

# AWARENESS OF THE USE OF ZINC IN THE TREATMENT OF PEDIATRIC DIARRHOEA

## Submitted To:

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# DIARRHOEA PREVALENCE

- ▶ India s **No-1** in child deaths due to diarrhea
- ▶ Every year, **3,86 000** children die due to diarrhea in India.
- ▶ **1044** deaths every **day**
- ▶ **44** deaths every **hour**
- ▶ Every **5<sup>th</sup>** child who die of Diarrhea worldwide is an **ndian**.
- ▶ Diarrhea kills more children than AIDS, Malaria & Measles combined.

# SIGNS AND SYMPTOMS

- ▶ Painful abdominal cramps
- ▶ Dry mouth
- ▶ Passing less urine than usual
- ▶ Irritability
- ▶ Less tears when crying
- ▶ Nausea
- ▶ Fever
- ▶ Bloating

# TYPES OF DIARRHOEA

- ▶ **Acute diarrhoea**: If an episode of diarrhea lasts **less than 14 days**, called acute diarrhea. Acute watery diarrhea causes dehydration and contributes to malnutrition.
- ▶ **Acute bloody diarrhoea/Dysentery**: The main dangers are **intestinal damage and malnutrition**; other complications, including dehydration, may also occur.
- ▶ **Persistent diarrhoea**: If the diarrhea **lasts 14 days** or more, it is persistent diarrhea. Up to 20% of episodes of diarrhea become persistent. Persistent diarrhea often **causes nutritional problems**, creating the risk of malnutrition and **serious non-intestinal infection**.
- ▶ **Diarrhoea with severe malnutrition**: The main dangers are severe systemic infection, dehydration, heart failure and vitamin and mineral deficiency.

# PREVENTION OF DIARRHOEA

- ▶ ORS
- ▶ Zinc
- ▶ Breast feeding
- ▶ Rotavirus Vaccine
- ▶ Antibiotics
- ▶ Probiotics
- ▶ Promotion of Handwashing with soap.
- ▶ Safe drinking water
- ▶ Improved sanitation

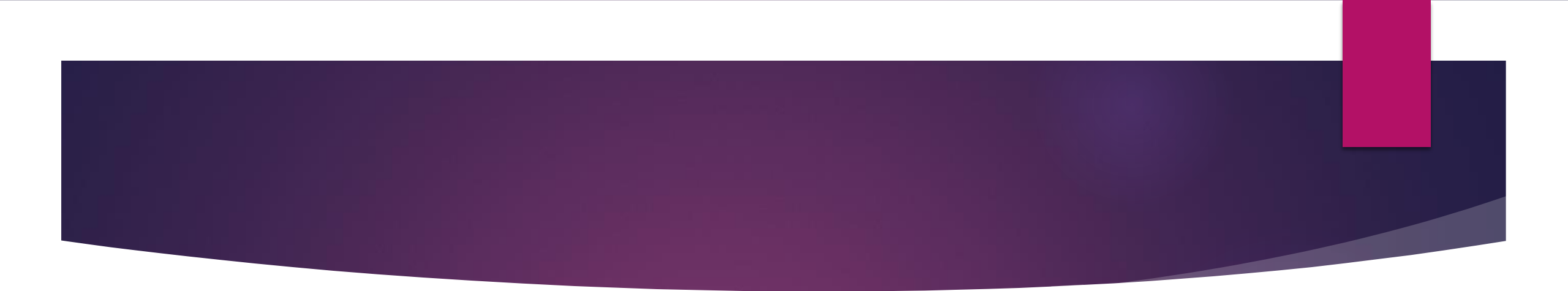
# TREATMENT OF DIARRHOEA

- ▶ Zinc can **increase cellular immunity** and enhances **immune response**.
- ▶ It can **reduce** overall **diarrhoea prevalence by 25%**.
- ▶ It **reduces re-occurrence** within 2-3 months by **35%**.
- ▶ Zinc supplement has been found to **reduce severity of diarrhoeal episodes**.
- ▶ It **maintains gut mucosal integrity** to reduce or prevent fluid loss.

