



# Choropleth Mapping

As a tool of advocacy in Primary  
Health Care and Public Health  
Practice



# Apollo Mission



## Mission Statement

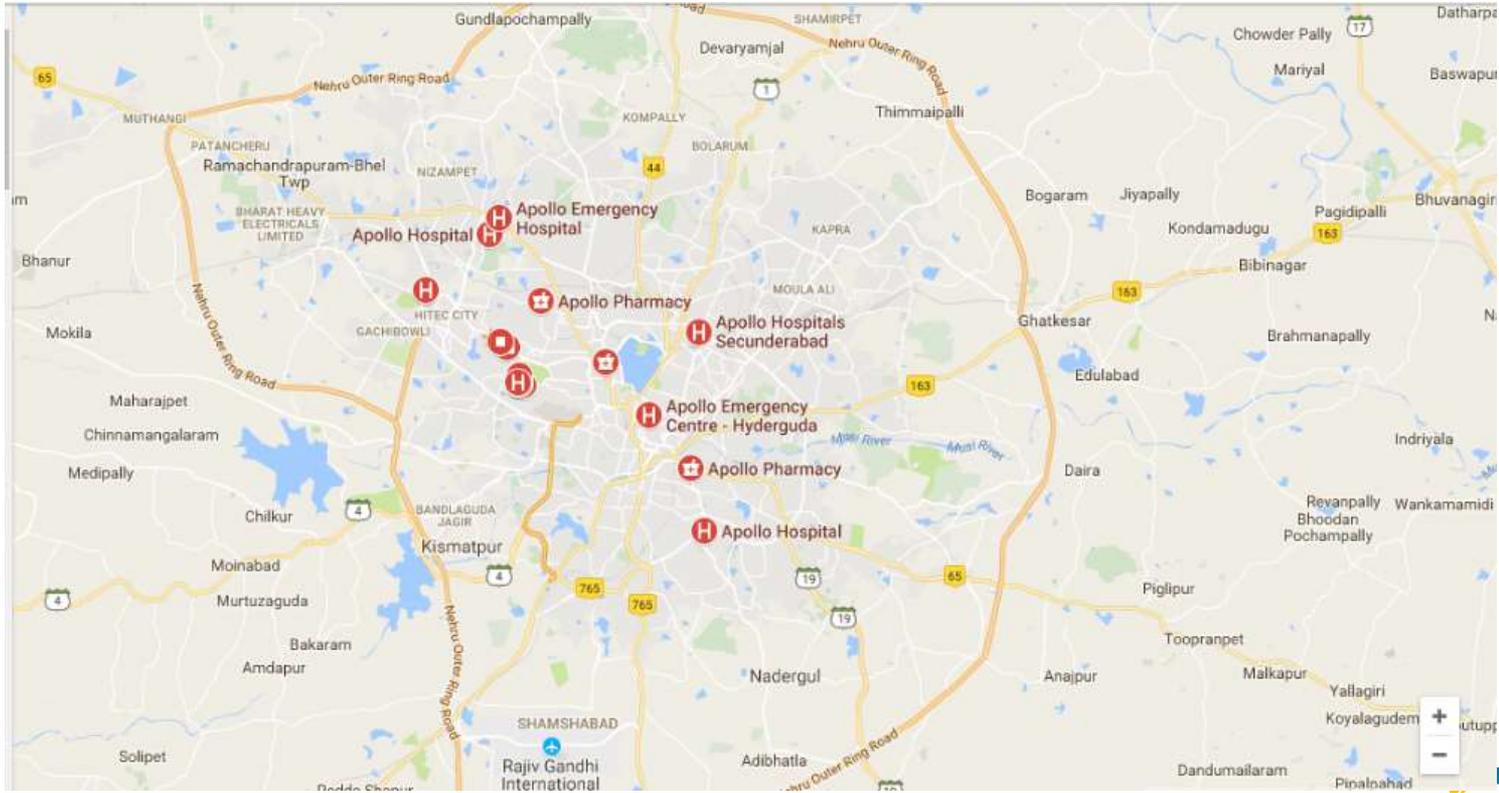
"Our mission is to bring healthcare of international standards within the reach of every individual. We are committed to the achievement and maintenance of excellence in education, research and health care of the benefit of humanity"



