

## **Neglected Diseases**

**What is a neglected disease?**

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**What is a neglected disease?**

Neglected diseases are conditions that inflict severe health burdens on the world's poorest people. Many of these conditions are infectious diseases that are most prevalent in tropical climates, particularly in areas with unsafe drinking water, poor sanitation, substandard housing and little or no access to health care.

**Why do we call these diseases neglected?**

Diseases are said to be neglected if they are often overlooked by drug developers or by others instrumental in drug access, such as government officials, public health programs and the news media. Typically, private pharmaceutical companies cannot recover the cost of developing and producing treatments for these diseases.

Another reason neglected diseases are not considered high priorities for prevention or treatment is because they usually do not affect people who live in the United States and other developed nations.

Neglected diseases also lack visibility because they usually do not cause dramatic outbreaks that kill large numbers of people. Rather, such diseases usually exact their toll over a longer period of time, leading to crippling deformities, severe disabilities and/or relatively slow deaths.

**How many people are affected by neglected diseases?**

The World Health Organization (WHO) estimates that more than 1 billion people -- one-sixth of the world's population -- suffer from one or more neglected diseases.

The diseases are most heavily concentrated in low-income nations in Africa and Latin America. In addition, neglected diseases take a heavy toll in parts of Asia and the Middle East, although the range of diseases is narrower. Some of these diseases also are occasionally found in areas of the United States with high rates of poverty.

**What are some examples of neglected diseases?**

The most common type of neglected diseases are tropical diseases. Many neglected tropical diseases are caused by parasites, which are spread by insects or contact with contaminated water or soil. Examples of these parasitic diseases include:

- African trypanosomiasis. Commonly called sleeping sickness, this disease is caused by a parasitic microbe transmitted by tsetse flies. If untreated, the parasite migrates to the central nervous system, causing seizures, mental disorders and, ultimately, death. As many as 70,000 people are infected in Central and East Africa.
- American trypanosomiasis. Commonly called Chagas disease, this disease is caused by a parasitic microbe transmitted by blood-sucking bugs. It can cause organ damage. The parasite infects about 13 million people, mostly in Latin America.
- Hookworm. Human hookworm infection is caused by intestinal worm parasites transmitted to humans from contaminated soil. It causes internal blood loss and is the world's leading cause of anemia and protein malnutrition, particularly in pregnant women and children. More than half a billion people in poverty-stricken areas of Africa, Latin America, Southeast Asia and China are infected.
- Leishmaniasis. This disease is caused by a parasitic microbe transmitted by sand flies. It can cause skin lesions and swelling of the spleen and liver. More than 12 million people are infected in Africa, Asia, Europe and the Americas.
- Lymphatic filariasis. Commonly called elephantiasis, this parasitic worm disease is spread by mosquitoes. It can lead to disabling swelling of the legs and other body parts. About 120 million people are infected throughout Asia, Africa, the Western Pacific, South America and parts of the Caribbean.
- Malaria. This disease is caused by a parasitic microbe spread by mosquitoes. Each year, malaria infects at least 300 million people living in tropical regions. It can cause brain damage or death if red blood cells infected with malaria parasites build up in the brain's blood vessels. The annual death toll is about 1 million people, many of whom are children under age 5 and pregnant women.
- Onchocerciasis. Commonly called river blindness, this parasitic worm disease is spread by black flies. It can cause extreme itching, sores on the skin and blindness. The parasite infects about 18 million people, mostly in Africa, but also in Latin America.
- Schistosomiasis. Also known as bilharzia or snail fever, this parasitic worm disease is transmitted by snails that live in fresh water. It can impair growth, cause severe anemia and lead to kidney and liver malfunctions. More than 200 million people are infected, mostly in Africa and Asia.

