ACTION AGAINST **WORMS**

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PPC NEWSLETTER

Togolese child receives a mebendazole tablet.

© Marcko Kokic/IFRC

IN THIS ISSUE:

WILL SHE REACH HER 5TH BIRTHDAY?

What does a child living in a country like Bangladesh, Niger or Mozambique need in order to survive? At the most basic level – warmth, food – and protection against disease.

And yet every year, more than 10.6 million children in developing countries do not reach their 5th birthday. They die from causes that are mostly avoidable. Seven out of 10 of these deaths are due to acute respiratory infections – (mostly pneumonia), diarrhoea, measles, malaria, or malnutrition – and often by a combination of these conditions.

Until recently, many of the programmes addressing these issues – the distribution of insecticide treated nets, measles vaccinations and a host of programmes that reduce childhood malnutrition – have been delivered separately. The question is, can some of these interventions be delivered together? The answer is clearly yes.

More and more countries are embarking on the simultaneous delivery of multiple health products. Deworming tablets, for example, have been added to large-scale campaigns including immunizations, child health days and vitamin A programmes. It is also clear that communities appreciate these "bundles" of health services which in turn boosts coverage.

A mother brings her children to Child Health Day in Angola 2005.

© Edith Cheung/WFP

This issue of *Action Against Worms* looks at pre-school children (defined as under 5-years-olds) and some of the opportunities and issues around deworming this age group.

If the target group is similar and resources are tight, it is possible and logical to share training sessions, transport and health staff time to deliver multiple interventions simultaneously rather than to launch a separate programme for each.

www.who.int/wormcontrol

World Health Organization

5 yrs

4 yrs

3 yrs

2 yrs

1 yr

Birth

WHICH PROGRAMMES CAN BE INTEGRATED?

Routine or campaign?

Most countries have large-scale child survival programmes that reach under 5-years-olds. Some are delivered through the routine health system, although their coverage can often be low. Many use a campaign approach, particularly when a high-coverage is vital for effective morbidity control. At an absolute minimum, any campaign should strengthen, not weaken, the routine system of a country.

Characteristics

A few key characteristics determine whether it is possible to integrate programmes on the ground: the **target age group** and the **frequency of contact** need to be similar and the **level of skill** to deliver the treatment needs to be taken into account. For example, a trained health worker is required to inject the measles vaccine. In contrast, deworming drugs are extremely safe and can be administered by non-medical staff with no special equipment except for clean water to help the children swallow the tablets. **Logistic** issues are also important. For example, if the approach is house-to-house, there is a limit to how many nets, cold boxes and tablets each health worker can carry.

The crucial point is that some interventions must be regularly delivered to be of use: this applies to vitamin A and deworming,[1] both of which must be given every 6 months.

It is ineffective to carry out a massive campaign and then run out of the resources needed to continue.

TARGET GROUPS FOR DEWORMING

School children[2]

The prevalence and intensity of worm infections peak in children aged **~6–15 years**. This group is therefore the priority group for treatment and they easily can be reached through the school system using trained teachers to administer the drugs.

The Global Target, which every endemic country is working towards, relates to school children: *"To regularly treat at least 75% of school children at risk of morbidity of schistosomiasis and soil transmitted helminths by the year 2010".*

Pre-school children[3]

As soon as children start to crawl and explore their environment, they tend to put things they find into their mouths.
They are already at risk of infection and would also benefit from treatment.

© Henrietta Allen/WHO

Bangladesh. Nearly 100% of the children were heavily infected.

© Harry Anenden/WHO

A young boy in East Africa at risk of infection.

Integrated programmes need to:

- target similar age groups;
- share a frequency of contact;
- be operationally feasible on the ground;
- not jeopardize the integrity of the programme they are added to.

[1] The frequency of delivery for deworming depends on the prevalence and intensity of infection in the area. See http://www.who.int/wormcontrol
[2] Worm infections in school-age children include both soil-transmitted helminths (STH) and schistosomiasis (through contact with contaminated water).
[3] Pre-school children are usually infected only with STH since they do not spend as many hours swimming at this age.

