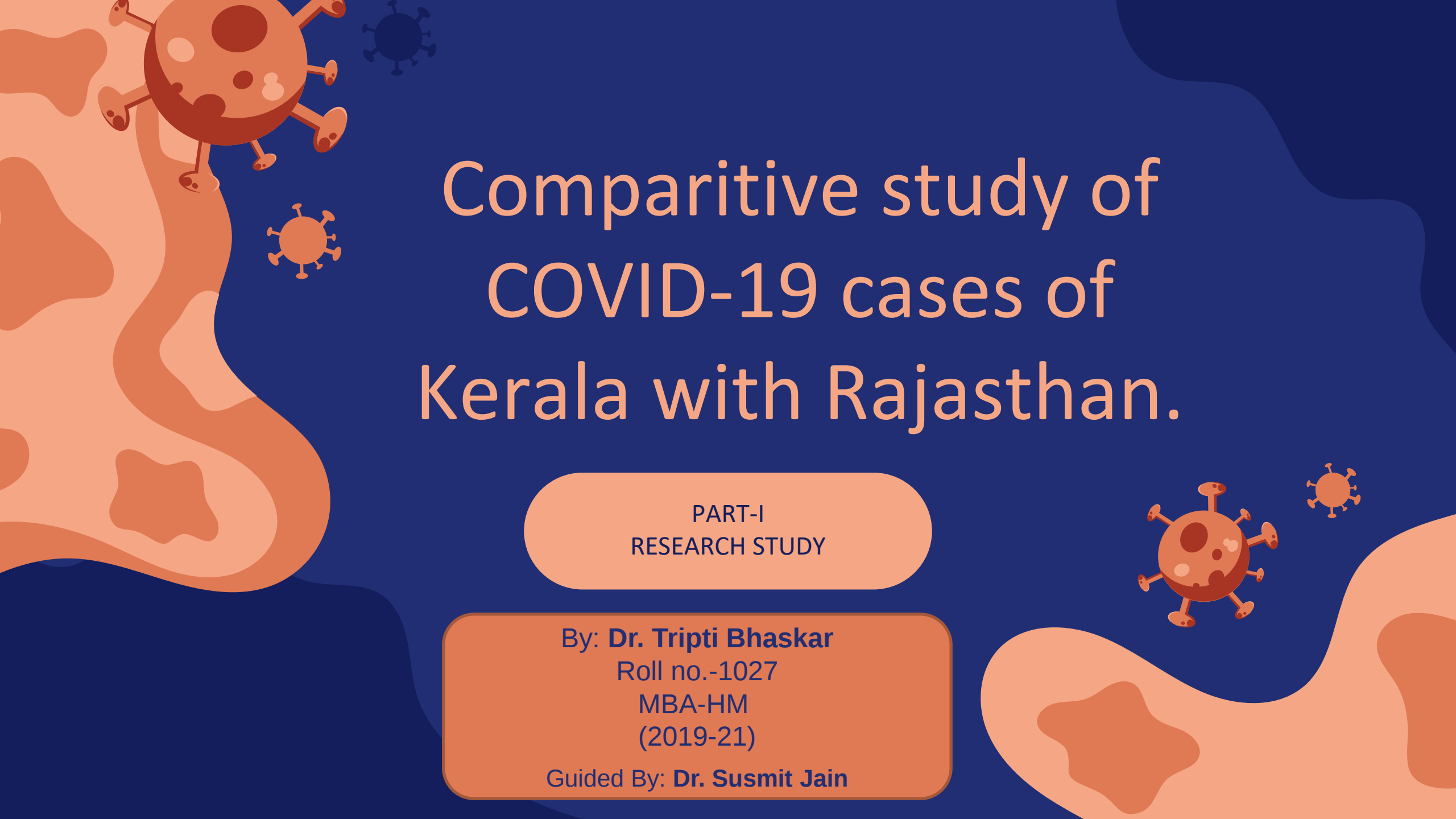




Comparitive study of COVID-19 cases of Kerala with Rajasthan.

PART-I
RESEARCH STUDY

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MBA-HM
(2019-21)

Guided By: **Dr. Susmit Jain**



INTRODUCTION

Coronavirus-2 (SARS-CoV-2) is an emerging virus that belong to the family ‘Coronaviridae’. Health authorities in **Wuhan, China** reported a cluster of viral pneumonia cases of unknown origin on 31 December 2019.

Coronavirus also called COVID-19 (from 11th February 2020), is a new viral disease which was first reported in China’s Hubei province on 12.12.2019 which subsequently became its epicenter as it rapidly spreads all over the world, including India within a few months. While the whole world is working hard to cope with the pandemic, India reported its first COVID-19 confirmed case on 30 January 2020 in Thrissur, Kerala. COVID-19 was declared a Public Health Emergency of International concern on 30th January 2020. As on May 2, 2020 there are 37,654 confirmed cases with 10,106 recovered cases and 1,230 deaths in India.

First case in **Kerala** was reported on **30th January, 2020** and in **Rajasthan** on **2nd March, 2020**.





ABOUT THE STUDY

The study compares the Morbidity, mortality, and recovery indicators of cases in Kerala with Rajasthan because initially the cases were almost same and now Rajasthan is much ahead of Kerala in total no. of cases.

01

02

The states were divided into red, orange and green zones to limit the spread of Covid-19.

The steps taken by Kerala to combat COVID-19 are also discussed in the study.

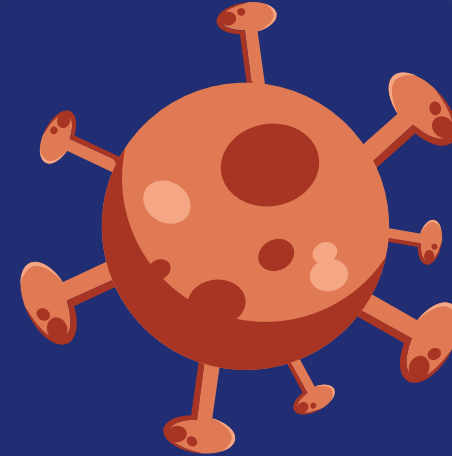
03





OBJECTIVE

- To find out the total number of districts affected by COVID-19 in Kerala with that of Rajasthan.
- To find out the green, orange, and red zones in Kerala with that of Rajasthan.
- To study the spread of COVID-19 positive cases in Kerala as compared to that of Rajasthan.
- To compare the mortality, morbidity, and recovery indicators in Kerala with that of Rajasthan.
- To acknowledge the steps taken by the Government of Kerala to combat COVID-19.
- To check the total no. of ICU beds and ventilators in Kerala and Rajasthan.



METHODOLOGY

An Descriptive study was done by collecting data from different newspapers, websites and journals and the detailed analysis was done to achieve the above mentioned objectives.

