



Original Research Article

## Impact of Training Workshop on Knowledge and Attitude for 'Zinc and Its Role in Management of Diarrhoea' among Peripheral Health Workers of Primary Health Centre of A Tribal Area in Thane District of Maharashtra

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### ABSTRACT

**Background:** Zinc Supplementation adopted as part of Indian National Programme for management of diarrhoea since 2006. The backbones of the programme are peripheral health workers.

**Objective:** To quantify the effect of training workshop on knowledge and attitude for 'zinc and its role in management of diarrhoea' among the study population.

**Methodology:** A prospective interventional study conducted amongst peripheral health workers of tribal PHC in thane district. Two day's workshop session were conducted with the help of power point presentation, role play, Flip charts, pamphlets and Zinc tablet demonstration. A predesigned and pretested questionnaire was used to collect the pre-workshop baseline data and post-workshop data which were collected after one month. The results were analyzed statistically using SPSS 15 version and Microsoft Excel.

**Results:** Baseline survey showed that 66% of the subjects had knowledge of diarrhoea, 92% knew about ORS and 97.7% were unaware about Zinc. Post- intervention, 42% showed complete and 50% partial gain in knowledge about Zinc's role in diarrhoea, 8% showed no gain in knowledge. 94.3% felt it as an appropriate supplement for diarrhoea management while 87.5% were ready to use it.

**Conclusion:** Lack of awareness and training were the main reason to not to use or delay in use of zinc supplement during diarrhoea. A positive impact was observed on change in knowledge & attitude for use of zinc tablets in diarrhea.

**Key words:** Knowledge, Attitude, Zinc supplementation, Child survival

### INTRODUCTION

Diarrhoea is one of the leading causes of morbidity and mortality among children especially in under 3 years of age.

<sup>[1]</sup> The replacement of lost Zinc during diarrhoea is important to help the child recover and to keep the child healthy. Zinc deficiency has direct effects on mucosal

functions as it disrupts intestinal mucosa, reduces brush border enzymes, increases mucosal permeability and increases intestinal secretion. Zinc in recommended doses, has been established to be well tolerated by children with no side effects. According to International Zinc Nutrition Consultative Group, <sup>[1]</sup> Community-based

intervention trials, [2] and Lancet series on child mortality, zinc supplementation plays a crucial role in decreasing morbidity, mortality and improving child survival during diarrhoea. Zinc is an important micronutrient important for cellular growth and function of the immune system. [3] Zinc becomes depleted during diarrhoea and these intestinal losses aggravate any pre-existing zinc deficiency. [4] Numerous clinical trials have shown that zinc tablets given as an adjunct to Oral Rehydration Therapy (ORT) in the treatment of diarrhoea reduces the duration and severity of the diarrhoeal episodes as well as decreases the occurrence of diarrhoea in the 2-3 months following the episode. [5] Addition of zinc also leads to reduction in the use of antibiotics and increase in the rate of use of ORS [6] in the management of diarrhoea. Following the evidence of the clinical benefits of zinc supplementation is an adjunct therapy to ORS in the management of diarrhoea, the WHO and UNICEF included zinc supplementation in the treatment of acute diarrhoea in May 2004. Accordingly, Zinc was included in Essential Drug List 2005 Policy changes were made in Diarrheal Diseases Control Programs of several countries and the use of low osmolarity ORS and a 10-14 days treatment with 10mg per day of zinc tablets for infants under 6 months and 20 mg per day of zinc tablets for older children included in the policy. [7] Indian National Programme for management of Diarrhoea adopted above policy from 2/11/2006. But at study area some delay was observed in implementing zinc related activity due to limited information, lack of awareness, lack of training and may be gap between central policies and grass root level activities. Therefore measures aimed at improving the level of knowledge and use of zinc supplementation among health care providers is important. This would also

improve the overall child health indicators and contribute to the achievement of the fourth Millennium Development Goal. Hence, this study came into being to assess the quantifiable role of intervention in the form of training workshop for peripheral health workers in reducing the above gap.

### **Objectives**

- To study baseline and post-intervention knowledge and attitude of the study population.
- To quantify the effect of intervention on the knowledge and attitude of the study population.