HOW TO SET UP AN INTEGRATED DELIVERY POST[1]

WAITING ZONE

CROWD CONTROL TEAM
Selected from the local community

Assist in setting up the post each day - maintain order in the waiting zones - inform the crowd of any delays - keep the flow of people moving - mobilize the community

ENTRANCE

TABLE 1

REGISTRATION

REGISTRATION TEAM
1. Check the child is in the target age group
2. Give the caretaker one campaign attendance card for each child
3. Write the child's age on the back of the card

VITAMIN A & DEWORMING

VITAMIN A + DEWORMING TEAM
1. Check the age of the child and give vitamin A +/- deworming tablet according to the correct protocol
2. Record on the tally sheet

TABLE 3

Preparation table for the measles shots

PREPARATION TEAM
1. Dilute the vaccine, record vials used
2. Prepare the auto-disable syringes
3. Ensure the vaccination area remains safe and clean
4. Ensure the vaccine is stored correctly

TABLE 2

MEASLES

MEASLES VACCINATOR TEAM
1. Vaccinate the child
2. Ensure procedure safety
3. Monitor and respond to reactions

TALLY

MEASLES TALLY TEAM
1. Tally the number of measles doses given by age group
2. Thank the caretaker for coming

EXIT

POST SET UP

[1]Adapted from 'Accelerated measles control in Zambia. Measles supplemental immunization 2003. Central Board of Health, Zambia, WHO, UNICEF, Red Cross'.

DOSES, COSTS, AGES

DOSES, COSTS, AGES AND DELIVERY SCHEDULES FO

	Product and dose	Cost*	Target ag group
Child Health Days 			Varies
Deworming * 	12–24 months / >24 months Albendazole (400 mg tablet): 1/2 tablet / 1 tablet Mebendazole (500 mg tablet): 1 tablet / 1 tablet *Albendazole (200 mg) tablets are less commonly manufactured. For 12–24 months the dose is 1 tablet, for >24 months the dose is 2 tablets.*	One tablet of mebendazole or albendazole costs ~US$ 0.02	12 months upwards
Vitamin A ** 	6–11 months / 12–59 months Blue capsule (100,000 IU): x 1 capsule / x 2 capsules Red capsule (200,000 IU): ——— / x 1 capsule	One vitamin A capsule costs ~ US$ 0.02	6–59 month
Measles *** 	Measles vaccine is delivered by an injection of reconstituted vaccine. Ideally, auto-disable (AD) syringes are used. A cold chain is required as well as safe disposal containers.	One measles shot costs ~ US$ 0.30 (vaccine + safe injection equipment) UNICEF procurement.	Catch-up: 9 months–15 years Follow-up: 9–59 month
Polio vaccine * 	Oral polio vaccine (OPV) is an oral vaccine. 2 drops are given to each child. A cold chain is required.	One OPV costs ~ US$ 0.13/dose	0–59 month
ITNs ** 	1 net per caregiver or 1 net per child aged under 5-years-old	ITNs US$ 2–3 LLINs US$ 5–6	0–59 month Pregnant women

*Teachers or community health workers. **Some countries use health staff; others use trained non-medical staff. ***Trained he
*Cost of supplies only, does not include operational delivery costs.

Photo credits from top to bottom. ©Jim Holmes; ©Henrietta Allen; ©Marko Kokic; ©Tracy Goodman; ©Jean-Marc Giboux. All WHO.

