IDCU

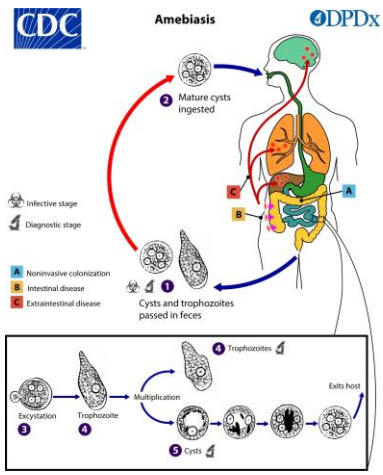
INFECTIOUS DISEASE PREVENTION AND CONTROL UNIT
HEALTH PROMOTION AND DISEASE PREVENTION DIRECTORATE

INFORMATION ON AMOEBIASIS, CRYPTOSPORIDIOSIS, LEGIONELLOSIS, LEPTOSPIROSIS, LISTERIOSIS. MPOX

AMOEBIASIS (ENTAMOEBA HISTOLYTICA)

Amoebiasis is a notifiable intestinal infection caused by the protozoan ***Entamoeba histolytica*** (***E. histolytica***), which can infect both humans and some animals.

E. histolytica lives in the intestines of infected individuals and is excreted in their faeces. Transmission occurs through the ingestion of food or water contaminated with the faeces of an infected person or through consuming food prepared or washed with contaminated water. Person-to-person spread can also occur through sexual practices involving faecal-oral contact or poor hand hygiene practices. ***E. histolytica*** cysts can survive for up to 12 days in the environment and up to 30 days in water.



Source: https://www.cdc.gov/dpdx/amebiasis/index.html

CLINICAL FEATURES

Only around 10 to 20% of people infected with ***E. histolytica*** become ill. Symptoms are often mild and usually develop within 2 to 4 weeks, but can appear later. Clinical features of amoebiasis include:

- Diarrhoea
- Abdominal pain
- Abdominal cramps
- Fever

A severe form of amoebiasis, known as amoebic dysentery, can develop in some cases and may cause symptoms such as abdominal pain, diarrhoea with blood or mucus, loss of appetite and fever. Rarely, ***E. histolytica*** travels through the blood stream to the liver and can form an abscess. In some cases, the protozoan has spread to other parts of the body, including the lungs and brain.

RISK FACTORS

Risk factors for developing amoebiasis include:

- Travel to tropical places with poor sanitary conditions.
- Living in facilities with poor sanitary conditions.

- People who have anal sex and men who have sex with men.

TREATMENT

If amoebiasis is suspected, a stool sample should be collected for testing. If the stool sample is positive, treatment typically involves one or a combination of antibiotics, depending on the severity of infection and symptoms. It is important to advise the patient to complete the full course of treatment to prevent transmission of the infection to others and to reduce the risk of further symptoms developing at a later stage. Following completion of treatment, a follow-up stool sample is generally recommended to confirm the eradication of ***E. histolytica*** from the intestines.

PREVENTION & CONTROL

Exposure to ***E. histolytica*** is more likely when travelling to developing countries. To reduce the risk of contracting amoebiasis while abroad the following advice is recommended:

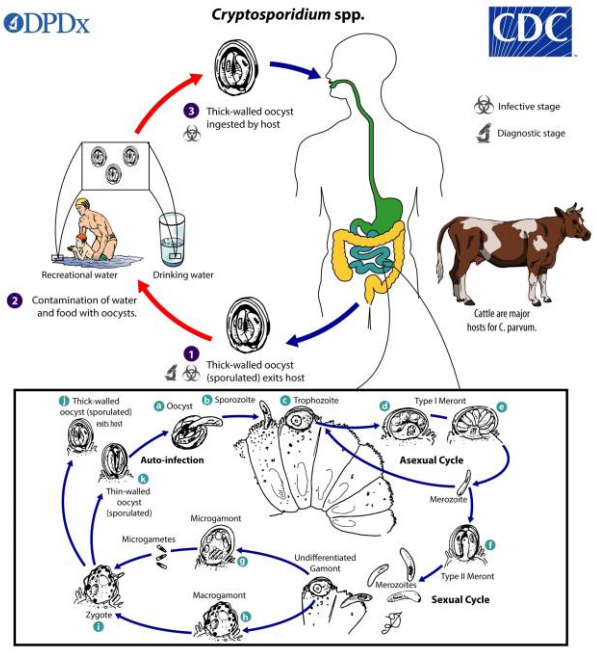
- Drink bottled water (make sure the seal is intact) or ensure water for drinking is sterilized appropriately.
- Avoid ice in your drinks.
- Do not eat fresh fruit or vegetables that cannot be peeled before eating.
- Avoid eating food or drink bought from street vendors
- Eat or drink only pasteurized dairy products.