# ZINC

## PAST

- ▶ In 2004, **WHO/UNICEF** issued a joint statement recommending New osmolarity **ORS and Zinc supplementation** in the treatment of Diarrhoea.
- ▶ In spite of the recommendations, there is **little progress in Prescriptions** and availability of Zinc.
- ▶ The first brand of Zinc launched in India is **Zinconia** followed by **Z&D**.
- ▶ In the recent past, Indian govt has included Zinc in the National programme for treatment of Diarrhoea.



## **PRESENT**

- ▶ In spite of the recommendations, only **1 %** of Zinc is prescribed in India.
- ▶ Very few brands of Zinc is launched till date (20 brands) with limited market size of 30 cr and 23% Gr.
- ▶ Only 2 brands introduced in the last one year.
- ▶ No new clinical references in recent past.



## PROBLEM STATEMENT

- ▶ Zinc is not prescribed by the Pediatricians even after being in the guidelines of WHO and UNICEF

## OBJECTIVE

- ▶ To study the usage practices of Zinc during diarrhoea in children among Pediatricians of Thane

# METHODOLOGY

- ▶ **Study Type-** Descriptive
- ▶ **Study Population-** Chemists and Pediatricians
- ▶ **Data Type-** Primary and Secondary
- ▶ **Duration-** 3 months
- ▶ **Sampling Area-** Thane
- ▶ **Sampling Tool-** Questionnaire
- ▶ **Sample Size-** Pediatricians:40
- ▶ **Sampling Technique-** Non Probabilistic Purposive Sampling