OR COMMON PRE-SCHOOL HEALTH INTERVENTIONS

e	**Delivery schedule**
	Child health days are usually held once or twice a year, and various combinations of the interventions listed below have been packaged and delivered together according to the needs of the particular country. *As large-scale events which aim to reach all children, child health days offer a good vehicle for delivering deworming tablets with the added advantage that they are often carried out annually and become part of the country's routine health delivery system and are therefore more likely to continue.*
	Despite the safety of deworming drugs,[1] they must be administered at the correct age and by trained staff. WHO guidelines stipulate children can be treated from the age of 12 months upwards. Younger children should not be treated and treatment should always be supervised on-site. NOTE: Programme managers of large-scale campaigns may consider treating children from the age of 24 months upwards, or "those that can walk", for two simple reasons. • Older children have less difficulty swallowing the large deworming tablet. • Older children will be more heavily infected. *The frequency of treatment depends on the prevalence and intensity of infection in the area, which dictates if it is necessary to treat once or twice a year.*
ns	Vitamin A capsules are given from the age of 6 months up to 5 years and treatment is delivered every 6 months. *Vitamin A programmes (excluding the 6-month contact point when the child is too young for STH treatment) are therefore ideal for adding deworming to as the target age group is nearly the same; in highly endemic areas deworming is also recommended every 6 months.*
ns	The first dose of measles vaccine is given to children at the age of 9 months or shortly thereafter through routine immunization services. A "second opportunity" is provided to all children to reach all those who failed to receive the first dose or failed to develop immunity following vaccination. This dose is given through routine immunization services or through supplementary immunization activities, which include: • catch-up campaigns - one-time events; • follow-up campaigns - every 3–5 years; • mop-up campaigns - house-to-house visits to find children who have missed both routine and previous mass campaign events that target the whole country or large regions and aim for >90% coverage. *Any measles contact point (excluding the 9 month one) offers a good contact point for deworming. The drawback is that deworming must be delivered regularly, and measles campaigns only take place every few years.*
ns	The strategy to eradicate polio relies on a schedule that delivers 3 doses of OPV in the first year of life through the routine system followed by a supplementary dose to all under 5-year-olds during national or supplementary immunization days (NIDs or SNIDs). As the number of polio cases drops, NIDs and SNIDs are gradually being phased out. However, given the momentum and the number of skilled health staff that the polio programme has created, many health professionals are asking how these resources can be harnassed for other large-scale health programmes. *Deworming cannot be added to the OPV doses, which are given before the child is 12 months. However the NIDS and SNIDs do offer good contact points. As for measles, these campaigns are not carried out every year.*
ns	Conventional insecticide treated nets (ITNs) should ideally be re-treated after 3 washes. Long-lasting insecticidal treated nets (LLINs) should ideally be replaced every 3 years. *Several countries have delivered deworming and nets together, either alone or as part of a larger campaign delivering multiple products.*

alth staff.

[1] There are 4 drugs for treating STH: albendazole, mebendazole, levamisole and pyrantel.
The easiest to deliver are mebendazole and albendazole as their dosage is not weight dependent.

DEMOCRATIC REPUBLIC OF THE CONGO

Democratic Republic of the Congo (DRC) is one of the largest countries in Africa. It has an under-five mortality rate of 213/1000 children, 60% of whom are vitamin A deficient. Only 30% of the population has access to health services. One of the only programmes with a national coverage, the vitamin A campaign has been running since 2001.

In March 2005, before launching its integrated programme, DRC carried out national surveys of anaemia and worms in under five-year-olds and of anaemia in pregnant and post-partum women.

- 70.6% of children were anaemic (Hb<110 g/litre).
- 82% of children were infected with worms.
- 67.3% and 53% of pregnant and post-partum women respectively were anaemic (Hb <110 g/litre and Hb <120 g/litre) ranging from 36% to 90% in different provinces.

The results were decisive. In May 2005, deworming was added for the first time to the national vitamin A campaign.

Giving a child a mebendazole tablet during the DRC campaign.

Mebendazole

To simplify administration, mebendazole (500 mg) was chosen which meant the dose, for all children aged 12 months and above was just one tablet. The tablets were also chewable and slightly sweet, making them very popular and easy to distribute.