CRYPTOSPORIDIOSIS

Cryptosporidiosis is an enteric parasitic infection caused by *Cryptosporidium*. This parasite is often found to infect the intestines of different animals, including reptiles, fish, birds, dogs, cats, rodents, and sheep. The route of transmission is faeco-oral. Examples of how the infection may be transmitted, include the ingestion of contaminated water and food, and sexual contact.

Human infections are often caused by *Cryptosporidium parvum*, or *Cryptosporidium hominis*. Patients that are immunocompromised or immunosuppressed are at a greater risk of developing severe infection. This includes patients with HIV and men who have sex with men.

Outbreaks have been linked to daycare centres, swimming pools, recreational water facilities, travel, and animal contact.



Source: https://www.cdc.gov/dpdx/cryptosporidiosis/modules/Cryptosporidium_LifeCycle_lg.jpg

CLINICAL FEATURES

Asymptomatic infection may occur. However, infection may become life-threatening in individuals who are immunocompromised or immunosuppressed.

Clinical features to watch out for include:

- Watery diarrhoea
- Malaise
- Nausea
- Abdominal pain
- Low-grade fever

TREATMENT

In healthy individuals Cryptosporidiosis is often self-limiting. However, if the diarrhoea persists for more than 2 weeks, consider treatment, and discuss with an Infectious Diseases clinician as needed.

It is advised that for patients requiring treatment, an Infectious Diseases clinician is consulted, as the patient may require certain investigations, treatment, and follow-up.

There is no vaccine for Cryptosporidiosis.

PREVENTION AND CONTROL

Advice to help control the spread in patients with Cryptosporidiosis:

- Use a separate toilet, separate towels and separate utensils from household members and close contacts.
- Reduce the risk of transmission by carrying out good hand hygiene.
- Do not swim in public pools until the diarrhoea has stopped for 2 weeks.
- Do not have sex until the diarrhoea has stopped for 2 weeks. This includes vaginal, oral, and anal sex.

Important points about maintaining good hand hygiene:

- Do not rely on alcohol hand rubs, as they are not effective.
- Wash your hands with warm water and soap for at least 20 seconds.

Advice on preventing Cryptosporidiosis:

- Do not eat raw unwashed fruits and vegetables, even if they are organic. Always wash them before eating them.
- Practice caution when travelling to places where food and water may be contaminated. Avoid raw foods, and foods which have not been properly cooked. Avoid drinking water which may be unsafe and opt for bottled water bought in stores instead.
- Limit oral exposure to swimming pool water, stream water and lake water.
- Practice safer sex and good hygiene practices.

IT IS IMPORTANT TO HAVE A LOWER THRESHOLD FOR SUSPICION IN HIGH RISK INDIVIDUALS WHO PRESENT WITH A RELEVANT HISTORY AND CLINICAL FEATURES.

LEGIONELLOSIS

Legionellosis is a notifiable acute bacterial disease caused by exposure to the ***Legionella*** bacteria species. This disease is usually spread through water droplets in the air and in man-made settings. ***Legionella*** can grow if water is not properly maintained. These man-made water sources become a health problem when small droplets of water that contain the bacteria get into the air and people breathe them in. Sources of Legionella infection often involve large or intricate water systems, such as those found in hospitals, hotels and cruise ships. The most common sources include:

- Water used for showers
- Cooling towers (components of large air conditioning systems)
- Decorative fountains
- Hot tubs

Legionella most commonly spreads through devices that use water.

