

Zinc Treatment of Childhood Diarrhea **Frequently Asked Questions**

Diarrhoea still remains a leading cause of morbidity and mortality in developing countries. Every year more than 800 000 children aged less than five years die from diarrhoea. Research conducted in several parts of the world have consistently showed that zinc, along with oral rehydration salts (ORS), provides effective treatment for diarrhoea among children below five years of age. As a result WHO and UNICEF have jointly recommended zinc as a part of the routine management of childhood diarrhoea.

This Frequently Asked Questions (FAQ) portfolio has been developed for health care providers based on the questions asked by caretakers and health care providers in the course of conducting formative research and orientation sessions across several zinc treatment scale-up projects. It is intended that this FAQs databank will result in consistent answers to frequently expressed concerns by health care providers and caretakers of young children.

Frequently Asked Questions on Zinc and Suggested Responses

➤ **What is zinc and where does it come from?**

Zinc is classified as an essential mineral, and with good reason. It is essential to over 180 biologic functions. Many foods rich in trace minerals contain zinc, with the highest amounts in meat products. Lesser amounts are found in milk, spinach, nuts, oats, rice and beans. Rice and beans are high in phytates which compete with zinc for bioavailability, thus not as good of a source as animal products or nuts and beans.

➤ **What does it do and what scientific studies provide evidence to support this?**

Zinc does quite a bit for the body. First, zinc is crucial for health because it strengthens the immune system. It is also essential to cell division, growth, and repair. Zinc aides in digestion, and increases the production of protein. Zinc is involved in multiple enzymatic reactions, and aides the body in the response to several hormones, such as growth hormone, testosterone, insulin, and estrogen. Not meeting the recommended daily allowance for Zinc can adversely affect all of the above mentioned functions.

➤ **Who needs it and what are the symptoms of deficiency?**

Many experts say that zinc deficiency is widespread. People living in poverty with diets low in zinc, especially children below five years of age, need zinc the most. Deficiencies result in poor wound healing because of zinc's role in cellular repair. Zinc deficiency also leads to slower growth. Most importantly, children with low levels of zinc are at increased risk for infection, severe infections and death.

➤ **What conditions or problems is Zinc used for?**

Zinc is prescribed to treat and prevent diarrhea for children < 5 years of age.

ORS & Zinc in Childhood Diarrhoea Management

➤ Can I give zinc and ORS at the same time?

Yes, zinc and ORS can be given at the same time when a child has diarrhoea. Zinc is given once a day. Give the zinc at a time of day that is easy for you to remember and repeat every day for 10-14 days. ORS needs to be given throughout the day only as long as your child has loose or watery stools, but zinc should be given for the entire 10 to 14 days.

➤ Between zinc and ORS which one should be given first?

During diarrhoea ORS should be given first and followed by zinc. If it is the first time the child has received zinc, it is best to wait 30 minutes after the ORS is given.

➤ Should a child with severe dehydration be given zinc?

Usually children with severe dehydration are given intravenous fluids first. After the intravenous fluid is no longer needed and the child is not vomiting, ORS and zinc should be started.

➤ Can zinc be added directly to the ORS? Will this work as well?

The zinc tablet will not be harmed by the ORS and can easily be dispersed in a small amount of ORS. This is an option for infants in lieu of dispersing the tablet in breastmilk. This is also an option for a child who does not like the taste of zinc or is resistant to tablets and medicines. Zinc should not be added to a large amount of ORS because it is then uncertain how much the child will receive. Furthermore, ORS is typically given only for a few days, while zinc must be given at least 10 days.

➤ Can zinc be given by mixing it with juice, ORS, breast milk or any other liquids?

The zinc tablet is meant to be dissolved in water, breastmilk, or ORS.. Other fluids are not recommended.

➤ Should I give less ORS since I am giving zinc?

No, you should continue to give plenty of ORS, as recommended, even though you are giving zinc. ORS will help to replace fluids lost during diarrhoea. Zinc will speed up recovery but does not replace fluids, so ORS is critical.

➤ Can zinc be promoted instead of ORS?

Zinc should never be used instead of ORS for the management of diarrhoea. Zinc decreases the duration and severity of the diarrhoea, but does not prevent or treat dehydration. ORS is needed to prevent and treat dehydration.

➤ At what stage of the diarrhoeal episode should zinc be administered?

The earlier that zinc is administered, the sooner the child will benefit. However, it can be started at any time in the illness.

➤ How many days are required for zinc to cure a child from diarrhoea?

The disappearance of diarrhoea does not mean that the child no longer requires zinc. For the full benefit of the zinc treatment, which includes the prevention of future episodes, zinc should be given for 10-14 days.

➤ Why is zinc treatment recommended after the diarrhea episode has stopped?