SOURCES FROM WHERE DATA HAS BEEN COLLECTED:

WHO

(World health organization)

(No. of Covid-19 cases as on 2 May 2020)

Worldwide:

- Confirmed cases: 32,67,184
- Confirmed deaths: 229,971
- Affected countries: 215



MoHFW

(Ministry of health and family welfare)

(No. of Covid-19 cases as on 30 April 2020)

- Active cases: 24162
- Cured cases: 8372
- Deaths: 1075
- Migrated: 1



India COVID-19 Tracker

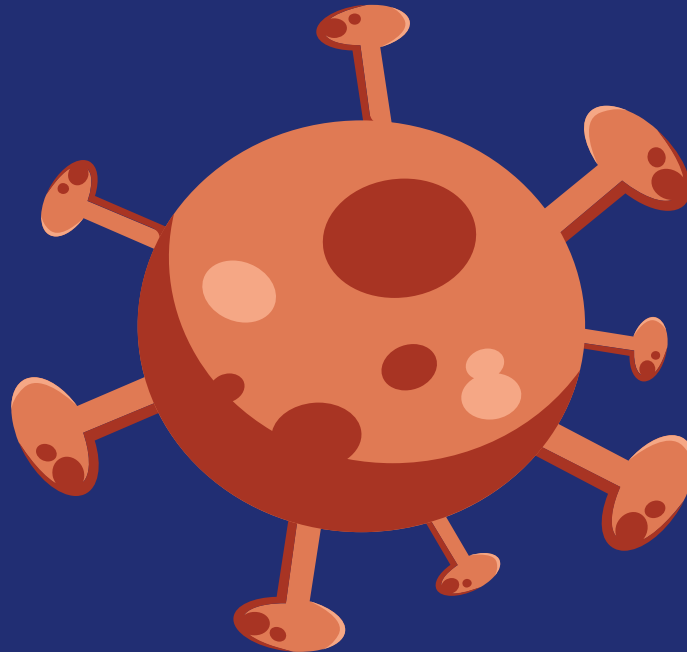
(No. of Covid-19 cases as on May 2, 2020)

At India level:

- Confirmed cases: 37,654
- Active cases: 26,314
- Cured cases: 10,106
- Deceased: 1,230

At Kerala level:

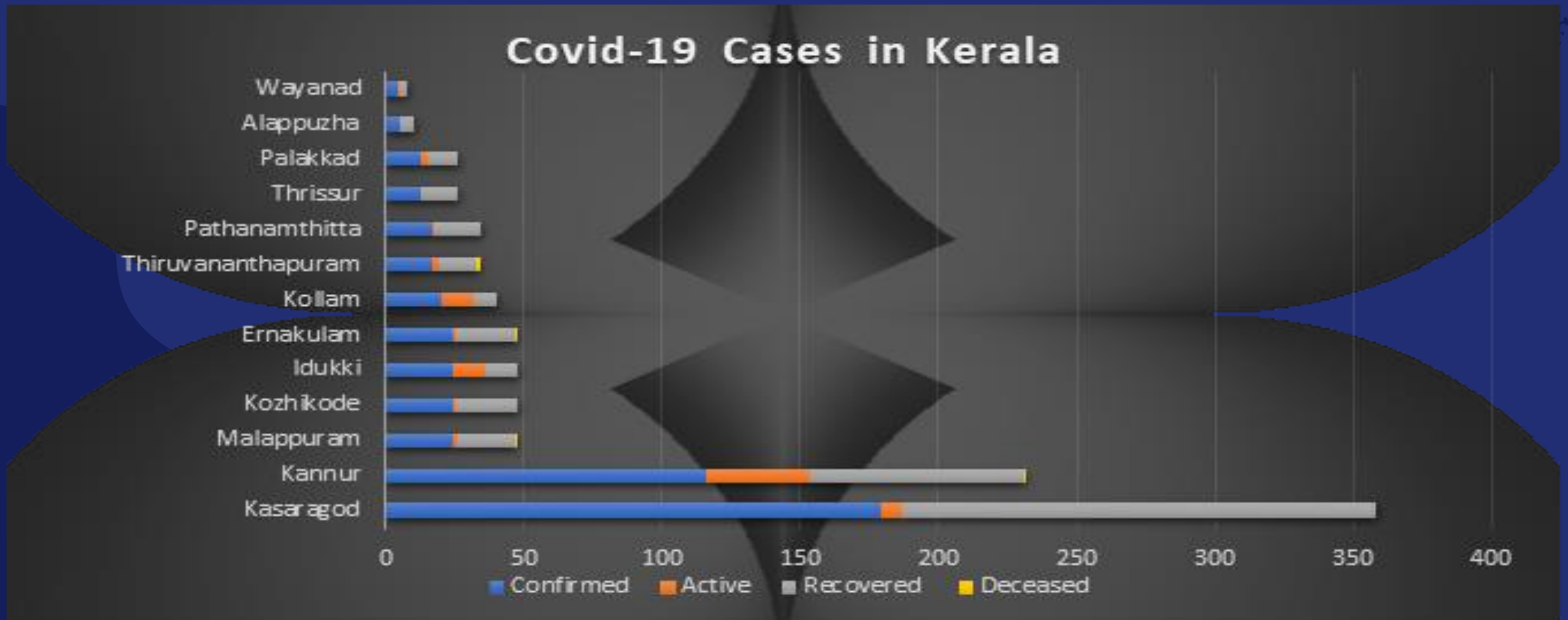
- Confirmed cases: 500
- Active cases: 96
- Cured cases: 400
- Deaths: 4
- Tested: 27,150



At Rajasthan level:

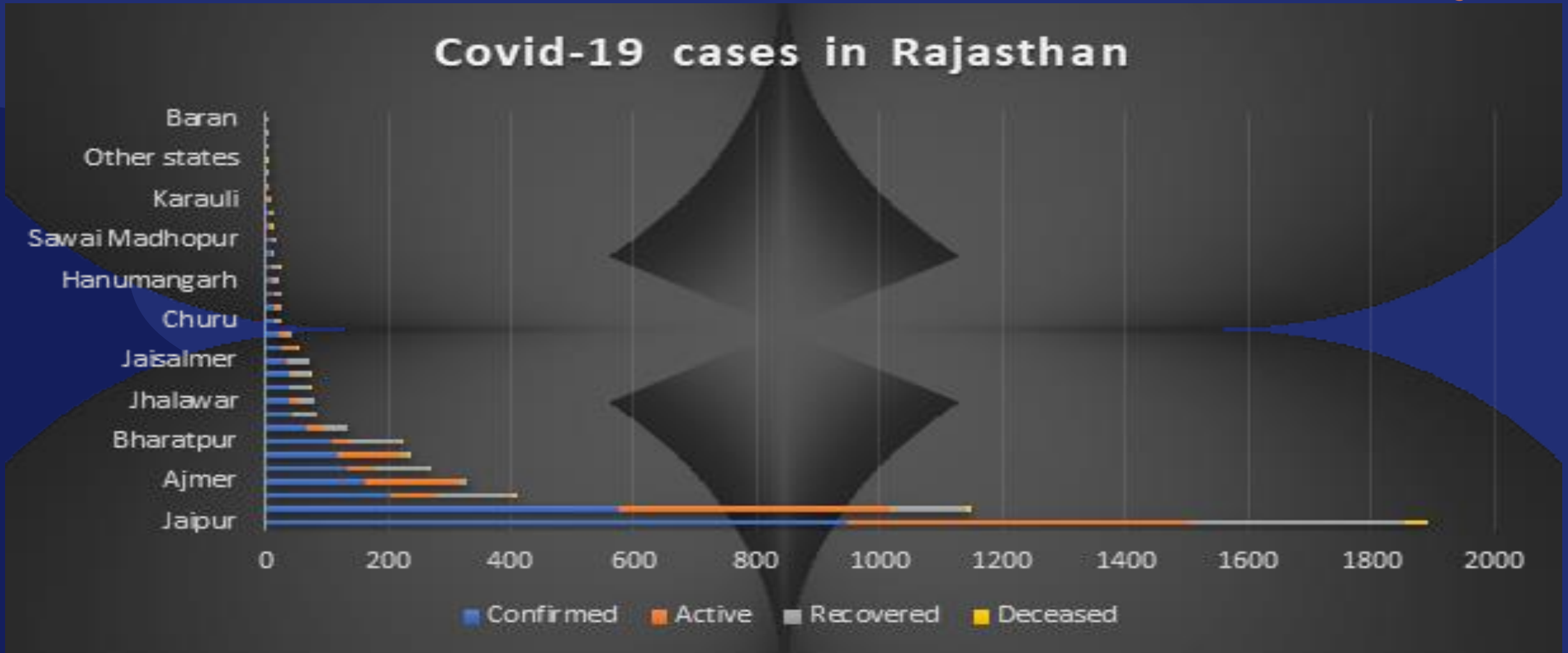
- Confirmed cases: 2,720
- Active cases: 1,534
- Recovered cases: 1,121
- Deceased: 64
- Tested: 1,08,543

