

# **Measles & Rubella Elimination in South East Asia Region**

## **Theory and Practice**

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ADVAC Alumni Meeting  
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# Defining Control, Elimination and Eradication

- **Disease control**: deliberate reduction to pre-determined level, in stipulated time, and documenting that it was achieved due to intervention (*monitor disease*)
- **Disease elimination**: extreme control to zero disease, in a country or Region (*monitor disease*)
- **Infection elimination**: extreme control to zero agent transmission, in a country or Region (*monitor infection*)
- **Eradication**: Global level elimination of disease and infection → Zero disease, zero transmission

# Theory of Immunisation coverage for interrupting transmission. Measles

- **Ro calculated as  $1 + [\text{life expectancy}/\text{median age}]$**
- **Vaccination affects median age. So data of pre-vaccination era must be used**
- **India: median age of measles = 30 months**
- **$Ro = 1 + [60/2.5] = 1 + 24 = 25$**
- **Required coverage  $1 - 1/Ro = 1 - 1/25 = 0.96$  or 96%, provided vaccine efficacy is near-100% (for which 2 doses are needed) and coverage completed prior to age at risk (hence by 24 months)**

# Theory of Immunisation coverage for interrupting transmission. Rubella

- India Median age ~12 yrs
- $R_0 = 1 + [60/12] = 1 + 5 = 6$
- Required coverage  $1 - 1/6 = 84\%$
- Rubella vaccine VE is ~99%
- Coverage needed by age 4 only
- So if MR vaccine is used,  
Rubella will be eliminated ahead of Measles

# SEAR Successes

- Bangladesh
- Bhutan **M eliminated**
- India
- Indonesia
- Maldives **M & R eliminated**
- Myanmar
- Nepal
- North Korea **M eliminated**
- Sri Lanka **M & R eliminated**
- Thailand
- Timor Leste **M eliminated**

# **Will India be last?**

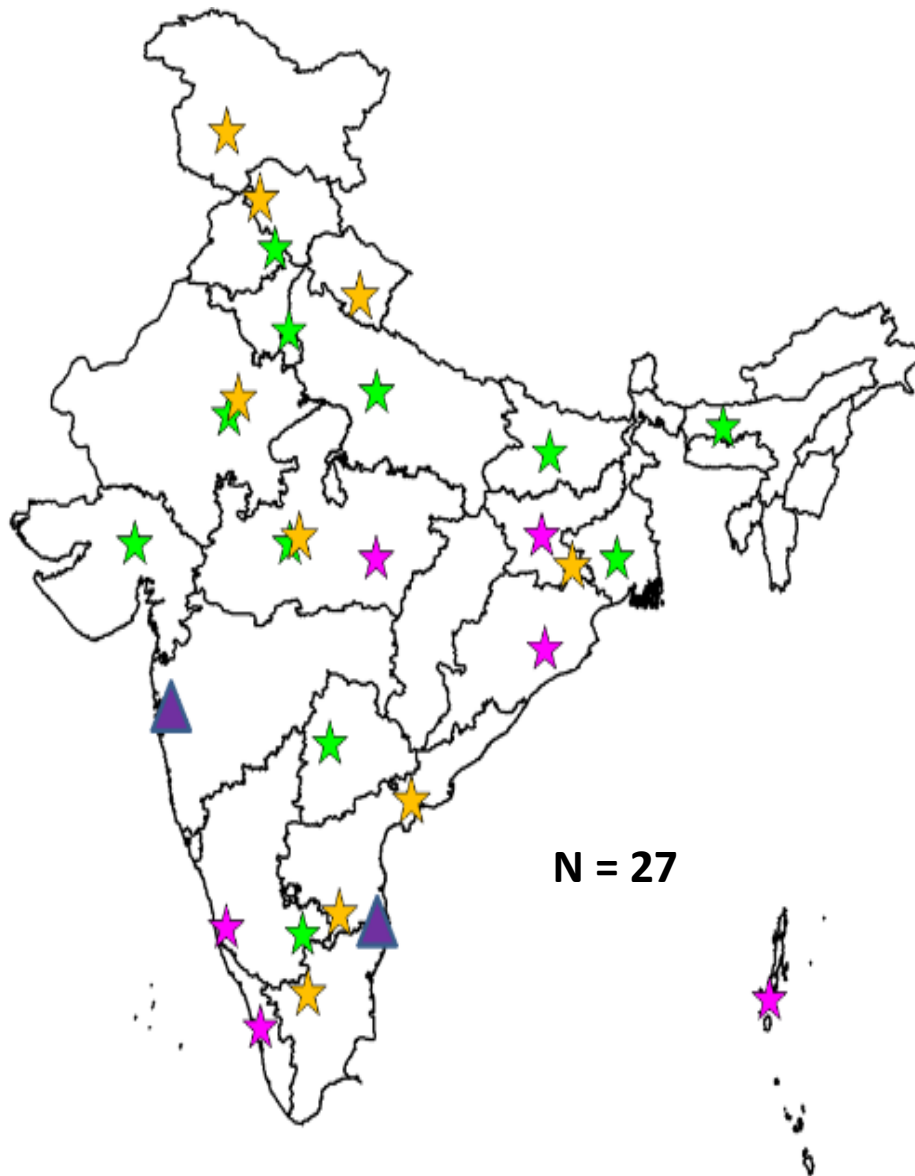
- **For polio eradication India was last: Last case in 2011, certified in 2014 and then SEAR was certified**
- **Until 2020 India's goal was Measles Elimination and Rubella Control**
- **In 2022 IEAG MR modified it as MR Elimination**
- **Target year is 2023**
- **Roadmap approved by GoI calls for District level MR Elimination, supervised by State UIP Officer**

# SEA Region committed to eliminate measles and rubella by 2023

- The Seventy-second session of the WHO Regional Committee for South-East Asia endorsed resolution SEA/RC72/R3 on “measles and rubella elimination by 2023”
- A Regional costed strategic plan covering the period 2020-2024 has been developed to support Member States to accelerate progress towards measles and rubella elimination
- **Five key strategic objective (SO) areas**
  1. Immunization
  2. Surveillance
  3. Laboratory
  4. Outbreak preparedness and response
  5. Linkages



