

## EDITOR'S CHOICE

# Treat the worms, but do other things too

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More than a third of the world's population is infested with worms according to the *Global Atlas of Helminth Infections* ([www.thiswormyworld.org](http://www.thiswormyworld.org)). Most of those affected live in extreme poverty in resource poor settings in sub-Saharan Africa, Asia, and the Americas. Children are particularly vulnerable to the ill effects of a heavy parasitic load. As Nigel Hawkes says (doi:10.1136/bmj.e8558), given these facts, who would hesitate to provide the few pennies it costs to deworm a child?

Indeed there is no shortage of international organisations and charities willing to invest in deworming programmes. But, as Hawkes explains, their enthusiasm is based on claims of benefit that are not justified by a close look at the evidence. Deworming certainly removes worms in those who are infested, but what about mass population treatment programmes? Do they, as many now claim, improve weight gain, school attendance, academic performance and even earnings, productivity, and income?

During the 1990s the Cochrane review group based in Liverpool began to question these broader claims. Their first review, published in the *BMJ* in 1997, and all updates, concluded that there is no good evidence that deworming programmes improve growth, cognitive ability, or school attendance.

A randomised trial published in the *BMJ* in 2006 (*BMJ* 2006;333:122; doi:10.1136/bmj.38877.393530.7C) was one of those studies whose findings were questioned by the Cochrane group. The paper reported increased weight gain in Ugandan children given albendazole. But as the Cochrane reviewers pointed out in 2007, the authors had not corrected their analysis for the cluster randomised design. When properly adjusted the increased weight gain was no longer statistically significant. The authors acknowledged the error and a rapid response was posted ([www.bmj.com/rapid-response/2011/11/02/no-](http://www.bmj.com/rapid-response/2011/11/02/no-)

significant-difference-weight-gain-after-correction-cluster-design), but due to an oversight the *BMJ* failed to publish a correction. Prompted by Hawkes's impending article, we have now rectified this mistake. However, in their correction the authors maintain that their main conclusion—increased weight gain in treated children—was based on the multivariable analysis, which was adjusted for the study's design. We are currently discussing the need for further clarification with the authors.

But one giant of a study has overshadowed all these deliberations: a cluster randomised trial of albendazole and vitamin A involving a million children in 72 areas in India. It is the biggest ever study of deworming, and although completed in 2005 it is only now about to be published. The delay in publication was, as many had assumed, due to its negative findings: given the financial and emotional investment in these programmes, the authors, led by Richard Peto, wanted to be absolutely sure of their conclusions. From the deworming arms of the trial, the study concludes that albendazole has no significant effect on mortality or weight gain.

The news will be intensely disappointing for those who thought that a panacea of sorts had been found. Instead, it seems that the world must put its shoulder to the slower, more complex, business of building public health and social infrastructure in resource poor settings—including proper sanitation, nutrition, and education—and, of course, treating worms in those who have them.

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