Source: https://www.cdc.gov/legionella/causes/index.html

There are two distinct forms of the disease:

1) **Legionnaires' Disease** – A type of severe pneumonia
2) **Pontiac Fever** – Mild respiratory disease

LEGIONNAIRES' DISEASE

Legionnaires' Disease is a very serious type of pneumonia. Symptoms of Legionnaires' Disease include anorexia, malaise, myalgia, headache, fever, cough and may persist for several months. Abdominal pain and diarrhoea are also common. It is a common cause of pneumonia that may be mild or severe and if untreated usually worsens during the first week following onset of symptoms. Complications may include renal dysfunction, confusion, delirium, depression, disorientation and hallucinations. In certain cases it can progress to respiratory failure and death.

PONTIAC FEVER

Pontiac Fever is a mild, self-limiting influenza-like illness usually lasting 2-5 days. The main symptoms include fever, chills, headache, malaise and myalgia. No deaths are associated with Pontiac Fever.

RISK FACTORS

Most individuals exposed to ***legionella*** do not develop the disease. However, certain risk factors increase susceptibility to infection. These risk factors include:

- Being 50 years of age or older.
- Being a current or former smoker.
- Chronic lung conditions, such as emphysema or chronic obstructive pulmonary disease (COPD).
- Immunosuppression due to underlying conditions, including cancer, diabetes and renal failure.
- Use of immunosuppressive medications.

TREATMENT

Pontiac fever is a self-limiting condition that typically resolves without medical intervention. However, patients diagnosed with Legionnaires' disease require prompt initiation of antibiotic therapy. The majority of cases will require hospital admission for further management and monitoring.

PREVENTION & CONTROL

To reduce the risk of contracting infection with ***legionella*** while abroad, the following advice is recommended:

- Descale and disinfect water fixtures regularly, such as shower heads, taps and water outlets, to prevent the growth of biofilm and limescale.

- Flush infrequently used water systems, such as pipes, taps and showers, to avoid stagnation and decrease the risk of legionella growth.

- Avoid close contact with mists or sprays from cooling towers, decorative fountains or other water devices which are not properly maintained.

LEPTOSPIROSIS

Leptospirosis is a notifiable zoonotic bacterial infection caused by *Leptospira.* It may be transmitted to humans through contact with the urine of an infected mammal. Over 150 mammals are the natural carriers of these bacteria. This includes rodents, domestic animals, and livestock. Humans are accidental hosts.

The disease is most commonly transmitted through:

- Ingestion or inhalation of contaminated water and food.
- Contact of mucous membranes (eyes, nose, and mouth), conjunctiva, abrasions and skin cuts with contaminated soil, water, reproductive fluids, and urine.

Rarely, cases have been documented to be transmitted sexually, through breastfeeding and animal bites.

CLINICAL FEATURES

The clinical features of Leptospirosis may range from mild infection to severe infection and multi-organ failure which may prove to be fatal.

Leptospirosis may be:

1. Anicteric:
   A. Acute phase:
      - Febrile bacteraemia
      - Headache
      - Myalgia – especially in the calves and lower back
      - Fever
      - Rigors
      - Conjunctival hyperaemia (suffusion)
      - Diarrhoea
      - Vomiting
      - Nausea
      - Non-productive cough
      - Arthralgia
      - Splenomegaly
      - Lymphadenopathy
      - Hepatomegaly
      - Skin rash – maculopapular, urticarial, petechial, pruritic
      - Pretibial petechiae

   B. Immune phase:
      - Systemic symptoms:
        - Fever
        - Headache
        - Myalgia
        - Vomiting
        - Nausea
        - Abdominal pain
      - Aseptic meningitis:
        - Headache
        - Neck pain or stiffness
        - Nuchal rigidity
      - Uveitis – unilateral or bilateral

or

2. Icteric– Weil's disease:
    - Multisystem illness
    - Fever
    - Jaundice
    - Renal failure
    - Pulmonary haemorrhage with ARDS
    - Myocarditis
    - Rhabdomyolysis
    - Conjunctival suffusion

IT IS IMPORTANT TO HAVE A LOW THRESHOLD FOR SUSPICION IN INDIVIDUALS WHO PRESENT WITH A RELEVANT HISTORY AND CLINICAL FEATURES.