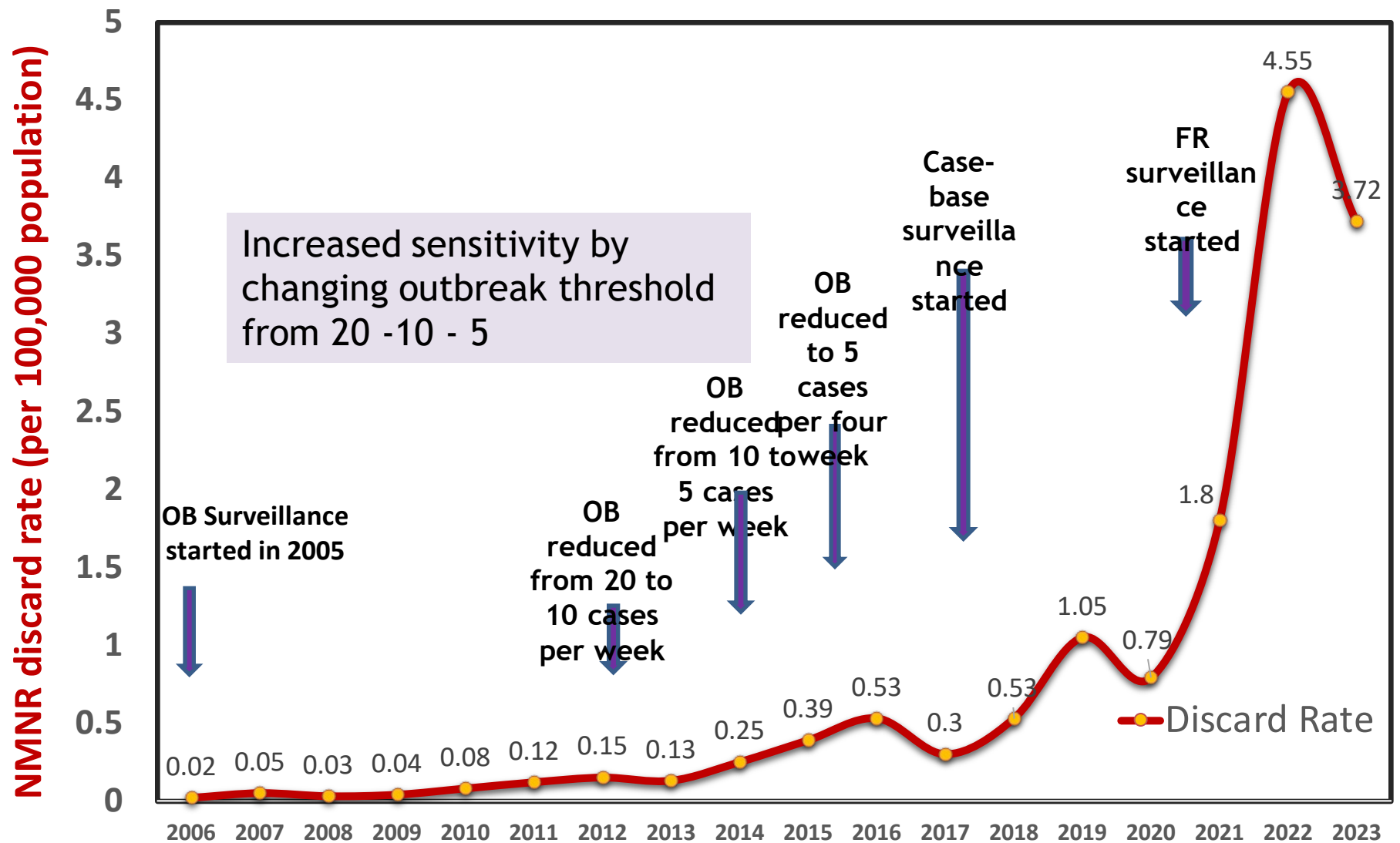
# MR Laboratory Phase-wise Expansion



★	MR laboratories in 2017	<b>13</b>
★	MR laboratories added in 2018-19	<b>6</b>
★	MR laboratories added in 2020-21	<b>8</b>



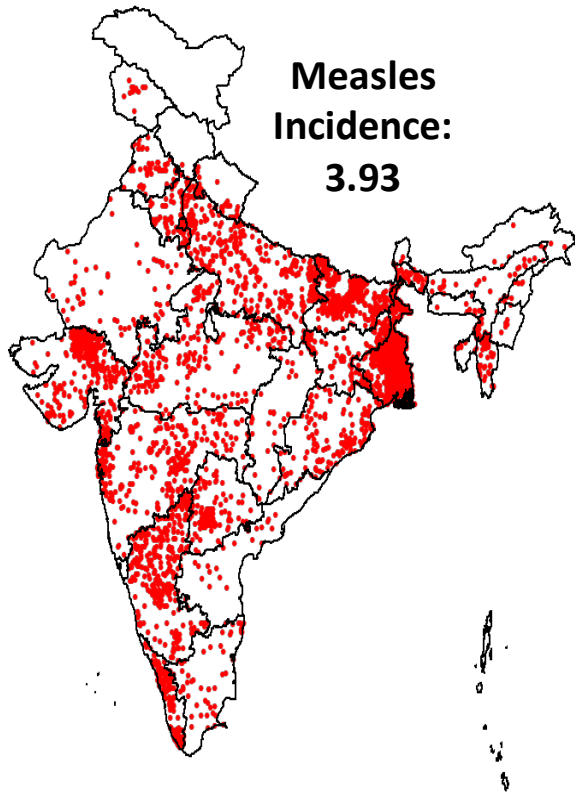
# NMNR Discard Rate (per 100,000 population), India, 2006 – 2023\*



