



American Institutes for Research

International Development Division

Supporting Universal Basic Education through School-Based Deworming

At the World Education Forum in Dakar, Senegal in April 2000, representatives from 180 countries recommitted the world education community to meet six *Education for All* (EFA) goals, including universal basic education by 2015. But by the half-way point, in 2008, the world is not making the progress necessary to fulfil its commitment. There are multiple aspects of education systems still needing reform in many developing countries in order for all countries to meet EFA goals, including: teacher professional development, pupil-centered instruction, improved access to education for pupils in conflict settings and for pupils with disabilities, curriculum reform, standards-based approaches to classroom quality, processes for continuous assessment of learning outcomes, reducing opportunity costs for families to send children to school, and improved cost efficiency in schools, to name only some of the key elements needed for systemic education reform. It is also important for school systems to develop and enforce policies and programs that achieve safe and sanitary learning environments, and to link these to simple activities that support the health, nutrition and learning ability of school-aged children. Without these interventions alongside other education improvements, it will be very difficult to ensure that all of the world's children have an equal chance to learn.

Nearly 75 million children around the world today are still not enrolled in school. Approximately half of all boys and girls in sub-Saharan Africa will not complete their primary education. While systemic improvements to education will continue to increase the number of pupils who enroll and complete their education, many out-of-school youth represent the hardest-to-reach children, who live in unsanitary and unhealthy conditions. These children are often refugees, children in conflict settings, girls, children with disabilities, and the poorest of the poor in remote communities who are particularly vulnerable to malnutrition and other infectious diseases.

Of all the infectious diseases that plague children in developing countries, soil-transmitted helminths (STHs) and schistosomiasis (bilharzias) are particularly notable because they are parasitic infections that are easily preventable and yet debilitating for children in their prime learning years. Over 400 million school-age children are infected with parasitic worms throughout the world.



About AIR

Established in 1946, with headquarters in Washington, D.C., the American Institutes for Research (AIR) is an independent, non-partisan not-for-profit organization that conducts behavioral and social science research and delivers technical assistance both domestically and internationally in the areas of health, education, and workforce productivity. For more information, visit: www.air.org

AIR's International Development Division

seeks to enhance the capacity of developing countries to improve the quality of life through education and social development. In collaboration with local partners we work to:

- Ensure children's equitable access to all levels of education;
- Improve the quality and relevance of education; and
- Empower individuals, communities, and institutes as agents of social and behavioral change.



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Recognizing the debilitating role of these parasites, the World Health Organization (WHO) in 2001 set the goal of treating 75 percent of school-age children at risk of parasitic infection by 2010, but in the fall of 2006, the world was disappointingly far from reaching that goal, treating only 10 percent of those at risk. While STH and schistosomiasis infections rarely cause death, the blood loss they cause has a number of health and nutritional impacts. Symptoms include listlessness, anemia, iron deficiency, cognitive impairment, malnutrition and stunting (Hotez et al 2006; Bleakley 2007). Children are an important high-risk group because they are in a period of intense physical growth and learning, and are continuously exposed to contaminated soil and water (Montresor et al 2002). As a chronic condition, worm infections negatively affect children's health, nutrition, cognitive development, learning and educational access and achievement (WHO and World Bank 2003). For instance, research has shown that the average IQ loss for children left untreated is 3.75 points per worm infection (Jukes et al 2008).

The Benefits of School-Based Deworming

WHO, ministries of education and a few leading NGOs such as AIR have developed school-based programs to treat recurrent helminth infections, distributing medications to school-aged children while also delivering educational modules in the classroom to help prevent future infection. This simple yet powerful combination of interventions is highly cost effective, costing less than US\$0.50 per pupil, including teacher training, drug procurement and distribution (Montresor et al 2002). School-based deworming is especially cost effective because through schools it is possible to reach a high number of children, and school systems offer a readily available, extensive and sustained infrastructure with a skilled workforce (teachers) (Montresor et al 2002). Following WHO and NGO technical guidelines, teachers can be trained by local health officials to safely deliver drugs to all pupils in a school with minimal risk. Teachers are already held in high esteem by health officials, children and the community for their role as educators, but also find their status elevated by participation in a school-based deworming program.