TREATMENT

If you are suspecting Leptospirosis, the patient will need to be investigated and managed in hospital. Early treatment is crucial. Before sending the patient to hospital inform the A&E doctor and also inform the IDCU.

Treatment may include ventilatory support, supportive care, blood products and renal replacement therapy.

Antibiotics may include doxycycline or azithromycin in mild cases, or doxycycline and ceftriaxone in severe cases. Treatment choice and duration depends on the severity of the case and the clinical picture.

PREVENTION AND CONTROL

Advise patients to avoid certain risk factors, such as:

- Water activities, swimming, and kayaking in floodwater or freshwater that may be contaminated with animal urine.
- Immersion or ingestion of contaminated water.
- Carrying out high risk activities when travelling to endemic areas with heavy rainfall and flooding such as trekking, and gardening.
- Walking barefoot or exposing skin lesions to water which may have been in contact with rodents.

Some risk factors, such as household exposures from pets, and occupational exposure in vets, farmers, sewer workers, abattoir workers, and lab workers cannot be helped.

For advice on the prevention of Leptospirosis, keep the following in mind:

- Avoid exposure to possible sources of infection.
- Ensuring adequate pest control is important to help control rodent populations.
- If exposure cannot be avoided try wearing appropriate PPE such as gloves, waterproof coverings, and rubber boots.
- Do not drink any unsafe water that may be potentially contaminated. If you choose to do so, always boil, or chemically treat it before drinking it.
- Avoid eating foods which may have been contaminated by animals or rodents.

LISTERIOSIS

Listeriosis is a notifiable foodborne bacterial infection, caused by *Listeria monocytogenes*. These bacteria are often found in animal faeces, water, and soil. Infection may occur due to the ingestion of contaminated refrigerated ready-to-eat foods, contaminated deli meats and spreads, contaminated unpasteurized milk and soft cheeses, and contaminated unwashed fruits and vegetables. Listeriosis may cause serious infections in pregnant persons, neonates, immunocompromised individuals, and older adults over the age of 65 years.

CLINICAL FEATURES

Clinical features of Listeriosis may include:

- Non-specific influenza like illness
- Febrile gastroenteritis
- Bacteraemia
- Meningitis
- Sepsis
- Fever
- Chills and Rigors
- Myalgia
- Back pain
- Abdominal pain
- Nausea
-

Listeriosis in pregnant persons may result in:

- Stillbirth
- Miscarriage
- Premature birth
- Neonatal sepsis

TREATMENT

Treatment choice and duration depends on the severity of infection. In a serious infection, the patient may need intravenous antibiotics such as ampicillin + gentamicin for 2 weeks or longer.

PREVENTION AND CONTROL

General advice:

- High risk patients with Listeriosis need to be investigated and managed in hospital. Early treatment is crucial. Before sending the patient to hospital inform the A&E doctor and also inform IDCU.
- Maintain a high index of suspicion for high risk individuals with a relevant history and clinical features.
- Preventing Listeriosis in high risk individuals is important. This can be done by educating patients and providing relevant advice.

Education and advice for high-risk patients:

- Avoid high risk foods.
- Provide education and advice about food safety concerning the handling, preparing, and cooking of food. For example, do not let the juice from deli meats or packages leak onto other foods or surfaces, and make sure to cook food properly.
- Provide education and advice about hand hygiene and the importance of handwashing. For example, wash hands before and after handling raw foods.

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MPOX

Mpox is an infection that originates from animals caused by a virus closely related to the smallpox virus. Infection is usually transmitted to humans through scratches or bites from infected animals, such as rodents or monkeys. It can also spread between people.

It is commonly found in central and West Africa, however, over the past few years, cases, and outbreaks of Mpox have been identified globally.

MPXV is subdivided into 2 different genetic clades, clade I and clade II (each having subclades a and b) with clade I being associated with more severe symptoms and increased mortality.

CLINICAL FEATURES

Mpox symptoms generally appear 6-13 days after infection, ranging from 5 to 21 days. The illness typically lasts for two to four weeks.