Global Standard is NMNR of  $\geq 2$  per 100,000 population

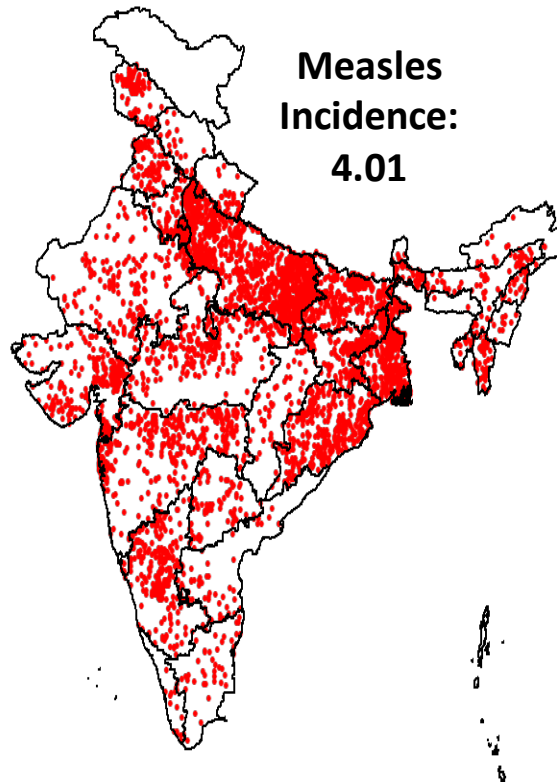
# Measles Cases, India, 2020 – 2022\*

2020



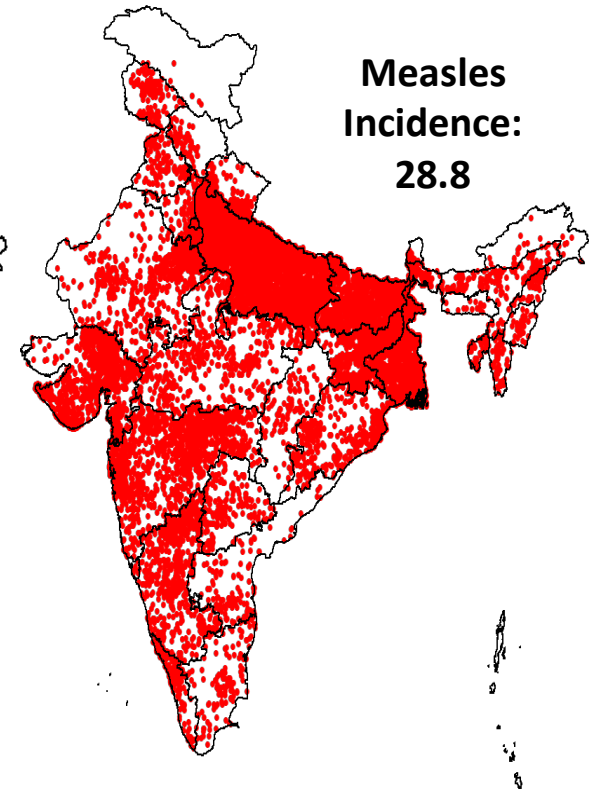
● Measles cases – 5503 cases

2021



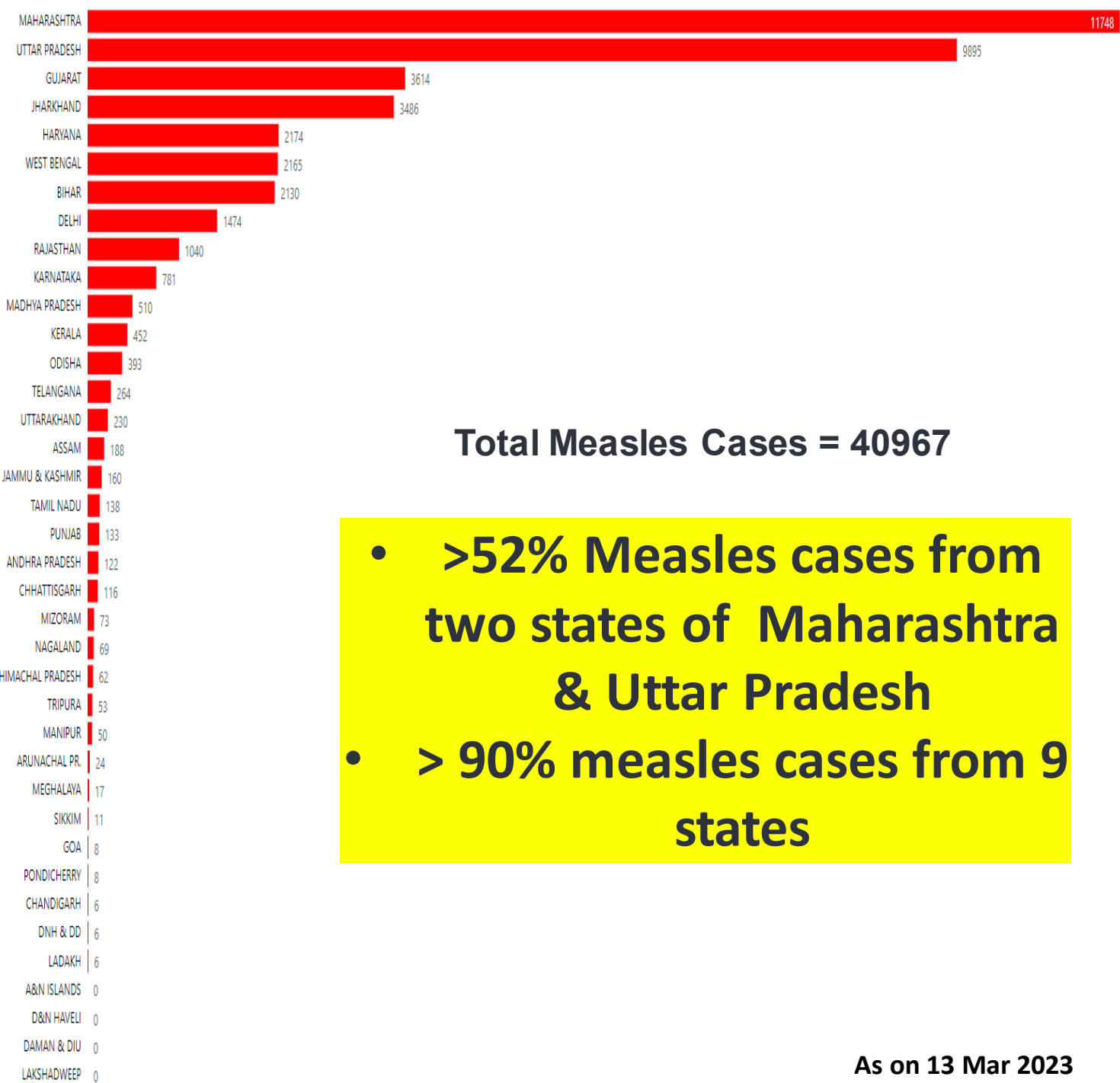
● Measles cases – 5919 cases

2022\*



● Measles cases – 40967 cases

Measles cases include lab-confirmed + epi-linked + clinically compatible cases  
Measles incidence rate per 1 million population



