-89.1	61.6% to 89.1% of children born during 2006 to 2015 in Zakarpattya, Sumy, and Odessa provinces, and Kyiv City. <sup>2</sup>



Graph: Ukraine. Tetanus, cases



Graph: Ukraine. Tetanus, deaths



Graph: Ukraine. Tetanus - WHO-UNICEF est. vaccine (TT2+ %) coverage

Ukraine. Tetanus - neonatal, cases: None reported between 1990 and 2020

**References**

1. [Crit Care 2014 Mar 26;18\(2\):217.](#)
2. [Vaccine 2022 Feb 10;](#)



**Thelaziasis**

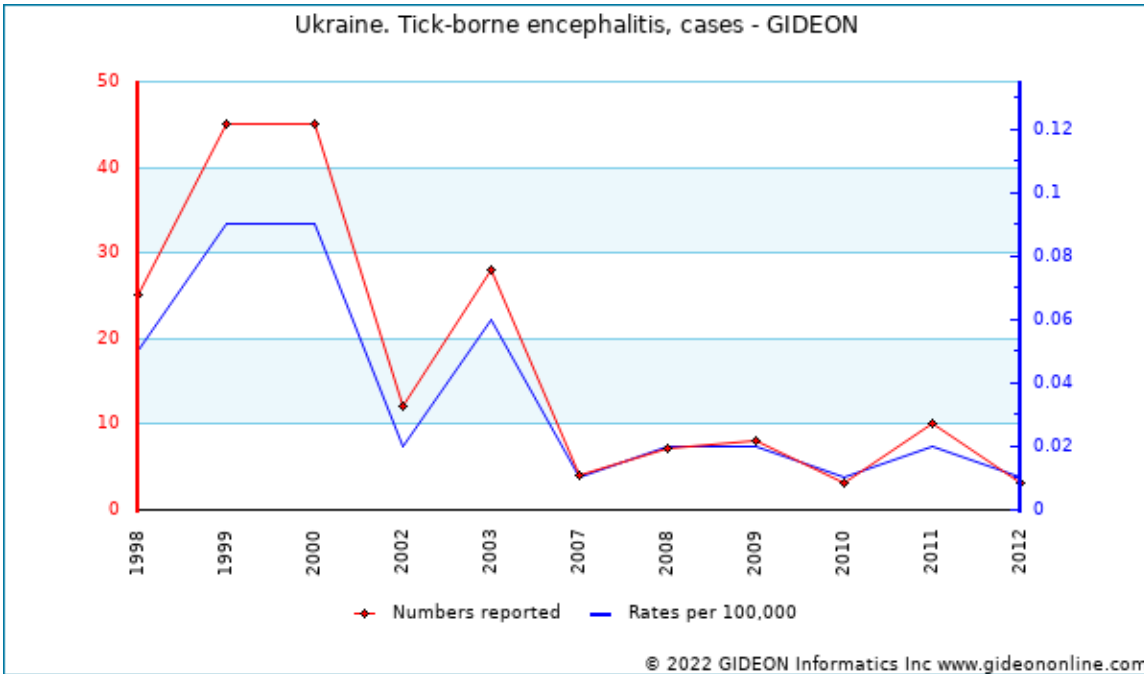
<b>Agent</b>	PARASITE - Nematoda. Secernentea: <i>Thelazia callipaeda</i> (rarely <i>T. californiensis</i> )
<b>Reservoir</b>	Dog, Rabbit, Deer, Cat, Zoonotic
<b>Vector</b>	Fly ( <i>Musca</i> and <i>Fannia species</i> )
<b>Vehicle</b>	None
<b>Incubation Period</b>	not known
<b>Diagnostic Tests</b>	Identification of parasite. <i>Thelazia callipaeda</i> adult female - 17 mm; male - 13 mm
<b>Typical Adult Therapy</b>	Extraction of parasite
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Conjunctivitis and lacrimation</li><li>- Sensation of an ocular foreign body</li><li>- Worm seen in conjunctival sac</li></ul>
<b>Synonyms</b>	Conjunctival spirurosis, Oriental eye worm, Oxyspirura, Rictularia, <i>Thelazia californiensis</i> , <i>Thelazia callipaeda</i> , <i>Thelazia gulosa</i> , Thelaziosis. ICD9: 372.15 ICD10: B83.8

## Tick-borne encephalitis

<b>Agent</b>	VIRUS - RNA. Flaviviridae, Flavivirus: Central European encephalitis virus
<b>Reservoir</b>	Rodent ( <i>Apodemus flavicollis</i> , <i>A. sylvaticus</i> , <i>Microtus arvalis</i> ), Tick, Bird, Cattle, Zoonotic
<b>Vector</b>	Tick ( <i>Ixodes ricinus</i> )
<b>Vehicle</b>	Dairy products
<b>Incubation Period</b>	7d - 14d (range 4d - 20d)
<b>Diagnostic Tests</b>	Biosafety level 4. Viral culture (blood, brain tissue, CSF). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Vaccine</b>	<a href="#">Tick-borne encephalitis globulin</a> <a href="#">Tick-borne encephalitis vaccine</a>
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Biphasic illness</li> <li>- Headache and myalgia followed by encephalitis</li> <li>- Onset 1 to 2 weeks after tick bite</li> <li>- Symptoms may persist for weeks following the acute infection</li> <li>- Case-fatality rate less than 2%</li> </ul>
<b>Synonyms</b>	Central European tick encephalitis, Diphasic meningoencephalitis, Diphasic milk fever, Encephalite a tiques, European tick-borne encephalitis, Forest encephalitis, Fruhsommer-Meningoenzephalitis, FSME, Hanzlova, Hypr, Kumlinge, Langat, Neudorf, Skogflattencefalitt, Tick-borne encephalitis: Central European, Zeckenzephalitis. ICD9: 063.2 ICD10: A84.1

### Tick-borne encephalitis in Ukraine

2001 (publication year) - Most cases occur in the Crimea, in the area of Volinskij Oblast (Wolhynia). <sup>1</sup>



Graph: Ukraine. Tick-borne encephalitis, cases

13.9% of individuals in the mountain forest zone are seropositive.

**Vectors**

- The principal vector is *Ixodes ricinus*.<sup>2</sup>
- *Dermacentor reticulatus*, *D. marginatus* and *Hyalomma marginatum* are also involved in transmission.

**Prevalence surveys**

Years	Region	Study Group	%	Notes
1988 - 1990	Southern Region	ticks	0.11-0.81	<sup>3</sup>
2009 - 2014	Western Region	ticks	6.3-14.5	6.3% / 14.5% ( <i>Ixodes ricinus</i> / <i>Dermacentor reticularis</i> ) <sup>4</sup>

**References**

1. Zh Mikrobiol Epidemiol Immunobiol 2001 Mar-Apr;(2):111-4.
2. Med Parazitol (Mosk) 1992 Jul-Aug;(4):34-7.
3. Vector Borne Zoonotic Dis 2017 08 ;17(8):550-557.
4. Vector Borne Zoonotic Dis 2019 Jun 18;

## Toxic shock syndrome

<b>Agent</b>	BACTERIUM. <i>Staphylococcus aureus</i> , <i>Streptococcus pyogenes</i> , et al - (toxins) Facultative gram-positive cocci
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Tampon (Bandage, etc)
<b>Incubation Period</b>	Unknown
<b>Diagnostic Tests</b>	Isolation of toxigenic <i>Staphylococcus aureus</i> . Toxin assay available in specialized laboratories.
<b>Typical Adult Therapy</b>	<b>Vancomycin</b> 15-20 mg/kg IV BID + <b>Clindamycin</b> 900 mg IV TID  Definitive therapy: Streptococcus - <b>Penicillin G</b> 4 million u IV q4h + <b>Clindamycin</b> 900 mg IV q8h Staphylococcus: MSSA - <b>Nafcillin</b> or <b>Oxacillin</b> 2 g IV q4h + <b>Clindamycin</b> 900 mg IV q8h MRSA as for empirical therapy  The role of IVIG remains uncertain - consider in severe cases <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	<b>Vancomycin</b> 10 mg/kg IV QID + <b>Clindamycin</b> 8-13 mg/kg mg IV TID  Definitive therapy: Streptococcus - <b>Penicillin G</b> 40-50000 units/kg (maximum 4 million) IV q4h + <b>Clindamycin</b> 8-13 mg/kg IV q8h Staphylococcus: MSSA - <b>Nafcillin</b> or <b>Oxacillin</b> 25-37.5 mg/kg IV q6h + <b>Clindamycin</b> 8-13 mg/kg mg IV q8h MRSA as for empirical therapy  The role of IVIG remains uncertain; consider in severe cases
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Most cases associated with "super absorbent" tampon use or staphylococcal wound infection</li> <li>- Fever (&gt;38.9), hypotension (&lt;90 mm Hg) and dermal erythema with desquamation</li> <li>- Respiratory, cardiac or other disease present</li> <li>- Case-fatality rates of 5% to 10% are reported</li> </ul>
<b>Synonyms</b>	Streptococcal toxic shock syndrome, TSS. ICD9: 040.82 ICD10: A48.3

### References

1. [Ann Intensive Care 2018 Sep 17;8\(1\):88.](#)
2. [J Emerg Med 2018 Jan 20;](#)

## Toxocariasis

<b>Agent</b>	PARASITE - Nematoda. Secernentea: <i>Toxocara cati</i> and <i>T. canis</i>
<b>Reservoir</b>	Cat, Dog, Mouse, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Soil ingestion
<b>Incubation Period</b>	1w - 2y
<b>Diagnostic Tests</b>	Identification of larvae in tissue. Serology.
<b>Typical Adult Therapy</b>	<a href="#">Albendazole</a> 400 mg BID X 5d. OR <a href="#">Mebendazole</a> 100 to 200 mg PO bid X 5 days  Add corticosteroids if eye, brain, heart or lung involvement is present. <sup>1 2 3</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Cough, myalgia, seizures and urticaria</li> <li>- Hepatomegaly, pulmonary infiltrates or retrobulbar lesions may be present</li> <li>- Marked eosinophilia is common</li> <li>- Symptoms resolve after several weeks, but eosinophilia may persist for years</li> </ul>
<b>Synonyms</b>	<i>Ascaris suum</i> , <i>Toxocara canis</i> , <i>Toxocara cati</i> , Toxocarose, Toxocarosis, Visceral larva migrans. ICD9: 128.0 ICD10: B83.0

## Toxocariasis in Ukraine

### Seroprevalence surveys

Years	Study Group	%	Notes
2018*	women	3.5	Survey of women with reproductive health disorders <sup>4</sup>

\* indicates publication year (not necessarily year of survey)

