# Intestinal helminth infection

## *Executive summary*

## Introduction

Helminths are small worms and parasites that often cause illness when they infect human beings. The commonest helminth infections are those affecting the intestines including ascariasis, trichuriasis and hookworms.

## Target User

* Doctors
* Nurses

## Target area of use

* Gate clinic
* Outpatient Department
* Ward

## Key areas of focus/new additions/changes

A vast majority of intestinal helminths infections are asymptomatic, however infected persons may present with pulmonary or potentially severe gastrointestinal complaints.

The guidelines do not address the management of complications of intestinal helminth infections such as biliary colic, cholangitis, liver abscess, pancreatitis, intestinal obstruction or appendicitis.

## Limitations

Increase in IgE and later IgG markers may well be suggestive of an Intestinal helminth infection and PCR is another diagnostic tool for helminths, however, these tests are not readily available in our setting.

## Presenting symptoms and signs

Patients often complain that they have worms or blame their symptoms on a worm – even symptoms that are not usually associated with worms. In fact, most worm infections (of all kinds) are asymptomatic.

Intestinal worms may present with

* itching around the anus,
* abdominal pain or bloating,
* nausea and vomiting,
* passage of worms in the stools,
* melaena,
* cough and wheezing (a consequence of larval migration through the lungs),
* flatulence,
* failure to thrive
* microscopic blood loss in the stools and
* iron deficiency anaemia.

More rarely, ascariasis can cause biliary colic, cholangitis, liver abscess, pancreatitis, intestinal obstruction or appendicitis. The adult worms may be coughed up from the lungs. Trichuriasis can cause rectal prolapse in young children.

Hookworms can invade the skin and cause “creeping eruption” – a snake-like itchy red rash which moves through the skin.

### Classification/Causes

Below is a list of common intestinal helminths that cause diseases:

* *Ascaris lumbricoides* (Roundworm)
* *Trichuris trichuria* (whip worm)
* *Enterobius vermicularis* (pin worm or thread worm)
* *Necator americanus* (hookworm)
* *Strongyloides stercoralis.*

## Examination findings

Skin and pulmonary findings are minimal. Physical findings in the early stage of the disease may present as erythematous, pruritic, papulovesicular rash at the site of initial infection as in the case of hookworm infestation.

When the worm breaks through from the venous circulation into the pulmonary air spaces, cough, fever and reactive bronchoconstriction may be observed (eg hookworm, strongyloidiasis)

Vague gastrointestinal signs such as mild abdominal tenderness may be present.

Neurologic manifestations such as altered mental state, focal seizures and nuchal rigidity may be seen in severe strongyloidiasis.

Later signs of helminth infection include signs of anaemia (pallor, spooning nails, tachycardia, signs of high output cardiac failure). Hypoproteinemia may lead to anasarca and peripheral oedema.

Very rarely jaundice may be seen in ascaris infection where there is biliary obstruction.

Stunted growth may be observed in children with severe infestations.

## Investigations.

It is not necessary to request investigations routinely. If they are considered they might include:

* FBC (iron deficiency anaemia, eosinophilia)
* Stool microscopy: The diagnosis is often confirmed with direct microscopic analysis of fecal samples to verify the presence of the worms or its ova.
* Chest radiography: In cases of severe infection, chest x-ray may show diffuse alveolar infiltrates during the migration of the larvae through the lung. Once infection is established in the gut, imaging studies are not helpful.

## Management

Most common intestinal helminth infestations can be treated with either of the following:

* Oral albendazole
  + 400 mg stat if 2 years or older
  + 200 mg stat if between 1 and 2 years of age
* Oral mebendazole 100 mg 12 hourly for 3 days.

Avoid these medications if pregnant or planning to conceive in the next 1 month – Levamisole may sometimes be available and is safe for these patients. The dose is 2.5 mg/kg up to 150 mg stat.

Treatment course may be repeated after 3 weeks if infestation persists.

Preventive measures against helminthic infections include adequate sanitation, appropriate personal and food hygiene, and use of protective footwear.

Treatment peculiar to some intestinal helminthic infestations are shown below:

### Enterobius vermicularis

Treat patient and whole family with:

* Oral Mebendazole 100 mg od as single dose (repeat after 3 weeks if symptoms persist)

or

* Oral Albendazole
  + 2 years or older: 400 mg stat (repeat after 2 weeks)
  + 1-2 years: 200mg stat (repeat after 2 weeks)

### Strongyloides stercoralis

The drug of choice is ivermectin 200 micrograms/kg as a single dose, or two doses on successive days. It is rarely available. It is not routinely recommended for children aged under 5 years and less than 15 kg, but has been used in younger children for mass drug administration with few adverse events.

The alternative is albendazole. WHO suggest for children ≤10kg: 200mg OD oral for 3 days, may repeat course in 3 weeks. For children or adolescents >10kg: 400mg OD oral for 3 days, may repeat course in 3 weeks.

In hyperinfestation, ivermectin 200 micrograms/kg daily until stool microscopy is negative for 2 weeks.

**Tapeworms:**

Praziquantel 5-10 mg/kg as single dose (4 years and older).

## References

Centers for Disease Control and Prevention. Strongyloides – Resources for Health Professionals. 2016. Available from: [www.cdc.gov/parasites/strongyloides/health\_professionals/index.html](https://www.cdc.gov/parasites/strongyloides/health_professionals/index.html) Accessed 15th August 2018

Hökelek M. Nematode Infections. Medscape. 2017. Available at <https://emedicine.medscape.com/article/224011-overview>. Accessed 15th August 2018

British National Formulary 70th edition. September 2015-March 2016.

Wilkins AL, Steer AC, Cranswick N, Gwee A. Question 1: Is it safe to use ivermectin in children less than five years of age and weighing less than 15 kg? *Archives of Disease in Childhood* 2018; **103**: 514–9.

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| **Written by:** | Name: Amie Secka | Date: 16 July 2018 |
| **Reviewed by:** | Name: Fatai Akemokwe | Date: 15 August 2018 |
| **Reviewed by** | Name Daisy Taylor | Date 30 June 2020 |
| **Version:** | **Change history:** | **Review due date:** |
| 1.0 | New document |  |
| 2.0 | Updated from previous version and made specific to intestinal helminths | 20 August 2020 |
| 2.1 | Executive summary added | 20 August 2020 |
| 3.0 | Adjusted dosing of some medications according to WHO guidance | 01 November 2022 |
| Review Comments (*if applicable)* |  |  |