### **MATERIALS AND METHODS**

The present study was conducted in a tribal Primary Health Centre area located in Taluka Shahpur, Thane District, Maharashtra. The study subjects were all consented peripheral health workers like health assistants (HA), auxiliary nurse midwives (ANM) anganwadi workers, (AWW), accredited social health activist (ASHA), multipurpose workers (MPW) while the workers remained absent were excluded. It was a prospective, pre and post-test interventional study. Ethical approval was obtained from the institutional ethics committee and permission from medical officer of the concerned PHC was taken. Consent was obtained from every subject individually. Study was carried out in three phases Phase I: Situation Analysis Phase II: Baseline survey and Intervention Phase III: Post intervention Assessment. Initial situational analysis revealed that zinc tablets were available in 7 Out of 8 sub-centres and the awareness was lacking about its usage among the health workers. Out of 118 subjects working in study area an estimated 88 workers were selected by Epi-Info StatCalc for a descriptive study using random sampling. A pre-designed and pretested questionnaire translated into Marathi (local) language was used to collect

the pre-workshop baseline data. Two days training workshop was conducted for the subjects as an intervention. First day power point presentation & role play was done and second day the flip charts, pamphlets and zinc tablet demonstration sessions were included. The post-workshop data was collected after one month for which the same questionnaire was used. Data was analyzed by finding percentages,

proportions, and Chi-square test using SPSS 15 version and Microsoft Excel.

## RESULTS

Out of 88 participants, 35 (39.8%) health workers were in the age group of 29-38 years, of which 97% were female. Of the total participants maximum were AWW 46 (52.27%) followed by ASHA 32 (36.36%) shown in Fig. 1.

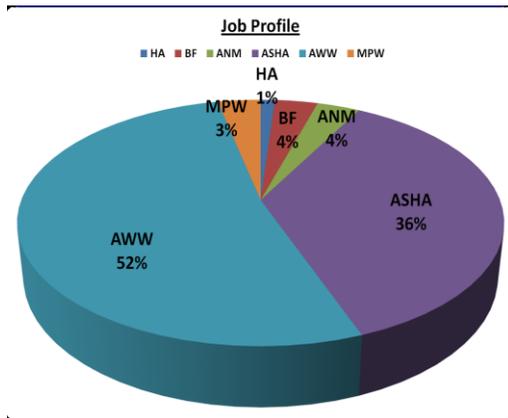


Fig.1: Job profile of participants.

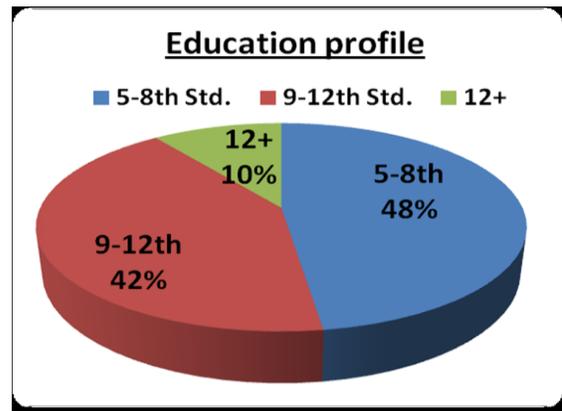


Fig.2: Education profile of participants.

Most health workers 42 (47.73%) had an educational background of 5-8th Standard. This was followed by 37 (42.04%) health workers with educational background between 9th-12th standard and 9 (10.22%) participants with educational level above 12th standard shown in Fig 2. About 72 (81.8%) health workers had received training for their job. Rest 16 (18.2%) workers did not receive any training for their job shown in Fig 3.

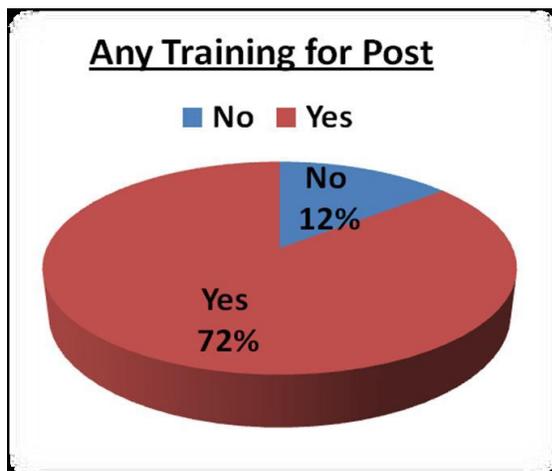


Fig.3: Job training of participants.