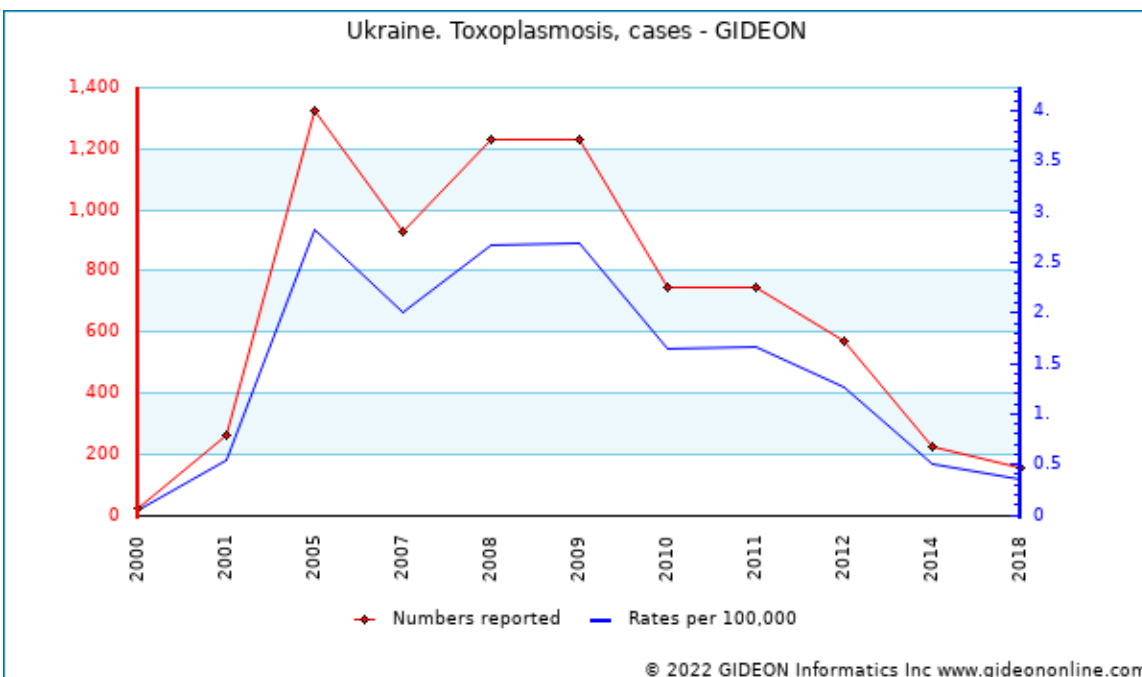
### References

1. [Parasitology](#) 1995 Jun ;110 ( Pt 5):529-33.
2. [J Ocul Pharmacol Ther](#) 2001 Jun ;17(3):287-94.
3. [Microorganisms](#) 2022 Jan 22;10(2)
4. [Wiad Lek](#) 2018 ;71(3 pt 2):674-677.

## Toxoplasmosis

<b>Agent</b>	PARASITE - Protozoa. Apicomplexa, Eimeriida: <i>Toxoplasma gondii</i>
<b>Reservoir</b>	Rodent, Pig, Cattle, Sheep, Chicken, Bird, Cat, Marsupial, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Transplacental, Meat, Soil ingestion, Water , Milk, Filth flies
<b>Incubation Period</b>	1w - 3w (range 5d - 21d)
<b>Diagnostic Tests</b>	Serology. Cultivation or identification of organisms per specialized laboratories. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	60 kg: <a href="#">Pyrimethamine</a> 75 mg/d + Sulfadiazine 1.5 g PO QID X 6w - administer with folic acid Alternatives: <a href="#">Clindamycin</a> , <a href="#">Trimethoprim</a> /Sulfamethoxazole, <a href="#">Atovaquone</a> <a href="#">Spiramycin</a> (in pregnancy) 4g/d X 4w <sup>1 2 3 4</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Pyrimethamine</a> 1 mg/kg/d X 3d, then 0.5 mg/kg/d + Sulfadiazine 100 mg/kg/d X 4w - administer with folic acid. Alternatives: <a href="#">Clindamycin</a> , <a href="#">Trimethoprim</a> /Sulfamethoxazole, <a href="#">Atovaquone</a> .
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Fever, lymphadenopathy, hepatic dysfunction or chorioretinitis</li> <li>- Cerebral cysts often encountered in patients with AIDS</li> <li>- Congenital hydrocephalus associated with mental retardation</li> <li>- Seizures or blindness</li> </ul>
<b>Synonyms</b>	Toxoplasma, Toxoplasmose, Toxoplasmosi. ICD9: 130 ICD10: B58

### Toxoplasmosis in Ukraine



Graph: Ukraine. Toxoplasmosis, cases

**Prevalence surveys**

Years	Study Group	%	Notes
2013 - 2015	patients - HIV / AIDS	0.2	<i>Toxoplasma pneumonia</i> was identified in 0.2% of patients with HIV / AIDS <sup>5</sup>

**Seroprevalence surveys**

Years	Region	Study Group	%	Notes
2019*	Multiple locations	horses	21.1	Serosurvey of horses in Kyiv and Lviv regions. <sup>6</sup>

\* indicates publication year (not necessarily year of survey)

**References**

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1. Clin Microbiol Rev 2018 Oct ;31(4)
2. Parasitol Res 2018 Aug 08;
3. Eur J Med Res 2021 Dec 11;26(1):143.
4. Pediatr Infect Dis J 2022 Feb 14;
5. Folia Parasitol (Praha) 2021 Jul 07;68
6. Acta Parasitol 2019 Mar 18;

**Trachoma**

<b>Agent</b>	BACTERIUM. <i>Chlamydia trachomatis</i> , type A
<b>Reservoir</b>	Human
<b>Vector</b>	Fly
<b>Vehicle</b>	Secretions, Contact, Fly, Fomite
<b>Incubation Period</b>	5d - 12d
<b>Diagnostic Tests</b>	Culture or direct immunofluorescence of secretions. Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	<a href="#">Azithromycin</a> 1 g po as single dose. Also administer topical <a href="#">Tetracycline</a> <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Azithromycin</a> 20 mg/kg as single dose. Also administer topical <a href="#">Tetracycline</a>
<b>Clinical Hints</b>	- Keratoconjunctivitis with follicular hypertrophy, palpebral scarring and pannus formation - In later stages, eyelashes may protrude inward or outward - 0.5% of infections result in blindness
<b>Synonyms</b>	Egyptian ophthalmia, Granular conjunctivitis, Kornerkrankheit, Trachom, Tracoma. ICD9: 076 ICD10: A71

**References**

1. [Lancet 1993 Aug 21;342\(8869\):453-6.](#)

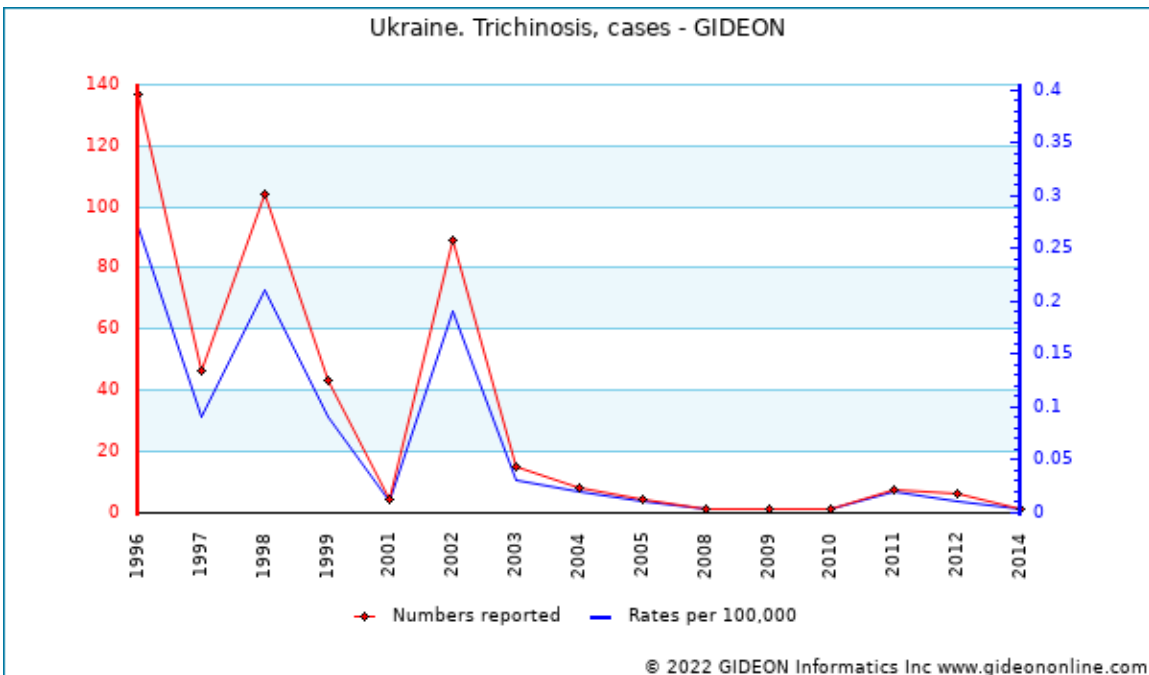
2. [Chin Med J \(Engl\) 2021 Sep 16;](#)



## Trichinosis

<b>Agent</b>	PARASITE - Nematoda. <i>Trichinella spiralis</i> (occasionally <i>T. nativa</i> , <i>T. britovi</i> , <i>T. pseudospiralis</i> , <i>T. nelsoni</i> , et al)
<b>Reservoir</b>	Wild carnivore, Omnivore, Marine mammal, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Meat
<b>Incubation Period</b>	10d - 20d (range 1w - 10w)
<b>Diagnostic Tests</b>	Identification of larvae in tissue. Serology.
<b>Typical Adult Therapy</b>	<b>Albendazole</b> 400 mg PO BID X 14d. OR <b>Mebendazole</b> 200 to 400 mg PO tid X 3 days, then 400 to 500 mg PO. tid X 10 days. Administer with prednisone 50 mg PO daily X 3 to 5 days (then 'taper' dosage) <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	<b>Albendazole</b> 7 mg/kg BID X 14 d. OR <b>Mebendazole</b> 200 to 400 mg PO tid X 3 days, then 400 to 500 mg PO. tid X 10 days. Administer with prednisone 50 mg PO daily X 3 to 5 days (then 'taper' dosage)
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Onset 1 to 4 weeks following ingestion of undercooked meat</li> <li>- Early diarrhea and vomiting</li> <li>- Subsequent myalgia, facial edema and eosinophilia</li> <li>- Symptoms may persist for two months</li> <li>- Reported case-fatality rate for symptomatic infection is 2%</li> </ul>
<b>Synonyms</b>	Trichinellose, Trichinellosis, Trichinose, Trikinose, Triquiniase, Triquonosis. ICD9: 124 ICD10: B75

### Trichinosis in Ukraine



Graph: Ukraine. Trichinosis, cases

Notes:

1. 1,210 cases were reported by WHO during 1986 to 2009. <sup>3</sup>

Individual years:

2005 - None fatal.

#### Geographic notes

- 1984 to 1996 - Nine outbreaks (132 cases) were reported in Transcarpathia. <sup>4</sup>
- 1954 to 1979 - 39 cases (4 fatal) were reported in Ternopol Province (western Podolia)
- 1980 to 1988 - No cases were reported in Ternopol Province (western Podolia). <sup>5</sup>
- The most common vehicle in Ukraine is wild boar meat.
- 33% of cases are associated with lard.