# LITERATURE REVIEW

## 1) Topic- Role of Zinc in childhood diarrhoea management: A case of Nepal

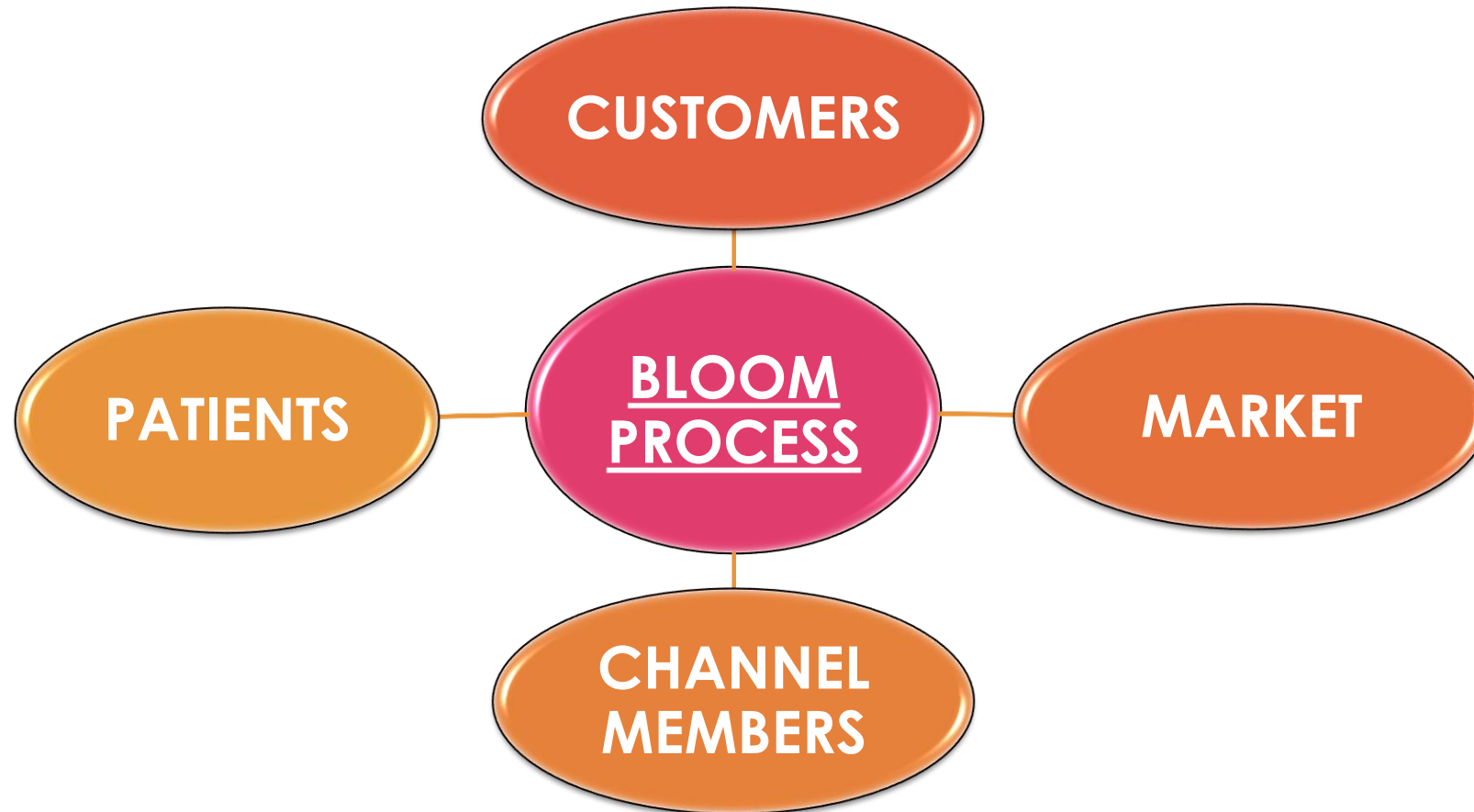
- ▶ Diarrhoea is one of the leading causes of death among children less than five years of age around the world accounting for about two million child deaths annually.
- ▶ One of the recent strategies made to minimize the diarrhea associated mortality in children involves the use of oral zinc in diarrhea management.
- ▶ Zinc is enlisted in WHO essential drug list under medicine for diarrhea where it is indicated in acute diarrhea as an adjunct to oral rehydration salts.
- ▶ A trial conducted in Nepal concluded that, the children who took Zinc supplementation, **their duration has reduced to 24%, lower incidence of diarrhea by 15% and there was less hospital admissions.**
- ▶ The study concludes that, if Zinc is regularly prescribed during diarrhea then it will reduce the public health burden in developing countries like Nepal.



## 2) Topic- Zinc supplementation in young children: A review of the literature focusing on diarrhoea prevention and treatment

- ▶ This review examines the impact of zinc supplementation, administered prophylactically or therapeutically, on diarrhoea.
- ▶ A total of 38 studies were included , 29 studies examined the effect of prophylactic zinc and 9 studies examined the effects of therapeutic use of zinc for treatment of diarrhoea in children under five years.
- ▶ The conclusion made was that, Prophylactic zinc has been shown
  - to be **effective in decreasing both prevalence and incidence of diarrhoea**
  - **reducing respiratory infections** and **improving growth** in children with impaired nutritional status.
- ▶ Therapeutic use of zinc for the treatment of diarrhoea in children has been shown
  - to **reduce diarrhoea incidence, stool frequency** and **diarrhoea duration** as well as **respiratory infections** in zinc deficient children, but stool output is reduced only in children with cholera.

# THE BLOOM PROCCCESS



# CUSTOMERS

- ▶ Probotics, **ORS** and Zinc are the treatments prescribed for children suffering from diarrhoea.
- ▶ Most of the Pediatricians **do not use Zinc** in their treatment.
- ▶ Mostly, the Pediatricians prescribe Zinc in case of **Viral diarrhoea**.
- ▶ Zinc **increases mucosal integrity, restores immunity** and **avoids reoccurrence** of diarrhoea in children.
- ▶ Reduction in the frequency of stools and rehydration of the child are few of the common clinical outcomes of zinc which are observed by the pediatricians in their practice.