Zinc treatment is recommended for the complete dosing regimen of 10 to 14 days because zinc not only decreases the number of days with diarrhea and the severity of diarrhea, it helps the child fight off new episodes of diarrhea and pneumonia for the next 3 months following a full treatment.

➤ Why is a range of 10 to 14 days given in the recommendation? Is 14 days better than 10 days?

Studies have included 10 or 14 days of treatment. Both have been proven to be equally effective.

➤ **Should a child be given another course of zinc treatment if he/she experiences a second episode of diarrhoea?**

Yes, all episodes of diarrhoea should be treated with zinc. Even if a child has recently completed a full course of zinc treatment it is still safe to give a second course. Children with persistent, repeated episodes of diarrhoea should be taken to a clinic or hospital.

➤ **Does zinc work similarly to a vaccine for diarrhoea?**

No, vaccines target specific organisms causing diarrhoea, while zinc is a more general remedy for all types of infectious diarrhoea.

➤ **Can diarrhoea be treated with zinc only?**

Acute childhood diarrhoea should be treated with ORS and zinc. In children with bloody diarrhoea or suspected cholera an antibiotic may also be required.

➤ **Can zinc be given if diarrhoea is due to bottle-feeding?**

Zinc can be given to treat all diarrhoea. Bottle-feeding should be discouraged.

➤ **How does zinc work in diarrhoea?**

It is clear that zinc is vital for a wide range of biological functions. In diarrhoea we have come to know that zinc helps in the following ways:

- It boosts the immune system
- It helps in healing the intestinal lining
- It improves absorption of fluids

➤ **Should a child be prescribed an antibiotic for their diarrhoea?**

Only children with bloody diarrhoea or suspected cholera require antibiotics.

➤ **What do I do in case of persistent diarrhoea? If the child does not get better? Could this be because of the zinc?**

If the child does not improve, continue to give the zinc. In some diarrhoea cases, additional care may be needed beyond ORS and zinc. All cases should be referred if there are signs of dehydration, the child is not eating or drinking or the child has fever.

➤ **Can I give zinc if my child has blood in his/her stools?**

Yes, zinc can be given if the child has bloody stools. If the child develops bloody stools, it may also be necessary to prescribe an antibiotic.

Doses, Dispersion Time and Other Common Issues

➤ **How much time does a tablet take for dispersion (dissolving) in pure drinking water, ORS and breast-milk?**

"It usually takes about 20-30 seconds to dissolve in water and ORS but it takes a bit longer time in breast-milk.

➤ **Does the zinc dose vary according to the weight of the child?**

The zinc treatment is given according to age, not weight. Irrespective of the child's weight the recommended dose of zinc for children 6 months to 5 years is 20 mg zinc once daily for 10 consecutive days. Children 2 to 6 months are prescribed 10 mg/day.

➤ **What if the child takes more than one tablet?**

One should keep the tablets away from children in the house to prevent this from happening. The dose is 1 tablet per day. Extra taken by mistake, even all 10 at the same time, will not harm your child, but should be avoided.

➤ **Can zinc be given by mixing it with food?**

No, zinc should not be mixed with food because it will be more difficult for the caretaker to know how much zinc was actually taken. Some children will feel nauseous after taking the zinc, so do not give just before a meal.

➤ **Can the zinc tablet be taken by chewing?**

Yes, it can be chewed. Chewing is not the recommended mode of delivery, but is acceptable.

➤ **At what time of the day should zinc be given to a child?**

Zinc should be given once a day at any time. However, we recommend giving the tablet at the same time everyday in order to facilitate correct adherence to treatment instructions.

➤ **What should be done if the child misses a zinc dose?**

Give the zinc tablet the next day and continue for the full course of 10 days.

➤ **Can zinc be given to infants and newborns?**

The current recommendation is to provide zinc treatment to all children < 5 years of age. However, diarrhea among newborns is rare and may be a sign of sepsis or severe disease so care should be sought.

➤ **Can a mother who is breast-feeding take zinc instead of her child?**

No. The zinc will not benefit the child if the breast-feeding mother takes the zinc. The child must consume it.

➤ **Will zinc work for children above five years of age as well as it does for children under five years of age?**

Probably it would. However, there is no scientific evidence demonstrating the effectiveness of zinc as a treatment for diarrhoea in children over five years of age. In addition older children are less susceptible to the more severe effects of diarrhoea, so they may not benefit to the same degree.

➤ **Can zinc be given to adults?**

Zinc can be given to anybody, but WHO/UNICEF recommendations are limited to children under five years of age.

➤ **Can the zinc tablet be given to a child without consulting a doctor?**

Yes, it is not necessary to consult a doctor to give zinc and does not require a prescription (this may not apply in selected countries). Zinc should be given to any child with diarrhoea regardless of the type of diarrhoea. For children who exhibit severe symptoms such as vomiting or dehydration, it is important to consult a health care provider in addition to taking zinc and ORS.