#### Notable outbreaks

Years	Region	Cases	Source	Notes
1966*	Zaporozhye			<sup>6</sup>
1986 - 1988	Kherson		meat - pork	3 outbreaks - related to pork from small private farms and the meat of a wild boar <sup>7</sup>
2003 - 2004	Kherson		meat	Outbreak related to consumption of shashlik, raw meat, lard, or minced meat. <sup>8</sup>
2004	Zhitomirskaya	4	meat - pork	<sup>9</sup>
2011	Chernovitskaya			<sup>10</sup>

\* indicates publication year (not necessarily year of outbreak)

#### References

1. Clin Infect Dis 2017 Nov 29;65(12):e45-e80.
2. J Infect Dis 2000 Jul ;182(1):371-4.
3. Emerg Infect Dis 2011 Dec ;17(12):2194-202.
4. Med Parazitol (Mosk) 1997 Jul-Sep;(3):46-8.
5. Med Parazitol (Mosk) 1989 Nov-Dec;(6):51-4.
6. Sov Med 1966 Sep ;29(9):111-4.
7. Med Parazitol (Mosk) 1991 Jul-Aug;(4):23-4.
8. Med Parazitol (Mosk) 2008 Apr-Jun;(2):15-7.
9. ProMED <promedmail.org> archive: 20041228.3426
10. ProMED <promedmail.org> archive: 20110109.0102

## Trichomoniasis

<b>Agent</b>	PARASITE - Protozoa. Metamonada, Parabasala, Trichomonadea. Flagellate: <i>Trichomonas vaginalis</i>
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Sexual contact
<b>Incubation Period</b>	4d - 28d
<b>Diagnostic Tests</b>	Microscopy of vaginal discharge. ELISA, culture, antigen detection tests available. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	<a href="#">Metronidazole</a> or <a href="#">Tinidazole</a> 2g PO as single dose to both sexual partners <sup>1</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Metronidazole</a> 5 mg/kg PO TID X 7d. OR <a href="#">Tinidazole</a> 50 mg/kg PO X 1 (maximum 2 grams)
<b>Clinical Hints</b>	- Vaginal pruritus, erythema and thin or frothy discharge - Mild urethritis may be present in male or female
<b>Synonyms</b>	Pentatrichomonas, Tetratrichomonas, Trichomonaden, Trichomonas, Trichomonas vaginalis, Tricomoniasis, Tritrichomonas. ICD9: 131 ICD10: A59

## Trichomoniasis in Ukraine

Rates per 100,000: 284.3 in 1997; 330.8 in 2000. <sup>2</sup>

### Prevalence surveys

Years	Region	Study Group	%	Notes
2019*	Ternopil	various	10	Survey of "consecutive mostly symptomatic females and males" <sup>3</sup>
1999 - 2005		pregnant women	22.7	22.7% of pregnant HIV-infected women (1999 to 2005) <sup>4</sup>
2013 - 2018	Ternopil	patients - STD	39.7	Survey of adults with gonorrhea <sup>5</sup>

\* indicates publication year (not necessarily year of survey)

### References

1. MMWR Recomm Rep 2015 Jun 05;64(RR-03):1-137.
2. Sex Transm Infect 2002 Jun ;78(3):219-21.
3. APMIS 2019 Jun 21;
4. Eur J Epidemiol 2007 ;22(12):925-36.
5. J Med Life 2020 Jan-Mar;13(1):75-81.

## Trichuriasis

<b>Agent</b>	PARASITE - Nematoda. <i>Trichuris trichiura</i>
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Soil ingestion, Sexual contact, Flies
<b>Incubation Period</b>	2m - 2y
<b>Diagnostic Tests</b>	Stool microscopy or visualization of adult worms  Trichuris trichiura adult: female - 35 to 50 mm; male - 30 to 45 mm
<b>Typical Adult Therapy</b>	<a href="#">Mebendazole</a> 100 mg PO BID X 3d. OR <a href="#">Albendazole</a> 400 mg PO daily X 3 to 7 days OR <a href="#">Ivermectin</a> 200 mg/kg PO daily X 3 days <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Albendazole</a> 200 mg PO single dose OR <a href="#">Mebendazole</a> 100 mg BID X 3 d (> age 2). OR <a href="#">Ivermectin</a> 200 mg/kg PO daily X 3 days
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Abdominal pain, bloody diarrhea</li> <li>- Rectal prolapse or intestinal obstruction are occasionally encountered</li> <li>- The parasite may survive for as long as five years in the human host</li> </ul>
<b>Synonyms</b>	Trichocephaliasis, Trichuris trichiura, Tricuriasis, Whipworm. ICD9: 127.3 ICD10: B79

### References

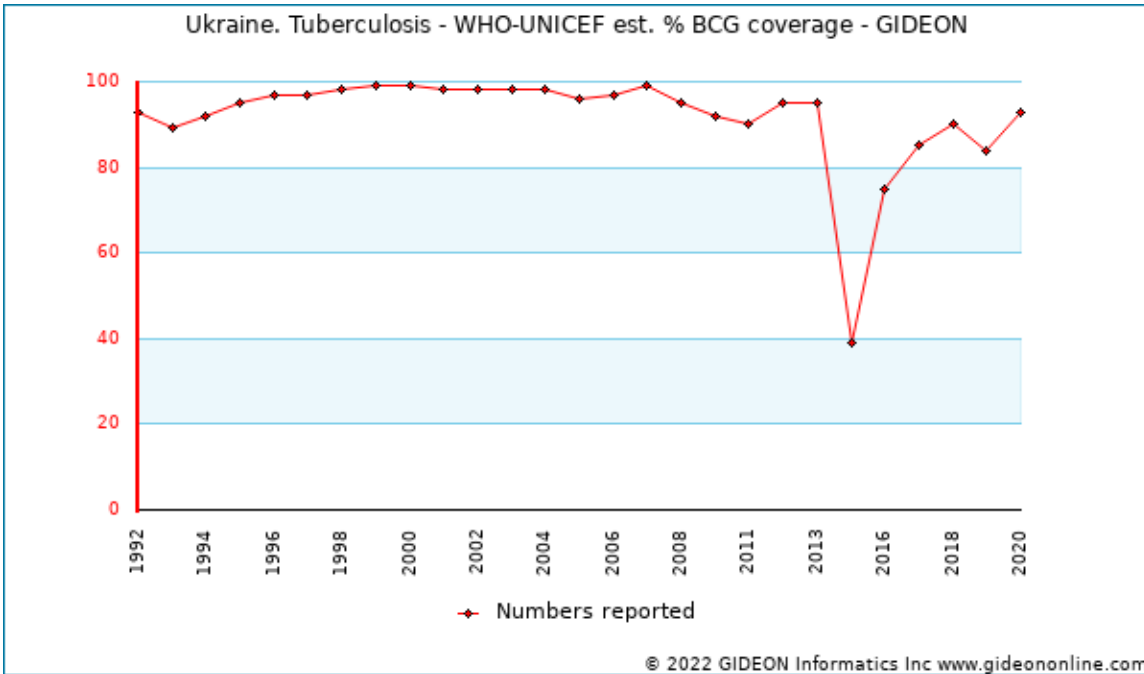
1. [Clin Infect Dis 2019 Jan 01;68\(1\):96-105.](#)
2. [PLoS Negl Trop Dis 2018 04 ;12\(4\):e0006458.](#)

Tuberculosis	
Agent	BACTERIUM. Actinomycetes, <i>Mycobacterium tuberculosis</i> An aerobic acid-fast bacillus
Reservoir	Human, Cattle, Zoonotic
Vector	None
Vehicle	Air, Dairy products, Respiratory or pharyngeal acquisition
Incubation Period	4w - 12w (primary infection)
Diagnostic Tests	Microscopy. Culture. Nucleic acid amplification. Inform laboratory when this diagnosis is suspected.
Typical Adult Therapy	Respiratory isolation.  Typical pulmonary infection is treated with 2 months of <a href="#">Isoniazid</a> , <a href="#">Rifampin</a> & <a href="#">Pyrazinamide</a> (with <a href="#">Ethambutol</a> until results of sensitivity testing) , followed by 4 months of <a href="#">Isoniazid</a> and <a href="#">Rifampin</a> alone.  MDR tuberculosis - 5 drugs (including <a href="#">Pyrazinamide</a> and/or <a href="#">Ethambutol</a> if possible) for at least 6 months, followed by 4 drugs for 18-24 months. <sup>1 2 3</sup>
Typical Pediatric Therapy	As for adult
Vaccine	<a href="#">BCG vaccine</a>
Clinical Hints	- Cough, "night sweats" and weight loss - Most infections represent reactivation of old foci in lungs, brain, bone, kidneys etc - Often presents as prolonged fever (FUO) or infection of bone, meninges, kidneys or other organs
Synonyms	Consumption, <i>Mycobacterium africanum</i> , <i>Mycobacterium bovis</i> , <i>Mycobacterium canettii</i> , <i>Mycobacterium caprae</i> , <i>Mycobacterium orygis</i> , <i>Mycobacterium pinnipedii</i> , <i>Mycobacterium tuberculosis</i> , <i>Oryx bacillus</i> , Phthisis, TB, TB meningitis, Tuberculose, Tuberculose miliar, Tuberculosi, Tuberculous meningitis, Tuberkulose, White plague. ICD9: 010,012,013,014,015,016,017,018 ICD10: A15,A16,A17,A18,A19