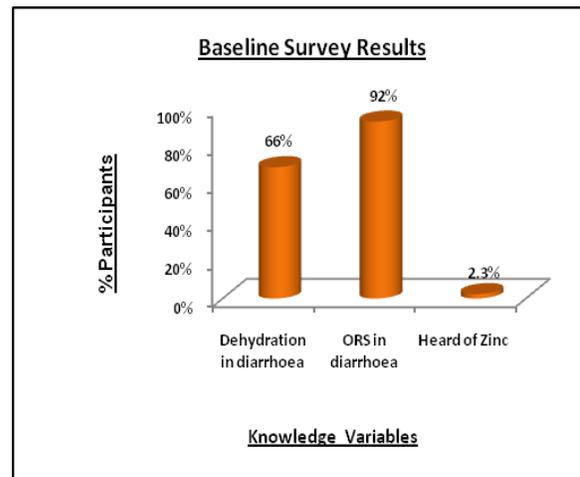


Fig.4: Baseline survey results.

**Baseline Survey Results (Fig. 4)**

Percentage of participants giving correct answers for the questions testing their knowledge regarding whether they consider dehydration as most dangerous sign of

diarrhoea compared to other signs, duration for which ORS should be administered in diarrhoea, whether they had heard of Zinc were 66%, 92% and 2.3% respectively.

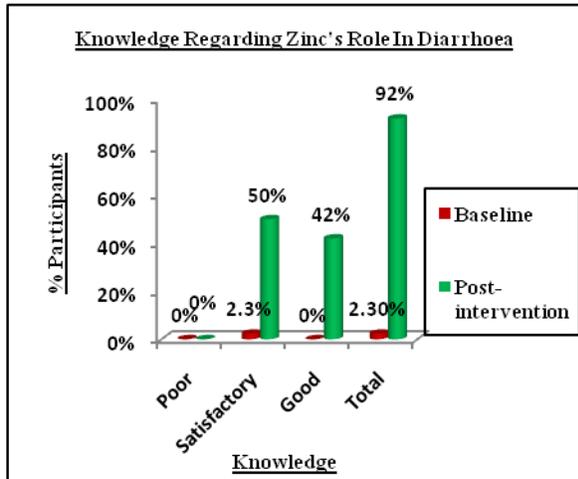


Fig.5: Post intervention results.

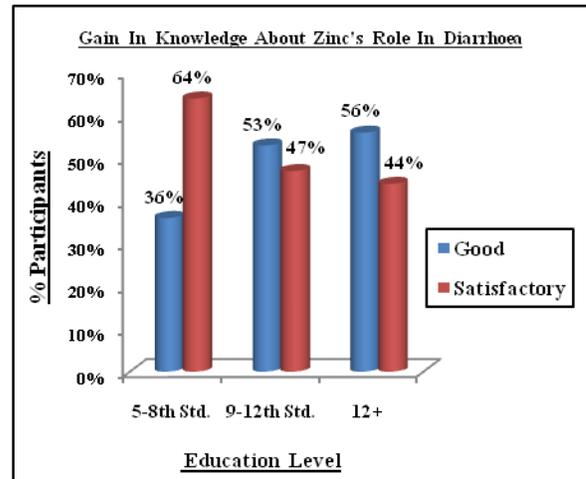


Fig.6: Baseline knowledge of participants.

**Post Intervention Results - Gain in knowledge (Fig. 5):**

Post intervention, 8(8%) health workers showed Poor knowledge. 44 (50%) health workers had satisfactory knowledge. 37(42%) health workers had Good knowledge. So, a total of 81 (92%) health workers showed some (Satisfactory or Good) knowledge regarding Zinc’s role in diarrhoea. Post interventional, 53% of those with educational level between 9th- 12th std. showed good knowledge of Zinc’s role in diarrhoea while 47% showed satisfactory knowledge & above 12th std., 56% showed Good knowledge.

**Knowledge Assessment (Fig 6 & 7):**

When asked questions assessing the knowledge, 58 (66%) of the participants considered dehydration as the most dangerous sign of diarrhoea while 30 (34%) gave incorrect response. 81(92%) of the participants knew the right duration for which ORS has to be administered for management during a diarrhoeal episode.

