

# Scientists used iPhone to diagnose intestinal worms

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Research published by the [American Journal of Tropical Medicine and](#)

[Hygiene](#) showed that it is possible to fashion a low-cost field microscope using an [iPhone](#), double-sided tape, a flashlight, ordinary laboratory slides and an \$8 cameral lens.

The researchers used their cobbled-together microscope to successfully determine the presence of eggs from [hookworm](#) and other parasites in the stool of infected children.

"There's been a lot of tinkering in the lab with mobile phone microscopes, but this is the first time the technology has been used in the field to diagnose [intestinal parasites](#)," said Isaac Bogoch, a physician specializing in infectious diseases at Toronto General Hospital and the lead author on the study.

Intestinal worms infect two billion people around the world, mainly children, sometimes causing malnutrition. The malady can be difficult to diagnose, in part because of the high cost of a conventional microscope, which is priced at around \$200.

Scientists used the cell phone microscopes to evaluate some 200 [stool samples](#) from rural children infected with intestinal worms, and compared the results against findings obtained using a conventional microscope.

They found overall that the iPhone microscope was able to detect the presence of eggs deposited by worms in about 70 percent of the infected samples.

Although not as sensitive as the conventional device, the iPhone microscope can be made much more sensitive with refinements, Bogoch said.

"We think cell phone microscopes could soon become a valuable

[diagnostic tool](#) in poor, remote regions where intestinal worms are a serious health problem, particularly in children," he said.

The researchers also pointed out that almost all medical staff already possess a cell phone, so the cost for a microscope cobbled together using the iPhone is deemed negligible compared to the cost for a conventional one.

[Intestinal worms](#) such as hookworms and roundworms, also known as soil-transmitted helminths, are particularly problematic in young children, hindering their physical and mental development by causing chronic anemia and malnutrition.

If quickly diagnosed, however, the negative health impact of the parasites can be greatly reduced.

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