

SCHISTOSOMIASIS

Schistosomiasis, also known as bilharzia or “snail fever,” is a parasitic disease carried by fresh water snails infected with five varieties of the parasite *Schistosoma*. Found predominantly in tropical and sub-tropical climates, schistosomiasis infects 207 million people in 74 countries worldwide, including more than 100 million people in Africa alone. Schistosomiasis ranks second only to malaria as the most common parasitic disease.

Schistosomiasis is transmitted by contact with contaminated fresh water (lakes and ponds, rivers, dams) inhabited by snails carrying the parasite. Swimming, bathing, fishing and even domestic chores such as laundry and herding livestock can put people at risk of contracting the disease. Larvae emerge from the snails and swim in the water until they come into contact with an individual and penetrate the skin. Once inside the body, the larvae develop into male and female worms which pair up and live together in the blood vessels for years. Female worms release thousands of eggs which are passed out of the body in the urine and feces. If people urinate or defecate in bodies of fresh-water, the eggs hatch and release parasites that migrate to snails where they eventually hatch and begin the cycle again.

Some schistosoma eggs, however, remain trapped in the body and migrate to specific organs (depending on the type of parasite) where they can inflict major damage. Urinary schistosomiasis causes scarring and tearing of the bladder and kidneys, and can lead to bladder cancer. Intestinal schistosomiasis develops slowly, causing abdominal bleeding; enlargement of the liver, lungs and spleen; and damage to the intestines. A major indicator of the disease is blood in the urine and/or feces.

DISEASE OVERVIEW

RISK FACTORS

- Contact with freshwater sources where infected snails carrying the disease live
- Seventy-four countries worldwide, but over half of all documented cases – 100 million – are found in Africa
- Children under age 14
- Individuals with labor or domestic chores centered around freshwater areas

SYMPTOMS

Symptoms for the disease vary based upon the type of worm involved and the location of the parasite inside the body, and can include:

- Initial itching and rash at infection site (“swimmer’s itch”)
- Frequent, painful or bloody urine
- Abdominal pain and bloody diarrhea
- Fever, chills and muscle aches
- Inflammation and scarring of the bladder
- Lymph node enlargement
- Enlargement of the liver or spleen
- Liver Cirrhosis
- Secondary blood disorders in cases of colon damage
- If infection persists, bladder cancer may eventually develop in some cases
- Children with repeated infection can develop anemia, malnutrition and learning disabilities

TRANSMISSION

Parasites penetrate the skin during contact with freshwater containing contaminated snails. The larvae migrate to the blood vessels where they mate and produce eggs. Some eggs travel to the bladder or intestines and are passed into the urine or stool. Others remain trapped in the body and cause damage to internal organs.

PREVENTION AND TREATMENT

- Education campaigns about risks of infection by bathing in fresh water lakes and ponds
- Praziquantel is the primary form of treatment
 - A single dose of praziquantel has been shown to reduce the severity of symptoms in cases of subsequent re-infection

SCHISTOSOMIASIS

- 200 million tablets have been donated by Merck KGaA for 2008-2017, but this is only 5% of the global need
- It is also available for purchase for 8¢ per tablet
- A schistosomiasis vaccine is currently in the early stages of development by Sabin's vaccine development team

DISEASE BURDEN

PREVALENCE

- 207 million people worldwide
- 100 million in Africa alone

DISEASE IMPACT

- Twenty million schistosomiasis sufferers develop severe and sometimes disfiguring disabilities from complications from the disease, including bladder cancer
- Children with chronic disease can suffer from anemia and malnutrition, which can contribute to lost days at school and pervasive learning disabilities
- Schistosomiasis is the most deadly NTD, killing an estimated 280,000 people each year

CONTROL EFFORTS

Recent efforts have focused on targeted distribution of Praziquantel in specific areas thought to be disease-endemic. Areas of high transmission can be identified by mapping the rates of blood in the urine of school-age children. If the rates are high, the drug is distributed to the entire community at risk. Annual dosing of Praziquantel is sometimes recommended for areas at high risk for re-infection with the disease, and has also been used to help reduce the severity of symptoms in chronic sufferers. Chronic disease contributes to major organ damage, so reducing the severity of symptoms is critical to management of schistosomiasis.

QUICK FACTS AT A GLANCE

- Found predominantly in tropical and sub-tropical climates
- Infects 207 million people in 74 countries worldwide
- Schistosomiasis is the most deadly NTD, killing an estimated 280,000 people each year
- A single dose of praziquantel has been shown to reduce the severity of symptoms in those re-infected with the disease