37 (42%) of the participants correctly knew the role of Zinc during diarrhoea. 41(47%) of the participants correctly knew the functions of Zinc during diarrhoea. 66 (75%) of the participants correctly knew the dosage of Zinc tablets in children between 2 to 6 months of age. 56 (64%) of the participants correctly knew the dosage of Zinc tablets in children between 6months to 5 years of age. 73 (83%) of the participants correctly knew the total number of days for which Zinc tablets are to be administered to children during diarrhoeal episode.

**Effect of Previous Training on Knowledge of participants (Fig 8):**

93% of the 72 previously trained participants gave correct response for Duration of ORS during a diarrhoeal episode whereas all the 16 untrained participants gave correct response. 77% previously trained participants said correctly that dehydration is the most danger sign during diarrhoea compared to 30% of the untrained participants.

48% of the previously trained participants knew Zinc's Function in human health compared to 55% of the untrained participants. 44% of the previously trained participants knew correct role of zinc in diarrhoea management whereas 64% untrained participants knew the same. 83% of the previously trained participants knew

correct dose of Zinc in children of age less than 6 months as compared to 91% of the untrained participants. 69% of the previously trained participants knew correct dose of Zinc in children of age more than 6 months as compared to 82% of the untrained participants.

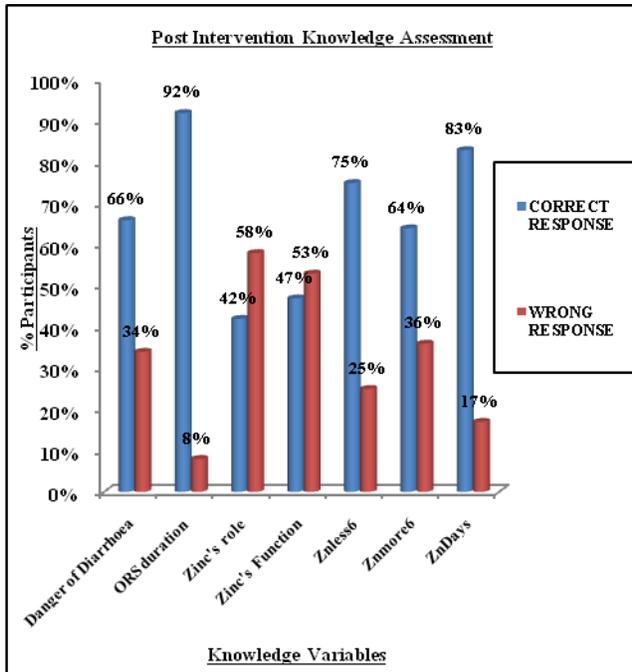


Fig.7: Post intervention knowledge of participants.

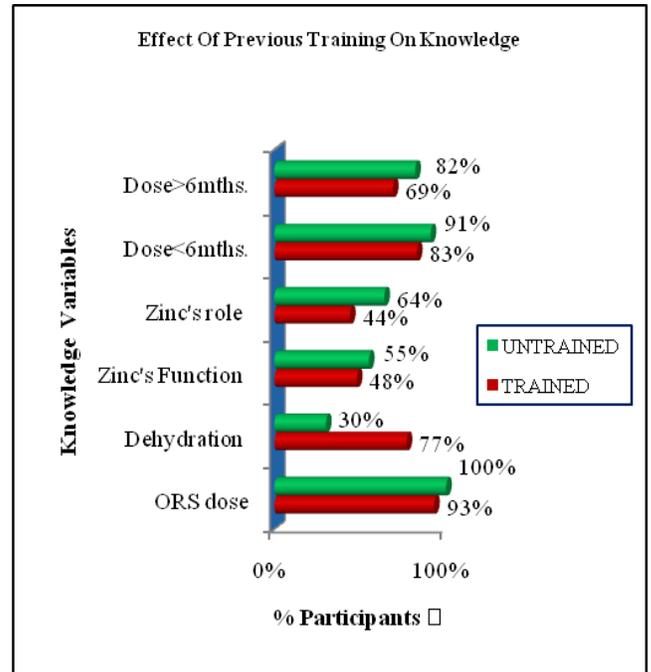


Fig.8: Effect of previous training on knowledge of participants.