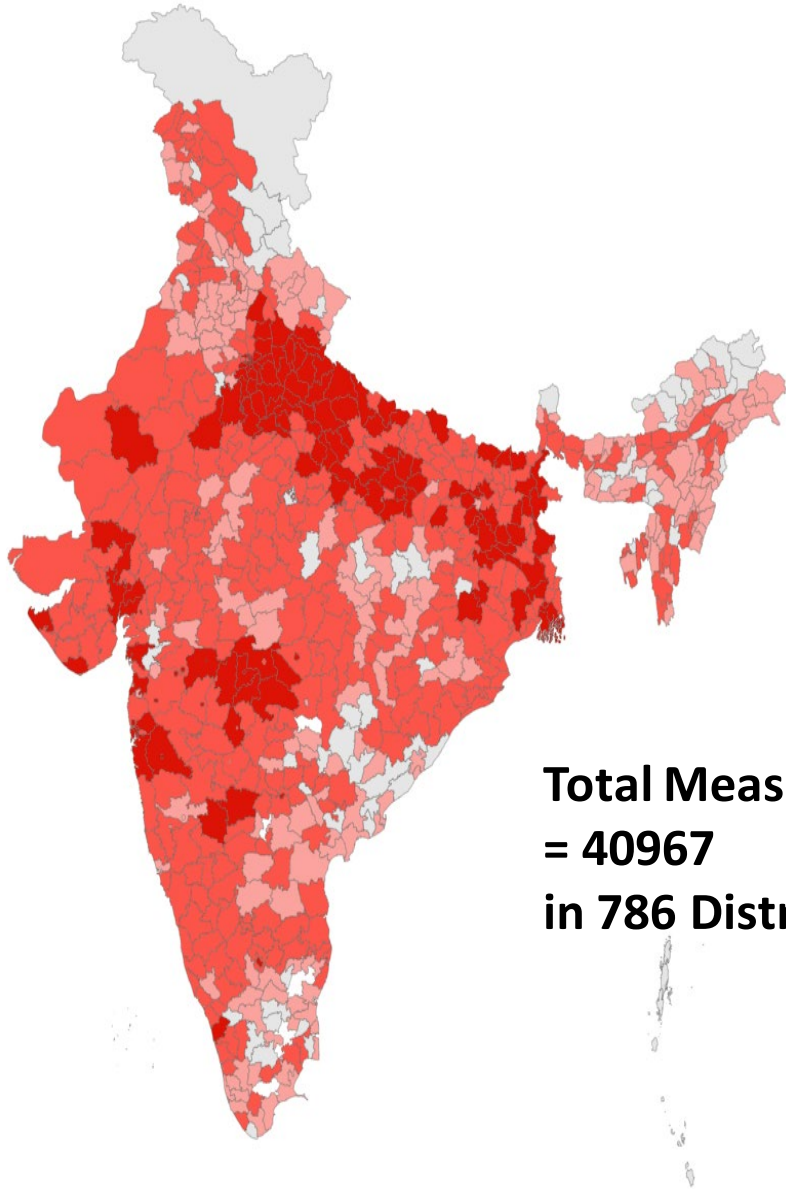
**Total Measles Cases = 40967**

- **>52% Measles cases from two states of Maharashtra & Uttar Pradesh**
- **> 90% measles cases from 9 states**

# State Wise Measles Cases In 2022

As on 13 Mar 2023

# Measles Cases in 2022



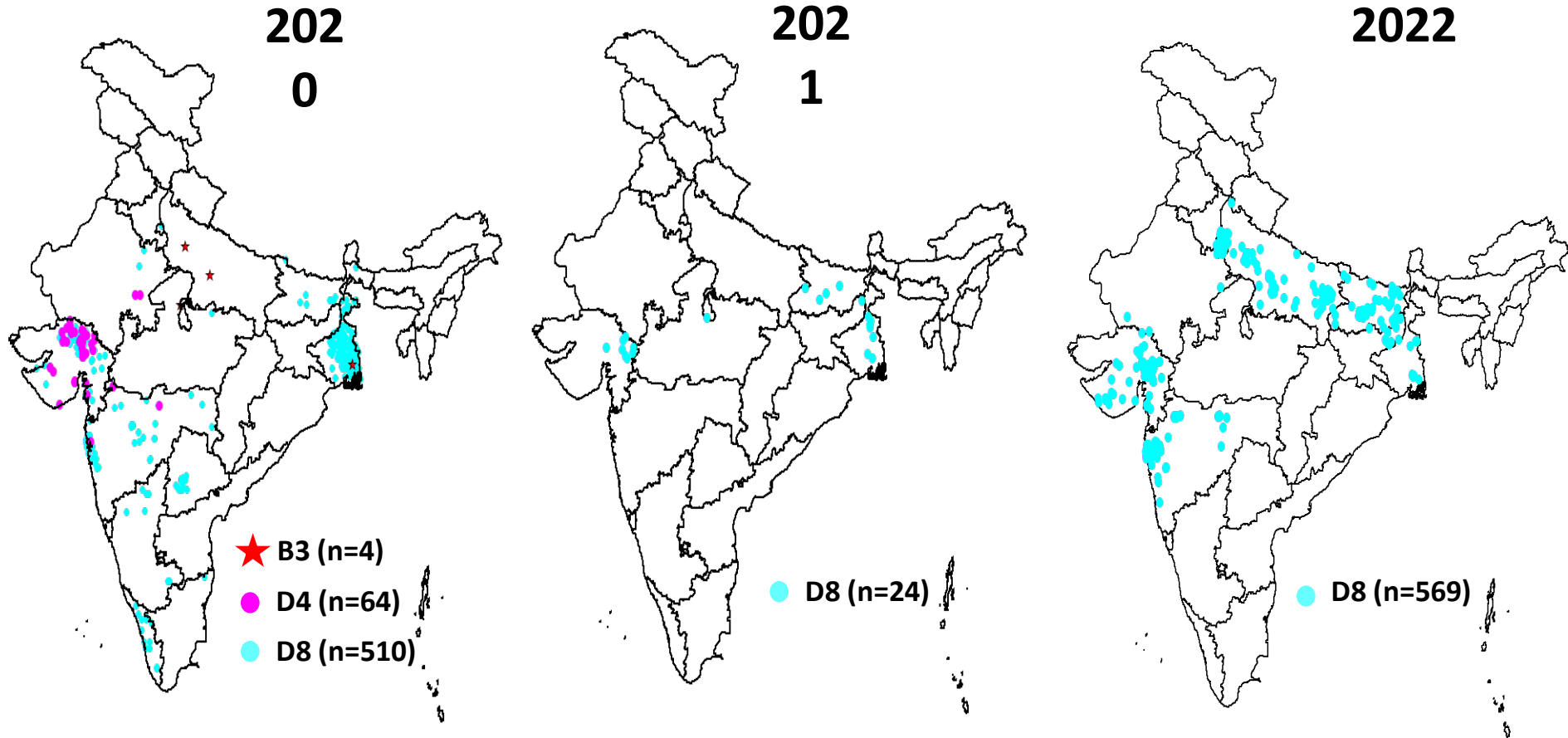
**Total Measles Cases  
= 40967  
in 786 Districts**