**Dr Prathap C Reddy**

Founder Chairman  
Apollo Hospitals Group

# Apollo Institutes



APOLLO INSTITUTE OF  
MEDICAL SCIENCES & RESEARCH

# Apollo Institute of Medical Sciences and Research



# Primary Health Centers



# Primary Health Centers



# Public Health: Review Meetings



Dr Sairam Challa



Dept of Community Medicine

Dr Snigdha Pattnaik



Dr Dilip Mathai



Dept of Adult Infectious Disease

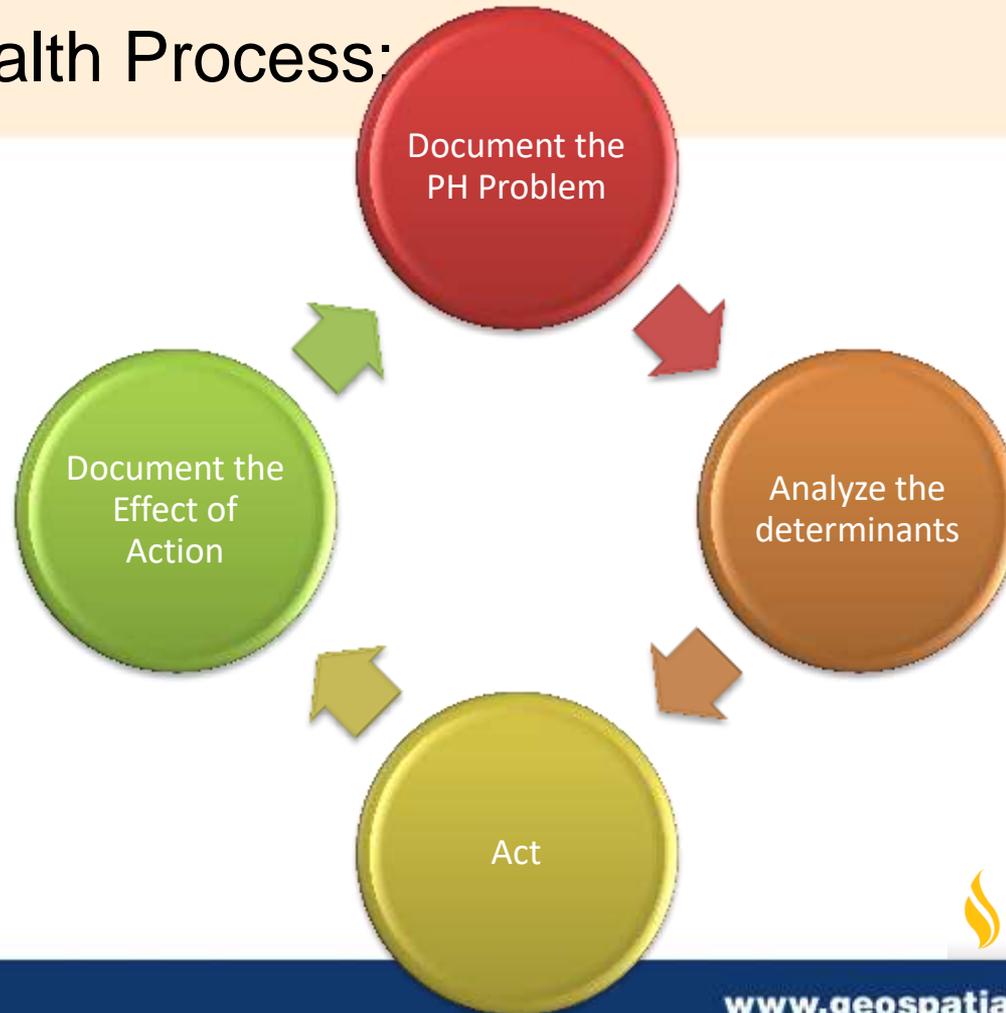
# Scope:

- Advocacy
- The Public Health Process
- Historical Role of Mapping in Public Health
- Choropleth Map

# Advocacy:

- “to advocate” means to espouse a cause by argument, to **plead in favor** of, to recommend publicly
- The business of improving population health has always been linked to action