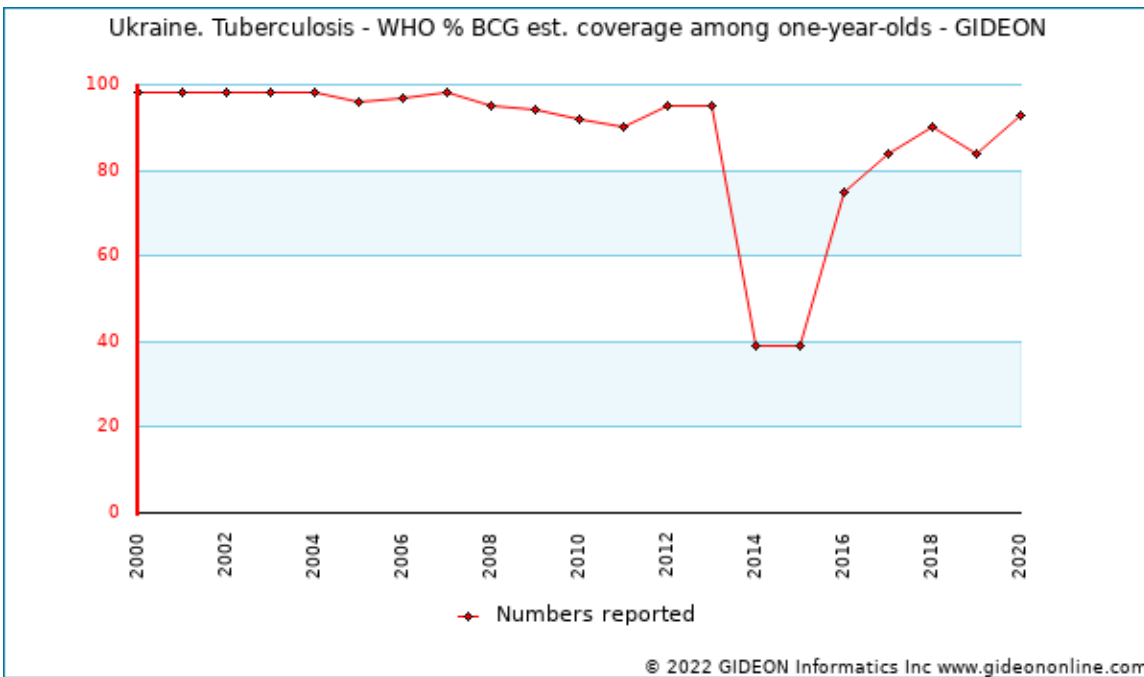
## Tuberculosis in Ukraine

### Vaccine Schedule:

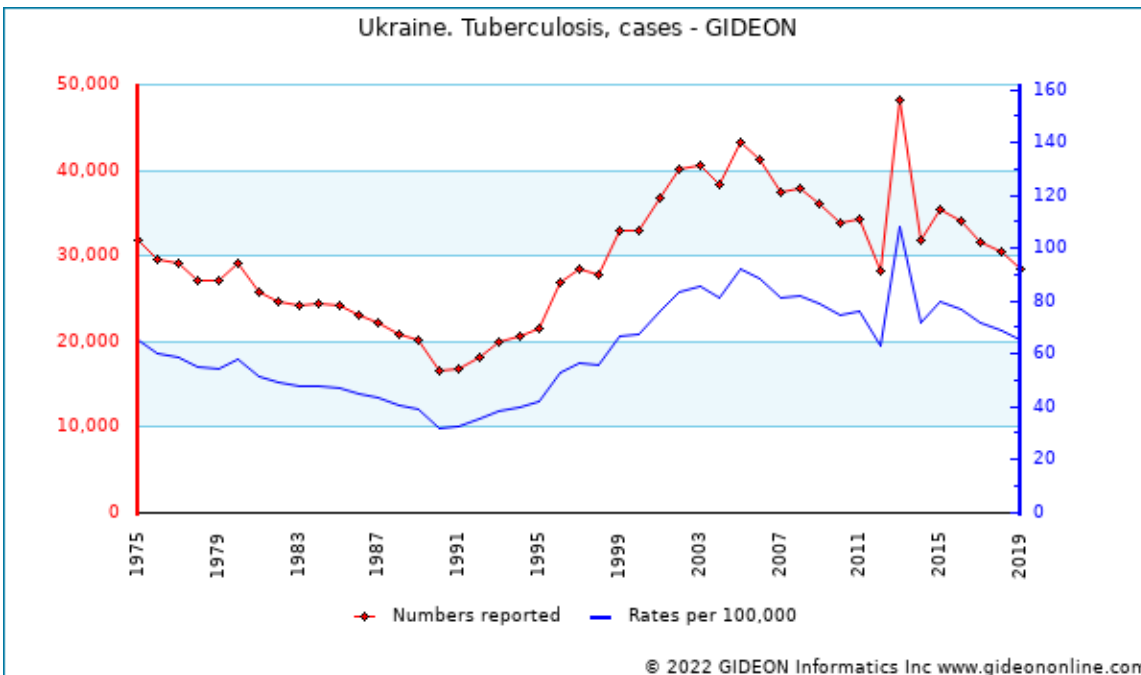
BCG - 3 days  
 DT - 6 years  
 DTP - 2,4,6,18 months  
 DTPHibHepB - 2 months  
 HepB - birth 1,6 months  
 HIB - 2,4,12 months  
 IPV - 2,4 months  
 MMR - 12 months; 6 years  
 OPV - 6, 18 months; 6, 14 years  
 Td - 16,26,36,46,56 years



Graph: Ukraine. Tuberculosis - WHO-UNICEF est. % BCG coverage



Graph: Ukraine. Tuberculosis - WHO % BCG est. coverage among one-year-olds



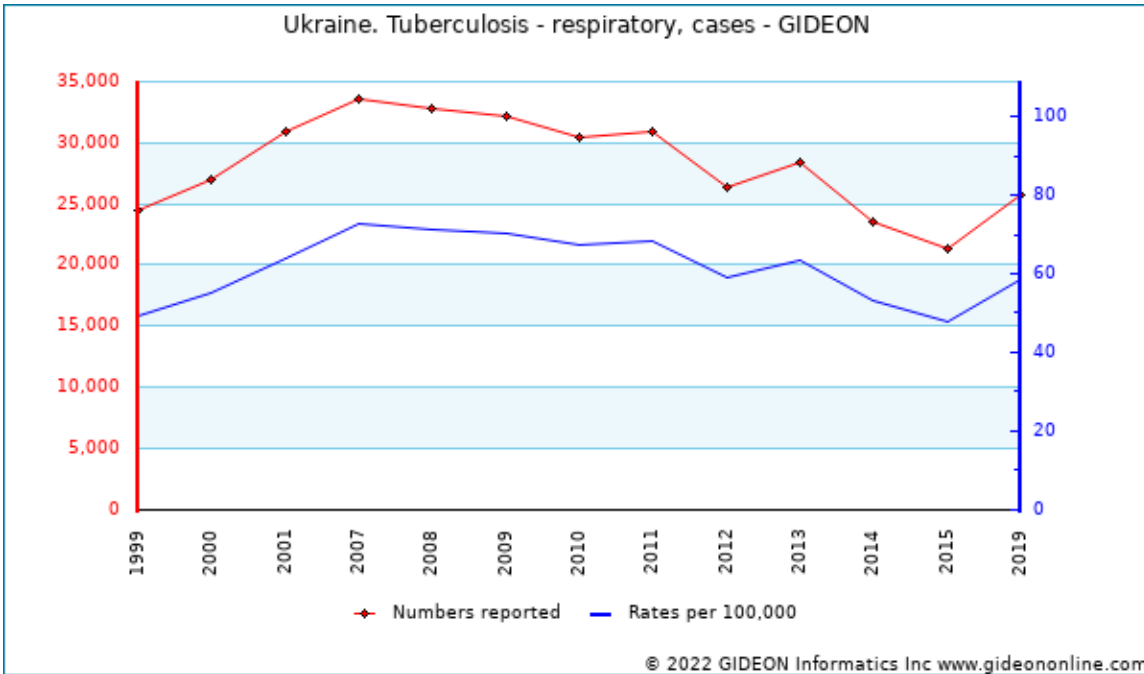
Graph: Ukraine. Tuberculosis, cases

- 2015 to 2018 - 14,479 cases of extrapulmonary tuberculosis were reported in Ukraine, including 417 cases in children. <sup>4</sup>
- 2015 to 2018 - 2,491 adolescents initiated therapy for tuberculosis in Ukraine., including 88 HIV-positive individuals. <sup>5</sup>

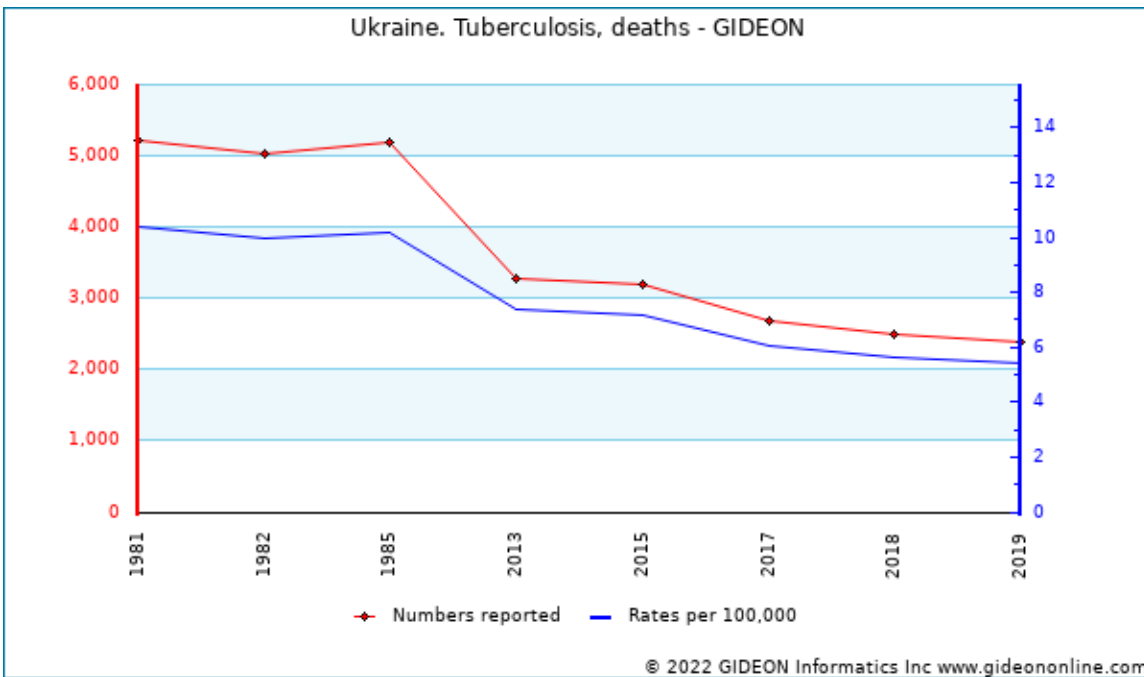
**Prevalence surveys**

Years	Study Group	%	Notes
2013 - 2015	patients - HIV / AIDS	12.5	Primary pulmonary tuberculosis was identified in 12.5% of patients with HIV / AIDS <sup>6</sup>

Odessa reports the country's highest tuberculosis incidence (2020 publication) <sup>7</sup>



Graph: Ukraine. Tuberculosis - respiratory, cases



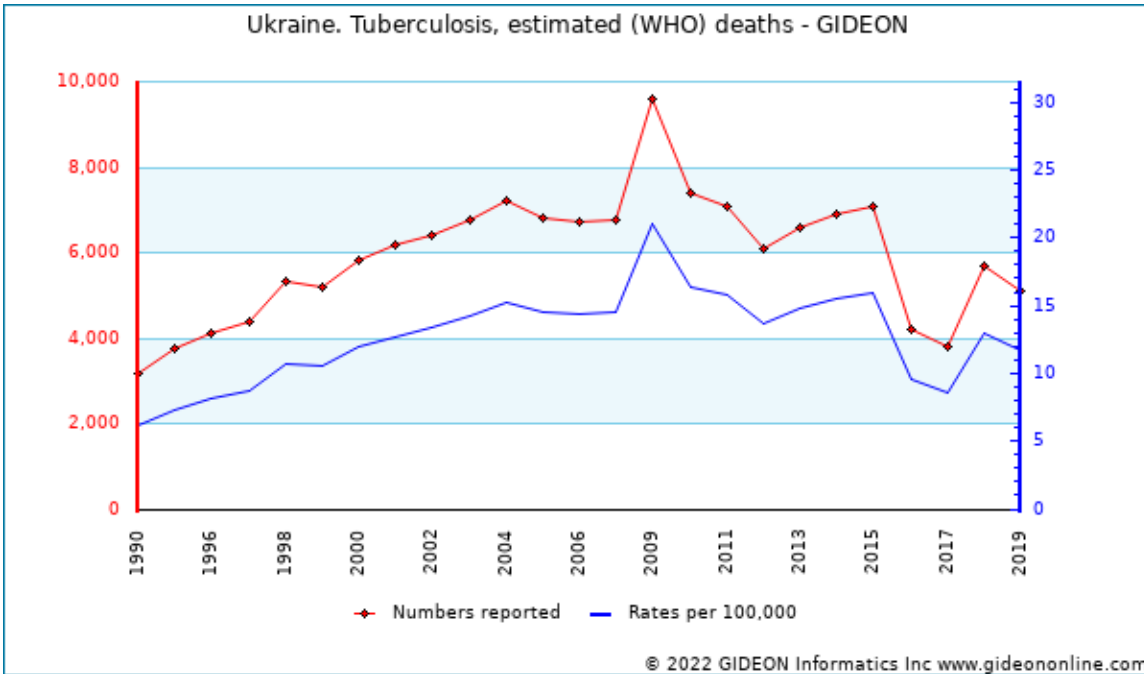
Graph: Ukraine. Tuberculosis, deaths

Notes:

Individual years:

1976 - Mortality rates were 12.6 per 100,000.