# MARKET

The market for zinc medications consist of the following brands in different dosage forms:

- ▶ Z & D
- ▶ ZINCONIA
- ▶ ZN20
- ▶ ZN20
- ▶ ZINCOLIFE
- ▶ ZIORAL
- ▶ ZIFRA





# CHANNEL MEMBERS

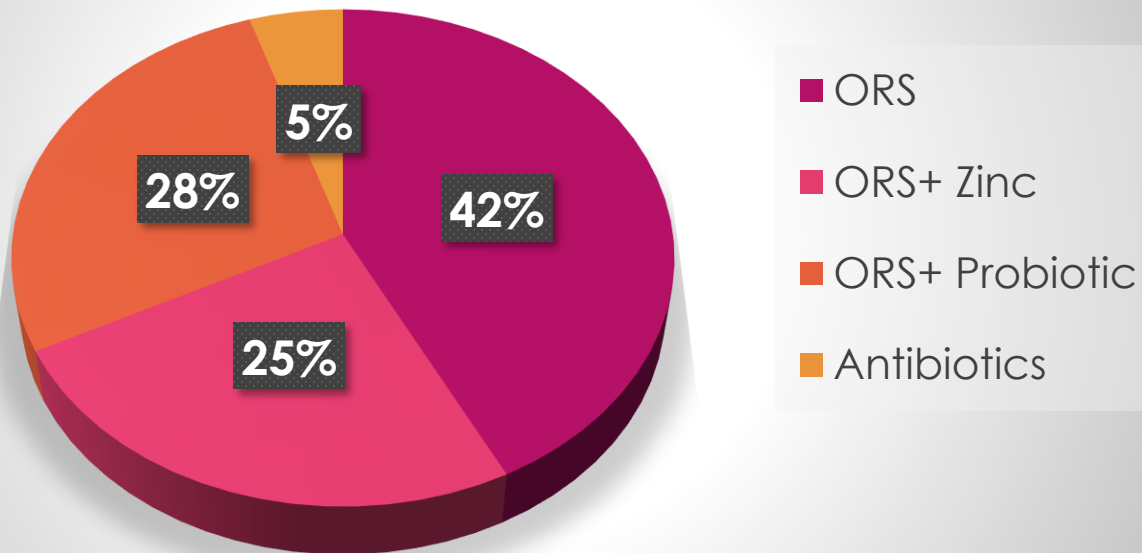
| S.NO | BRAND NAME | FORMULATION   | COMPANY NAME                    |
|------|------------|---------------|---------------------------------|
| 1    | Zinconia   | Syrup         | Zuventus                        |
| 2    | Rinifol    | Dry Syrup     | Elan Pharma                     |
| 3    | Rinifol-Z  | Dry Syrup     | Elan Pharma                     |
| 4    | Zincogut   | Oral Solution | Centaur                         |
| 5    | Zincolife  | Syrup         | Mankind                         |
| 6    | Weltone Z  | Drops         | Delcure Lifesciences<br>Limited |

# PATIENTS

- ▶ Stomach ache
- ▶ Loss of appetite
- ▶ Low energy
- ▶ Child cannot communicate about the pain
- ▶ Swollen anus which is painful
- ▶ Rashes/irritation on the skin
- ▶ Dehydration
- ▶ The mother has to be always available for the child
- ▶ Maintaining the cleanliness
- ▶ The child does not take medicines during treatment