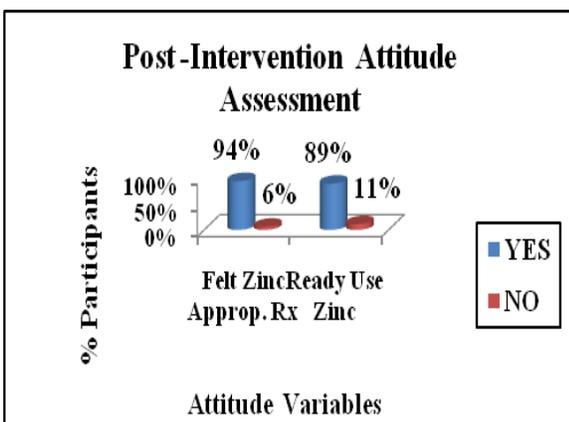


Fig.9: Post intervention effect on attitude of participants.

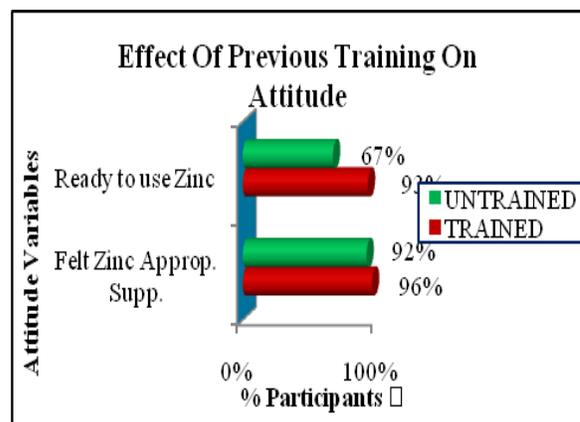


Fig.10: Effect of previous training on attitude of participants.

**Effect on Attitude (Fig 9):**

Post intervention, participants showed change in their attitude. 83 (94%)

participants felt that Zinc was appropriate treatments for management of diarrhoea.78

(89%) participants were ready to use Zinc if their child falls ill with Diarrhoea.

**Effect of Previous Training on Attitude (Fig. 10):**

96% of the 72 trained participants felt that Zinc was an appropriate treatment for management of diarrhoea while 93% were ready to use Zinc if their child falls ill with Diarrhoea.

**Table 1: Effect of Intervention on Knowledge & Attitude of participants:**

Variable Category (Baseline and Post-interventional)		McNemar 'χ <sup>2</sup> ' Value	'P' Value
Knowledge	Zinc's Role In Diarrhoea	79.01	0.000
	Zinc's Function	83.01	0.000
	Zinc Deficiency Causes	78.01	0.000
Attitude	Felt Zinc - an Appropriate Supplement	81.01	0.000
	Ready To Use Zinc	75.01	0.000

\*P value less than 0.05 is considered significant.

McNemar 'X<sup>2</sup>' test was applied to the baseline and post intervention frequency of variables assessing knowledge and attitude of the participants the values for McNemar 'X<sup>2</sup>' were all above 70 giving a very significant P value, which implies that the difference found in the knowledge and attitude of the participants was actually due to the intervention.

**DISCUSSION**

Out of 88 participants, maximum 62 (70.5%) health workers were in the age group of 18-38 years. (97.7%) were females and 2 (2.3 %) were males. Of these, 46 (52.27%) participants were anganwadi workers, followed by ASHA 32(36.36%), ANM 4(5%), BF 3 (3.4%), MPW 2(2.3%) and HA 1 (1%). 42 (47.73%) participants had an educational background of 5<sup>th</sup> - 8<sup>th</sup> Standard, followed by 37 (42.04%) with educational background between 9<sup>th</sup> -12<sup>th</sup>

standard and 9 (10.22%) participants with educational level above 12<sup>th</sup> standard. About 72 (81.8%) participants had received training for their job.

The baseline survey revealed that 66% of the participants consider dehydration as most dangerous sign of diarrhoea compared to other signs, 92% of the participants correctly knew the duration for which ORS should be administered in diarrhoea and just 2.3% of the participants had heard of Zinc. Olivier F (2005) [8] found that 8% in India had heard of Zinc, but 53% described it as a medicine for crops and only 17% described it as a treatment for diarrhea. Brown KH (2007) [9] stated the need for practical intervention strategies for zinc that can be linked to ongoing health and nutrition programs. Bhandari N et al (2008) [10] evaluated the effect of education about Zinc supplements to caregivers in the treatment of acute diarrhoea, found that post intervention; Zinc was used in upto 60% of diarrheal episodes.