Mpox infection is usually a mild, self-limiting illness, and most people recover within a few weeks. However, severe illness can occur in some people especially if immunocompromised.

Initial symptoms of mpox include

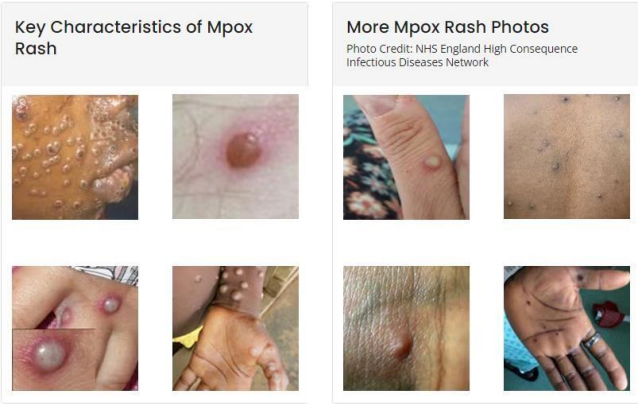
- fever
- Headache
- muscle aches
- backache
- swollen lymph nodes
- chills
- exhaustion

Within three days from the onset of the prodrome symptoms, a rash develops.

The rash evolves sequentially from macules (lesions with a flat base) to papules (slightly raised firm lesions), vesicles (lesions filled with clear fluid), pustules (lesions filled with yellowish fluid), and crusts which dry up and fall off. The number of lesions varies from a few to several thousand. In severe cases, lesions can coalesce until large sections of skin slough off. Typically, and in contrast to chickenpox, the rash develops at the same stage in all areas.

The lesions may be centrally depressed and can be extremely itchy. Secondary bacterial infection may rarely occur if scratching occurs. Prior to and concomitant with the rash, lymphadenopathy is observed in many patients, which is usually not observed in varicella.

A person can be infectious during the prodromal phase and remains contagious until after all the scabs have dried and fallen off and a fresh layer of intact skin has formed underneath.



TREATMENT

There is no specific treatment for mpox although antivirals can be effective for severe cases. Tecovirimat is well-tolerated and safe, and the provided clinical benefit comes to those who are treated early and with severe disease at hospital level. Symptomatic and supportive treatment can be provided to alleviate fever, pruritus, pain and provide hydration as required and to prevent secondary bacterial infection.

PREVENTION AND CONTROL

In order to prevent infections individuals are to be advised to:

- Avoid close physical contact with people who have a rash that looks like Mpox.
- Practice safer sex, including limiting their number of sexual partners and using a condom.
- Not share sheets, towels, clothes, sex toys etc. with someone who has symptoms of Mpox
- Keep hands clean, using soap and water, or an alcohol-based sanitizer.

Once a case is diagnosed they are placed in isolation for 21 days by public health and contact tracing is carried out.

There is no specific vaccine for monkeypox, but there is a vaccine against smallpox (MVA-BN, also known as Imvamune, Imvanex or Jynneos) that does offer protection (at least 85% effective in preventing monkeypox) if given before or within a few days of exposure. This is because the monkeypox virus is closely related to the virus that causes smallpox (orthopoxvirus).

People who have been vaccinated against smallpox in the past will also have some protection against monkeypox. The original smallpox vaccines are no longer available to the general public, and people below the age of 50 years are unlikely to have been vaccinated.

The mpox vaccine (JYNNEOS) is currently being provided free of charge by the Health Department to individuals deemed to be at high risk of being infected with the Mpox virus, according to specified protocols. Individuals who are identified as being high risk will be guided with regards to vaccination by the health authorities. The vaccine is not available for procurement from private clinics/pharmacies and is not available for travel purposes.

ACTION TO TAKE

It is important to immediately contact Public Health consultants working at IDCU to inform them about any potential active infectious case of concern.

Patients with a confirmed diagnosis should be notified to the IDCU through Notification Forms | HDPD (gov.mt).

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You can notify the IDCU about an infectious disease using the online Infectious Disease Notification Form

Notification Forms | HDPD (gov.mt)

IDCU home page

Infectious Disease Prevention and Control Unit | HDPD (gov.mt)