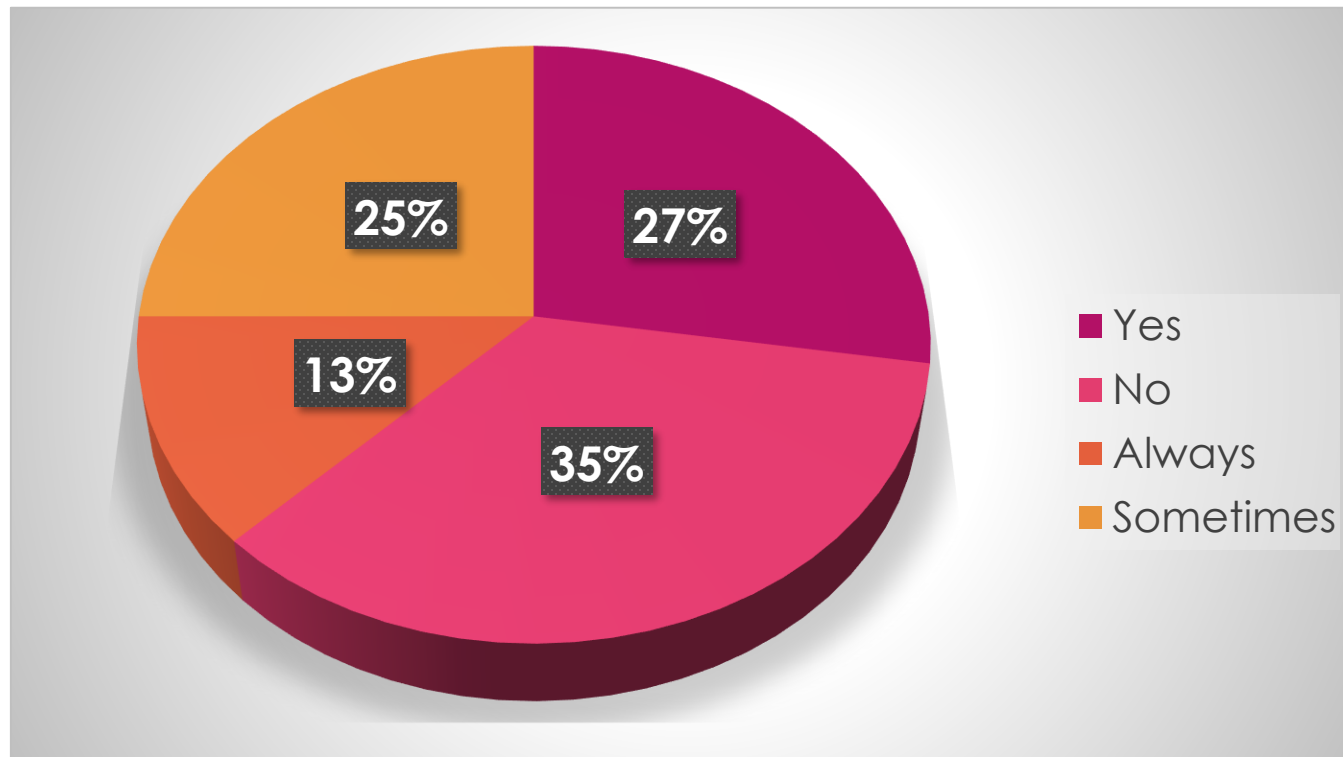
# RESULT

Q1) What is the treatment you prescribe for a child suffering from diarrhoea?