The present study revealed that just 2.3% of the participants had heard of Zinc. Post intervention, 81(92%) health workers showed improvement in knowledge regarding Zinc's role in diarrhoea. Also there was change in the attitude. 83 (94%) participants felt that Zinc was appropriate treatments for management of diarrhoea 78 (89%) participants were ready to use Zinc if their child falls ill with Diarrhoea.

Present study also evaluated the effect of education level and previous training status of the health workers in knowledge and attitude for Zinc and its role in diarrhoea. The results of this study reconfirmed the fact that higher the education level of the worker higher is the percentage of Good knowledge. With McNemar 'X<sup>2</sup>' value, it was shown that the difference found in the knowledge and attitude of the participants was actually due to the intervention. Hotz C et al (2004) [11] in

its (IZiNCG) technical document recommended to make Zinc related interventions more effective & link it with other nutrition and health programs.

Christa L Fischer Walker et al [12] stated that quality training of health-care workers has the potential to accelerate uptake, ensure Zinc is used correctly, increase ORS use, decrease unnecessary antibiotic use, increase referral and thus decrease morbidity and mortality.

#### **Limitations:**

This study only assessed the impact of intervention on knowledge and attitude for Zinc related intervention, not the practices.

#### **CONCLUSION**

Very few (2%) of the peripheral health workers had heard about Zinc. Post-intervention, improvement in knowledge and attitude was above 90%. The impact of intervention was directly proportional to the level of education of the health workers. The impact of intervention on change in attitude was directly proportional to the training status of the health workers. In case of knowledge gain, untrained health workers showed more improvement.

#### **Recommendations:**

- 1) To organize training workshops, outreach activities for Zinc Awareness.
- 2) Dissemination Workshops in other potential and needy regions is recommended for replicating the results.
- 3) This study may be further extended to study the actual change produced in the community after the health workers' implementation of Zinc related interventions.

#### **REFERENCES**

1. 'The Treatment of Diarrhoea: A manual for physicians and other senior health workers'- 4<sup>th</sup> rev.

- WHO/CAH/03.7, World Health Organization, Geneva.
2. WHO/UNICEF (2004). Clinical management of acute diarrhoea. Geneva:WHO/UNICEF joint statement. WHO/FCH/CAH/04.7.
3. Vohra P. Nutrition is the Key to Boost Body Defences IJGDBP 2008; Vol. 4 No. 2: 92-6
4. Chakrabarti R, Goel SP. Fetal Growth – Role of Maternal Nutrition. IJGDBP 2008; Vol. 4 No. 2: 52
5. Sandstead HH. Zinc deficiency. A public health problem? Am J Dis Child 1999;145:853–9.
6. <http://intra.tn.nic.in/dph/ZnOrs.pdf>
7. Prasad AS. Discovery of human zinc deficiency and studies in an experimental human model. Am J Clin Nutr 1991;53:403–12
8. Olivier F. Bringing Zinc to the people: Global progress in implementing revised WHO-UNICEF Recommendation for clinical management of Diarrhoea.ICDDR-17-18 April 2005
9. Brown KH. Information gaps for scaling-up programs to improve zinc nutrition. A2Z Project. United States Agency of International Development. Academy for Educational Development. 2007 [http://www.izincg.org/pdf/ZincGapAnalysis\\_BrownA2Z2007\\_web.pdf?HPSESSID=d41b593026ad0f8f2491af095fe26330](http://www.izincg.org/pdf/ZincGapAnalysis_BrownA2Z2007_web.pdf?HPSESSID=d41b593026ad0f8f2491af095fe26330)
10. Bhandari N, Mazumder S, Taneja S, Dube B, Agarwal RC, Mahalanabis D. et al. Effectiveness of zinc supplementation plus oral rehydration salts compared with oral rehydration salts alone as a treatment for acute diarrhea in a primary care setting: a cluster randomized trial.

- Pediatrics. 2008;121:e1279–85. doi: 10.1542/peds.2007-1939.
11. International Zinc Nutrition Consultative Group (IZiNCG) (2004). Assessment of the risk of zinc deficiency in populations and options for its control. In: Hotz C., Brown KH. (eds.) Food Nutr Bull, S94-S203.
12. Christa L Fischer Walker et al. Zinc and low osmolarity ORS for diarrhoea: a renewed call to action Publication: Bulletin of the World Health Organization; Type: Policy and Practice Article DOI: 10.2471/BLT.08.058990.

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