

GIZ Regional Fit for School Programme: Fact Sheet on School-based Deworming

What is mass deworming?

The World Health Organization estimates that over 270 million preschool children and over 600 million school-age children are at risk of worm infection and are in need of treatment and preventive interventions.

Mass deworming refers to treating a large number of people with deworming drugs in areas where worm infections are very common (endemic). All people at risk are included in such a programme without further individual diagnosis, since the medication is safe and has almost no side-effects, irrespective of whether a person is infected or not.

Is there anything new about deworming that I need to know?

The basic knowledge about mass- and school-based deworming has not changed recently. The guidelines of the World Health Organization (WHO) and other organizations remain in place and school-based deworming is promoted as a safe and cost-effective intervention.

There is unanimous consensus that intestinal worms are parasites that have no place in anyone's gut. Intestinal worms can have serious health implications such as nutritional deficits or anaemia, thus deworming is an essential medical and public health intervention.

What is the current discussion on deworming about?

One of the landmark studies on the benefits of school-based deworming was conducted in Kenya in 1998 and reported in a paper published in 2004⁽¹⁾. This study has been re-examined⁽²⁾ by a group of researchers from the London School of Hygiene and Tropical Medicine who have repeated the statistical analysis of the original data, using current methodology. Their analysis of results differs from the conclusions of the original authors at the time, partly due to methodological errors in the original analysis, and partly because statistical methods have evolved since then⁽²⁾. The new analysis challenges, among others, the significant indirect benefits of deworming (such as effects on education, school attendance etc) claimed in the original study.

In addition, a new Cochrane Review also published recently⁽³⁾ took the new re-analysis study into account (see below) – both papers have sparked an international debate about the effectiveness and benefits of mass deworming. The discussion uses complex and advanced scientific, methodological and statistical arguments and is difficult to understand for lay readers. This document thus tries to summarize the main discussion points and explains their relevance for real-life deworming programmes as they are conducted in many countries where worm infections are common - and also in the context of Fit for School programmes.

What is a Cochrane Review?

The international Cochrane network is named after the British epidemiologist Sir Archie Cochrane, who pioneered new survey methodologies, particularly the so-called "Randomized Controlled Trial (RCT)" as the gold standard methodology to study efficacy and effectiveness. In 1993 the Cochrane Collaboration was established in the UK and has since expanded its reach and scope of work significantly. The group issues guidelines, reviews science and offers advice on current evidence in a range of bio-medical areas.

A Cochrane review is typically a collaborative effort to review the evidence available in a specific area of medicine and health, using a very rigid and strict methodology, and rating the evidence according to agreed criteria. In a second step, Cochrane or other institutions may use the evidence to inform the development or revision of clinical treatment guidelines. The challenge with the Cochrane methodology is its emphasis on RCTs, which are difficult to conduct on a large scale with regard to some public health interventions, are costly or may

even be ethically impossible because of the difficulty of clearly separating intervention and control groups.

What are the main findings of the new papers?

The re-analysis of the Kenya paper and the Cochrane Review do not question the general positive health effects of deworming, but rate the evidence as moderate- to low-quality.

Both papers conclude that there is not sufficient solid evidence at this stage to support the claim of significant indirect benefits of mass deworming, particularly related to education or selected health indicators. There is, however, also no proof that there are no such effects. In fact, in the context of a similar debate in 2012/13 a group of leading deworming experts stated that “an important policy conclusion, however, is that a paucity of randomized trial data suggesting benefit does not equate to data suggesting a lack of benefit. For the hundreds of millions of children growing up at risk of helminth infection globally, the potential benefits of deworming during childhood should not be ignored, even while a greater emphasis on documenting such benefit is pursued.”⁽⁴⁾

Does this mean that deworming is not effective?

Superficial reading of the papers may lead to the interpretation that there is a problem with deworming, or even that deworming may not be effective. These are wrong conclusions. Deworming is a highly effective, safe and cheap intervention with significant health and other benefits. Yet, the papers show again that the scientific methodology and trial designs available are limited and not always able to capture all effects of a public health intervention. The fact that the evidence of a positive effect is weak does not mean that there is no or even a negative effect.

It is important to keep in mind the principal objective of mass deworming programmes, which are recommended by the WHO for countries with areas of endemic risk for intestinal worm infections: to provide easy access to essential deworming medication for as many people as possible from communities at risk. From a public health perspective, it is important to balance costs, risks and benefits of an intervention. With the benefits of deworming and the negligible costs (global procurement is coordinated by the WHO and drugs are low-cost or donated by the main manufacturers) the question remains about the most practical way to get the medication to those who need it. This is where mass deworming, without individual testing, has great advantages, and schools are venues where one of the most important target group is easy to reach.

Do we need to change our guidelines and current practice?

No, national guidelines are generally based on international consensus and review of evidence. They remain unchanged. All major international organizations and consortia involved in deworming confirm that the current guidelines and practice do not need to be changed. On the contrary, the massive global burden from soil-transmitted helminths (STH) and other intestinal worms requires a significant scale-up of national deworming activities.

What does the WHO say?

The Department for Control of Neglected Tropical Diseases at the WHO headquarters in Geneva is promoting, leading and coordinating deworming programmes internationally and provides guidelines to country programmes in order to address the massive global burden of STH infections, affecting about 2 billion people worldwide.

All WHO guidelines are developed in a complex consultation process involving expert committees reviewing of best available evidence. The current WHO guideline for the control of STH clearly states that periodic deworming of pre-school and school-aged children, women in child-bearing age and certain other groups at-risk is the best strategy. WHO further recommends: “*periodic medicinal treatment (deworming) without previous individual*

diagnosis to all at-risk people living in endemic areas. Treatment should be given once a year when the prevalence of soil-transmitted helminth infections in the community is over 20%, and twice a year when the prevalence of soil-transmitted helminth infections in the community is over 50%. This intervention reduces morbidity by reducing the worm burden.

In addition:

- Health and hygiene education reduces transmission and reinfection by encouraging healthy behaviours; and
- Provision of adequate sanitation is also important but not always possible in resource-poor settings.”

This guideline was last updated in May 2015 and remains the basis for national mass deworming activities worldwide⁽⁵⁾. The WHO is currently preparing a response to the recent Cochrane Review to reassure endemic countries that current WHO guidelines on deworming are still valid. The response will emphasize that the recommendation to use mass deworming campaigns is based on evidence that this approach is a cost-effective and feasible way of reaching all children in endemic communities as part of a strategic public health decision and thus not based on a clinical assessment. Screening all the children at risk and treating only infected children as an alternative approach is estimated to be neither feasible nor cost-effective on such a large scale. Moreover, the response will confirm that regular deworming among infected children has been shown to improve nutritional status, haemoglobin levels, weight, growth, cognitive development and school attendance.

What about Fit for School deworming guidelines?

The Fit for School programmes have not developed any guidelines related to deworming but follow the respective national and WHO guidelines for deworming of school-aged children. The WHO states that deworming can be “easily integrated with school health programmes” and that “schools provide a particularly good entry point for deworming”⁽⁵⁾. The Fit for School approach thus offers tools and supports Government’s efforts on school-based deworming, thereby providing additional venues to expand reach and scope of existing national deworming activities.

References and further reading

The re-analysis paper from Davey et al (2015), including responses of the original authors and others can be found here:

<http://ije.oxfordjournals.org/content/early/2015/07/21/ije.dyv128>

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