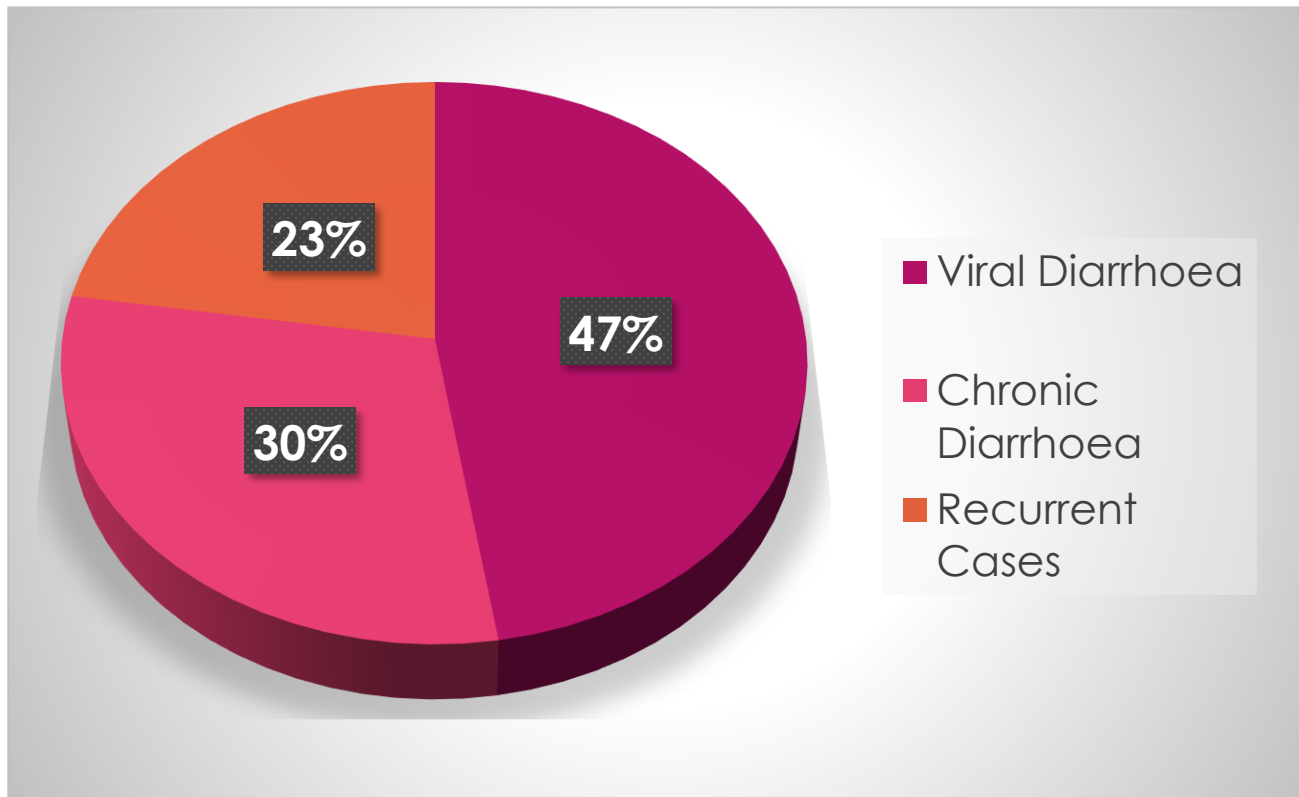
**INTERPRETATION:** The most common preference of medication among the pediatricians of Thane was of ORS followed by ORS combined with Probiotics. There was not much inclination of the doctors to prescribe zinc for pediatric diarrhoea.

Q2) Have you ever prescribed zinc in your treatment?



