



Media centre

Schistosomiasis

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Key facts

- Schistosomiasis is a chronic disease caused by parasitic worms.
- At least 243 million people required treatment for schistosomiasis in 2011.
- The number of people reported to have been treated for schistosomiasis in 2011 was 28.1 million.
- People are at risk of infection due to agricultural, domestic and recreational activities which expose them to infested water.
- Lack of hygiene and play habits make children especially vulnerable to infection.
- Clean drinking water, adequate sanitation and hygiene education would reduce infective water contact and the contamination of water sources.
- Schistosomiasis control focuses on reducing disease through periodic, large-scale population treatment with praziquantel.

Schistosomiasis is a chronic, parasitic disease caused by blood flukes (trematode worms) of the genus *Schistosoma*. At least 243 million people required treatment in 2011. Treatment should be repeated over a number of years. Schistosomiasis transmission has been documented in 78 countries. However those requiring treatment targeted at most at-risk population groups live in 52 countries.

Transmission

People become infected when larval forms of the parasite – released by freshwater snails – penetrate the skin during contact with infested water.

In the body, the larvae develop into adult schistosomes. Adult worms live in the blood vessels where the females release eggs. Some of the eggs are passed out of the body in the faeces or urine to continue the parasite life-cycle. Others become trapped in body tissues, causing an immune reaction and progressive damage to organs.

Epidemiology

Schistosomiasis is prevalent in tropical and sub-tropical areas, especially in poor communities without access to safe drinking water and adequate sanitation. It is estimated that at least 90% of those requiring treatment for schistosomiasis live in Africa.

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There are two major forms of schistosomiasis – intestinal and urogenital – caused by five main species of blood fluke (see table).

Table: Parasite species and geographical distribution of schistosomiasis

	Species	Geographical distribution
Intestinal schistosomiasis	<i>Schistosoma mansoni</i>	Africa, the Middle East, the Caribbean, Brazil, Venezuela, Suriname
	<i>Schistosoma japonicum</i>	China, Indonesia, the Philippines
	<i>Schistosoma mekongi</i>	Several districts of Cambodia and the Lao People's Democratic Republic
	<i>Schistosoma guineensis</i> and related <i>S. intercalatum</i>	Rain forest areas of central Africa
Urogenital schistosomiasis	<i>Schistosoma haematobium</i>	Africa, the Middle East

Schistosomiasis particularly affects agricultural and fishing populations. Women doing domestic chores in infested water, such as washing clothes, are also at risk. Inadequate hygiene and play habits make children especially vulnerable to infection.

Migration to urban areas and refugee movements are introducing the disease to new areas. Increasing population size and the corresponding needs for power and water, often result in development schemes and environmental modifications that also lead to increased transmission.

With the rise in eco-tourism and travel “off the beaten track”, increasing numbers of tourists are contracting schistosomiasis. At times, tourists present with severe acute infection and unusual problems including paralysis.

Urogenital schistosomiasis is also considered to be a risk factor for HIV infection, especially in women.

Symptoms

Symptoms of schistosomiasis are caused by the body's reaction to the worms' eggs, not by the worms themselves.

Intestinal schistosomiasis can result in abdominal pain, diarrhoea, and blood in the stool. Liver enlargement is common in advanced cases, and is frequently associated with an accumulation of fluid in the peritoneal cavity and hypertension of the abdominal blood vessels. In such cases there may also be enlargement of the spleen.

The classic sign of urogenital schistosomiasis is haematuria (blood in urine). Fibrosis of the bladder and ureter, and kidney damage are sometimes diagnosed in advanced cases. Bladder cancer is another possible late-stage complication. In women, urogenital schistosomiasis may present with genital lesions, vaginal bleeding, pain during sexual intercourse and nodules in the vulva. In men, urogenital schistosomiasis

can induce pathology of the seminal vesicles, prostate and other organs. This disease may also have other long-term irreversible consequences, including infertility.