No. of measles cases	No. of Districts	% of District
0	74	9%
1-4	203	26%
5-50	364	46%
>51	146	19%

As on 13 Mar 2023

Measles cases include lab-confirmed + epi-linked + clinically compatible cases

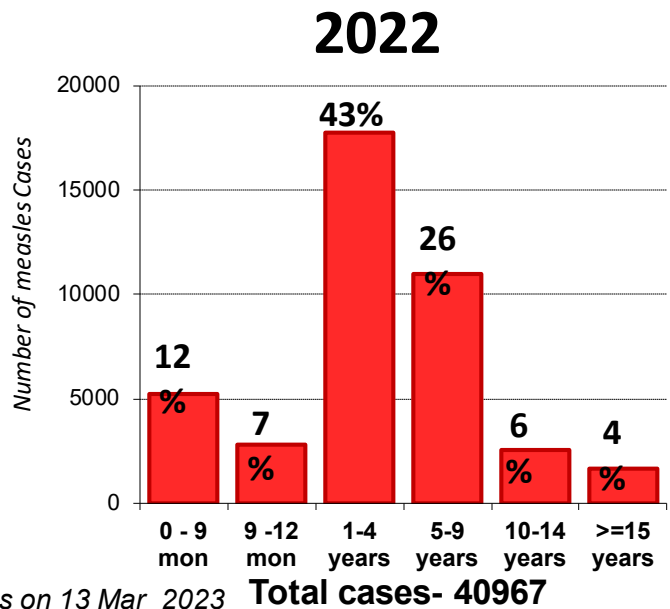
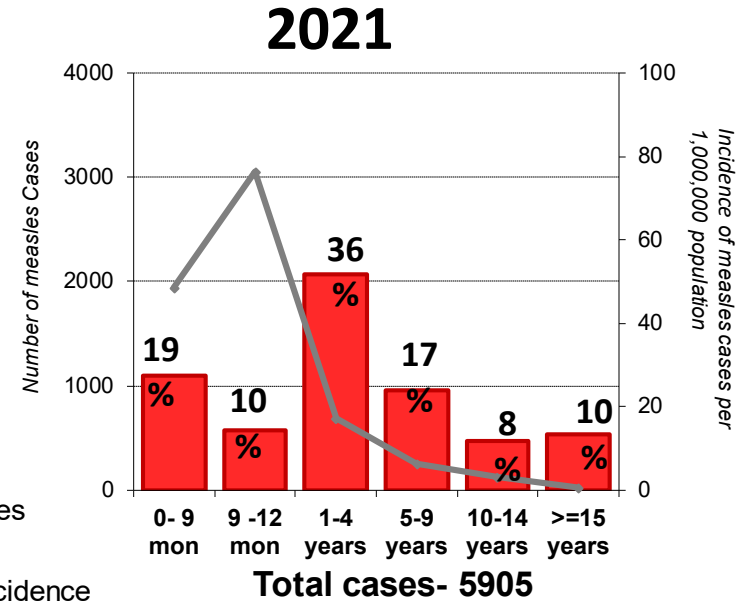
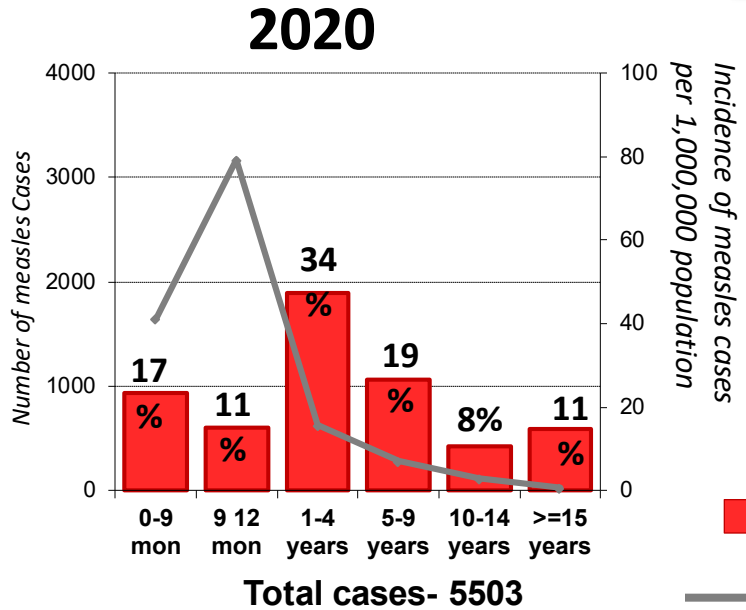
# Measles Virus Genotypes, India, 2020 – 2022\*



Genotype	2014	2015	2016	2017	2018	2019	2020	2021	2022
★ B3									
● D4									
● D8									