No. of Covid-19 cases at district level in Kerala:



Interpretation: On the bases of above graph, it has been observed that maximum cases were in **Kasaragod, Kerala** [As on 2 May,2020].

No. of Covid-19 cases at district level in Rajasthan:



Interpretation: On the bases of above graph, it has been observed that maximum cases were in **Jaipur, Rajasthan** [As on 2 May,2020].

John Hopkins school of public health:

(No. of COVID-19 cases as on May 2, 2020)

- Global confirmed: 3,364,535
- Global deaths: 239,236



Findings and Discussion:

01

Green, orange and red zones in Kerala and Rajasthan.

During the lockdown the districts were divided into red, orange and green zones to limit the spread of Covid-19 case.

02

Total number of affected cases of COVID-19 in Kerala and Rajasthan.

03

Mortality, morbidity, and recovery indicators in Kerala and Rajasthan.

04

01. During the lockdown the districts were divided into red, orange and green zones to limit the spread of Covid-19 case.

1. Travel by air, rail, metro and inter-State movement by road; running of schools, colleges, and other educational and training/ coaching institutions; hospitality services, including hotels and restaurants; places of large public gatherings, such as cinema halls, malls, gymnasiums, sports complexes etc; social, political, cultural and other kinds of gatherings; and, religious places/ places of worship for public was not allowed in any of the zones.
2. Movement of individuals and vehicles is allowed only for permitted activities, with a maximum of 2 persons (besides the driver) in four-wheeler vehicles, and with no pillion rider in the case of two-wheelers.

02.Green, orange and red zones in Kerala and Rajasthan.

1. In Kerala:

There were 2 red zones, 10 orange zones and 2 green zones in Kerala. Maximum number of cases were reported in Kannur and Kottayam, so they were classified under red zones.

1. In Rajasthan:

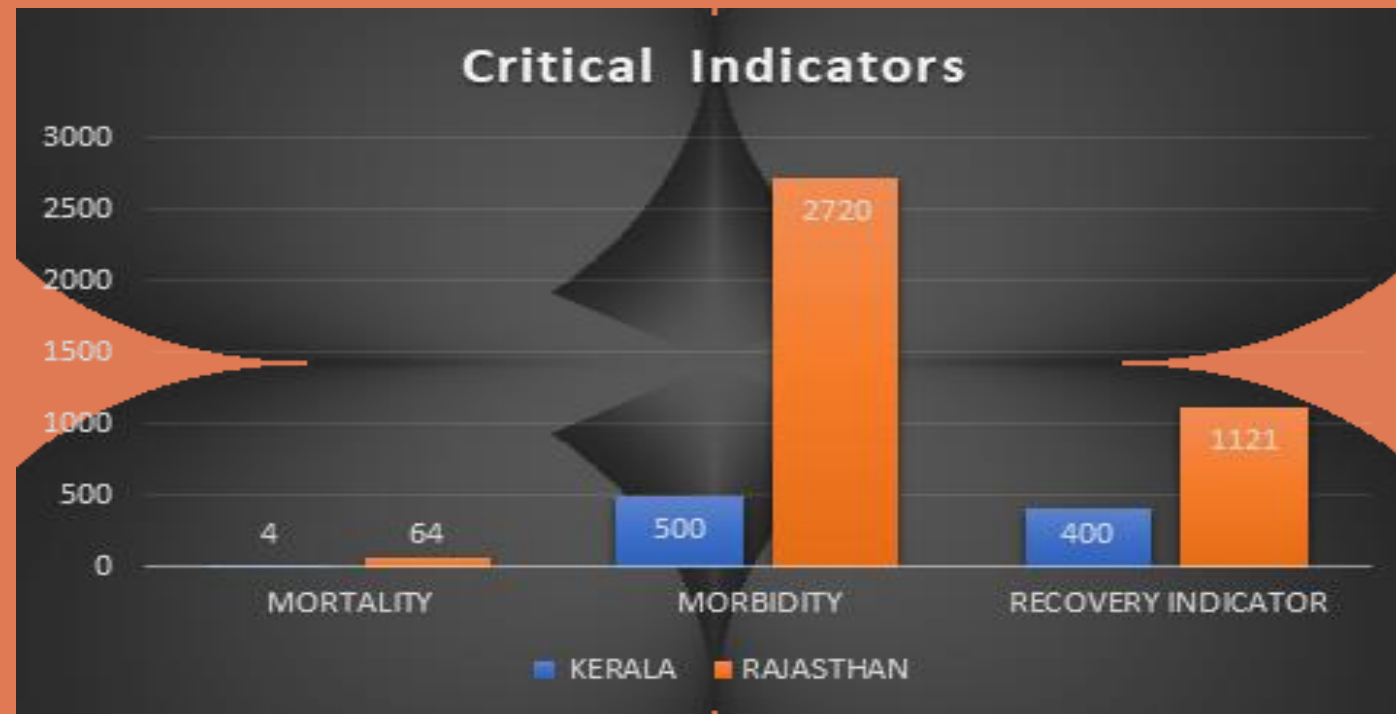
There were 8 red zones, 19 orange zones and 6 green zones in Rajasthan. Jaipur, Jodhpur ,Kota, Ajmer, Bharatpur,Nagaur, Banswara ,and Jhalawar were the hotspots in Rajasthan and were classified under Red zones.

03.Total number of affected cases of COVID-19 in Kerala and Rajasthan.