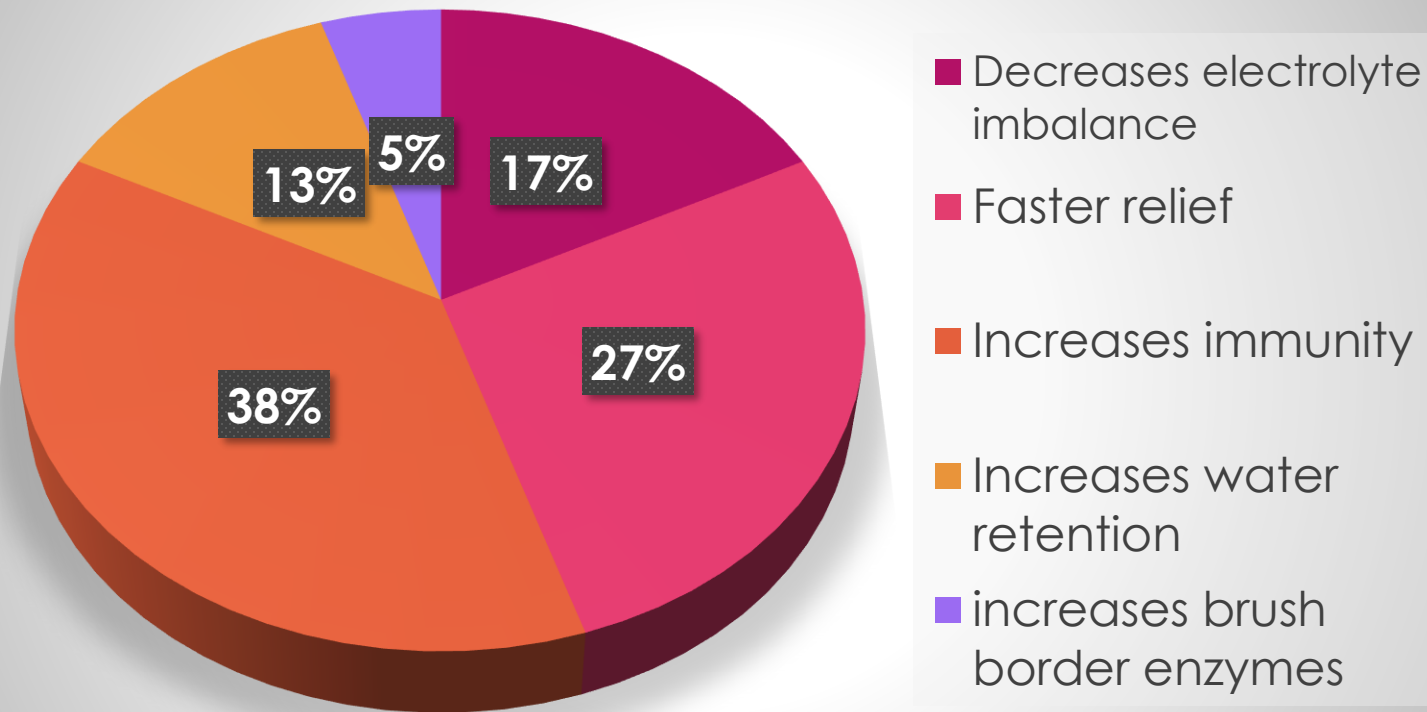
**INTERPRETATION:** There was a maximum account of the Pediatricians not prescribing zinc in the case of pediatric diarrhoea. The percentage of doctors prescribing zinc in diarrhoea was only 27%. This graph shows that Zinc has not been added in the treatment regime of pediatric diarrhoea by the doctors.

### Q3) When do you prescribe Zinc?



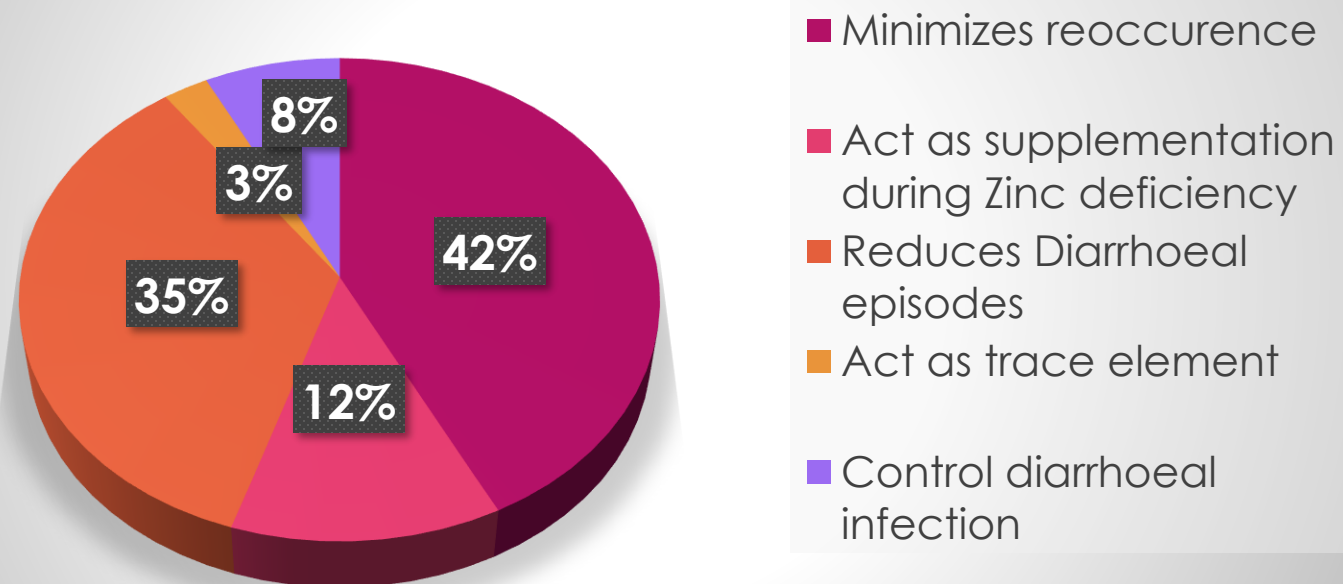
**INTERPRETATION:** The prescribers of zinc in diarrhoea tend to prescribe zinc in cases of viral diarrhoea in children the most followed by recurrent cases.