Graph: Ukraine. Tuberculosis, estimated (WHO) deaths

**Tuberculosis and HIV/AIDS**

- 2002 - 6.3% of newly diagnosed tuberculosis patients in Kiev were HIV-positive in 2002
- 2004 - 10.1% of newly diagnosed tuberculosis patients in Kiev were HIV-positive. <sup>8</sup>
- 2006 - 15.5% of civilians and 23.7% of prisoners with tuberculosis in Donetsk Oblast were HIV-positive. <sup>9</sup>

**Drug resistance**

- 1999 - 12.2% of primary isolates were INH-resistant and 7.8% MDR.
- 2002 to 2006 - 16% of new tuberculosis cases in Donetsk were multi-drug resistant. <sup>10</sup>
- 2008 (publication year) - 15.5% of new tuberculosis cases in Donetsk were multi-drug resistant, 21.8% among prisoners. <sup>11</sup>
- 2012 - 8,000 patients with MDR-TB initiated treatment, accounting for 22% of all new tuberculosis cases. <sup>12</sup>
- 2015 - Circulation of MDR and XDR tuberculosis strains was documented in Odessa (the region with Ukraine's highest tuberculosis incidence). <sup>13</sup>

**Notable outbreaks**

Years	Region	Setting	Cases	Pathogen	Population	Notes
2018*	Foreign Country	cattery	5	<i>Mycobacterium bovis</i>	cats	Outbreak among Abyssinian cats at a cattery in Italy related to an index case imported from Ukraine <sup>14</sup>

\* indicates publication year (not necessarily year of outbreak)

**References**

1. 2018 ;
2. Bull World Health Organ 2018 Mar 01;96(3):173-184F.
3. Tuberc Respir Dis (Seoul) 2018 Jan ;81(1):6-12.
4. Clin Infect Dis 2021 Dec 20;
5. ERJ Open Res 2020 Jul ;6(3)
6. Folia Parasitol (Praha) 2021 Jul 07;68
7. Emerg Infect Dis 2020 Mar ;26(3):481-490.
8. Emerg Infect Dis 2006 May ;12(5):766-8.
9. Scand J Infect Dis 2008 ;40(8):655-62.
10. ProMED <promedmail.org> archive: 20080228.0813
11. Int J Tuberc Lung Dis 2008 Jul ;12(7):756-62.
12. J Public Health (Oxf) 2017 Feb 27;:1-2.
13. Emerg Infect Dis 2020 Mar ;26(3):481-490.
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## Tularemia

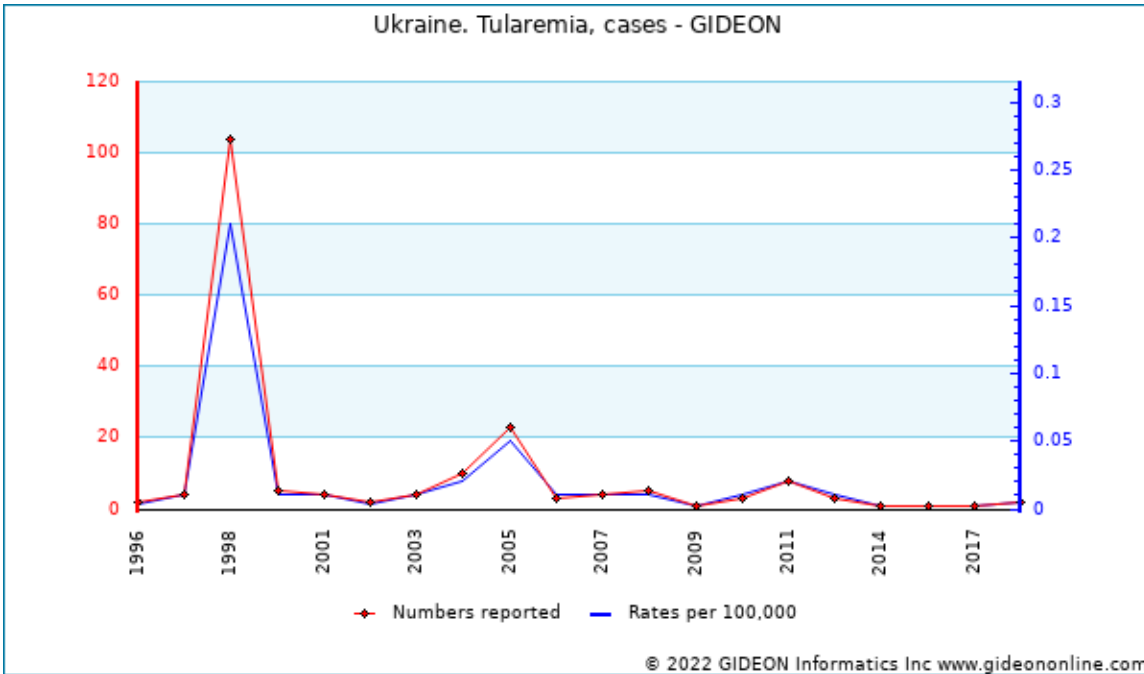
<b>Agent</b>	BACTERIUM. <i>Francisella tularensis</i> An aerobic gram-negative bacillus
<b>Reservoir</b>	Rabbit, Hare, Muskrat, Beaver, Tick, Wild bird, Dog, Zoonotic
<b>Vector</b>	Deer fly ( <i>Chrysops</i> spp), Tick, Mosquito
<b>Vehicle</b>	Bite, Contact, Meat, Eye inoculation, Air, Dust, Water, Respiratory or pharyngeal acquisition, Organ transplantation
<b>Incubation Period</b>	3d - 5d (range 1d - 14d)
<b>Diagnostic Tests</b>	Culture or direct fluorescent staining of exudates. Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	<i>Gentamicin</i> or <i>Tobramycin</i> 1.7 mg/kg q8h X 7 to 10d OR (mild disease) <i>Doxycycline</i> 100 mg PO BID X 14-21d OR (mild disease) <i>Ciprofloxacin</i> 500 mg PO BID X 10-14d  Add <i>Chloramphenicol</i> , <i>Doxycycline</i> or <i>Ciprofloxacin</i> if evidence for central nervous system infection. <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	<i>Gentamicin</i> or <i>Tobramycin</i> 1.7 mg/kg q8h X 7-10d.  Add <i>Chloramphenicol</i> if evidence for central nervous system infection.
<b>Vaccine</b>	<i>Tularemia vaccine</i>
<b>Clinical Hints</b>	- Often follows contact with small mammals (usually rabbits) or tick-bite - Fever, dermal eschar, lymphadenopathy, myalgia and diarrhea - May present as overwhelming septicemia or pneumonia - Case-fatality rates are 1% (treated) to 6% (untreated)
<b>Synonyms</b>	Conjunctivitis tularensis, Deerfly fever, <i>Francisella hispanensis</i> , <i>Francisella novicida</i> , <i>Francisella philomiragia</i> , <i>Francisella salinarina</i> , <i>Francisella tularensis</i> , Harpest, Hasenpest, Lemming fever, Market men's disease, Ohara's disease, Pahvant Valley plague, Rabbit fever, Tularamie, Water rat trapper's disease, Yao-byo disease, Yatobyoy. ICD9: 021 ICD10: A21

## Tularemia in Ukraine

### Time and Place

The major natural Crimean focus for tularemia is located on the Kerch Peninsula.<sup>3 4</sup>

- Annual rates of approximately 0.1 per 100,000 are reported.
- 3,086 isolates of *Francisella tularensis* were identified from environmental sources and animals in the Crimea during 1941 to 2008<sup>5</sup> (including 137 isolates during 1981 to 1993<sup>6</sup>).
- The water rat and introduced musk rats spread widely in the Ukraine following tank battles in World War II, and currently serve as the principal reservoirs.
- 2020 - Tularemia was identified in European hares (*Lepus europaeus*) from Kherson.<sup>7</sup>



Graph: Ukraine. Tularemia, cases

Notes:

Individual years:  
 2003 - Included one case of water-borne tularemia in Volinsk.  
 2005 - None fatal.  
 2006 - None fatal.

**Notable outbreaks**

Years	Region	Cases	Source	Population	Notes
1934				hunters	Outbreak associated with hunting of water rats, hamsters and hares.
2016	Sakasky	2	hare	hunters	<a href="#">8</a>

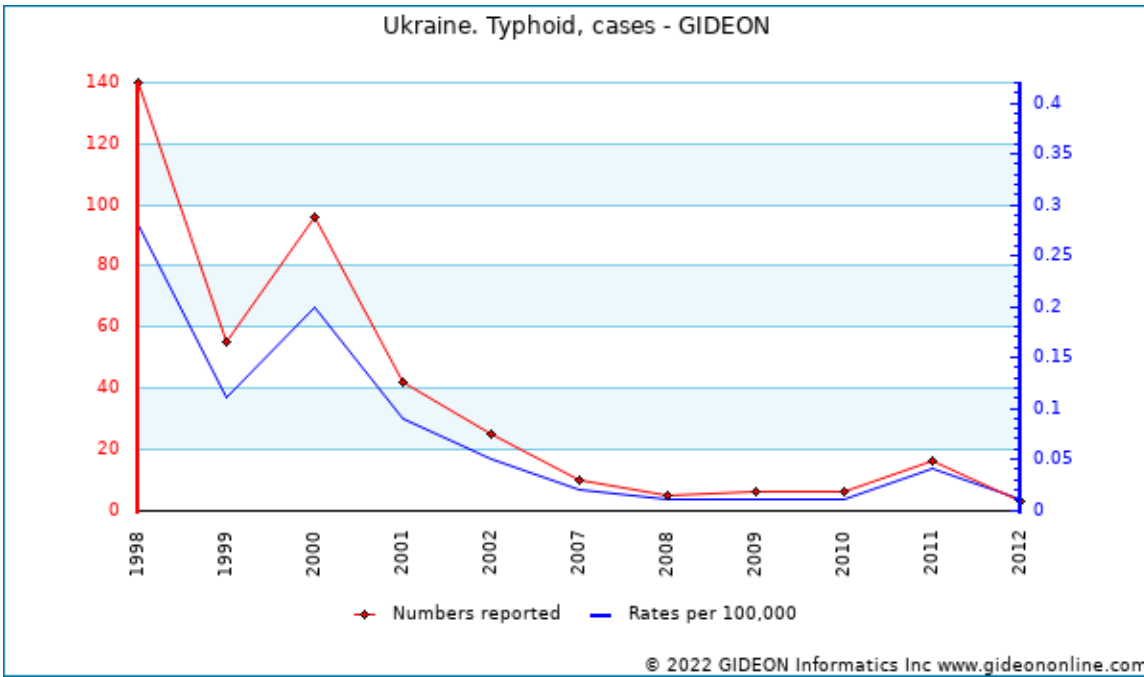
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1. [Front Cell Infect Microbiol 2017 ;7:122.](#)
2. [J Antimicrob Chemother 2017 Dec 14;](#)
3. [Zh Mikrobiol Epidemiol Immunobiol 1996 Nov-Dec;\(6\):28-32.](#)
4. [Zh Mikrobiol Epidemiol Immunobiol 1981 Oct ;\(10\):99-101.](#)
5. [Parasit Vectors 2014 Oct 16;7:453.](#)
6. [Zh Mikrobiol Epidemiol Immunobiol 1996 Nov-Dec;\(6\):28-32.](#)
7. [ProMED <promedmail.org> archive: 20200908.7757997](#)
8. [ProMED <promedmail.org> archive: 20160204.3995341](#)