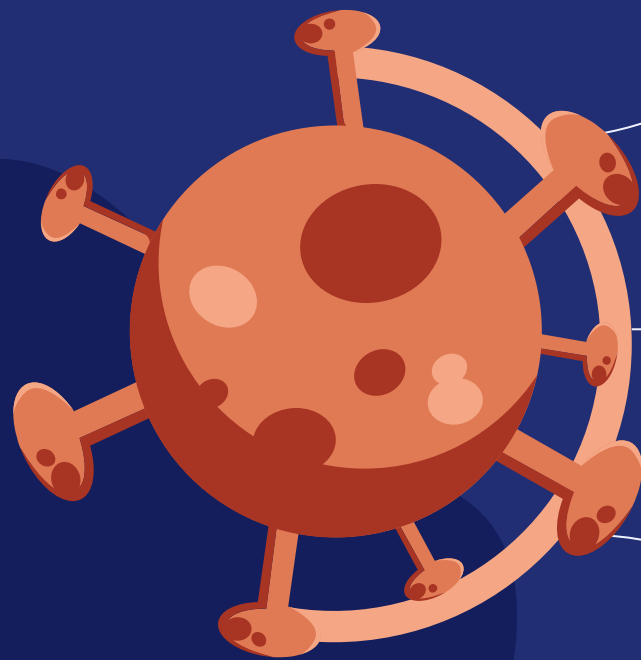


Interpretation: The number of cases in Rajasthan were almost 5 times more than that of Kerala.

04.Mortality, morbidity, and recovery indicators in Kerala and Rajasthan.



Steps taken by the Government of Kerala to fight COVID-19:



01

100% testing at all the international airports.

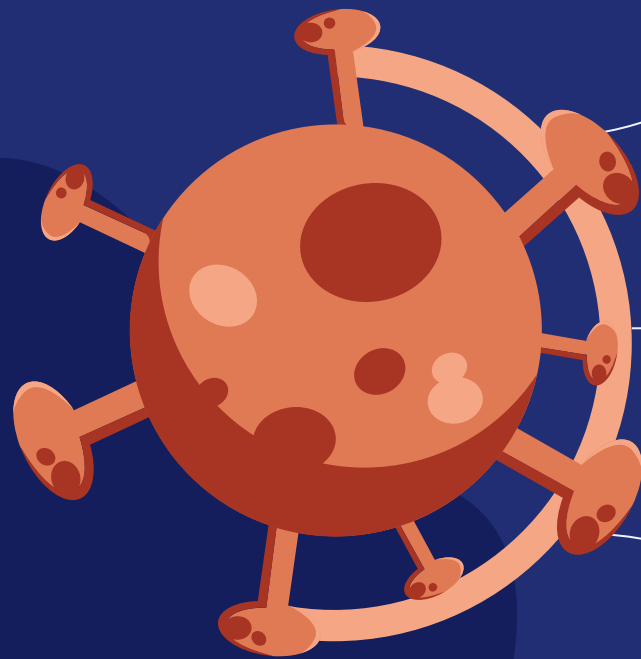
02

Kerala is the only state where a **28 days of home quarantine** is mandatory for all those coming from abroad, while in other states the period is of 14 days.

03

A **24*7 Disha call center** was setup to guide the home quarantined people regarding responsible behavior.

Steps taken by the Government of Kerala to fight COVID-19:



04

A mobile app called **GO Direct** was launched to give updates regarding COVID-19 .

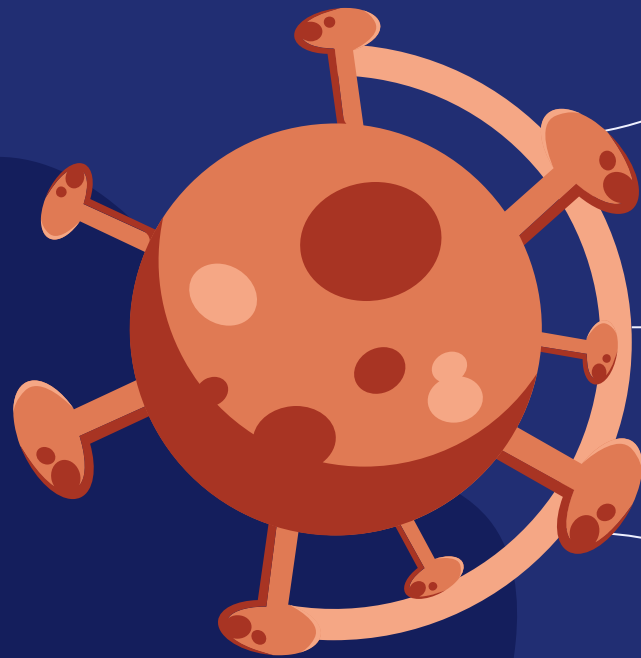
05

‘Break the Chain’ initiative was started by the GOK and sanitizers and water taps were installed at public places to maintain hygiene.

06

A **three-tier system** was launched under which doctors were divided in groups, 2 active groups and 1 standby group.

Steps taken by the Government of Kerala to fight COVID-19:



07

Route maps were set up to trace all the locations a COVID-19 positive patient visited before admitting to the hospital along with date and time.

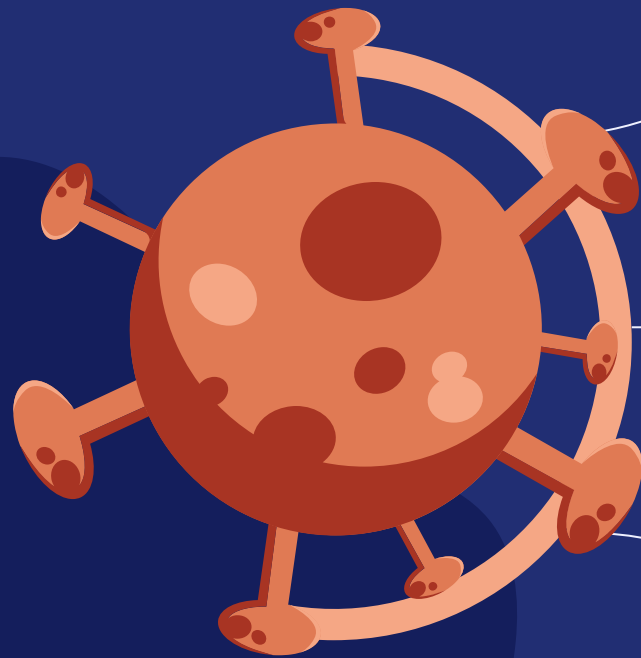
08

Use of Transmedia proved to be a game changer in Kerala and it also has an advantage of wider audience.

09

A complete **statewide lockdown** was announced by the GoK on March 23, 2020 whereas a nation-wide lockdown was announced on March 24, 2020.

Steps taken by the Government of Kerala to fight COVID-19:



10

Kerala police played a major role in the fight against this outbreak. A video of Kerala police also went viral on social media in which the policeman are dancing at a Malayalam blockbuster- Ayyapanum Koshium and are demonstrating proper hand-washing technique.

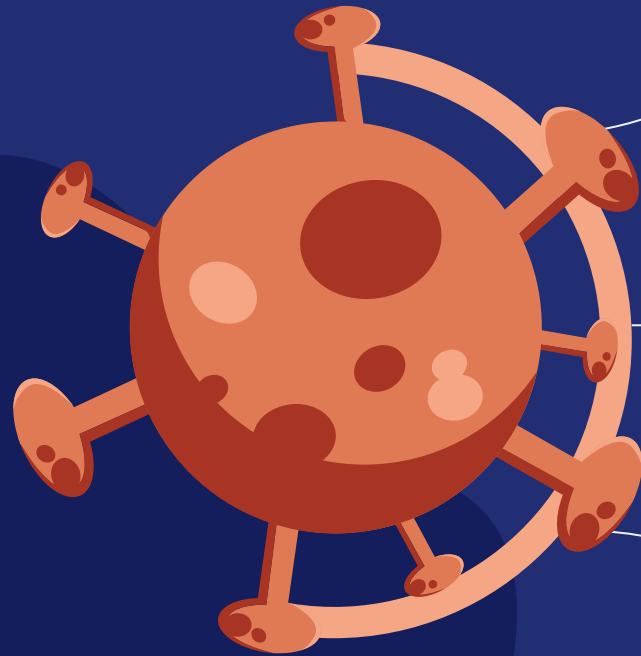
11

Round the clock call centers were set up for people who are asked for home-quarantine. In case of any emergency these people were supposed to call on 0471 2309250, 2309251 and 2309252.