\* data as on 13 Mar 2022

# Age Distribution of Measles Cases, India, 2020 – 2022\*



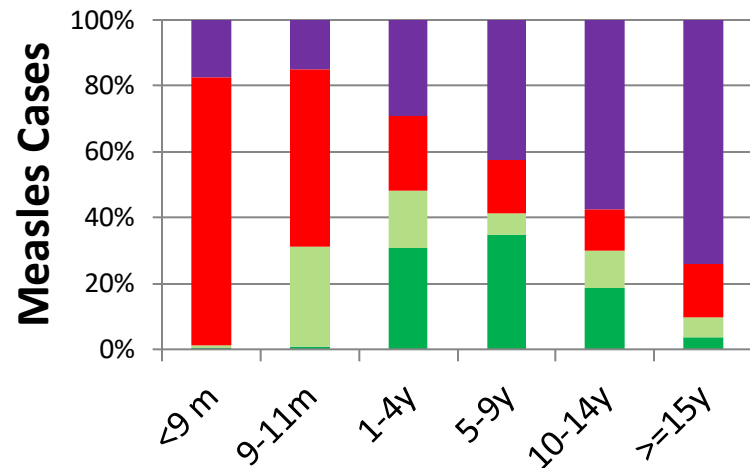
	2020	2021	2022
% of measles cases < 5 years	62%	66%	63%
% of measles cases < 15 years	89%	90%	96%

Measles cases include lab-confirmed + epi-linked + clinically compatible cases

\* data as on 13 Mar 2023

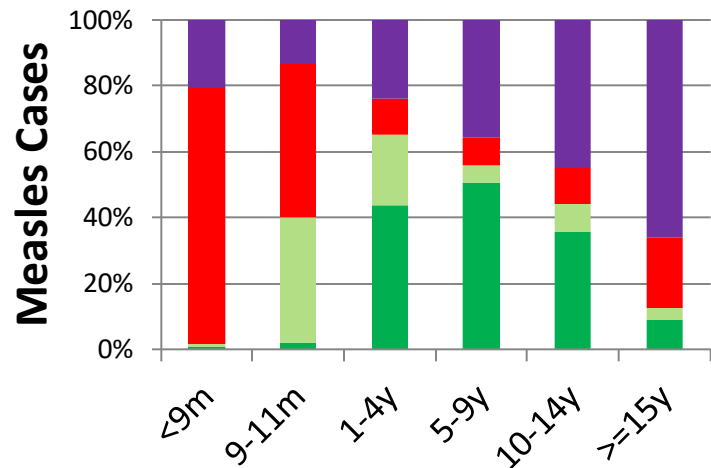
# Vaccination Status of Measles Cases by Age, India, 2020 – 2022\*

**2020**



Total cases- 5503

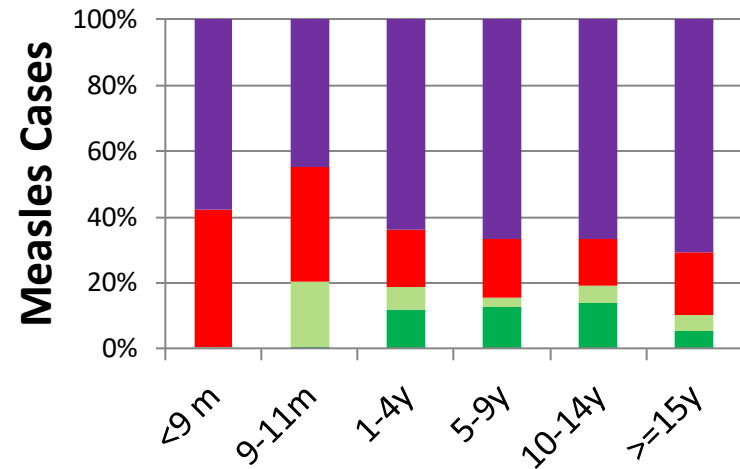
**2021**



Total cases- 5905

**2022**

0      1      >=2      Unknown



Total cases- 40967

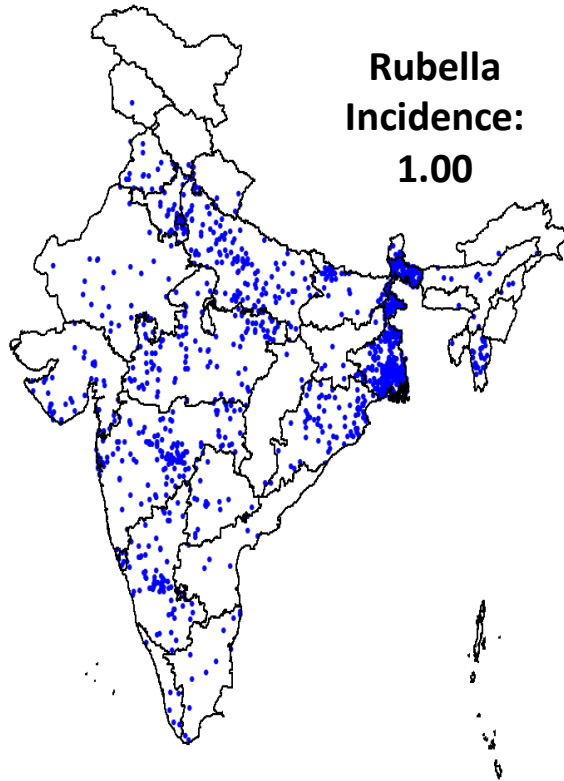
	2020	2021	2022*
% of measles cases with 0 or unknown measles doses in the age group of >=12 months	62%	47%	83%