The economic and health effects of schistosomiasis are considerable. In children, schistosomiasis can cause anaemia, stunting and a reduced ability to learn, although the effects are usually reversible with treatment. Chronic schistosomiasis may affect people's ability to work and in some cases can result in death. In sub-Saharan Africa, more than 200 000 deaths per year are due to schistosomiasis.

Diagnosis

Schistosomiasis is diagnosed through the detection of parasite eggs in stool or urine specimens. Antigens detected in blood or urine samples are also indications of infection.

For urogenital schistosomiasis, a filtration technique using nylon, paper or polycarbonate filters is the standard diagnostic technique. Children with *S. haematobium* almost always have microscopic blood in their urine and this can be detected by chemical reagent strips.

The eggs of intestinal schistosomiasis can be detected in faecal specimens through a technique using methylene blue-stained cellophane soaked in glycerine or glass slides, known as the Kato-Katz technique.

For people from non-endemic or living in low transmission areas, serological and immunological tests may be useful in showing exposure to infection and the need for thorough examination and treatment.

Prevention and control

The control of schistosomiasis is based on large-scale treatment of at-risk population groups, access to safe water, improved sanitation, hygiene education and snail control.

The WHO strategy for schistosomiasis control focuses on reducing disease through periodic, targeted treatment with praziquantel. This involves regular treatment of all people in at-risk groups

Groups targeted for treatment are:

- school-aged children in endemic areas;
- adults considered to be at risk in endemic areas, people with occupations involving contact with infested water – such as fishermen, farmers, irrigation workers – and women whose domestic tasks bring them into contact with infested water;
- entire communities living in highly endemic areas.

The frequency of treatment is determined by the prevalence of infection or haematuria (in the case of urogenital schistosomiasis) in school-age children. In high transmission areas, treatment may have to be repeated every year for a number of years. Monitoring is essential to determine the impact of control interventions.

The aim is to reduce disease: periodic treatment of at-risk populations will

cure mild symptoms and prevent infected people from developing severe, late-stage chronic disease. However, a major limitation to schistosomiasis control has been access to praziquantel. Available data show that only 10% of people requiring treatment were reached in 2011.

Praziquantel is the recommended treatment against all forms of schistosomiasis. It is effective, safe and low-cost. Even though re-infection may occur after treatment, the risk of developing severe disease is diminished and even reversed when treatment is initiated and repeated in childhood.

Schistosomiasis control has been successfully implemented over the past 20 years in several countries, including Brazil, Cambodia, China, Egypt, and Saudi Arabia. There is evidence that schistosomiasis transmission was interrupted in Morocco. Assessment of the status of transmission is being made in several countries.

Over the past 10 years, there has been scale up of treatment campaigns in a number of sub-Saharan countries, with national coverage achieved in Burkina Faso, Niger and Uganda.

In 2011 reports were received from 24 countries on preventive chemotherapy for schistosomiasis. The number of people reported treated for schistosomiasis increased from 12.4 million in 2006 to 28.1 million in 2011, down from 33.5 million in 2010, representing a decrease of 20% in the number of people treated. This was due to logistical reasons, unreliable funding for implementation, change of implementing contractors, inadequate capacity at country level, fewer countries reporting data and also fewer people treated in some countries which reported data.

WHO response

WHO's work on schistosomiasis is part of an integrated approach to the control of neglected tropical diseases. Although medically diverse, neglected tropical diseases share features that allow them to persist in conditions of poverty, where they cluster and frequently overlap.

WHO coordinates the strategy of preventive chemotherapy in consultation with collaborating centres and partners from academic and research institutions, the private sector, nongovernmental organizations, international development agencies and other United Nations organizations. WHO develops technical guidelines and tools for use by national control programmes.

Working with partners and the private sector, WHO has advocated for increased access to praziquantel and resources for implementation. A significant amount of praziquantel, to treat more than 100 million children of school age per year has been pledged by the private sector and development partners.