- **Are all zinc tablets or syrups acceptable to buy?**
No. Parents should be advised to only purchase zinc products that you know to be safe and of high quality.
- **Should a mother continue to breastfeed or provide other foods while treating their child for diarrhea?**
Yes, children should continue to be fed. Allow the child to take as much as they want. If vomiting, the smaller, more frequent feeds are recommended.
- **Can zinc be given with other medications?**
Yes, zinc can be given with other medications. However, if a child is receiving iron supplement it is recommended this be stopped while on the zinc treatment because the iron will decrease the effect of zinc.
- **Can zinc be given to increase the appetite of children?**
Zinc tablet formulation is not intended to be used to increase appetite. Other forms of zinc such as lower dose syrups have been used to increase appetite, with anecdotal reports of success. Improved appetite when taking zinc is a common observation and probably related to the fact that their ability to taste food returns.
- **Why are zinc dispersible tablets recommended after the diarrhoea episode has stopped?**
Zinc therapy is recommended for the complete dosing regimen, 10-14 days, because zinc not only treats the diarrhoea episode at hand, it also helps to repair the damaged gut mucosa and enhances overall immune function. The recommendation of at least 10 days has been made to ensure that recovery from the diarrhoea episode is complete and to improve the health of the child in the next 3 months.
- **If a child is receiving multivitamins should zinc be given on top of that?**
Yes, multivitamins without iron can be continued. If the multivitamin contains iron it should be stopped until the 10-14 days of zinc is finished.
- **If a child is being treated for anemia with iron what should be recommended?**
During the 10 day period of zinc treatment the child should stop taking the iron supplements. If the child is being treated for severe anemia, he/she should be seen by a doctor (or nurse where no doctor is available) before deciding to continue or stop iron supplementation.
- **If a child is already eating zinc fortified food as a regular part of their diet is there a risk of zinc overdose if they also start the zinc treatment?**
Zinc fortified foods contain low amounts of zinc in line with recommended daily requirements. Adding the zinc treatment is safe and highly recommended. There is no risk of overdosing.
- **Is zinc supplementation safe in populations where children may be infected with HIV?**
Zinc studies in children with HIV have been carried out and it has been found to be safe. In some studies zinc had additional benefits, such as improved weight gain and resistance to infection.
- **Should a child also be given an antibiotic for the diarrhoea.**
Only children with bloody diarrhea should be given an antibiotic. If there is blood in the stool the child should be brought to a local clinic for assessment.
- **If after three days or more of zinc treatment a child is not improving, what should be done?**
Do not stop the zinc. The child should be taken to a local clinic or a community health worker for further assessment

Why a Dispersible Tablet and not Syrup?

➤ Zinc tablets are preferred over syrup for the following reasons: -

- Easier distribution and storage
- Lower cost
- Easier for caretakers to administer properly as well as count the # of days given
- Longer shelf-life

➤ Can a child be given zinc syrup instead of the zinc tablet formation?

Yes, zinc syrup can be given instead of the tablets. With the syrup it will be important to verify the correct amount and dose.

➤ What are the ingredients of the zinc tablet?

The ingredients in zinc tablet include zinc sulphate, glucose and flavoring.

Side Effects

➤ Are there any side effects of zinc?

At the dose being provided in the zinc tablet, there is a small increased chance of transient nausea or vomiting. If the child is vomiting, we recommend settling the child first before administering zinc.

➤ Are there risks associated with zinc treatment?

At the recommended dose of 20 mg per day there is no threat of toxicity. Even taking all 10 tablets at once will not lead to acute or longer term ill effects other than nausea or vomiting.

➤ What if my child takes more than one tablet?

You should keep the tablets away from all children in the home to prevent this from happening. If more than one tablet is taken, wait until the next day to resume a course of one tablet per day until the blister pack is finished.

➤ What should be done if the child vomits after ingesting zinc?

If the child vomits after giving zinc wait for one hour. If there is no further vomiting give the child another dose of zinc. If the child vomits again, then the caregiver should wait until the next day to try again. Do not give immediately after the child is given ORS – wait 30 minutes.

➤ Can zinc be given to a child with an empty or full stomach?

Zinc can be given on an empty or full stomach, however during the early phase of the illness it is recommended not to give zinc immediately before or following a feed.

➤ Can zinc be given if a child is vomiting?

When a child has vomiting with diarrhoea, wait for the child to settle before giving zinc. If the child vomits repeatedly withhold zinc for that day and start from the next day.

➤ If the child is vomiting other things, like ORS, should I try to give the child zinc?

No, if the child is vomiting ORS, other liquids or food one should wait until the child is settled bring him/her to the health center.