KEY FACTS

- Soil-transmitted helminth (or worms) infections are caused by different parasitic worms;
- They are transmitted by eggs present in human faeces, which contaminate the soil in areas where sanitation is poor;
- Approximately two billion people are infected with soil-transmitted helminths worldwide;
- Infected children are physically, nutritionally and cognitively impaired;
- Control is based on:
  - Periodical deworming to eliminate infecting worms;
  - Health education to prevent reinfection;
  - Improved sanitation to reduce soil contamination with infective eggs; and
- Safe and effective medicines are available to control infection.

Soil-transmitted helminth infections are among the most common infections worldwide and affect the poorest and most deprived communities. The main species that infect people are the roundworm (Ascaris lumbricoides), the whipworm (Trichuris trichiura) and the hookworms (Necator americanus and Ancylostoma duodenale).

PREVALENCE

Over 270 million preschool-age children and over 600 million school-age children live in areas where these parasites are intensively transmitted, and are in need of treatment and preventive interventions.

TRANSMISSION

Soil-transmitted helminths are transmitted by eggs that are passed in the faeces of infected people. Adult worms live in the intestine where they produce thousands of eggs each day. In areas that lack adequate sanitation, these eggs contaminate the soil. This can happen in several ways:

- Eggs that are attached to vegetables are ingested when the vegetables are not carefully cooked, washed or peeled;
- Eggs are ingested from contaminated water sources; and
- Eggs are ingested by children who play in soil and then put their hands in their mouths without washing them.

In addition, hookworm eggs hatch in the soil, releasing larvae that mature into a form that can penetrate the skin. People become infected with hookworm primarily by walking barefoot on the contaminated soil.

There is no direct person-to-person transmission, or infection from fresh faeces, because eggs passed in faeces need about three weeks to mature in the soil before they become infective. Since these worms do not multiply in the human host, reinfection occurs only as a result of contact with infective stages in the environment.
SYMPTOMS OF WORM INFECTION

People with light infections usually have no symptoms. Heavier infections can cause a range of symptoms including:

- Diarrhoea and abdominal pain;
- General malaise and weakness;
- Impaired cognitive and physical development;
- Hookworms cause chronic intestinal blood loss that can result in anaemia;
- Impairment of nutritional status include:
  - The worms feed on host tissues, including blood, which leads to a loss of iron and protein;
  - The worms increase malabsorption of nutrients and roundworm may possibly compete for vitamin A in the intestine;
  - Loss of appetite and therefore a reduction of nutritional intake and physical fitness; and
  - A significant impact on growth and physical development.

WHO STRATEGY FOR CONTROL

People at risk are:

- Preschool children;
- School-age children;
- Women of childbearing age (including pregnant women in the second and third trimesters and breastfeeding women); and
- Adults in certain high-risk occupations, such as tea-pickers or miners.

WHO recommends:

- Periodic deworming without previous individual diagnosis to all at-risk people living in infected areas;
- Health and hygiene education reduces transmission and reinfection by encouraging healthy behaviours; and
- Provision of adequate sanitation is also important but not always possible in resource-poor settings.

Periodic deworming can be easily integrated with school health programmes. In 2011, over 300 million preschool and school-aged children were dewormed in endemic countries, corresponding to 30% of the children at risk.

Schools provide a particularly good entry point for deworming activities, as they allow easy provision of the health and hygiene education component such as the promotion of hand washing and improved sanitation.

WHO-RECOMMENDED MEDICINES

The recommended medicine mebendazole (500 mg) is effective, inexpensive and easy to administer by non-medical personnel (e.g. educators). They have been through extensive safety testing and have been used in millions of people with few and minor side-effects.

References: South African Medical Research Council. 2007. Learn about worms! Tygerberg