12

A **robot** developed by Asimov Robotics, distributes masks, sanitizers and napkins at Kochi.

Steps taken by the Government of Kerala to fight COVID-19:



13

Catchy **audio jingles** were created by BCC wing of NHM to spread awareness about COVID-19.

14

Social justice Department also decided to distribute **free kits** containing 5Kg rice, sugar, tea, pulses, atta and oil to 1,000 members of transgender community.

15

Two days before the lockdown the State also announced India's biggest regional stimulus of 20,000 crores that would be distributed by various welfare schemes.

Food was distributed at 25/- to poor people.

Break the Chain
കേരളത്തിലെ നമ്മെ ബാധിക്കും

കോവിഡ് 19 വ്യാപനം തടയ്ക്കാൻ
Break the chain കരുതലിൽ

ജീവനക്കാർക്കും പൊതുജനങ്ങൾക്കുമായി
ഹാൻഡ് സാനിറ്റൈസർ/ഹാൻഡ് വാഷ് സോപ്പ്
എന്നിവ ഉപയോഗിച്ച് കൈ കഴുകാനുള്ള സൗകര്യം
ഒരുക്കാനു ക്കിടയോടുകൂടിയ നയം സ്വീകരിക്കുന്നു.

കൈ കഴുകൂ കോവിഡ് 19നെ തടയാൻ പ്രതിജ്ഞിക്കൂ...
#breakthechain

#CORONA

Together we must overcome

PROTECT YOURSELF AND OTHERS FROM GETTING SICK

Wash your hands

- after coughing or sneezing
- when caring for the sick
- before, during and after you prepare food
- before eating
- after toilet use
- when hands are dirty
- after handling animals or animal waste

Kerala Government
Information Public Relations Department
@keralainformation | 0471 2330000 /cmkerala

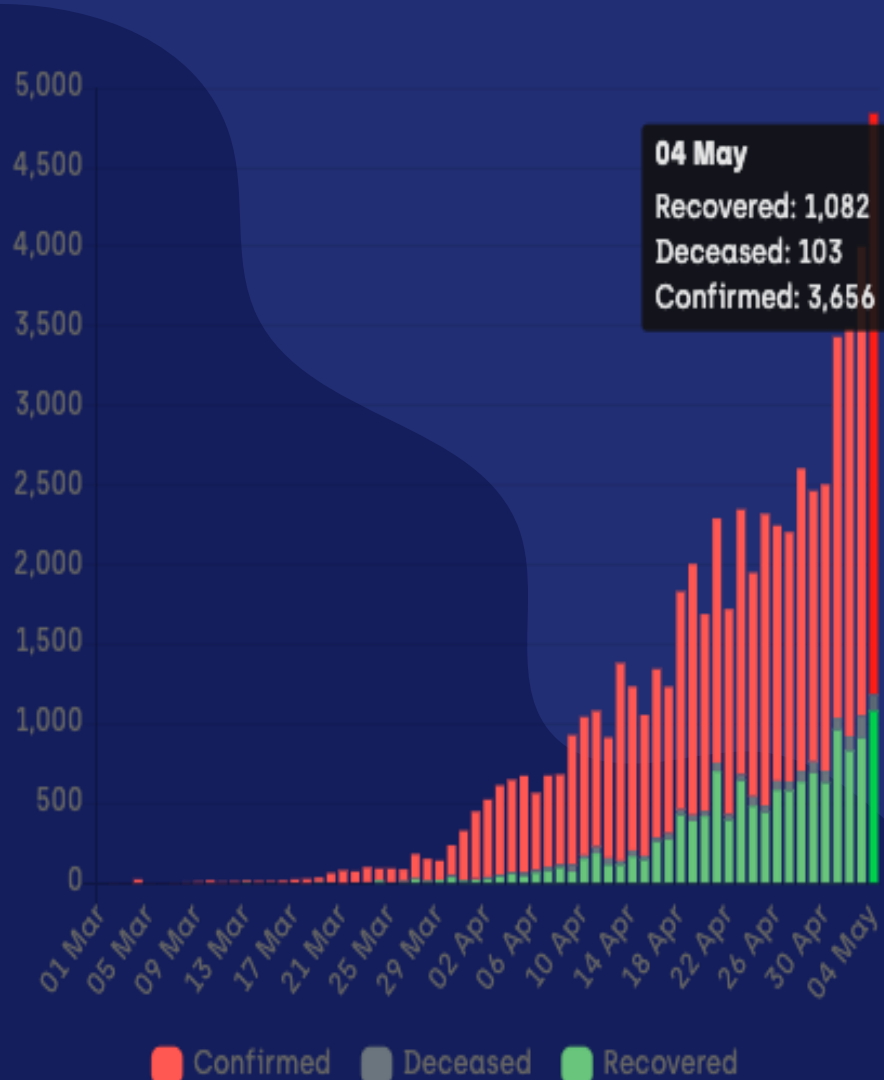


Expected Outcome:

The cases are on a rise day by day. But, data from some sources has also revealed that according to an internal assessment done by the GOI, a sharp rise in cases will be seen during the first week of May.

Studies also suggested that the states which took timely measures and earlier lockdown are better in controlling the number of new cases as compared to other states. An accelerated rise in cases is expected in the coming days. According to sources India may face up to 1 Lakh-13 Lakh cases by mid of May. These projections may change if the strict measures and rapid testing continues.

Conclusion:



The whole world is fighting hard to beat the novel coronavirus. India is much ahead in controlling the spread of coronavirus as compared to other covid-19 affected countries like Italy, Spain, USA, China through its strict measures and nationwide lockdown.

With respect to mortality rates, India is far better than these developed nations. Data from Ministry of health also showed that in US the mark increased from 500 to 1000 in 3 days and from 1000 to 2000 in 2 days whereas in India it took 5 days to go from 500 to 1000 mark and then 4 days from 1000 to 2000. At present the doubling rate for coronavirus in India stands at 10.2 days and cured cases rises to 23.3 %. As on May 5, 2020 India saw highest spike in new coronavirus cases by 3,875 and 194 deaths in last 24 hours making the total cases standing at 46,711. More number of males are affected by COVID-19 as compared to females.

The cases are still on the rise but at a slower rate as compared to countries like Italy, Spain, USA, Germany and China.

THANK YOU

Dr. Tripti Bhaskar
Roll no:1027



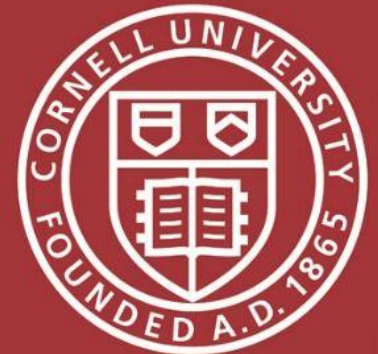
COVID-19



'PROGRAMMING FOR INFANT AND YOUNG CHILD FEEDING'.

