

ACTION AGAINST WORMS

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A young child during Madagascar's vitamin A and deworming round, October 2006

DEWORMING YOUNG CHILDREN

There is ample evidence to demonstrate why school-age children and the under 5-year-olds should be regularly dewormed. Worms aggravate malnutrition, anaemia and stunting levels and retard both physical and cognitive development. Moreover, if the mothers are infected, worms contribute to their already precarious iron status and to children born with low birth weights.

We also know that the greater the number of worms with which a school-age child is infected, the greater the impact on that child's health. In the smaller body of an under 5-year-old, a lower number of worms is likely to be equally, if not more, detrimental to that child's well-being. Today, an increasing body of evidence supports this fact: even at low intensities of infection, worms compromise healthy growth and development. An added bonus is that a dewormed child may respond better to vaccination.

In the past five years, the number of pre-school children being dewormed has boomed, mainly due to the inclusion of anthelmintics in large-scale immunization campaigns and vitamin A programmes.

This dramatic rise in coverage has taken place despite the fact that practical field guidelines, which exist for school-age children, have not yet been produced for the younger age group.



A child of ~20 months being given a 500-mg mebendazole tablet crushed with water in Madagascar, 2006

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In 2006, WHO estimated that nearly 50 million children under 5 years of age were treated at least once with either albendazole or mebendazole tablets. In 2007, this figure is set to increase. This newsletter outlines some of the key issues that programme managers should consider when delivering deworming tablets to large numbers of pre-school children.

www.who.int/wormcontrol



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WHEN SHOULD UNDER 5-YEAR-OLDS BE DEWORMED?

The prevalence of infection with soil-transmitted helminths in school-age children is used as the indicator to guide policy for the whole population. If the prevalence is $\geq 20\%$, all children (pre-schoolers and school-age) should be treated once a year; if it is $\geq 50\%$, then treatment should be twice a year (Table 1).

Any treatment programme should be justified on the basis of epidemiological evidence of the situation. This does not mean a lengthy and costly assessment. WHO recommends a rapid survey approach,¹ which is inexpensive and allows for fast decision-making. In some cases, it appears that deworming has been added to large-scale programmes simply because the opportunity to treat millions of pre-school children has arisen, not because there is a demonstrated need for treatment.

While deworming drugs are known to be beneficial to infected children and will not harm an uninfected child, the need for treatment should always be based on epidemiological evidence.

Table 1 Cut-offs for action for pre-school and school-age children²

Category	Prevalence in school-age children	Action to be taken
High	$\geq 50\%$	Treat all schoolchildren (enrolled and non-enrolled) and preschool children twice a year
Low	$\geq 20\% - < 50\%$	Treat all schoolchildren (enrolled and non-enrolled) and preschool children once a year

Any deworming programme should be justified by a recent epidemiological assessment of the infection level in school children.



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A school-aged child and a preschool child being treated in Nepal. Both programmes are supported by epidemiological evidence, October 2006

¹ See *Action Against Worms*, Issue 1, January 2004.

² *Preventive chemotherapy in human helminthiasis. Coordinated use of anthelmintic drugs in control interventions: a manual for health professionals and programme managers.* Geneva, World Health Organization, 2006.

DRUGS AND DOSES³

In 2002, a WHO Informal Consultation⁴ concluded that albendazole and mebendazole⁵ are safe for administration to children aged 12 months and older. There are no data on the use of these drugs in children aged under 12 months. **Children under 12 months of age should not be treated** (unless indicated by a physician in a clinical setting). WHO recommends four drugs for treatment of infection with soil-transmitted helminths. Two, albendazole and mebendazole, are more appropriate for use in large-scale campaigns because there is no need to weigh the children (Table 2).

Table 2 Drug^a dosage for albendazole and mebendazole.

Drugs	Dose by age		Comment
	1–2 years	2 years and above	
Albendazole 400-mg tablet	½ tablet	1 tablet	These two drugs are easy to administer because there is no need to weigh the children.
Mebendazole 500-mg tablet	1 tablet		

^a For treatment of all children under 5 years of age, *chewable tablets must be used*.

**CHILDREN UNDER
12 MONTHS OF
AGE SHOULD
NOT BE TREATED**



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An infant under 12 months of age in Madagascar, 2006

³ *Prevention and control of schistosomiasis and soil-transmitted helminthiasis. Report of a WHO Expert Committee.* Geneva, World Health Organization, 2002 (WHO Technical Report Series No. 912).

⁴ *Report of the WHO Informal Consultation on the use of praziquantel during pregnancy/lactation and albendazole/mebendazole in children under 24 months.* Geneva, 8–9 April 2002. Geneva, World Health Organization, 2002.

⁵ Levamisole and pyrantel pamoate tablets are also recommended by WHO for treatment of soil transmitted helminths. However the correct dose is calculated on the child's weight, making it logistically difficult in large-scale campaigns.