\* data as on 13 Mar 2023

Measles cases include lab-confirmed + epi-linked + clinically compatible cases

# Rubella Cases, India, 2020 – 2022\*

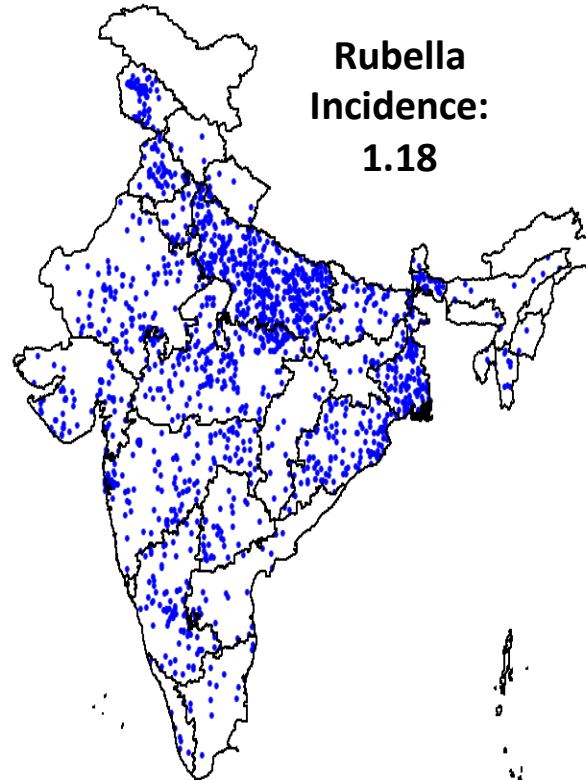
2020



Rubella  
Incidence:  
1.00

● Rubella cases – 1396  
cases

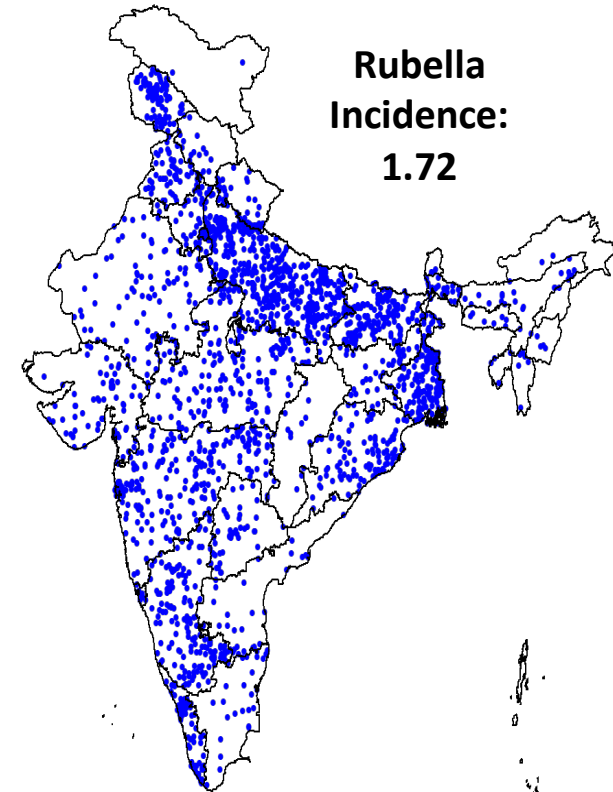
2021



Rubella  
Incidence:  
1.18

● Rubella cases – 1684  
cases

2022



Rubella  
Incidence:  
1.72

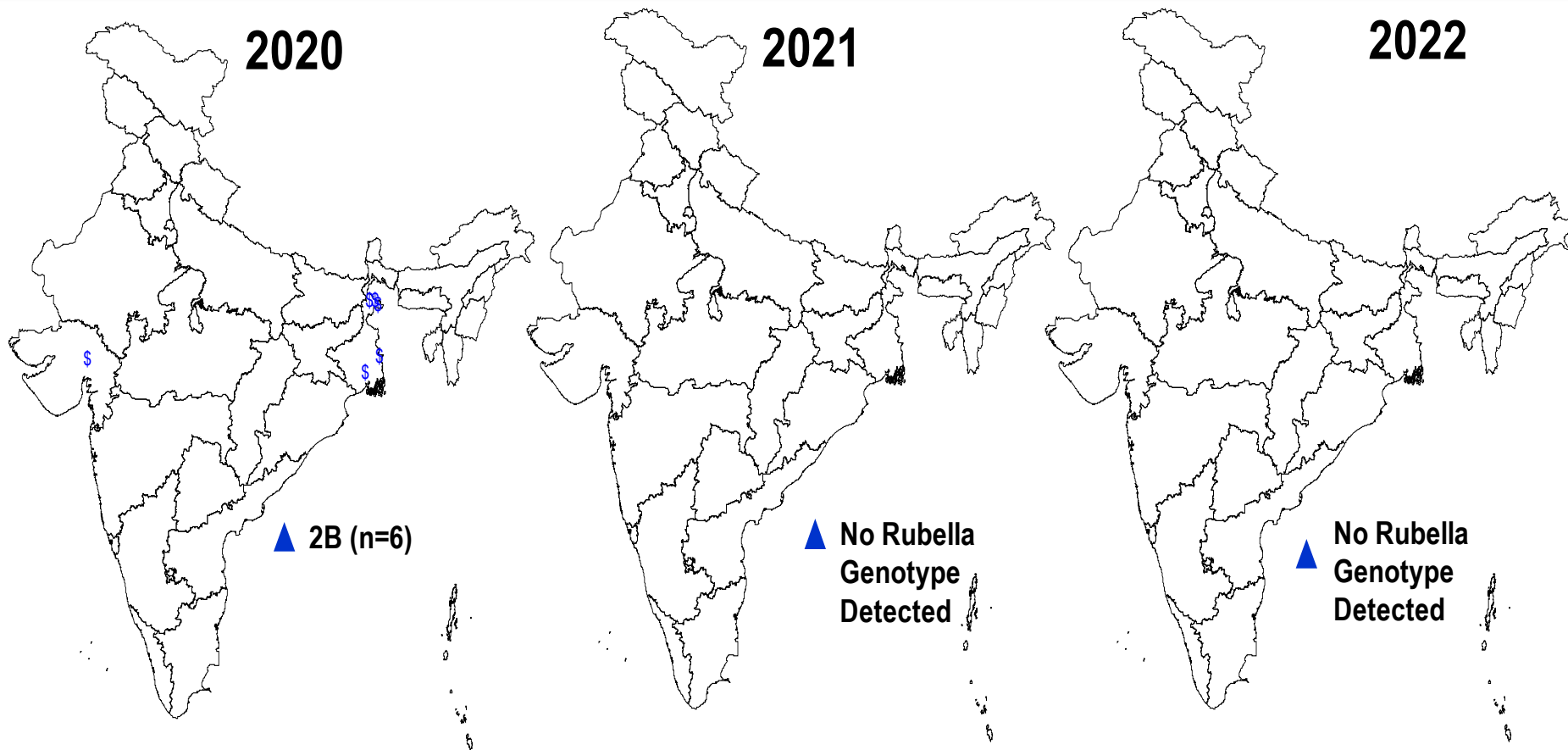
● Rubella cases – 2525  
cases

\* data as on 13 Mar 2023

Rubella cases include lab-confirmed + Epi-linked rubella cases



# Rubella Genotypes, India, 2020 – 2022\*

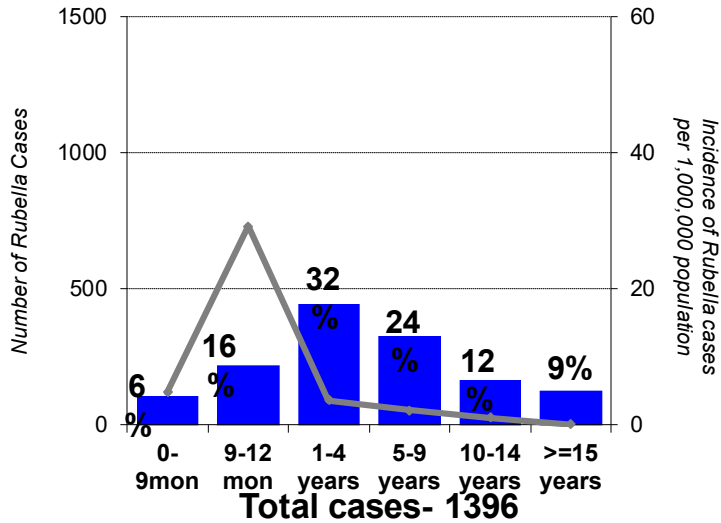


Genotype	2014	2015	2016	2017	2018	2019	2020	2021	2022
2B									

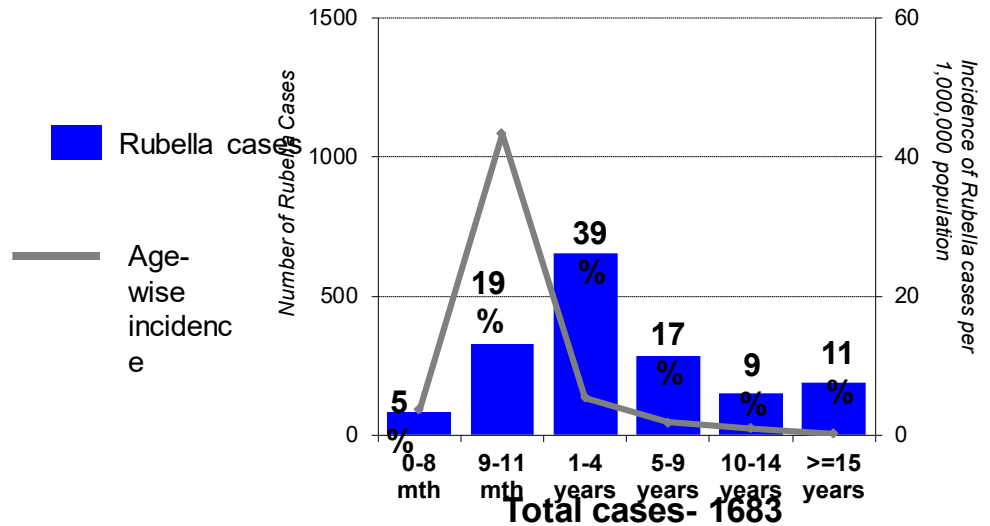
\* Data as on 13 Mar 2023

# Age Distribution of Rubella Cases, India, 2020 – 2022\*

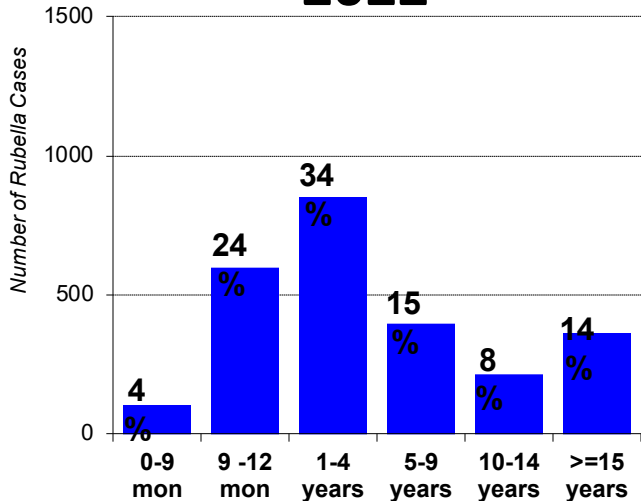
**2020**



**2021**



**2022**



	2020	2021	2022
% of Rubella cases < 5 years	54%	63%	62%
% of Rubella cases < 15 years	91%	89%	86%

Rubella cases include lab-confirmed + Epi-linked rubella cases

\* data as on 13 Mar 2023

# 4th Measles Rubella India Expert Advisory Group Meeting



The fourth meeting of Measles Rubella India Expert Advisory Group (**MR IEAG**) was held In New Delhi on 9-10 May 2022 under context of the ongoing COVID-19 pandemic, which has challenged health system globally. The meeting provided an opportunity to evaluate progress, identify challenges and risks in the current context, and provide

# Key Recommendation of MR IEAG

- Recognizing that a measles and rubella elimination target of 2023 is ambitious, with only 20 months to the target date of December 2023, the MR-IEAG strongly recommended that the country urgently develop a “**Roadmap to Measles and Rubella Elimination.**”