## Typhoid and enteric fever

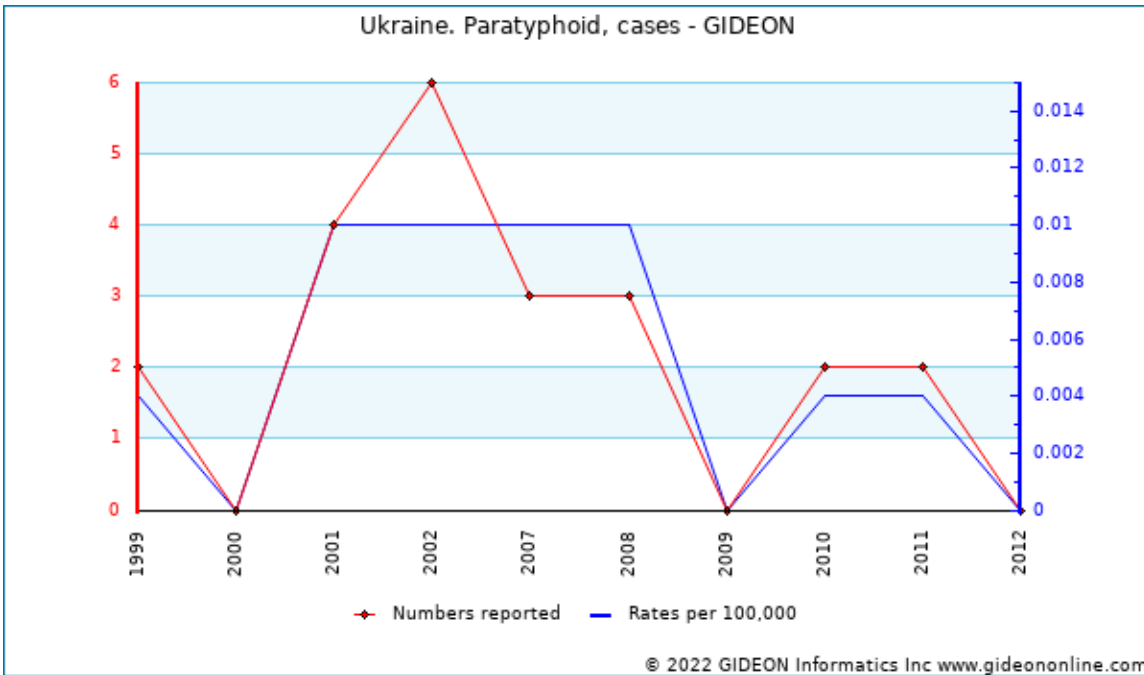
<b>Agent</b>	BACTERIUM. <i>Salmonella</i> serotype Typhi (certain other <i>Salmonella</i> species cause 'paratyphoid' fever) A facultative gram-negative bacillus
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Fecal-oral, Food, Fly, Water
<b>Incubation Period</b>	15d - 21d (range 5d - 34d)
<b>Diagnostic Tests</b>	Culture (blood, urine, sputum culture). Stool usually negative unless late, untreated infection. Serology.
<b>Typical Adult Therapy</b>	Stool precautions  Ceftriaxone 2 g IV q12h to q 24h X 10-14d. OR Azithromycin 1 gram PO on day 1; then 500 mg days 2 to 7.  Fluoroquinolone resistance is common - not recommended for empiric therapy.  Add corticosteroids if evidence of shock or decreased mental status. <a href="#">1</a> <a href="#">2</a> <a href="#">3</a> <a href="#">4</a>
<b>Typical Pediatric Therapy</b>	Stool precautions  Ceftriaxone 50 to 100 mg/kg IV daily X 10-14d. OR Azithromycin 15 mg/kg PO on day 1; then 7.5 mg/kg on days 2 to 7.
<b>Vaccine</b>	Typhoid - injectable vaccine Typhoid - oral vaccine
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Transient diarrhea followed by fever, splenomegaly and obtundation</li> <li>- Rose spots (during second week of illness), leukopenia and relative bradycardia are common</li> <li>- Intestinal perforation or hemorrhage may occur in third to fourth week of illness</li> <li>- Case-fatality rates are 0.8% (treated) to 15% (untreated)</li> </ul>
<b>Synonyms</b>	Abdominal typhus, Abdominaltyphus, Buiktyphus, Enteric fever, Febbre tifoide, Febbre tifoidea, Fiebre tifoidea, Paratifoidea, Paratyfus, Paratyphoid, Salmonella serotype Typhi, Tyfoïd, Typhoid, Typhoïde.
	ICD9: 002 ICD10: A01

## Typhoid and enteric fever in Ukraine



Graph: Ukraine. Typhoid, cases

Three typhoid fatalities were reported in 1981; 3 in 1982; 6 in 1985.



Graph: Ukraine. Paratyphoid, cases

### Notable outbreaks

Years	Region	Setting	Cases	Source	Notes
1992 - 1994	Lugansk			water	<a href="#">5</a>
2000	Donetsk			water	Outbreak in Shakhtyorsk, Donetsk Region <a href="#">6</a>
2004	Odessa	market	13		<a href="#">7</a>
2005	Zakarpattia		30	water	<a href="#">8</a>

### References

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1. [Curr Opin Infect Dis 2016 Oct ;29\(5\):453-8.](#)
2. [Clin Infect Dis 2017 Jun 01;64\(11\):1522-1531.](#)
3. [PLoS Negl Trop Dis 2018 Oct 11;12\(10\):e0006779.](#)
4. [Curr Opin Infect Dis 2018 Aug 21;](#)
5. [Lik Sprava 1998 Mar-Apr;\(2\):116-8.](#)
6. [ProMED <promedmail.org> archive: 20000504.0683](#)
7. [ProMED <promedmail.org> archive: 20040721.1986](#)
8. [ProMED <promedmail.org> archive: 20051219.3637](#)

**Typhus - endemic**

<b>Agent</b>	BACTERIUM. <i>Rickettsia typhi</i>
<b>Reservoir</b>	Rat, Zoonotic
<b>Vector</b>	Flea ( <i>Xenopsylla</i> or <i>Nosopsyllus</i> spp.)
<b>Vehicle</b>	None
<b>Incubation Period</b>	10d - 12d (range 4d - 18d)
<b>Diagnostic Tests</b>	Serology. Identification of rickettsiae in smear or culture of skin lesions. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	<a href="#">Doxycycline</a> 100 mg BID X 7d <sup>1</sup>
<b>Typical Pediatric Therapy</b>	<a href="#">Doxycycline</a> 2.2 mg/kg BID X 7d (maximum 200 mg/day) OR <a href="#">Chloramphenicol</a> 12.5 mg/kg QID X 7d
<b>Clinical Hints</b>	<ul style="list-style-type: none"><li>- Fever, headache and myalgia</li><li>- Truncal maculopapular rash (present in 60%) appears on days 3 to 5 and persists for 4 to 8 days</li><li>- Fever resolves after 12 to 16 days</li><li>- Case fatality rate (untreated) is 2%</li></ul>
<b>Synonyms</b>	Endemic typhus, Murine typhus, <i>Rickettsia typhi</i> , Ship typhus, Tifo murino, Tifus pulgas, Vlektyphus. ICD9: 081.0 ICD10: A75.2

**References**

1. [Expert Rev Anti Infect Ther 2012 Dec ;10\(12\):1425-37.](#)

## Typhus - epidemic

Agent	BACTERIUM. <i>Rickettsia prowazekii</i>
Reservoir	Human, Flying squirrel ( <i>Glaucomys volans volans</i> , in the United States), Zoonotic
Vector	Louse ( <i>Pediculus</i> ), Squirrel flea
Vehicle	None
Incubation Period	10d - 14d (range 5d - 23d)
Diagnostic Tests	Serology. Identification of rickettsiae in smear or culture of skin lesions. Nucleic acid amplification.
Typical Adult Therapy	<a href="#">Doxycycline</a> 100 mg PO BID X 3 to 5d. OR <a href="#">Chloramphenicol</a> 500 mg QID X 3 to 5d <sup>1</sup>
Typical Pediatric Therapy	<a href="#">Doxycycline</a> 2 mg/kg PO BID X 3 to 5d (maximum 200 mg/day). OR <a href="#">Chloramphenicol</a> 10 mg/kg PO QID X 3 to 5d
Clinical Hints	<ul style="list-style-type: none"> <li>- Fever, headache and myalgia</li> <li>- Truncal maculopapular rash appears on days 4 to 7</li> <li>- Encephalopathy or myocarditis may ensue;</li> <li>- Fever resolves after 2 weeks, but convalescence is prolonged</li> <li>- Case-fatality rate (untreated) is 10% to 20%</li> </ul>
Synonyms	Camp fever, Epidemic typhus, Jail fever, Red louse disease, <i>Rickettsia prowazekii</i> , Ship fever, Shop typhus, Sutama, Sylvatic epidemic typhus, Tifus piojos, Tobardillo. ICD9: 080 ICD10: A75.0

Although Typhus - epidemic is not endemic to Ukraine, imported, expatriate or other presentations of the disease have been associated with this country.

### Typhus - epidemic in Ukraine

20% of all Ukrainians developed typhus during 1917 to 1923.

8,152 cases were reported in 1936; 345 during January to November 1937.

### References

1. [Expert Rev Anti Infect Ther 2012 Dec ;10\(12\):1425-37.](#)



## Urinary tract infection

<b>Agent</b>	BACTERIUM OR FUNGUS. <i>Escherichia coli</i> , other facultative gram negative bacilli, enterococci, et al
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Endogenous
<b>Incubation Period</b>	Variable
<b>Diagnostic Tests</b>	Urine culture and leucocyte count.
<b>Typical Adult Therapy</b>	Antimicrobial agent(s) directed at known or likely pathogen
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- 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
<b>Synonyms</b>	Cistite, Cistitis, Cystite, Cystitis, Pielite, Pielitis, Pielonefrite, Pielonefritis, Prostatite, Pyelitis, Pyelonephrite, Pyelonephritis, Trigonitis, Tubulointerstitial nephritis, U.T.I., Urethritis, Uretrite, UTI, Zystitis. ICD9: 791.9,136.9,599.0,590,601.0 ICD10: N10,N30,N41

## Vaccinia and cowpox

<b>Agent</b>	VIRUS - DNA. Poxviridae, Orthopoxvirus. Cowpox virus
<b>Reservoir</b>	Cattle, Cat Rodent, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Cattle, Cat
<b>Incubation Period</b>	2d - 4d
<b>Diagnostic Tests</b>	Biosafety level 3. Viral isolation from skin exudate or biopsy. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Secretion precautions; supportive. In severe cases, <a href="#">Tecovirimat</a> , 400 to 600 mg PO OD X 14 d. <sup>1</sup>
<b>Typical Pediatric Therapy</b>	As for adult
<b>Vaccine</b>	<a href="#">Vaccinia immune globulin</a>
<b>Clinical Hints</b>	- Vesicles or pustules (usually on hand) progressing to crusts - Painful regional lymphadenopathy - Follows contact with infected animals or smallpox vaccination
<b>Synonyms</b>	Akhmeta poxvirus, Alaskapox, Aracatuba, Buffalopox, Camelpox, Cantagalo, Cowpox, Passatempo, Vaccinia, Vaiolo. ICD9: 051.0 ICD10: B08.0

## Vaccinia and cowpox in Ukraine

### Notable outbreaks

Years	Region	Pathogen	Notes
2001	Dashava	cowpox	Outbreak involved 6 cows and a milkmaid <sup>2</sup>

