Deworming: Now more than ever, a best buy for development

By Grace Hollister (news/authors/1196881), Priya Jha (news/authors/1196033) 25 February 2016
India recently held the largest single-day public health campaign ever conducted. In schools and preschools around the vast country, some 270 million children lined up in their classrooms to receive a small, chewable deworming tablet as part of the government-led National Deworming Day.

India is the latest country to join the global movement to combat parasitic worms and boost development. Of the 845 million children at risk for parasitic worms worldwide, more than 20 percent are in India. Last year, the Indian Ministry of Health inaugurated NDD as a multistate effort to treat 89 million children for parasitic worms in a single day. The 2016 campaign was significantly scaled up to reach three times as many children in most states and union territories.

Parasitic worm infections are still among the most common infections worldwide, affecting approximately 1.5 billion of the poorest people in the "global south"—impeding children's development and educational achievement, and likely affecting the economic development of entire nations.

At the same time, we know what to do: the World Health Organization-recommended deworming treatment is simple and costs pennies per child. Children in high-burden countries are given a single chewable pill once or twice a year, administered cost-effectively by trained teachers in schools. One tablet removes worms from the child’s system, and mild side effects such as nausea are very rare.

And this treatment is not new. We have known the impacts of deworming for more than a century now. Consider this: In 1910, half the population of the southern United States was infected with hookworm, one of the worms that India is now
6 calls to action on deworming

What can high-burden countries, researchers, the WHO, and donors do to boost deworming efforts?

1. High burden, endemic countries need to start national control programs through ministries of health and education that reach children as part of their regular school day. These programs need to reach enough children to reduce morbidity caused by worms. The WHO goal is to treat 75 percent of at-risk children in a given country at minimum.

2. In countries where treatment for another neglected tropical disease, lymphatic filariasis, is coming to an end, governments need to scale up school-based deworming to avoid sudden and significant treatment gaps for parasitic worms.

3. In-country stakeholders (ministries of health and education, donors, multilateral agencies and NGOs) need to coordinate their efforts. Some countries have established national steering committees to that end.

4. Countries need to work with available technical assistance providers to increase their capacity to map prevalence, monitor the quality of program implementation, and critically evaluate the success of their programs.

5. Researchers, in turn, need to increase the evidence base for the best ways to integrate parasitic worm control with activities in water, sanitation, and hygiene. We still do not know what the most impactful and cost-effective strategies in these areas are to reduce parasitic worm reinfection.

6. Donors and the WHO need to ensure that financing gaps are filled, while promoting clear, evidence-based guidelines and the efficient distribution of drug donations from pharmaceutical treating. When John D. Rockefeller learned about worm infections from a parasitologist, he created the Rockefeller Sanitary Commission, which aggressively mass-treated 400,000 people for hookworm (http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3800113/) all across the U.S. South, substantially reducing worm infections. The effects were astounding, with testimonials from teachers (https://books.google.com/books/about/The_Hookworm_Eradication_Program_in_the.html?id=wieVnQEACAAJ) pouring in:

“One girl, who was in the fifth grade and did not attend school regularly because she was so pale and weak, started regaining her color and strength after treatment and finished the school term at the top of her class.”

Evidence on the cognitive and educational benefits of deworming children has been substantiated in a variety of studies and the literature is growing. Research focused on deworming school-age children has repeatedly resulted in positive impacts such as increased school attendance, weight gain, improved cognitive development, and higher future earnings.

A modern-day study of the Rockefeller-funded deworming campaign (http://qje.oxfordjournals.org/content/122/1/173.short) estimated that an infected child would have been significantly less likely to be enrolled in school than a non-infected child, and was also less likely to be literate. A rigorous randomized evaluation (http://eml.berkeley.edu/~emiguel/pdfs/miguel_worms.pdf) in Western Kenya in 2003 found a 25 percent reduction in student absenteeism at schools treated with deworming. World Bank researcher Owen Ozier built upon this research in Kenya by assessing the impact of deworming on preschool-age children whose older siblings were dewormed (http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2014/10/01/000158349_20141001145539/Rendered/PDF/WPS7052.pdf) and found that there is strong evidence of large cognitive improvements among children whose siblings were dewormed. These were not even children who were treated themselves — they were the untreated younger siblings.