Costs

- A pack of 100 tablets costs US$ 1.61 (+15% or +25% for sea or air shipment to DRC) via UNICEF.
- Cost per child: US$ 0.02/per treatment (US$ 0.04 per child/year for 2 treatments).
- An additional 5-10% surplus factor was added since sending extra quantities is a must in countries with difficult logistic situations. Several boxes of deworming tablets also went missing during the campaign as a result of its high demand.

Making it easy

Using the colour-coded vitamin A capsules, the health teams came up with their own method to make their work easier:

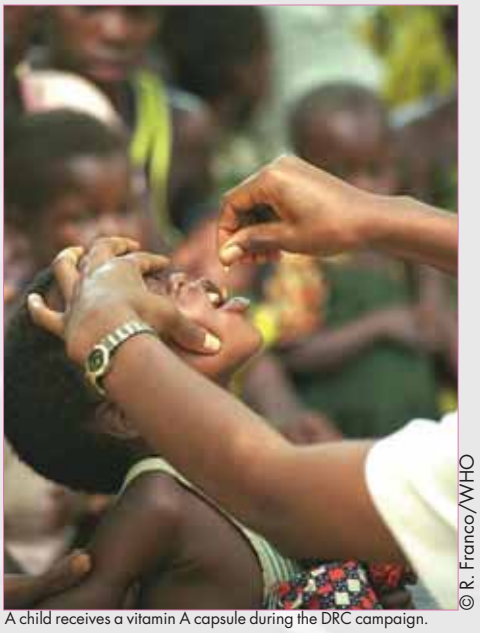
- children who received the blue vitamin A capsule did not receive anything else.
- children who received the red vitamin A capsule also received a deworming tablet.

Numbers reached

DRC's campaign was a resounding success. During the first round a total of 7.8 million children (12–59 months) were dewormed, (84% of the target) and over 10 million children (6–59 months) were given a vitamin A supplement (89% of the target). In November 2005, the second round was scheduled to reach even larger numbers:
11.4 million children with vitamin A and 10 million children with mebendazole.

Reported side-effects or problems

No side-effects of the newly introduced mebendazole tablets were reported. It was noted that younger children, especially those aged 1–2 years, had some difficulties chewing or sucking the relatively large deworming tablet. The community workers crushed the tablet in a spoon, or broke it into halves, and then reintroduced it to the child. Overall, however, this was not reported as a major problem for the campaign and the instructions were slightly amended in the guidelines for the next round.



© R. Franco/WHO

A child receives a vitamin A capsule during the DRC campaign.

Adding to the polio campaign

In parallel to the hugely successful vitamin A and deworming programme, DRC also added deworming to its polio campaign in certain areas. When this proposal was first put forward, some of the national expanded programme on immunization (EPI) committee were concerned that adding too many extra elements to the vaccinators' work might jeopardize the door-to-door campaign. The decision was therefore made to add deworming to the 1st polio round (to children aged 12–59 months) and vitamin A to the 2nd round one month later (to children aged 6–59 months). This had the added advantage that by treating the children for worms first, their vitamin A absorption would also be improved.

Adding to the measles campaign

The plan now is to add vitamin A and deworming to the measles SNIDs in 2 of 11 provinces using a fixed strategy approach. This will be the first time in DRC that all three health interventions will be provided simultaneously, thus officializing the minimum package for the acceleration of under-five mortality reduction on a nation wide scale.

© DRC/UNICEF

A child waits to receive during the DRC campaign.

Feedback from communities and parents

One message from DRC's experience is clear: deworming is extremely popular.

During both the vitamin A and polio campaigns, parents returned after seeing the immediate effects of mebendazole to ask that their older children also be treated. The polio campaign staff reported that adding deworming had a mobilizing effect and children who may have been missed out were actually recovered.

Both campaigns reported that the demand for the tablets was "extremely high." The vitamin A campaign credited deworming for helping to achieve a 14% increase in coverage (70% in the 2004 vitamin A stand-alone campaign, and 84% in the 2005 vitamin A and deworming round).