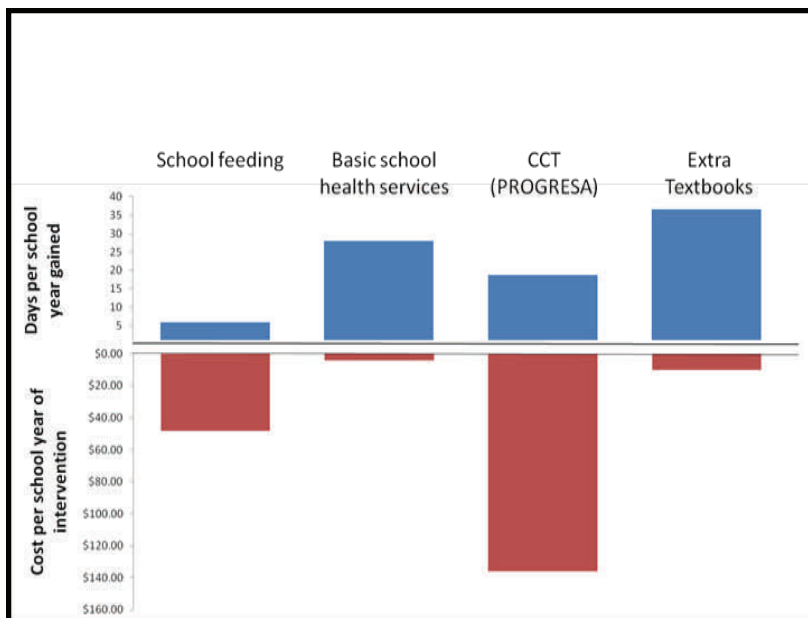


Figure 1. Cost and effectiveness of education interventions

*Basic school health services, including deworming

Because school-based deworming improves the health status of the most disadvantaged children, supporting attendance and improving learning outcomes, school-based deworming can play a significant role in support of universal basic education. If there are any “silver bullets” supporting progress towards EFA by 2015, deworming is one of them. Contemporary research literature on deworming and cognition has demonstrated that it improves children's cognitive development, and their potential to learn (Jukes et al 2008). Recent analyses of deworming campaigns in developing countries treatments also show that these campaigns have led to increased participation and attendance in school.

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It is indisputable that elimination of infection results in students having more energy, having improved cognitive capacity, and attending school more regularly (Miguel and Kremer 2004). Deworming achieves these benefits equally for all children, no matter how complex their circumstances, including the hardest-to-reach children who are most likely to be out of school or in danger of not completing their basic education. Studies also show that students in schools where deworming treatment programs have been implemented “experience a range of health benefits” and that these benefits have crossed over to surrounding communities (Miguel 2004). Treating only school-age children can reduce the total burden of disease due to intestinal worm infections by 70% in the community as a whole (WHO and World Bank 2003). This lasting effect contributes to an environment with lower rates of infectious disease in general (Bleakley 2007).

What Can U.S. Policymakers Do?

While attainment of universal basic education by 2015 will require continued investment in a variety of key education system reforms, evidence demonstrates that the health-related policy and service most critical to supporting universal attendance and learning is mass school-based deworming. Policymakers should consider the following actions to support mass deworming and *Education for All*:

1. All EFA and FTI country plans targeting universal education by 2015 should include a school health and nutrition platform and deworming activities in particular;
2. Bilateral appropriations for international assistance to education should include line-item appropriation for school health and school-based deworming, specifically;
3. Education resources should be made available for procurement of deworming drugs and for supporting school health training for teachers;
4. Education resources should be made available to develop or strengthen school health and nutrition units in ministries of education;
5. Education resources should be made available to support teacher training in school health and nutrition and deworming protocols;
6. Development agencies and education ministries should have school health and nutrition champions to promote health interventions that support learning.



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