

---

# Schistosomiasis (Bilharzia)

## Frequently Asked Questions

---

### 1. What is Schistosomiasis (Bilharzia)?

Schistosomiasis, also known as bilharzia, is a disease caused by parasitic worms. There are two forms of the disease, namely intestinal schistosomiasis caused by *Schistosoma mansoni* and *S. japonicum*, and urinary schistosomiasis caused by *S. haematobium*. Less commonly, *S. mekongi* and *S. intercalatum* also cause disease in humans. Infection with Schistosomes may present as an acute infection or as a chronic disease. Schistosomiasis ranks second to malaria as the most common parasitic disease in Africa.

### 2. Who can get Schistosomiasis (Bilharzia)?

Schistosomiasis can affect anyone. Persons at risk are those living in or traveling to areas where schistosomiasis is endemic and who come into direct (skin) contact with fresh water sources where infected intermediate hosts (snails of the *Bulinus* genus) live.

### 3. Where does Schistosomiasis (Bilharzia) occur in South Africa?

Schistosomiasis is a major neglected public health problem in South Africa. Endemic areas include Limpopo and Mpumalanga provinces, the northern and eastern parts of Gauteng Province, the lower-altitude areas of KwaZulu-Natal Province, and the coastal regions from KwaZulu-Natal Province extending into the Eastern Cape Province as far south as Port Elizabeth. There are about four million people at risk of schistosomiasis, most of whom are children. The prevalence in children in some South African endemic locations is up to 95%. However, the total number of infected people in South Africa is unknown.

### 4. How is Schistosomiasis (Bilharzia) transmitted?

Schistosomiasis is transmitted to humans by contact with freshwater (lakes, ponds, rivers, dams) contaminated with 'cercariae'. Any contact with contaminated fresh water sources, including swimming, bathing, fishing and

domestic chores such as laundry and herding livestock can put people at risk of contracting the disease. Cercariae are a stage in the life cycle of the *Schistosoma* parasite that emerges from infected snails. When cercariae come into contact with an individual, they penetrate the skin and initiate infection in humans. Once inside the body, the cercariae develop into male and female worms which pair up and live together in the blood vessels of the urinary tract (*S. haematobium*) or caecum (*S. mansoni*) for years. Female worms release thousands of eggs which are passed out of the body in the urine or faeces. If infected persons urinate or defecate in bodies of freshwater, the eggs migrate to the snails where they eventually hatch and the cycle begins again. Some schistosoma eggs may remain in the body and migrate to specific organs such as the bladder, intestine, liver, spleen, lungs, the brain and the spinal cord.

## **5. What are the signs and symptoms of Schistosomiasis (Bilharzia) in humans?**

Symptoms of schistosomiasis depend on the species and the location of the parasite inside the body. Infection may be asymptomatic or mild. The incubation period is normally 14–84 days for acute schistosomiasis. Chronic infection can remain asymptomatic for years. Penetration of the skin can be associated with a rash (“swimmer’s itch”) that develops within hours or up to a week after contaminated water exposure. Acute schistosomiasis (Katayama fever) is characterized by fever, headache, myalgia, diarrhoea and respiratory symptoms. The clinical manifestations of chronic schistosomiasis are the result of host immune responses to schistosoma eggs in specific organs. *S. mansoni* and *S. japonicum* eggs in the intestine and liver commonly cause abdominal pain, diarrhoea, constipation and blood in the stools. *S. haematobium* eggs in the urinary tract typically causes dysuria, haematuria and genital symptoms. It has been associated with increased risk of bladder cancer. Other manifestations may include seizures or paralysis (involvement of the brain/spinal cord), enlargement of the liver or spleen and secondary blood disorders leading to anaemia. Children with repeated infection can develop anaemia, malnutrition and learning difficulties.

## **6. How is Schistosomiasis (bilharzia) diagnosed?**

Schistosomiasis is diagnosed by microscopic identification of parasite eggs in stool (*S. mansoni* or *S. japonicum*) or urine (*S. haematobium*). However, parasite eggs are often not found in early and/or light infections; they appear 5 to 15 weeks after exposure. Serologic tests are useful to diagnose light infections where egg shedding is intermittent or erratic. Antibody tests do not distinguish between past and current infection. Test sensitivity and specificity vary, depending on the antigen preparation used and how the test is performed. Health care providers should consider screening asymptomatic people who may have been exposed during travel and may benefit from treatment.

## **7. How is Schistosomiasis (bilharzia) treated?**

The treatment for schistosomiasis in South Africa is praziquantel. It is effective against all species of schistosomes. The usual dose is 40 mg/kg as a single dose or 2 divided doses, 4 to 6 hours apart. For heavy infections with *S. mansoni*, a higher dose may be necessary and a regimen of 30 mg/kg on two successive days (total dose, 60 mg/kg) has been recommended. The side effects of praziquantel are usually mild and include malaise, nausea, abdominal discomfort, headache, drowsiness, dizziness. Less common side effects include are urticaria or arthralgia. Praziquantel is much less active against immature worms as compared to the adult worms; therefore, single-dose treatment early in infection is only 60% to 90% effective and a proportion of patients will require re-treatment. Praziquantel is not effective as pre- or post-exposure prophylaxis. Involvement of the brain and spinal cord should be treated early if reasonably suspected, even if not proven, because of potentially devastating sequelae. In this situation adjunctive steroid treatment, e.g. dexamethasone, is generally recommended.

## **8. How can Schistosomiasis (Bilharzia) be prevented?**

No vaccine is available. No drugs for preventing infection are available. Preventive measures are primarily avoiding wading, swimming, or other contact with freshwater in disease-endemic countries/areas. Untreated piped water coming directly from freshwater sources may contain cercariae, but filtering with fine-mesh filters, heating bathing water to a rolling boil for at least 1 minute, or allowing water to stand for  $\geq 24$  hours before exposure can eliminate the risk of infection. Swimming in adequately chlorinated swimming pools is virtually always safe, even in disease-endemic countries. Vigorous towel-drying after accidental exposure to water has been suggested as a way to remove cercariae before they can penetrate, but this may only prevent some infections and should not be recommended as a preventive measure. Topical applications of insect repellents such as DEET can block penetrating cercariae, but the effect depends on the repellent formulation, may be short-lived, and cannot reliably prevent infection.

## **9. Where can I find out more information**

### **For more information**

- NICD Hotline +27 82 883 9920; (for use by healthcare professionals only)
- Results inquiries: NICD Specimen Receiving Laboratory: +27 11 386 6404.

Guidelines and other useful resources are available on the NICD website: [www.nicd.ac.za](http://www.nicd.ac.za)