(PART-2)

By: Dr. TRIPTI BHASKAR



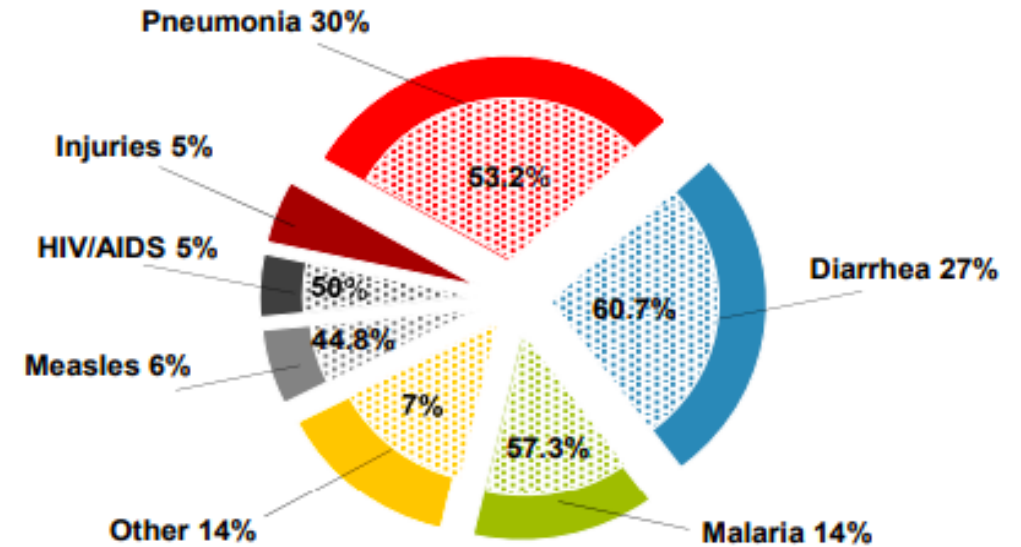
Cornell University®

Essentials of Malnutrition:

Of the deaths in children 2 days to 5 years old:

- Undernutrition kills about 50%
- Infectious diseases kill about 80%
- The 80% includes double counting of children who die because they have both undernutrition and infectious illness. Undernutrition causes about half of all deaths among children 2 days to 5 years old.
- It kills directly those who have an infectious illness.
- It also kills indirectly by causing disease but this is a relatively small contribution to deaths. Nevertheless, the 50% underestimates undernutrition's contribution.

Causes of child deaths from 2 days to 5 years old



Window of Opportunity:

- Increase food to child.
 - Increase food availability in markets for household.
 - Increase food accessibility.
- Increase income
- Decrease price
- Increase feeding of appropriate mix of nutrients (food, supplements) to child.

Types of Nutrition:

Undernutrition

Types

- Acute (SAM, MAM)
- Chronic (stunting)

Overnutrition

Types

- Overweight
- Obese

1,000 Days Window of Opportunity



Role of IYCF in child survival, growth and development:

Consequences of child undernutrition:

Intra-uterine growth retardation, stunting and severe wasting together are responsible for 2.2 million young child deaths and 91 million DALYs (21% of the total for children under 5).

- Undernutrition - including foetal growth restriction, stunting, wasting, and deficiencies of vitamin A and zinc along with suboptimum breastfeeding - is a cause of 3.1 million child deaths annually or 45% of all child deaths in 2011. Optimum breastfeeding practices have the potential to prevent 1.4 million deaths every year among children less than 5 years old (of 10 million estimated deaths).
- Suboptimum breastfeeding results in more than 800,000 child deaths annually. The number of child deaths attributed to suboptimum breastfeeding in 2011 was 804,000, or 11.6% of all deaths.

These children die if left untreated



From: WHO

Marasmus



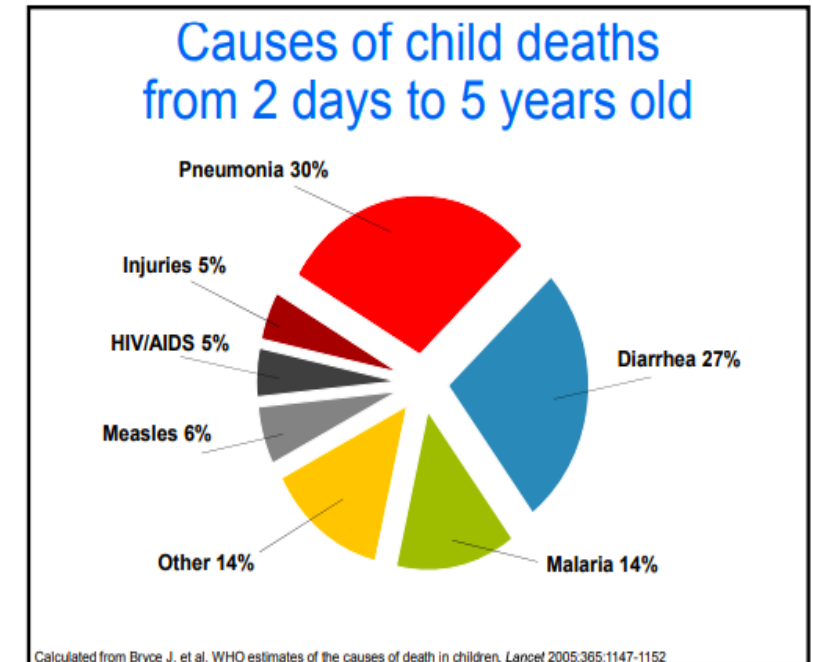
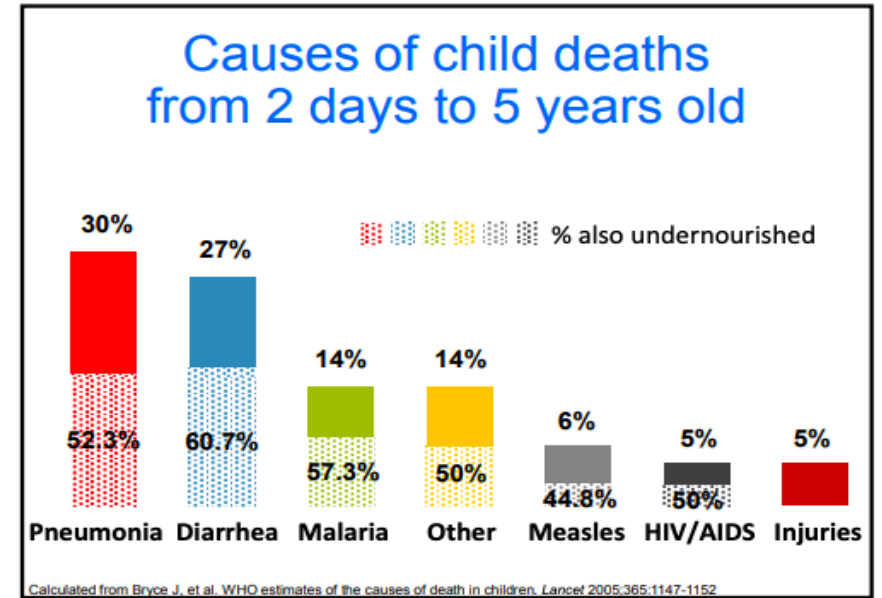
From: WHO

Kwashiorkor

Importance of Breastfeeding

Exclusive breastfeeding protects against growth faltering:

- In Bangladesh, a positive impact of exclusive breastfeeding in the first 3-5 months on infant growth was detectable at 12 months of age.
- Fully breastfed infants were heavier at 6 months than infants fed formula in underprivileged infants in Mexico City. Following the growth patterns of experimental groups with higher EBF showed that breastfeeding may actually accelerate weight and length gain in the first few months.