A randomized controlled trial in Uganda (http://www.bmj.com/content/333/7559/122) found that the provision of periodic deworming resulted in an increase in weight gain. A recent follow-up study (http://scholar.harvard.edu/files/kcroke/files/ug_lr_deworming_071714.pdf) tracked children seven to eight years after the original deworming period. It found that treated children have higher test
scores in literacy and numeracy than the nontreated children from the initial program.

In India, a randomized health intervention (http://emiguel.econ.berkeley.edu/assets/miguel_research/36/_Paper__Anemia_and_School_Participation.pdf) that provided iron, vitamin A and deworming treatment to Indian preschool children in the slums of Delhi found a significant gain in child weight and school participation compared to intervention with vitamin A alone. Absenteeism was reduced by one-fifth in the treatment group.

Consequently, deworming children is considered a “best buy” in development (https://www.povertyactionlab.org/publication/deworming-best-buy-development), with a very high rate of return to society. And developing countries are taking note. A growing number of countries with high worm prevalence — Kenya, Ghana, Rwanda, Ethiopia, Nicaragua, South Africa and the Philippines — have begun national school-based deworming programs where all at-risk children regularly receive deworming treatment. India is by far the largest addition to this global movement.

India faces many public health challenges, such as malnutrition and widespread open defecation.

Deworming could easily get lost among competing priorities as resource-constrained government agencies make tough choices. While deworming is not new to India — some states established school-based programs with our support in recent years — this level of commitment on a national scale is. We specifically worked with decision-makers within India’s Ministry of Health, which sets policies, develops program protocols, and provides funding to state governments, to prioritize and resource deworming.

Evidence Action supports governments in Kenya, Ethiopia and India to implement national school-based deworming programs. Rather than treating children at local health centers, we support government partners to treat children where they already are: in schools. This enables governments to reach the largest number of at-risk children possible, while keeping costs low. We also help ministries with multilevel training cascades that provide the necessary knowledge and materials all the way to the “last mile” — the school teachers who deliver the medication.

A central component of our work is gathering and sharing data that governments can use. In India, worm infection levels were previously unknown in much of the country. We are assisting states in India to gather infection data to understand the magnitude of the problem, necessary to determine the number of times per year that children need treatment. We also help governments measure how many children received treatment, and understand the impact of treatment. In Kenya, for instance, the national school-based program reduced the prevalence of parasitic worm infections among school children from 32 percent to 17 percent with just three rounds of treatment.

The World Health Organization (https://www.devex.com/companies/who) and global community are clear on what we need to achieve: Eliminate morbidity due to parasitic worms in children by 2020. This requires treating at least 75 percent of children in endemic areas. At the same time, drug companies GlaxoSmithKline PLC (https://www.devex.com/en/organizations/glaxosmithkline-plc) and Johnson & Johnson (https://www.devex.com/en/organizations/johnson-johnson) have made commitments for drug donations of albendazole and mebendazole of 600 million tablets annually — a sufficient quantity to control parasitic worms in children worldwide.
We are still a ways off from the global target, however, even with India’s massive program.

Political commitment to national programs in highly endemic countries is growing but the technical capacity in many countries is still low, and within countries there is often insufficient coordination among government agencies, donors and nongovernmental organizations.

Other high-burden countries need to join the fight against worms. As Dr. Charles Mwandawiro of the Kenyan Medical Research Institute said recently (http://www.weforum.org/agenda/2015/09/why-we-must-continue-the-fight-against-parasitic-worms-in-children/), “We are closer than ever to eliminating the public health risk of parasitic worms in children. Let us not get distracted from giving our children the very best chance in life to succeed. Until access to water and sanitation is widespread and reliable, we simply cannot deny them an intervention that works.”

Together, we can deworm the world.


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