Field Guide

Deworming/vitamin A guide

To help the field teams, an integrated vitamin A + deworming guide was produced. Since a vitamin A guide already existed, one page of deworming instructions was added to indicate the correct doses for the different ages and some key messages to give to the parents to explain why they should treat their children.

DEWORMING GUIDE

1 What is deworming?

It is a treatment to eliminate worms from children.

2 Why eliminate intestinal worms from children?

Because intestinal worms cause anaemia, stop children from growing well and reduce their ability to learn.

3 How do we eliminate worms from children?

We give mebendazole at least twice a year. The child must chew the tablet and swallow it in front of the supplementer.

4 Dose of mebendazole

Age	Dose	No. of pills
1–5	500 mg	1

5 How many times should children aged 1 year and above be treated ?

Twice a year, with a 6-month gap from the age of 1 year onwards.

6 Can mebendazole (500 mg) be given to children aged 0–11 months?

No, children aged 0–11 months should not be treated with mebendazole.

7 The key message about deworming:

"Dear parents, treat your children who are aged 1–5 years for worms. This will ensure that they have good nutrition, grow well and have the best ability to learn."

Democratic Republic of the Congo MoH

DEWORMING and VITAMIN A GUIDE

Twice a year : every 6 months

VITAMIN A GUIDE

1 Dose

Age	Vitamin A Capsules		No. of pills
	Colour	Dose	
6–11 months	Blue	100,000 IU	1
1–5 years	Red	200,000 IU	1

2 In case there are no appropriate capsules for the age of a child:

When there are only red capsules (200,000 IU):
- Give 3 drops only from a red capsule to children aged 6–11 months. Throw the rest of the capsule away.
- Give a full red capsule to children aged 1–5 years.

When there are only blue capsules (100,000 IU):
- Give a single blue capsule to children aged 6–11 months.
- Give 2 blue capsules to children aged 1–5 years.

3 Materials needed to administer vitamin A:

- Vitamin A capsules (blue and red)
- Clean water
- Scissors or needles
- Soap
- Clean towel

4 When should vitamin A be given to children?

Children from the age of 6 months to 5 years should be given vitamin A every 6 months.

5 How do you give vitamin A?

1. Cut the teat of the capsule with scissors or puncture the bottom with a needle.
2. Turn the capsule upside down into the child's mouth.
3. Empty all the contents of the capsule into the child's mouth.

6 How should the waste from the vitamin A capsules be disposed of?

All the used capsules should be disposed of properly in waste disposal sites.

7 How should the vitamin A capsules be conserved?

The vitamin A capsules should be kept in their original durable containers, tightly closed and away from heat and light. Vitamin A capsules should not be stored in paper bags.

8 Why give children vitamin A?

Because vitamin A strengthens a child's immunity against infections, helps the child to grow and prevents malnutrition.
For children aged 0–6 months, the child's vitamin A needs are covered by the mother's breastmilk if she is exclusively breastfeeding.

9 The key message about vitamin A:

"Dear parents, give vitamin A every 6 months to all your children from the age of 6 months to 5 years to protect them against illnesses and to make them grow well."

BENEFITS OF INTEGRATION

Adding deworming is popular!

Deworming is very popular with communities and parents because the dead worms are expelled and are visible in the faeces just a few hours after treatment. Within a few days children also feel better, they are more active and their appetite returns. Adding deworming to any programme therefore swells the numbers at the delivery posts.

© François D'Elbée/UNICEF Zambia

Crowds arrive at a health delivery post during Zambia's integrated campaign.

Savings

Adding extra products to a large-scale campaign can be cost effective. Togo reported that delivering an integrated package (measles + ITNs + polio + deworming) saved time and money. The total cost per child was US$ 6.92, of which US$ 0.02 was the price of the mebendazole tablet.