Essentials of Breastfeeding:

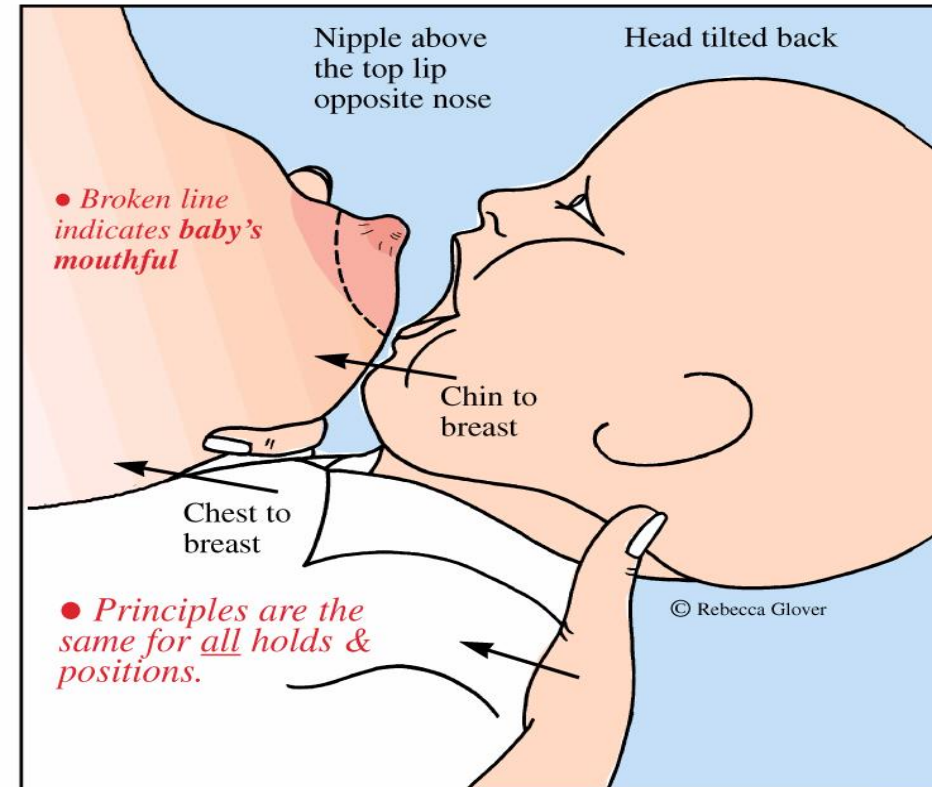
Colostrum

(First milk produced).

- Higher nutrient density than mature milk– Protein, fat, vitamin A.
- Rich in antibodies, growth factors.
- Amount of colostrum produced matches the newborn's stomach capacity. Colostrum (first milk) is rich in immune and non-immune components that fight infection and accelerate intestinal maturation.

Components of Breast Milk

- 1) Nutrients
- 2) Protective Agents
 - Adaptive Immune System
 - Humoral (sIgA, other Igs).
 - Cell-mediated (macrophages, white cells, lymphocytes).
 - Non-specific Immune System
 - Prebiotics.
 - Multifunctional milk components
 - Cell surface receptor homologs.
 - Immunomodulatory agents.

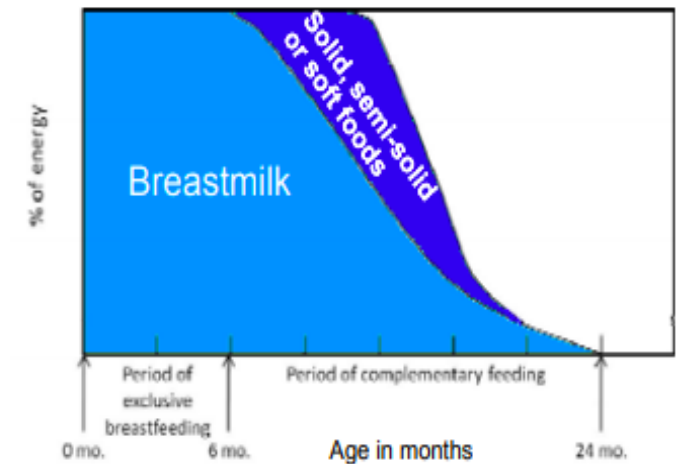


Essentials of complementary feeding

Why wait to begin CF at 6 months?

- Earlier recommendation was 4-6 months.
- Systematic review by WHO Expert Consultation(2001).
- EBF to 6 months
 - No deficits in weight or length gain.
 - Significant reduction in risk of gastrointestinal infection.
 - Possible increase in iron deficiency, but data are limited.
 - Delayed resumption of menses.
 - More rapid postpartum weight loss.
 - Reduced risk of mother-to-child transmission of HIV*.

What is complementary feeding (CF)?



Complementary feeding is the period during which other foods or liquids are provided along with breastmilk or formula.

Essentials of complementary feeding

Guiding Principles for Complementary Feeding of the Breastfed Child:

1. Exclusive breastfeeding (EBF) for 6 months and introduction of complementary foods at 6 months.
2. Maintenance of BF for up to two years and beyond.
3. Responsive feeding.
4. Safe preparation and storage of complementary foods.
5. Adequate amount of complementary foods needed.
6. Appropriate food consistency.
7. Adequate meal frequency and energy density.
8. Adequate nutrient content.
9. Use of vitamin-mineral supplements or fortified products for infants and mother.
10. Increase feeding during illness and after illness (e.g. diarrhoea).

Guiding principles for Feeding during illness:

1. Increase fluid intake during illness, especially breast milk, and offer soft, varied, favourite foods.
2. After illness offer more food than usual and encourage the child to eat more.
3. Continuing breastfeeding is critical during illness.
4. Babies will often consume breastmilk even when they refuse other foods.
5. Breastmilk provides essential fluid, key nutrients, immune factors from the mother, and comfort.

Malnutrition in women (magnitude of the problem):

- **Undernutrition**– In most low-income countries, 10-19% adult women with BMI < 18.5 kg/m² (as high as 30-40% in some countries).
 - Short stature (<145 cm): more than 10% of women in South Asia.
 - **Overnutrition**– % of overweight women (BMI≥25) from ~ 30% to 38% in 2013 and a third of whom (297 million) are obese women (BMI≥30).
 - Overweight and obesity has reached up to 70% in some countries in the Americas, Middle East and Pacific Islands and more than 40% in parts of Africa.
 - Considerable increase in adolescent girls (22% overweight or obese in 2013).
- Micronutrient deficiencies in women- Widely prevalent in women during pre-pregnancy period and often exacerbated in pregnancy.
- **Anaemia prevalence**– About half of anaemia is due to iron deficiency.
 - 29% in non-pregnant women (496 million) and 38% in pregnant women (32 million).
 - **Iodine deficiency disorders (IDD)**– 28.5% (population wide based on urinary iodine concentration <100ug/L).
 - Pregnant women are also quite at risk of IDD but there is limited data on IDD in pregnant women.
 - **Vitamin A deficiency**– 15.3% -19.1 million pregnant women (based on SR<0.70 umol/L).
 - **Zinc deficiency**– 17.3% (population wide).