### References

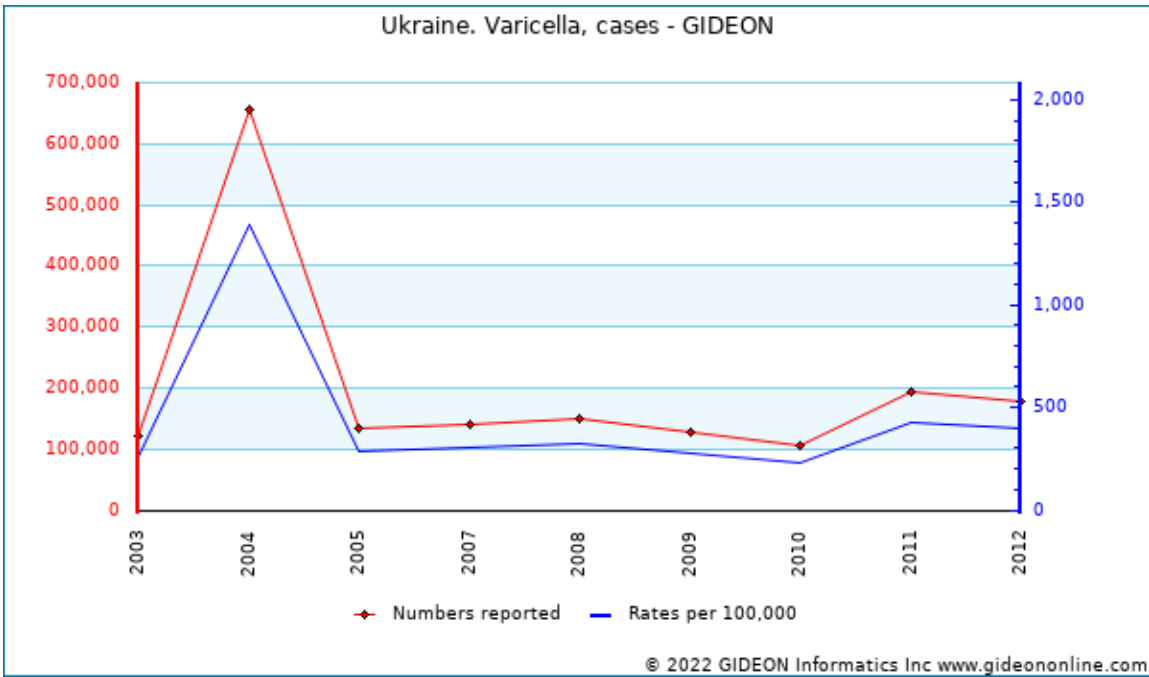
1. [Emerg Infect Dis 2015 Dec ;21\(12\):2261-3.](#)

2. [ProMED <promedmail.org> archive: 20010508.0888](#)

## Varicella

<b>Agent</b>	VIRUS - DNA. Herpesviridae, Alphaherpesvirinae: Human Herpesvirus 3 (Varicella-zoster virus)
<b>Reservoir</b>	Human
<b>Vector</b>	None
<b>Vehicle</b>	Air, Contact, Breastfeeding, Respiratory or pharyngeal acquisition
<b>Incubation Period</b>	2w - 3w
<b>Diagnostic Tests</b>	Viral culture (vesicles). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Respiratory isolation. Severe/complicated cases: <a href="#">Acyclovir</a> 10 to 12 mg/kg IV q8h X 7d Adolescent / young adult: 800 mg PO X 5 per day X 7 d. Alternatives: <a href="#">Valacyclovir</a> 1 g PO TID; or <a href="#">Famciclovir</a> 500 mg PO TID <sup>1 2</sup>
<b>Typical Pediatric Therapy</b>	Respiratory isolation. <a href="#">Acyclovir</a> (severe/complicated cases) 150 mg/sq m IV q8h X 7d
<b>Vaccine</b>	<a href="#">Varicella vaccine</a> <a href="#">Varicella-Zoster immune globulin</a>
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Cough and fever followed by a pruritic papulovesicular rash after 1 to 2 days</li> <li>- Pneumonia is often encountered</li> <li>- Case fatality rate is 4.3 per 100,000 cases (7% in immune-suppressed patients)</li> </ul>
<b>Synonyms</b>	Chickenpox, Lechina, Skoldkopper, Vannkopper, Varicela, Varizellen, Vattenkopper, Waterpokken, Windpocken. ICD9: 052 ICD10: B01

## Varicella in Ukraine



Graph: Ukraine. Varicella, cases

### Prevalence surveys

Years	Region	Study Group	%	Notes
2014 - 2017	Kyiv	patients - CNS	1.8	VZV accounted for 1.8% of Herpes-group infections of the CNS <sup>3</sup>

### References

1. Clin Ther 2018 Aug 10;
2. Med Lett Drugs Ther 2018 Sep 24;60(1556):153-157.
3. Wiad Lek 2018 ;71(7):1289-1294.

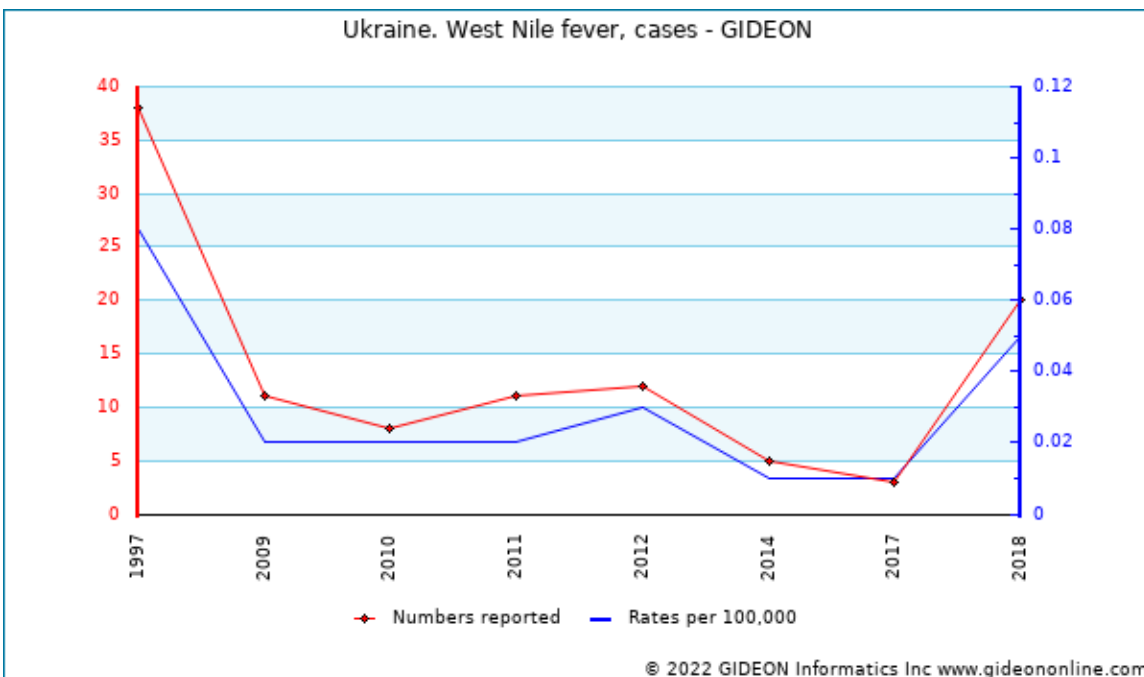
## Vibrio parahaemolyticus infection

Agent	BACTERIUM <i>Vibrio parahaemolyticus</i> A facultative gram-negative bacillus
Reservoir	Marine water, Seafood, Fish
Vector	None
Vehicle	Seafood
Incubation Period	10h - 20h (range 2h - 4d)
Diagnostic Tests	Stool culture - alert laboratory when this organism is suspected.
Typical Adult Therapy	Stool precautions Supportive For severe infection, consider treatment with <a href="#">Doxycycline</a> , <a href="#">Azithromycin</a> or <a href="#">Ciprofloxacin</a>
Typical Pediatric Therapy	Supportive For severe infection, consider treatment with <a href="#">Doxycycline</a> or <a href="#">Azithromycin</a> .
Clinical Hints	<ul style="list-style-type: none"><li>- Onset 4 to 24 hours following ingestion of seafood (often steamed crabs)</li><li>- Vomiting and explosive diarrhea</li><li>- Diarrhea may persist for 7 to 10 days</li><li>- Case fatality rate is 0.1%</li></ul>
Synonyms	Vibrio parahaemolyticus. ICD9: 005.4 ICD10: A05.3

## West Nile fever

<b>Agent</b>	VIRUS - RNA. Flaviviridae, Flavivirus: West Nile virus
<b>Reservoir</b>	Bird, Horse, Bat, Tick, Zoonotic
<b>Vector</b>	Mosquito ( <i>Culex univittatus</i> , <i>Cx. pipiens</i> , <i>Cx. vishnui</i> , <i>Cx. naevei</i> , <i>Coquillettidia</i> , <i>Aedes</i> and <i>Anopheles</i> spp.)
<b>Vehicle</b>	Blood, Breastfeeding
<b>Incubation Period</b>	3d - 6d (range 1d - 14d)
<b>Diagnostic Tests</b>	Biosafety level 3. Viral culture (blood, CSF). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Clinical Hints</b>	- 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
<b>Synonyms</b>	Bagaza, Fiebre del Oeste del Nilo, Lourdige, Near Eastern equine encephalitis, Ntaya, Usutu, WNF. ICD9: 066.4 ICD10: A92.3

### West Nile fever in Ukraine



Graph: Ukraine. West Nile fever, cases

Notes:  
Individual years:

2011 - Eight cases were reported to November. <sup>1</sup>

Four cases of human disease were reported in the southern region during the 1970's; 38 in 1997 (including 16 cases of encephalitis).

- -2020 (publication year) - A cases of West Nile viral encephalitis was reported in Poltava region. <sup>2</sup>

#### Seroprevalence surveys

Years	Region	Study Group	%	Notes
2013*	Multiple locations	horses	13.5	13.5% of horses (2013 publication) <sup>3</sup>

\* indicates publication year (not necessarily year of survey)

1980 - West Nile virus was isolated from a bird. <sup>4</sup>

#### Vectors

- Local vectors include *Aedes cantans*, *Ae. caspius*, *Ae. circumluteolus*, *Ae. excrucians* and *Anopheles maculipennis*.

See note for Russian Federation.

#### References

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1. ProMED <[promedmail.org](mailto:promedmail.org)> archive: 20111128.3477
2. *Wiad Lek* 2020 ;73(4):831-834.
3. *Viruses* 2013 Oct 04;5(10):2469-82.
4. *Vopr Virusol* 1982 Sep-Oct;27(5):55-7.

## Whipple's disease

Agent	BACTERIUM. Actinomycetes, <i>Tropheryma whipplei</i> A gram positive bacillus
Reservoir	Unknown
Vector	None
Vehicle	None
Incubation Period	Unknown
Diagnostic Tests	Identification of inclusions in lamina propria (other tissues). Tissue culture. Nucleic acid amplification.
Typical Adult Therapy	Ceftriaxone 2.0 g IV daily X 14d. OR Penicillin G 4 million u IV q4h X 14d. OR Meropenem 1 g IV TID X 14-28d  Continue Sulfamethoxazole / Trimethoprim X 1 year <sup>1 2 3</sup>
Typical Pediatric Therapy	Disease is rarely, if ever, encountered in children
Clinical Hints	- Chronic multisystem disorder characterized by weight loss, diarrhea, abdominal and joint pain - Dermal hyperpigmentation, fever and lymphadenopathy are often present - <i>Tropheryma whipplei</i> has recently been recovered from the blood of patients with fever, headache or cough.
Synonyms	Intestinal lipodystrophy, Lipophagic granulomatosis, Mesenteric chyladenectasis, Steatorrhea arthropericarditica, Tropheryma whipplei. ICD9: 040.2 ICD10: K90.8

### References

1. Clin Microbiol Rev 2017 Apr ;30(2):529-555.
2. Scand J Gastroenterol 2017 Apr ;52(4):465-466.
3. Lancet Infect Dis 2016 Mar ;16(3):e13-22.