FIELD STUDIES TO ASSESS ADMINISTRATION TO 1–2-YEAR-OLDS

While the drugs themselves are extremely safe, their administration must also be safe.

In campaign settings where hundreds of children pass through health posts every day, it was reported to WHO that some of the youngest children were having difficulty swallowing the relatively large deworming tablet. In response, WHO identified countries which were carrying out integrated campaigns in 2006 for operational research to assess (1) the percentage of children having problems and (2) the severity of the problem.

A simple tally sheet developed by WHO headquarters was field tested during **Swaziland's** integrated measles campaign in July 2006, which delivered three products: measles, albendazole and vitamin A. The tally sheet was then adapted and used during **Rwanda's** measles campaign in September 2006, which delivered four products: measles, mebendazole, vitamin A and insecticide-treated bednets, and during **Madagascar's** vitamin A plus deworming round in October 2006.

For each child observed, the following classification was used:

- "No problem" in swallowing the tablet.
- A "problem" in swallowing the tablet was graded from minor to serious, ranging from crying to spitting, and choking to vomiting. A child could have multiple reactions. If the health staff were patient, a child could be classified as having a problem(s) and yet still be "successfully treated on site".
- If the health staff gave the tablet to the mother to administer at home, then no observation was possible and the column "Tablet given to mother to give at home" was marked.

A young child being treated by a mobile health team in a remote village, Madagascar, 2006



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Table 3 Results from the Rwanda and Madagascar field studies

	Number observed (n)	No problem recorded + those who had a problem but were still successfully treated on site	Crying	Spitting	Choking	Vomiting	Tablet given to mother to give at home
Rwanda	2648	2224 85%	187 7%	61 2%	2 0.1%	11 0.4%	406 15%
Madagascar	1160	1058 91%	168 14%	46 4%	14 1%	10 1%	102 9%

As one would expect, the data show that both the number of children having a problem and the severity of the problem gradually decrease with age. In Rwanda, the highest percentage of problems of any kind (crying, spitting, choking or vomiting) were clustered in the 12–24-month-old age group. In Madagascar, the same was true except for choking, where 3% of the 25–36-month-olds choked compared with 1% of the 12–24-month-olds.

The proportion of children who choked was 1–3%. This may sound relatively low, but in a campaign which is treating millions, it is significant.

ONE OF THE MOST IMPORTANT FINDINGS FROM THIS FIELD WORK IS THAT THE APPROACH OF HEALTH STAFF IS THE MOST IMPORTANT DETERMINANT AFFECTING THE NUMBER OF CHILDREN HAVING PROBLEMS.

If the staff delivering the tablets do not know what to do if a child chokes, that child can potentially die. Following these findings, WHO and its partners are now exploring the possible development of paediatric formulations (syrups, fast dissolving tablets or granules) that might be more appropriate, provided they can be manufactured competitively and in a format that is easily dispensed in the field. In the meantime, WHO makes the following six recommendations.



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A young child brought for treatment during Madagascar's campaign, 2006



© Henrietta Allen/WHO

Children at a health post during Rwanda's campaign, 2006

FIELD STUDIES RESULTS

SIX RECOMMENDATIONS WHEN DEWORMING YOUNG CHILDREN

It is strongly recommended that the following six points are taken into consideration if deworming tablets are to be included in large-scale campaigns.

SAFETY FIRST

If the programme manager cannot guarantee adequate **training** for the drug distributors to ensure that they have the **time to crush** the tablets and mix them with **water** before administering them safely to children below 36 months of age or those who have a problem swallowing the tablet, **it is recommended to treat only children aged 36 months and older** to avoid any problems they may have in swallowing the tablets.

1 Assess the need for treatment

- Before any pre-school programme is launched, a rapid assessment of worm infection levels in school-age children must indicate that treatment is justified.

2 Never force a child

- **NEVER** force a child to take the deworming tablet. Gently coax the child to swallow the crushed tablet or offer it as a sweet. If the child is still uncooperative, let the child pass without treatment; he or she will have another chance to be treated at the next round.



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3 Provide training for all products

- All drug distributors and volunteers must be trained not only in the more complex deliverables such as injection safety but also in how to safely administer the “simpler” products such as vitamin A capsules and deworming tablets.
- Supervision should be routinely conducted.
- Training must be repeated regularly. Cascade training is known to become less effective the further down the line it goes. The most remote post is therefore more likely to be unsupervised, further from help if it is needed, and have fewer well-trained staff.
- Training must include how to handle reluctant children and those having difficulties in swallowing the tablet.
- **Training must include the simple steps that can be taken to save a child’s life if he/she chokes on either the deworming tablet or the vitamin A capsule if it slips into the child’s mouth (see p.10).**

4 Crush tablets and use water

- Only chewable deworming tablets should be given to children under 5 years of age.
- Tablets which taste good should be chosen.
- For children under 3 years of age, tablets should be broken and crushed between two spoons, then water added to help administer the tablets.



