Zinc Supplementation for Children

Reason for supplementation

- Zinc deficiency is prevalent in many regions of the world.
- Zinc can not be stored in the body
- Natural food sources with high zinc contents are mostly expensive thus people with low social economic status are likely to have zinc deficiency.
- Children with low levels of animal products in their diet and are experiencing diarrhea episodes are at high risk of developing zinc deficiency

Physiological Functions of zinc

- Regulate different types of enzymes that control gene expression.
- Functions as an anti-oxidant, defeats oxidative stress and protects cell membrane integrity.
- Boosts immunity, promotes antibody and immune cell productions.
- Strengthens mucosal barriers of the body. This is especially prominent in the gastrointestinal system.
- Promotes normal enterocyte brush-border enzyme activity.
- Affects several iron channels including iron and potassium secretion.

Oral zinc supplementation and diarrhea treatment for children

- Zinc supplementation shortens both acute and persistent diarrhea duration in children
- The effect is greater in malnourished children since they might be experiencing zinc deficiency.

Safety and Dosage

- Appropriate zinc supplement has been proven safe and beneficial for Children experiencing diarrhea.
- The daily allowance of zinc for children under 5 years old is 2 to 4 mg/kg/day for malnourished children and 3 -5 mg/day for healthy children.
- The World Health Organization (WHO) recommends supplement children experiencing diarrhea10 to 20 mg of zinc per day.

Type of Oral Zinc Supplements

- Zinc sulphate
- Zinc acetate
- Zinc gluconate

Adverse Effects

- Zinc competes with iron for absorption. Studies have shown that combined supplementation of iron and zinc reduces the absorption of iron and impairs the protective effects of zinc to diarrhea patients.
- Some evidence suggested that high dose of zinc supplement can increase the mortality of malnourished children experiencing diarrhea.

Reference:
Lazzerini M, Ronfani L, Oral zinc for treating diarrhoea in children. 2013. The Cochrane Library 2013, Issue 1.