

## Information about the main diseases treated at the St John's facilities (hospital and care center)

### HIV/AIDS

Human immunodeficiency virus infection / Acquired immunodeficiency syndrome (HIV/AIDS) is a disease of the human immune system caused by the human immunodeficiency virus (HIV).[1] The illness interferes with the immune system, making people with AIDS much more likely to get infections, including opportunistic infections and tumors that do not usually affect people with working immune systems. This susceptibility increases as the disease worsens.

HIV is transmitted primarily via sexual intercourse (including oral sex and anal sex), contaminated blood transfusions and hypodermic needles, and from mother to child during pregnancy, delivery, or breastfeeding.[2] Some bodily fluids, like saliva or tears, do not transmit HIV.[3] Prevention of HIV infection, primarily through safe sex and needle-exchange programs, is a key strategy to control the disease. There is no known cure for or vaccine; however, antiretroviral treatment can slow the course of the disease and may lead to a near-normal life expectancy. While antiretroviral treatment reduces the risk of death and complications from the disease, these medications are expensive and may be associated with side effects of their own.

HIV/AIDS is a major health problem in many parts of the world, and is considered a pandemic—a disease outbreak which is present over a large area and is actively spreading.[4] As of 2010, approximately 34 million people have HIV globally.[5] Of these, approximately 16.8 million are women and 3.4 million are less than 15 years old.[5] HIV/AIDS resulted in about 1.8 million deaths in 2010, down from 3.1 million in 2001.[5] Since AIDS was first recognized in 1981, it has led to nearly 30 million deaths (as of 2009).[6]

Genetic research indicates that HIV originated in West-central Africa during the early twentieth century.[7] AIDS was first recognized by the Centers for Disease Control and Prevention (CDC) in 1981 and its cause, HIV, identified in the early 1980s.[8]

**Source:** <http://en.wikipedia.org/wiki/HIV/AIDS>

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## Leprosy

Leprosy, also known as Hansen's disease (HD), is a chronic disease caused by the bacteria *Mycobacterium leprae* and *Mycobacterium lepromatosis*.<sup>[1][2]</sup> Named after physician Gerhard Armauer Hansen, leprosy is primarily a granulomatous disease of the peripheral nerves and mucosa of the upper respiratory tract; skin lesions are the primary external sign.<sup>[3]</sup> Left untreated, leprosy can be progressive, causing permanent damage to the skin, nerves, limbs and eyes. Contrary to folklore, leprosy does not cause body parts to fall off, although they can become numb or diseased as a result of secondary infections; these occur as a result of the body's defenses being compromised by the primary disease.<sup>[4][5]</sup> Secondary infections, in turn, can result in tissue loss causing fingers and toes to become shortened and deformed, as cartilage is absorbed into the body.<sup>[4][5][6]</sup>

Although the mode of transmission of Hansen's disease remains uncertain, most investigators think that *M. leprae* is usually spread from person to person in respiratory droplets.<sup>[7]</sup> Studies have shown that leprosy can be transmitted to humans by armadillos.<sup>[8][9][10]</sup> Leprosy is now known to be neither sexually transmitted nor highly infectious after treatment. Approximately 95% of people are naturally immune<sup>[11]</sup> and sufferers are no longer infectious after as little as 2 weeks of treatment.

### *Prevention*

In a recent trial, a single dose of rifampicin reduced the rate at which contacts acquired leprosy in the two years after contact by 57%; 265 treatments with rifampicin prevented one case of leprosy in this period.<sup>[60]</sup> A non-randomized study found that rifampicin reduced the number of new cases of leprosy by 75% after three years.<sup>[61]</sup>

BCG offers a variable amount of protection against leprosy as well as against tuberculosis.<sup>[62][63]</sup>

Efforts to overcome persistent obstacles to the elimination of the disease include improving detection, educating patients and the population about its cause, and fighting social taboos about a disease that has caused its patients throughout history to be considered "unclean" or "cursed by God" as outcasts. Leprosy is not a hereditary disease. Where taboos are strong, patients may be forced to hide their condition (and avoid seeking treatment) to avoid discrimination. The lack of awareness about Hansen's disease can lead people to believe (falsely) that the disease is highly contagious and incurable.

The ALERT hospital and research facility in Ethiopia provides training to medical personnel from around the world in the treatment of leprosy, as well as treating many local patients. Surgical techniques, such as for the restoration of control of movement of thumbs, have been developed.

### *Treatment*

MDT remains highly effective, and patients are no longer infectious after the first monthly dose.[13] It is safe and easy to use under field conditions due to its presentation in calendar blister packs.[13] Relapse rates remain low, and there is no known resistance to the combined drugs.[13] The Seventh WHO Expert Committee on Leprosy,[65] reporting in 1997, concluded that the MB duration of treatment — then standing at 24 months — could safely be shortened to 12 months "without significantly compromising its efficacy."