Consequences of women's undernutrition on pregnancy outcomes:

Low BMI:

- Intra-uterine growth retardation (IUGR); low BMI accounts for ~10% of IUGR.
- Some studies show association with prematurity.

Short stature(<145cm):

- Obstructed labor.
- Caesarean delivery.
- Pre-term births and small-for-gestational-age (SGA) babies.

Micronutrient deficiencies:

- Delivery complications.
- Prematurity.
- IUGR.

Poor weight gain during pregnancy:

- Weight gain during 2nd trimester has greater effect on birth weight than 3rd trimester weight gain.
- Increased risk for SGA babies.



Maternal nutrition interventions and birth outcomes:

- **Folic acid supplementation:**- reduces risks of neural tube defect and improves mean birth weight.
- **Iron supplementation:**- 19% reduction of low birth weight; improves birth weight; 67% reduction in iron deficiency anaemia at term.
- **Multiple micronutrient supplementation:**- reduced risks (9-12%) of low birth weight, small-for gestational age, stillbirth compared to iron-folic acid supplementation.
- **Balanced protein energy supplements** (particularly for malnourished women):- reduced incidence of small-for-gestational age by 32%-34% and increased birthweight.
- **Calcium supplementation:**- effect is mostly on reduction of gestational hypertension (incidence reduced by 35%) and pre-eclampsia (52%).
- **Salt iodization:**- effect on brain development (RR 0.27 of cretinism at 4 years).



Key direct nutrition interventions to prioritize to improve maternal nutrition:

1. Assessment and counselling on optimal diet during pregnancy & lactation.
2. Regular weighing to monitor weight gain; using BMI (or mid-upper arm circumference (MUAC)) for undernutrition and overnutrition screening.
3. Therapeutic and supplementary feeding for undernourished pregnant & lactating women.
4. Energy supplements targeted to specific population groups if required (e.g. high prevalence of low BMI).
5. Supplementation with iron-folic acid or MMS as early as possible during pregnancy.
6. Use of iodized salt.
7. Supplementation with calcium where required.



Entry points for interventions to improve women's nutrition:

Adolescence:

- Keep girls in schools.
- Nutrition counselling; food/micronutrient supplements.

Newly-wed couples:

- Delay first pregnancy.

Nutrition counselling & family planning.

- Involving men:-
Raising awareness around nutrition and care for women.



Common challenges in implementation of nutrition interventions for women:

Overall, low awareness about the importance of nutrition for women.

- Most of the recommendations are based on well-designed studies in controlled settings.
- Health service coverage is low and this is where many of the nutrition interventions need to be delivered.
- Women come late during pregnancy and even more difficult to reach before pregnancy.
- Compliance for interventions like IFA is low.
- Lack of capacity to support.
- Lack of supplies for all women in need.



Non nutritional interventions with an impact on maternal nutrition and pregnancy outcome:

1. Deworming to reduce parasitic infections in pregnant women.
2. Malaria prevention in malaria endemic regions includes a package of interventions.(long-lasting insecticidal nets, intermittent preventive treatment with drugs)
3. Promotion of birth spacing of at least two years or longer and avoidance of early pregnancy.
4. Conditional cash transfers targeted to specific groups to improve purchasing power and access to quality food.
5. Hygiene and sanitation to reduce parasitic infections and diarrheal diseases.
6. Agriculture interventions to help reduce work-load and time spent in the field.
7. Maternity protection policies in place.

Food fortification:

Great potential to improve women's nutritional status.

- Recent example with the food fortification programme in Costa Rica.
- Evidence of the effectiveness of flour fortification for reducing the prevalence of anaemia is limited; however, evidence of effectiveness for reducing the prevalence of low ferritin in women is more consistent.



2003 WHO/UNICEF Global Strategy for IYCF:

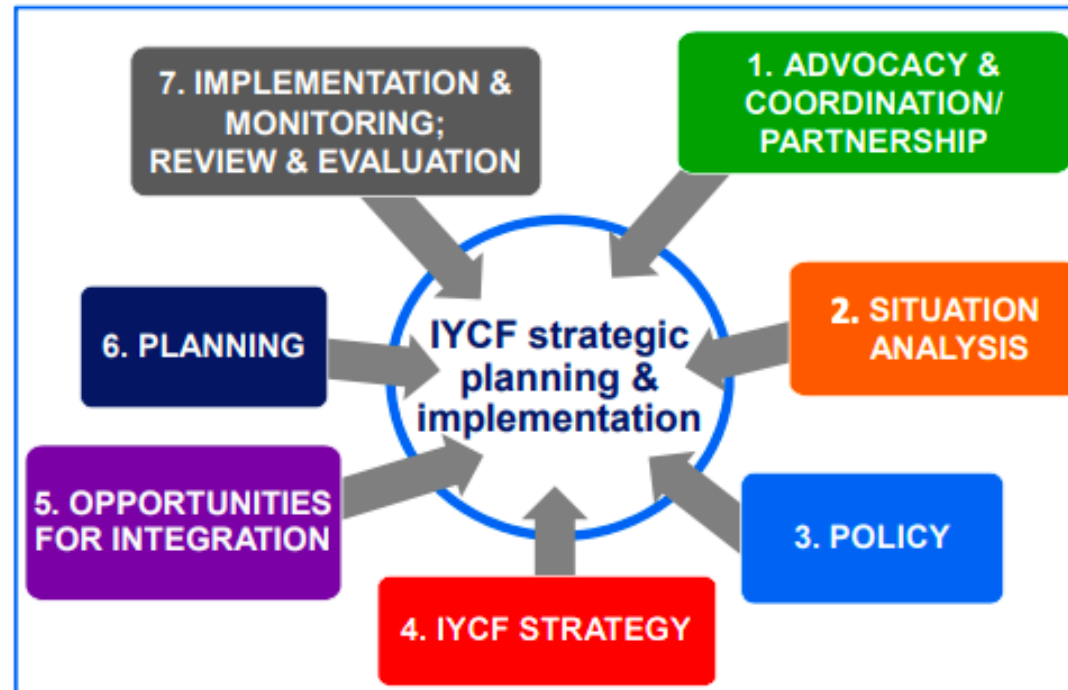
To improve - through optimal feeding - the health and nutrition status, and thus the survival, growth, and development of infants and young children.

Objectives:

- To raise awareness of main problems affecting IYCF, identify approaches for solution, and provide framework of essential interventions.
- Increase the commitment of governments, international organizations and other concerned parties to protect, promote and support optimal infant and young child feeding.
- To create enabling environment for mothers, families, and other caregivers to make and implement informed choices about optimal IYCF.



National strategic planning process for IYCF



By:
Dr. Tripti Bhaskar
MBA-HM
(2019-21)

Thank
~
you~