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5 Administer drugs under supervision

- During large-scale campaigns, drugs should be administered on site where supervision and assistance can be given if a child needs help.



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A young child being given a mebendazole (500-mg) tablet at a health post during Madagascar’s campaign, October 2006. Notice that the situation is calm, the health worker stays close by in case there are any problems and the child is successfully treated.

6 Set up the health post correctly

- The order in which products are delivered is important. In an integrated campaign, the recommended sequence is shown below. The measles injection (or any other injectable) is given last because it is most likely to result in a screaming child, which rapidly results in a room full of upset children. The approach of the health staff is the most critical determinant.

Triage + register child → vitamin A → deworming tablet → measles/injectable → insecticide-treated bednet

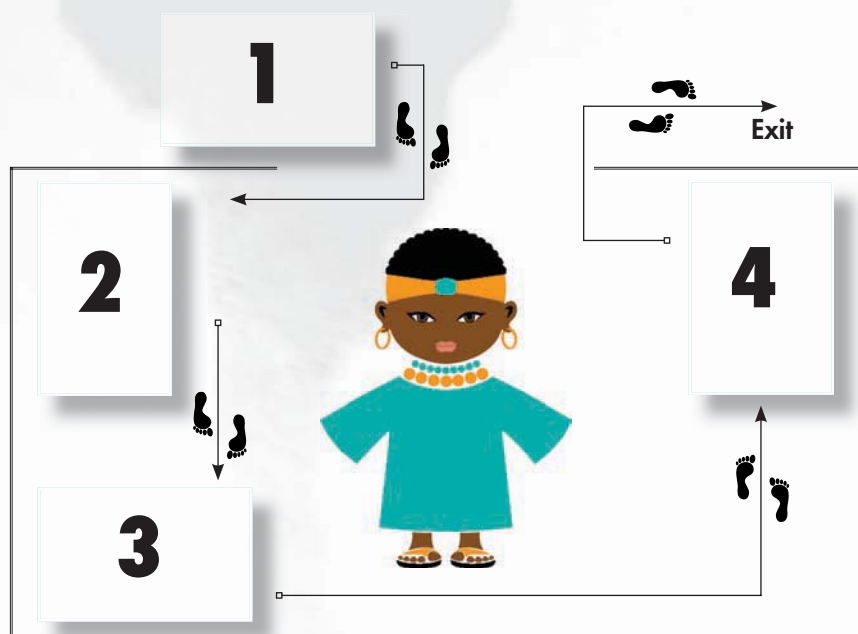


A health post in Rwanda with very little space. Children are being passed over the heads of the waiting crowd, 2006

CHAOTIC, OVERCROWDED OR UNDERSTAFFED POSTS ARE MORE LIKELY TO EXPERIENCE PROBLEMS.

Training on how to set up a well-organized health post is vital. Those that maintain a sense of order will operate more smoothly. If there is a problem, the staff in an orderly post will also have the space to respond in time. Posts should ensure that they have:

- Sufficient space between the table where the measles injection is given and the table where the vitamin A and deworming tablets are administered
- Someone designated to control the waiting crowd who allows only a small number of mothers and children to enter the room at one time



Flow of children through a well set-up health post

→ Flow of children

- Crowd control area
- Triage and register child
- Give vitamin A + deworming tablet
- Give injectable

DO'S AND DON'TS

Appropriate administration of a deworming tablet to children aged 1–3 years



© Henrietta Allen/WHO

- Crush the tablet between two spoons and mix with water



© John Dunlop/Tanzania

- Sit the child on the mother's lap
- Calm the child
- Administer the mixture gently



© UNICEF- MoH Ethiopia

- **Do NOT force** a child to swallow the mixture
- **Do NOT** hold the child's nose to make him/her swallow



© Henrietta Allen/WHO

- **DO** let the child go home untreated if administration is unsuccessful; he/she will be treated during the next round

DO'S & DON'TS

WHAT TO DO IF A CHILD CHOKES

Staff administering tablets to small children should be trained in what to do if a child chokes. They should also have the authority and respect of the health post staff to act if necessary.

For very small children



Lay the child's chest on your thigh, then lean the child's head down
 Thump on the middle part of the child's back 5 times using your palm



If the problem is not resolved:
 Lay the child on your thigh facing upwards (child on its back)
 Press on the thoracic area of the child 5 times using your two fingers
 Repeat if necessary

For older children



Lay the child on his/her abdomen on your thigh, then lean the child's head down
 Thump on the middle part of the child's back 5 times using your palm



If the problem is not resolved:
 Hold the child from behind in a standing position with your hands below the child's arms just below the rib cage
 Press the child's body upwards
 Repeat if necessary

RESCUE MOVES

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We very much hope that 'Action Against Worms' is both enjoyable and informative. If you have any comments on existing issues or suggestions for areas you would like to be covered in the future, please do not hesitate to contact us by e-mail at wormcontrol@who.int



World Health Organization

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