**Source:** <http://en.wikipedia.org/wiki/Leprosy>

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## Tuberculosis

Tuberculosis, MTB, or TB (short for tubercle bacillus) is a common, and in many cases lethal, infectious disease caused by various strains of mycobacteria, usually *Mycobacterium tuberculosis*. [1] Tuberculosis typically attacks the lungs, but can also affect other parts of the body. It is spread through the air when people who have an active TB infection cough, sneeze, or otherwise transmit their saliva through the air. [2] Most infections are asymptomatic and latent, but about one in 10 latent infections eventually progresses to active disease which, if left untreated, kills more than 50% of those so infected.

The classic symptoms of active TB infection are a chronic cough with blood-tinged sputum, fever, night sweats, and weight loss (the latter giving rise to the formerly prevalent term "consumption"). Infection of other organs causes a wide range of symptoms. Diagnosis of active TB relies on radiology (commonly chest X-rays), as well as microscopic examination and microbiological culture of body fluids. Diagnosis of latent TB relies on the tuberculin skin test (TST) and/or blood tests. Treatment is difficult and requires administration of multiple antibiotics over a long period of time. Social contacts are also screened and treated if necessary. Antibiotic resistance is a growing problem in multiple

drug-resistant tuberculosis (MDR-TB) infections. Prevention relies on screening programs and vaccination with the bacillus Calmette–Guérin vaccine.

One third of the world's population is thought to have been infected with *M. tuberculosis*,<sup>[3]</sup> with new infections occurring at a rate of about one per second.<sup>[3]</sup> In 2007, there were an estimated 13.7 million chronic active cases globally,<sup>[4]</sup> while in 2010, there were an estimated 8.8 million new cases and 1.5 million associated deaths, mostly occurring in developing countries.<sup>[5]</sup> The absolute number of tuberculosis cases has been decreasing since 2006, and new cases have decreased since 2002.<sup>[5]</sup> The distribution of tuberculosis is not uniform across the globe; about 80% of the population in many Asian and African countries test positive in tuberculin tests, while only 5–10% of the United States population tests positive.<sup>[1]</sup> More people in the developing world contract tuberculosis because of compromised immunity, largely due to high rates of HIV infection and the corresponding development of AIDS.<sup>[6]</sup>

### *Prevention*

Tuberculosis prevention and control efforts primarily rely on the vaccination of infants and the detection and appropriate treatment of active cases.<sup>[6]</sup> The World Health Organization has achieved some success with improved treatment regimens, and a small decrease in case numbers.<sup>[6]</sup>

### *Vaccines*

The only currently available vaccine as of 2011 is bacillus Calmette–Guérin (BCG) which, while it is effective against disseminated disease in childhood, confers inconsistent protection against contracting pulmonary TB.<sup>[64]</sup> Nevertheless, it is the most widely used vaccine worldwide, with more than 90% of all children being vaccinated.<sup>[6]</sup> However, the immunity it induces decreases after about ten years.<sup>[6]</sup> As tuberculosis is uncommon in most of Canada, the United Kingdom, and the United States, BCG is only administered to people at high risk.<sup>[65][66][67]</sup> Part of the reasoning arguing against the use of the vaccine is that it makes the tuberculin skin test falsely positive, and therefore, of no use in screening.<sup>[67]</sup> A number of new vaccines are currently in development.<sup>[6]</sup>

### *Public health*

The World Health Organization declared TB a "global health emergency" in 1993,<sup>[6]</sup> and in 2006, the Stop TB Partnership developed a Global Plan to Stop Tuberculosis that aims to save 14 million lives between its launch and 2015.<sup>[68]</sup> A number of targets they have set are not likely to be achieved by 2015, mostly due to the increase in HIV-associated tuberculosis and the emergence of multiple drug-resistant tuberculosis (MDR-TB).<sup>[6]</sup> A tuberculosis classification system developed by the American Thoracic Society is used primarily in public health programs.<sup>[69]</sup>

### *Management*

Treatment of TB uses antibiotics to kill the bacteria. Effective TB treatment is difficult, due to the unusual structure and chemical composition of the mycobacterial cell wall, which hinders the entry of drugs and makes many antibiotics ineffective.<sup>[70]</sup> The two antibiotics most commonly used are isoniazid and rifampicin, and treatments can be prolonged, taking several months.<sup>[40]</sup> Latent TB treatment usually employs a single antibiotic,<sup>[71]</sup> while active TB disease is best treated with combinations of several antibiotics to reduce the risk of the bacteria developing antibiotic

resistance.[6] People with latent infections are also treated to prevent them from progressing to active TB disease later in life.[71] Directly observed therapy, i.e. having a health care provider watch the person take their medications, is recommended by the WHO in an effort to reduce the number of people not appropriately taking antibiotics.[72] The evidence to support this practice over people simply taking their medications independently is poor.[73] Methods to remind people of the importance of treatment do however appear effective.[74]

**Source:** <http://en.wikipedia.org/wiki/Tuberculosis>

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