#### Q4) What are the roles/benefits of zinc n diarrhoea?



**INTERPRETATION:** The benefits of zinc were recorded and it was found that the doctors who prescribe zinc in pediatric diarrhoea know about the different roles of zinc mainly as an immunity enhancer and for faster relief in diarrhoea among children.

Q5) What clinical outcomes of zinc have you observed in your practice?



**INTERPRETATION:** The clinical outcomes of zinc in case of pediatric diarrhoea were noted which shows that Zinc has proved to be efficient in controlling diarrhoeal infection and reducing the frequency of diarrhoeal episodes.

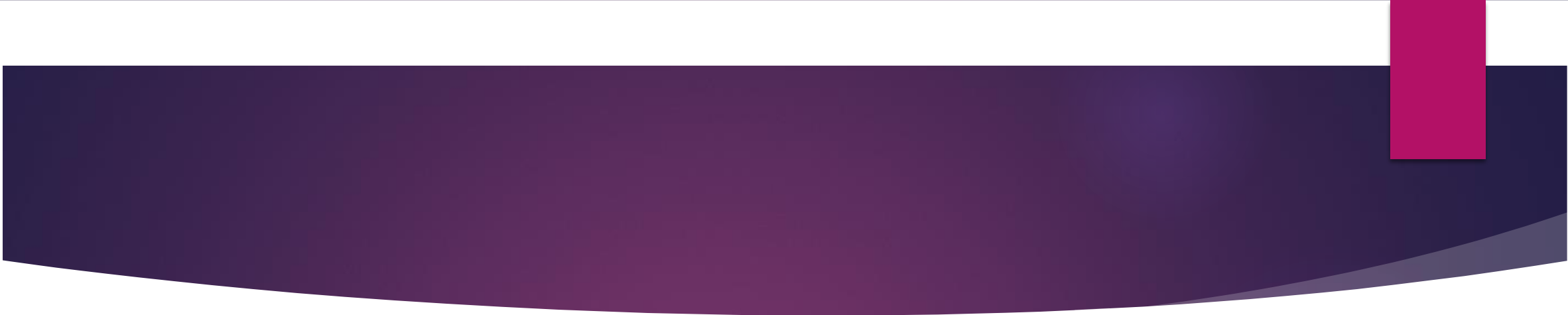
# CONCLUSION

- ▶ There is a set **guideline by the WHO & UNICEF** for the treatment of diarrhoea which includes ORS+Zinc, inspite of which there is a **lesser knowledge and lesser usage of zinc** as a treatment in diarrhoea. **Only 25% of Pediatricians prescribe Zinc with ORS.**
- ▶ **35% of Prdiatricians do no prescribe Zinc in their treatment.**
- ▶ **45%** is the indication of **Viral diarrhoea**, when doctors prescribe zinc.
- ▶ There is a **need for awareness of benefits of zinc** among the patients as well as the prescribers i.e. the pediatricians. The benefits of zinc and ORS combined together must be presented so that there is acquaintance with the fact that by adding zinc, ORS proves to give a faster recovery.
- ▶ The **traditional use of only ORS as a treatment** in diarrhoea has become a barrier in knowing more about the different benefits of zinc for treating diarrhoea thus, less number of prescribers were inclined towards prescribing zinc for pediatric diarrhoea.



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**Thank You**