Other neglected tropical diseases are caused by bacteria. Examples of bacterial diseases include:

- Buruli ulcer. This disease can cause massive open sores on the legs and arms. If untreated it can spread to the bones. The disease has been reported in 30 countries, but it is not known how many people it infects.
- Trachoma. This disease can scar the inside of the eyelid. If untreated, it can lead to blindness. About 80 million people worldwide are infected. The disease occurs mostly in the poorest regions of Africa, Asia and the Middle East, but also has been reported in some parts of South America and Australia.
- Yaws. This disease is a bacterial infection that affects mainly the skin, bone and cartilage. While rarely fatal, yaws can lead to deformities and disability. It is not known how many people have the disease. However, tens of thousands of cases have been reported in Ghana, Indonesia and Papua New Guinea, with most occurring in children younger than 15.

### **What can be done to prevent neglected diseases?**

Specific prevention strategies vary from disease to disease. But experts agree that a good way to head off many neglected diseases is to provide people with safe sources of drinking water, good sanitation, adequate housing and access to health care.

For diseases that are spread by insects, simple measures such as pesticides or hanging nets around beds may help to prevent or reduce the risk of getting infected. For diseases transmitted by snails and other organisms that live in streams and rice paddies, people can reduce their risk by not bathing or wading in water at high risk of contamination. For some diseases caused by bacteria, an effective precaution may be to boil water used for drinking, cooking and hand washing.

Other measures involve giving people medications that will prevent infection or greatly minimize the impact of infection if it does occur. Common examples are the anti-malarial drugs that many take to ward off malaria infections. Still, even at a cost of less than 50 cents a day, such drugs remain too expensive for many poor people.

In addition to drugs, researchers are working to develop vaccines that would spur the body's own immune system to ward off disease-causing agents. But major roadblocks remain. In addition to significant scientific challenges, many drug companies have expressed concerns about how people living in the world's poorest areas would be able to pay for vaccines.

### **How can neglected diseases be treated?**

Many people with neglected diseases do not receive proper treatment. One reason is that, due to lack of health care services, they will not be diagnosed with a disease until it is in an advanced stage that is difficult to treat. Even if people are diagnosed early, many cannot afford drugs known to be effective against the disease. Finally, no good treatments exist for some neglected diseases.

Much needs to be done to address all of these challenges. Public health experts are trying to develop better ways of delivering health messages and services to low-income people. They are also educating officials in developing nations about why it makes good economic sense to provide health care and treatments to people suffering from neglected diseases.

For their part, medical researchers are searching for less costly drugs for neglected diseases, and working to develop new drugs for diseases that lack treatments. In recent years, public and non-profit groups have partnered with drug firms in efforts to produce less costly and more effective treatments. Some progress has been made, but the number of drugs developed specifically for neglected diseases still trails behind drugs for other disorders.

Recently, the National Institutes of Health (NIH) launched a new effort, called the Therapeutics for Rare and Neglected Diseases (TRND), program, to create an integrated research pipeline to jump start the development of new treatments for rare and neglected disorders. The NIH Office of Rare Diseases Research (ORDR) handles oversight and governance of TRND. The laboratory work for TRND will be performed in a facility administered by the intramural program of the National Human Genome Research Institute (NHGRI).

To learn more about TRND, go to the ORDR Web site at <http://rarediseases.info.nih.gov/TRND>.

### **Where can people get more information about neglected diseases?**

As part of its mission, the National Institutes of Allergy and Infectious Diseases (NIAID) of the NIH helps to advance research focused on neglected diseases. To access NIAID's information on neglected tropical diseases, go to <http://www3.niaid.nih.gov/topics/tropicalDiseases/>. For information on malaria, go to <http://www3.niaid.nih.gov/topics/Malaria/>.

The Centers for Disease Control and Prevention, which is part of HHS, provides information about some neglected diseases, particularly those that threaten Americans or Americans traveling abroad. A list of diseases related to travel is available at <http://wwwn.cdc.gov/travel/content/diseases.aspx>.

Another good source of information is the World Health Organization. It offers overviews of various neglected diseases and efforts to combat them at its Web site, <http://www.who.int/en/>