Baseline data proves impact

The decision to treat pre-school children is often based on high infection rates in school-age children. In the United Republic of Tanzania, programme organizers reported that a baseline survey among pre-school children would have been useful in demonstrating the impact of their programme - especially to donors. In Nepal, for example, a Deworming Impact Evaluation Study showed that after only two rounds of deworming, anaemia levels fell by over 75% - persuasive evidence of the health benefits of such a low-cost intervention.

CONCERNS

Swallowing the tablets

Some countries have reported that younger children (typically those aged between 1–2 years) have difficulty swallowing the large deworming tablet. Parents or health staff have been asked to help by crushing the tablet in a spoon and mixing it with a few drops of water. This can slow the flow of children through the delivery post. In one country, organizers extended the number of treatment days using the local health facilities so that they would not miss any children.

© Dr John Dunlop

Crushing anthelminthic tablets in the United Republic of Tanzania.

WHO recommends that only chewable tablets are given to pre-school children, with safe water. WHO and its partners will be monitoring on going programmes to ensure that safety and compliance with WHO guidelines are being followed.

© Dr John Dunlop

A young child is treated with a crushed deworming tablet in the United Republic of Tanzania.

THE BILL & MELINDA GATES FOUNDATION
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Do not overload!

On going programmes should not be overloaded with too many "add-on". With increasing decentralization of responsibilities to district-level health staff, integrating programmes should ease their workload, not increase it.

LESSONS LEARNT

Political support and community ownership

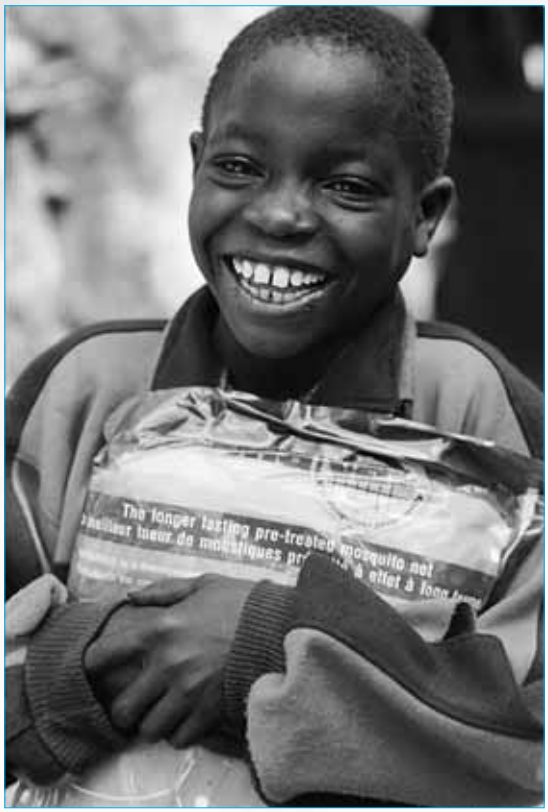
High level political support and community ownership are important for the success of any programme, but particularly for an integrated one where the attitudes of programme managers and others are not yet geared towards joint delivery.

Monitoring and evaluation

Joint reporting and monitoring must also be planned well in advance so that the data collection forms can be adapted and field-tested before they are used.

More time needed - yet coverage boosted

Those responsible for planning integrated programmes have repeatedly voiced the need for a much longer preparation time. If products (ITNs, vitamin A capsules, mebendazole tablets and measles injections) are all required, procurement needs to start months in advance. If one product is delayed, the whole programme is delayed.
If different components are funded by different donors, the situation becomes even more complex. On the flip side, every country that has embarked on an integrated programme has reported that offering multiple health products has boosted attendance.



© François d'Elbée/UNICEF Zambia

A child in Zambia with a long lasting insecticidal treated bednet.

Just as the IMCI approach recognizes that an integrated approach is the key to managing a sick child, child survival programmes must go beyond single diseases and address the overall health of each child.

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**

Lessons learnt

We would like to thank Mahoko Kamatsuchi, Nutrition Programme Officer, UNICEF/DRC for her assistance in providing the DRC information for this issue of *Action Against Worms*.