## Yellow fever

<b>Agent</b>	VIRUS - RNA. Flaviviridae, Flavivirus: Yellow fever virus
<b>Reservoir</b>	Human, Mosquito, Monkey, Marsupial, Zoonotic
<b>Vector</b>	Mosquito ( <i>Stegomyia (Aedes)</i> , <i>Haemagogus</i> , <i>Sabethes</i> )
<b>Vehicle</b>	Breast feeding
<b>Incubation Period</b>	3d - 6d (range 2.5d - 14d)
<b>Diagnostic Tests</b>	Biosafety level 3. Viral culture (blood, liver). Serology. Nucleic acid amplification.
<b>Typical Adult Therapy</b>	Supportive
<b>Typical Pediatric Therapy</b>	As for adult
<b>Vaccine</b>	<a href="#">Yellow fever vaccine</a>
<b>Clinical Hints</b>	<ul style="list-style-type: none"> <li>- Headache, backache, vomiting, myalgias, jaundice and hemorrhagic diathesis</li> <li>- Relative bradycardia and leukopenia are present</li> <li>- Illness is often biphasic</li> <li>- Case fatality rate is 10% to 60%, occurring within 7 days of disease onset</li> </ul>
<b>Synonyms</b>	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

Although Yellow fever is not endemic to Ukraine, imported, expatriate or other presentations of the disease have been associated with this country.

### Yellow fever in Ukraine

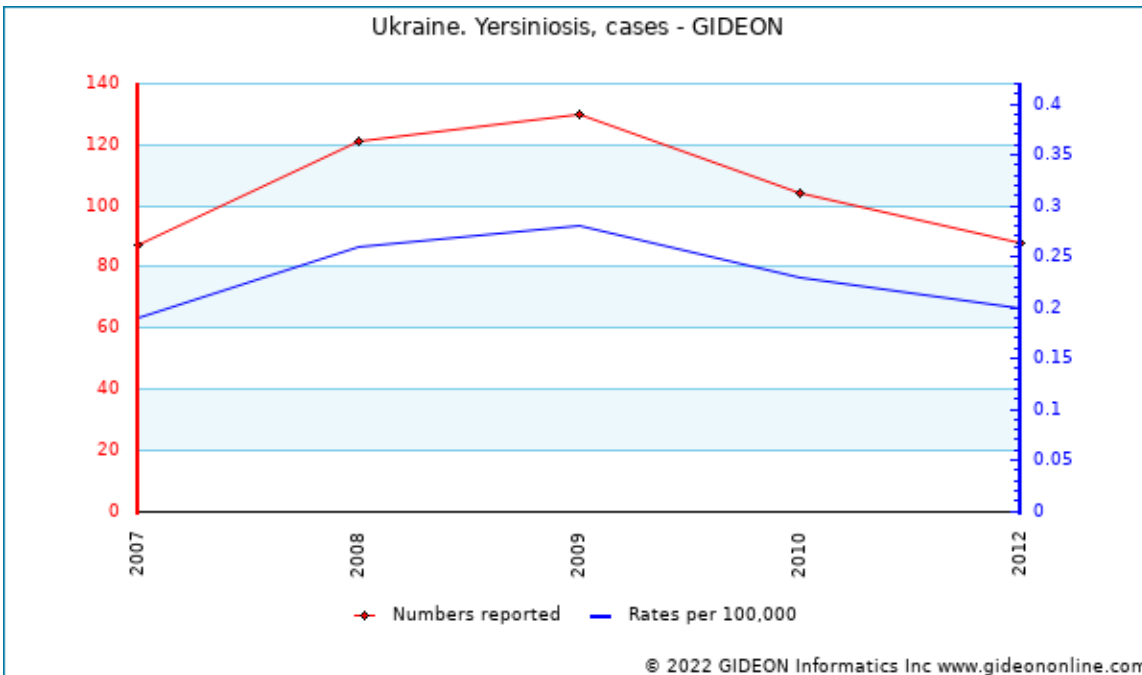
Yellow fever does not occur in this country.

Proof of vaccination is **NOT** required for travelers arriving from countries with risk for YFV transmission.

## Yersiniosis

<b>Agent</b>	BACTERIUM. <i>Yersinia enterocolitica</i> and <i>Yersinia pseudotuberculosis</i> A facultative gram-negative bacillus
<b>Reservoir</b>	Pig, Rodent, Rabbit, Sheep, Goat, Cattle, Horse, Dog, Cat, Bat, Zoonotic
<b>Vector</b>	None
<b>Vehicle</b>	Food, Water, Meat, Dairy products, Vegetables, Fecal-oral, Blood
<b>Incubation Period</b>	4d - 7d (range 1d - 11d)
<b>Diagnostic Tests</b>	Culture stool, blood. Alert laboratory when these organisms are suspected.
<b>Typical Adult Therapy</b>	Stool precautions; diarrhea is self-limited. If severe - <b>Ciprofloxacin</b> 500 mg BID X 5 to 7d. OR <b>Sulfamethoxazole / Trimethoprim</b>
<b>Typical Pediatric Therapy</b>	Stool precautions; diarrhea is self-limited. If severe - <b>Sulfamethoxazole / Trimethoprim</b> 20 mg-4 mg/kg BID X 5 to 7d
<b>Clinical Hints</b>	- Fever, diarrhea, and right lower quadrant pain - Fecal leucocytes present - May be associated with rheumatologic manifestations such as erythema multiforme, Reiter's syndrome and chronic arthritis
<b>Synonyms</b>	Far East scarlet-like fever, FESLF, <i>Yersinia enterocolitica</i> , <i>Yersinia pseudotuberculosis</i> , Yersiniose. ICD9: 008.44 ICD10: A04.6,A28.2

### Yersiniosis in Ukraine

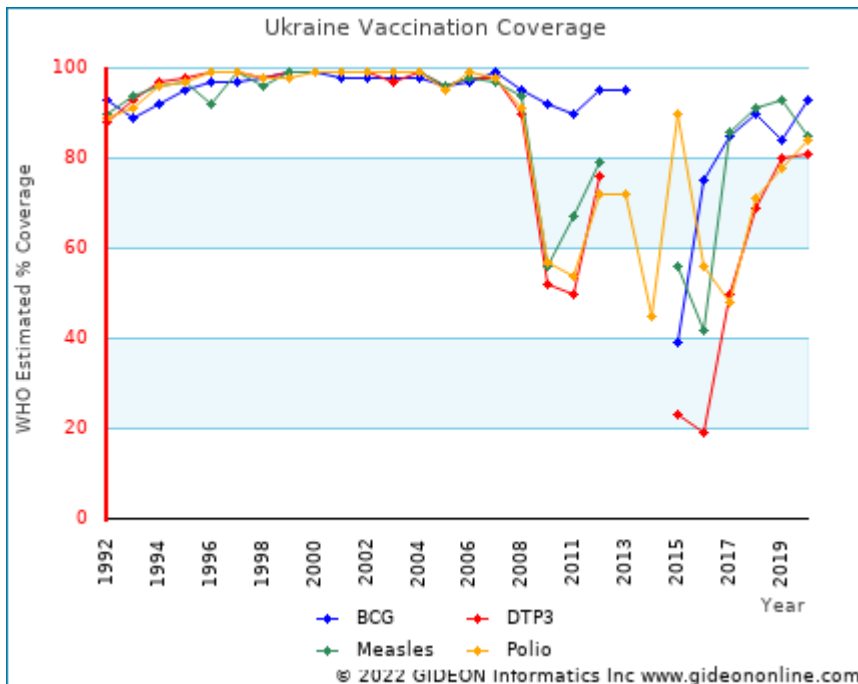


Graph: Ukraine. Yersiniosis, cases



## Vaccine Schedule and coverage for Ukraine

BCG - 3 days  
 DT - 6 years  
 DTP - 2,4,6,18 months  
 DTPHibHepB - 2 months  
 HepB - birth 1,6 months  
 HIB - 2,4,12 months  
 IPV - 2,4 months  
 MMR - 12 months; 6 years  
 OPV - 6, 18 months; 6, 14 years  
 Td - 16,26,36,46,56 years



A given generic vaccine may have multiple designations in this list due to variations in terminology used by individual countries. Vaccination policies evolve rapidly in response to changes in disease occurrence and the introduction of new vaccines. Every effort has been made to update these lists accordingly.

### Vaccine Abbreviations

aP - Acellular pertussis  
 BCG - Bacillus Calmette Guerin  
 CBAW - Childbearing age women  
 D - Diphtheria  
 dT - Tetanus lower dose diphtheria  
 HCW - Health-care workers  
 HepA - Hepatitis A  
 HepB - Hepatitis B  
 Hib - Haemophilus influenzae type B  
 HPV - Human papillomavirus  
 IPV - Injectable polio vaccine  
 MenA-conj - Meningococcus type A conjugate  
 MenACWY - Meningococcus types A,C,Y and W  
 MenC-conj - Meningococcus type C conjugate  
 MMR - Measles, Mumps, Rubella  
 MMRV - Measles, Mumps, Rubella, Varicella  
 MR - Measles, Rubella  
 NA - Details not available  
 OPV - Oral polio vaccine  
 P - Pertussis  
 Pneumo - Pneumococcal vaccine  
 Pneumo ps - Pneumococcal polysaccharide

Pneumo-con - Pneumococcal conjugate

T - Tetanus

TBE - Tick-borne encephalitis

TT - Tetanus toxoid

YF - Yellow fever

Zoster - Herpes zoster

## About GIDEON

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### **GIDEON exists to advance the global effort against Infectious Disease.**

- We help protect societies by providing reliable, timely epidemiological data.
- We save doctors precious time in diagnosing and treating infectious diseases.
- We provide state-of-the-art tools for training healthcare workers of tomorrow.

### **GIDEON platform**

GIDEON platform is widely recognized as the most comprehensive infectious diseases database in the world – for research, education, and diagnostics. It is a one-stop resource for anyone with a professional interest in Infectious Diseases and Microbiology. Over the past three years, GIDEON contributed to [200+ diverse scientific publications](#). GIDEON is ideally suited for saving time in Point-of-Care settings while empowering clinicians to consider all possible scenarios. Additionally, it is an excellent teaching tool for Biology, Microbiology, Public Health, and Medical students and Residents. It is used in 164 countries by organizations such as the London School of Hygiene and Tropical Medicine, Public Health England, WHO, ECDC, NATO, Harvard Medical School, Stanford University, McGill University, and hundreds more.

### **GIDEON ebooks**

GIDEON ebooks complement the GIDEON web application by expanding easy access to 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, drugs, vaccines, and pathogens, in every country of the world.

### **Content**

GIDEON's worldwide data sources access the entire world's literature and adhere to the standards of Evidence-Based Medicine. A team of highly regarded medical scientists tracks all infectious diseases in 235 countries and territories worldwide, updating the database every day. The data set includes:

- 26,000+ outbreaks, going back to 1348 AD
- 86,000+ prevalence and seroprevalence surveys
- 38,000+ graphs for visual epidemiological data analysis
- 23,000+ country notes for each disease
- 30,000+ vaccine and anti-infective drugs trade names
- 2,000+ pathogens
- 3,000+ images
- 260,000+ in-build references, saving years of manual research work

### **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 and microbiology 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.

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