- Since UIP activities are under purview of Task Force in all districts, the suggested roadmap is for revitalizing and enabling each district to set goals of achieving at least 95% MRCV-2 coverage by age 2 years, or at the latest age 5 years.

# State, District and Block/Urban Task Force for MR Elimination

## Desired Benchmarks:

- Planned vs held number of **STF /DTF/BTF/ Urban or City Task force** meeting with discussion on MR Elimination
- Achieving and sustaining **95% coverage with two doses of MRCV** at State/District levels
- Ensure that all children receive **MRCV2 by 24 months of age** and that missed doses are provided up to **5 years of age**, with two doses given 4 weeks apart
- **Left out and drop out** for MRCV to be reduced to zero
- Achieving and sustaining **Non-Measles and Non- Rubella (NMNR) Discard rate** of  $\geq 2/1,00,000$  population
- Tracking **incidence** of Measles and Rubella

# State, District and Block/Urban Task Force for MR Elimination

- Maintaining **key surveillance performance indicators** like case investigation within 48 hrs of notification, adequate sample collection, sample shipment to WHO accredited laboratory within 5 days of collection
- **Silent districts/ blocks** (without an investigated fever -rash case in a 12-month period) to be reduced to zero
- Initiating immediate **public health response activities** following lab confirmed measles/ rubella outbreak including **root cause analysis**
- **Continuous assessment of population immunity gaps** including in **high-risk areas** for measles and rubella transmission, with action taken to mitigate the risk of outbreaks.
- **Coordination** with Education department / Women & Child Welfare department / professional bodies/ Civil Society Organization on MR Elimination effort

**THANK YOU**