**The main neglected tropical diseases**

**Dengue** is a mosquito-borne viral infection that occurs in tropical and subtropical regions worldwide. The flavivirus is transmitted mainly by female *Aedes aegypti* mosquitoes and, to a lesser extent, by female *A. albopictus* mosquitoes. Infection causes flu-like illness, and occasionally develops into a potentially lethal complication called severe dengue (previously known as dengue haemorrhagic fever). Severe dengue is a leading cause of serious illness and death among children in some Asian and Latin American countries.

**Rabies** is a preventable viral disease that is mainly transmitted to humans through the bite of an infected dog. Once symptoms develop, the disease is invariably fatal in humans unless they promptly receive post-exposure prophylaxis. Human rabies has been successfully prevented and controlled in North America and in a number of Asian and Latin American countries by implementing sustained dog vaccination campaigns, managing dog populations humanely and providing post-exposure prophylaxis.

**Trachoma** is a bacterial infection caused by *Chlamydia trachomatis*, which is transmitted through contact with eye discharge from infected people, particularly young children. It is also spread by flies that have been in contact with the eyes and nose of infected people. Untreated, this condition leads to the formation of irreversible corneal opacities and blindness.

**Buruli ulcer** is a chronic debilitating skin infection caused by the bacterium *Mycobacterium ulcerans*, which can lead to permanent disfigurement and disability. Patients who are not treated early suffer severe destruction of the skin, bone and soft tissue.

**Endemic treponematoses** – yaws, endemic syphilis (bejel) and pinta – are a group of chronic bacterial infections caused by infection with treponemes that mainly affect the skin and bone.

**Leprosy** is a complex bacterial infection caused by the bacillus *Mycobacterium leprae*. The disease mainly affects the skin, peripheral nerves, mucosa of the upper respiratory tract and the eyes. Leprosy can now be cured easily using multidrug therapy.

**Chagas disease** is a potentially life-threatening illness caused by the protozoa *Trypanosoma cruzi*. It is found mainly in Latin America where it is transmitted to humans by the infected faeces of triatomine ("kissing") bugs.

**Human African trypanosomiasis** (sleeping sickness) is a protozoan parasitic disease spread by the bite of the tsetse fly in impoverished rural areas of sub-Saharan Africa. When symptoms develop, the patients are already approaching the terminal stage of the disease that involves the central nervous system.

**Leishmaniasis** are protozoan parasitic infections transmitted through the bites of infected female sandflies. Visceral Leishmaniasis (also known as kala-azar) attacks the internal organs and is the most severe form. Cutaneous Leishmaniasis commonly causes ulcers of the face, arms and legs, leaving severe and permanently disfiguring scars and disability.

**Taeniasis and cysticercosis** are parasitic diseases caused by *Taenia solium*. Taeniasis is a mild disease caused by the presence of the adult tapeworm in the human intestine. Cysticercosis is a severe disease that results when humans ingest the tapeworm’s eggs which develop as larvae (cysticerci) in their tissues. Cysticerci may develop in muscles, skin, the eyes and the central nervous system. Neurocysticercosis, the most severe form of the disease, results when the central nervous system is invaded; it is a major cause of epilepsy.
Dacunculiasis (guinea-worm disease) is a crippling parasitic disease caused by *Dracunculus medinensis*, a long thread-like worm. It is transmitted exclusively by drinking water contaminated with parasite-infected water fleas.

Echinococcosis is a parasitic disease caused by the larval stages of tapeworms of the genus *Echinococcus* that form pathogenic cysts in humans. The two most important forms of the disease in humans are cystic echinococcosis (hydatidosis), caused by infection with *E. granulosus*, and alveolar echinococcosis, caused by infection with *E. multilocularis*. Animal hosts of the parasites include domestic and wild carnivores, farm animals, wild ungulates, rodents and other small mammals. Humans become infected by ingesting *Echinococcus* eggs that are most commonly shed in faeces of dogs and several wild canids, such as foxes, wolves, jackals and coyotes.

Foodborne trematodiasis are zoonoses (infections that are naturally transmitted from vertebrate animals to humans, and vice versa). Infection in humans is acquired through consumption of fish, vegetables and crustaceans (crabs and crayfish) contaminated with the larval stages of parasites (metacercariae). The diseases of most public-health importance are clonorchiasis (caused by infection with *Clonorchis sinensis*), opisthorchiasis (infection with *Opisthorchis viverrini* or *O. felineus*) and fascioliasis (infection with *Fasciola hepatica* or *F. gigantica*). These infections are prevalent in a number of tropical countries.

Lymphatic filariasis is a severely debilitating, disfiguring and stigmatizing disease caused by infection with one of three species of nematode (*Wuchereria bancrofti*, *Brugia malayi* or *B. timori*), which are transmitted by mosquitoes. Adult worms live almost exclusively in humans, lodging in the lymphatic system. The infection is commonly acquired during childhood but usually manifests during adulthood as abnormal enlargement of the limbs and the genitals.

Onchocerciasis (river blindness) is caused by infection with a filarial nematode (*Onchocerca volvulus*). The infection is transmitted to humans by the bites of infected blackflies that breed in fast-flowing rivers and streams, mostly in remote rural villages located near fertile land where people rely on agriculture. The adult worms produce embryonic microfilarial larvae that migrate to the skin, eyes and other organs. Symptoms include severe itching and eye lesions that can lead to visual impairment and permanent blindness.

Schistosomiasis is a chronic parasitic disease caused by several species of blood flukes (trematode worms) of the genus *Schistosoma*. Most cases of the disease result from infection with *S. haematobium* (which causes urogenital schistosomiasis) and *S. mansoni* (which causes intestinal schistosomiasis). Infection occurs when the larval forms of the parasite – released by freshwater snails – penetrate human skin during contact with infested water.

Soil-transmitted helminthiases, or intestinal worm infections, are transmitted to humans through soil contaminated by human faeces, mostly in areas where sanitation is poor. The most common nematode species that cause soil-transmitted helminthiases are *Ascaris lumbricoides*, *Trichuris trichiura*, *Necator americanus* and *Ancylostoma duodenale*. Infection leads to anaemia, vitamin A deficiency, stunted growth, malnutrition, intestinal obstruction and impaired development. Morbidity can be controlled by delivering preventative chemotherapy with anthelminthic medicines.