# The Public Health Process:

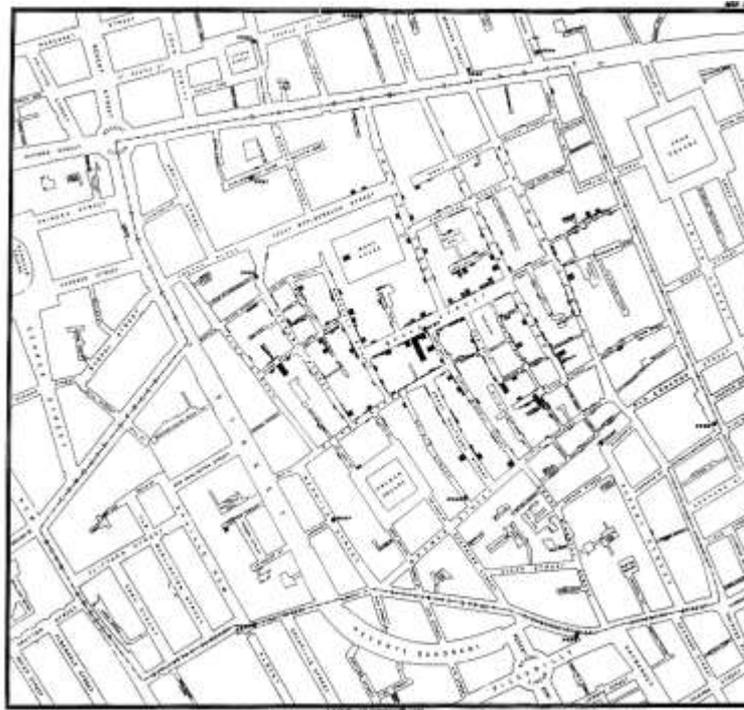
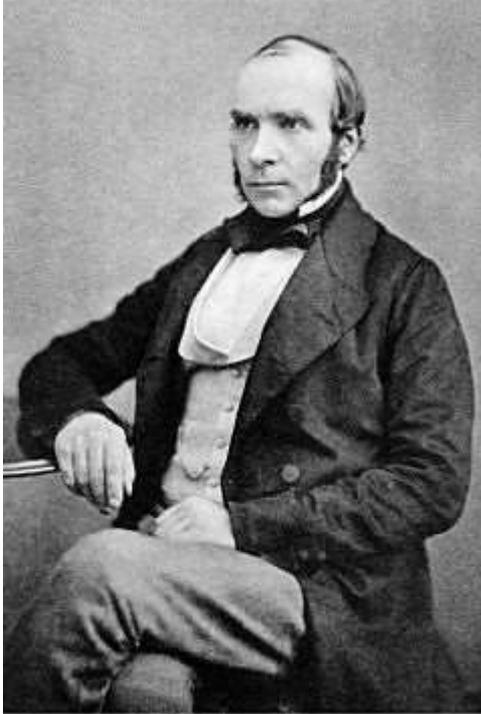


# Historical Role of Mapping in Public Health



# 1848 Cholera Epidemic

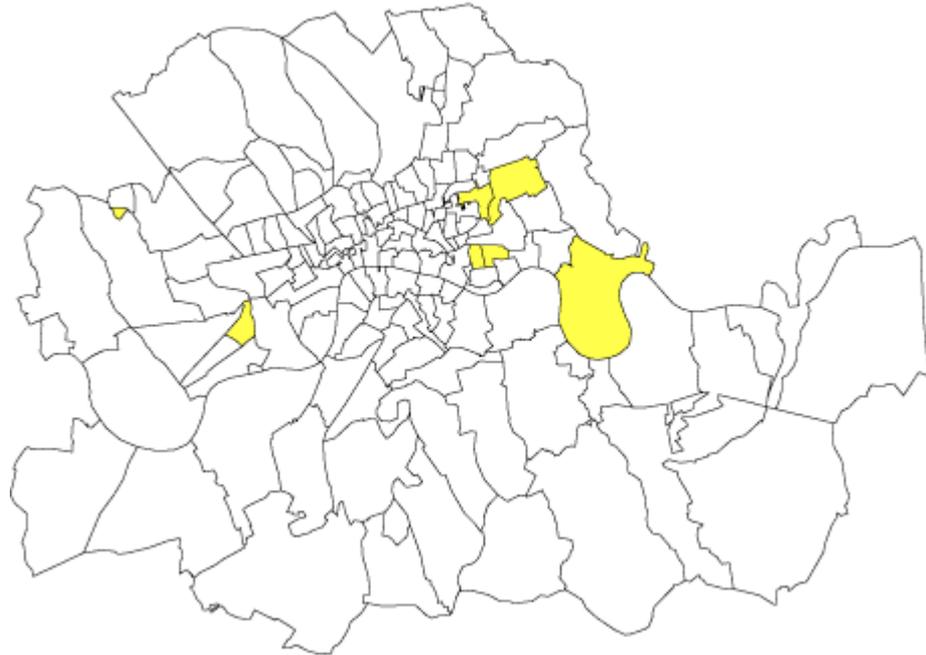
John Snow (15 March 1813 – 16 June 1858)



# Broad Street pump



19/7 to 26/7



- The tale of the Broad Street pump spread across London, as others—no longer Snow alone—began to advocate the provision of clean water
- Among the various tools of Public Health Advocacy, Health Communication & Social Marketing Practice include Map Making as rich tool for appropriate communication



# Advocacy : A Case Study



# Advocacy : An Example of Measles Outbreak



# Advocacy : An Example of Measles Outbreak



# Advocacy : An Example of Measles Outbreak



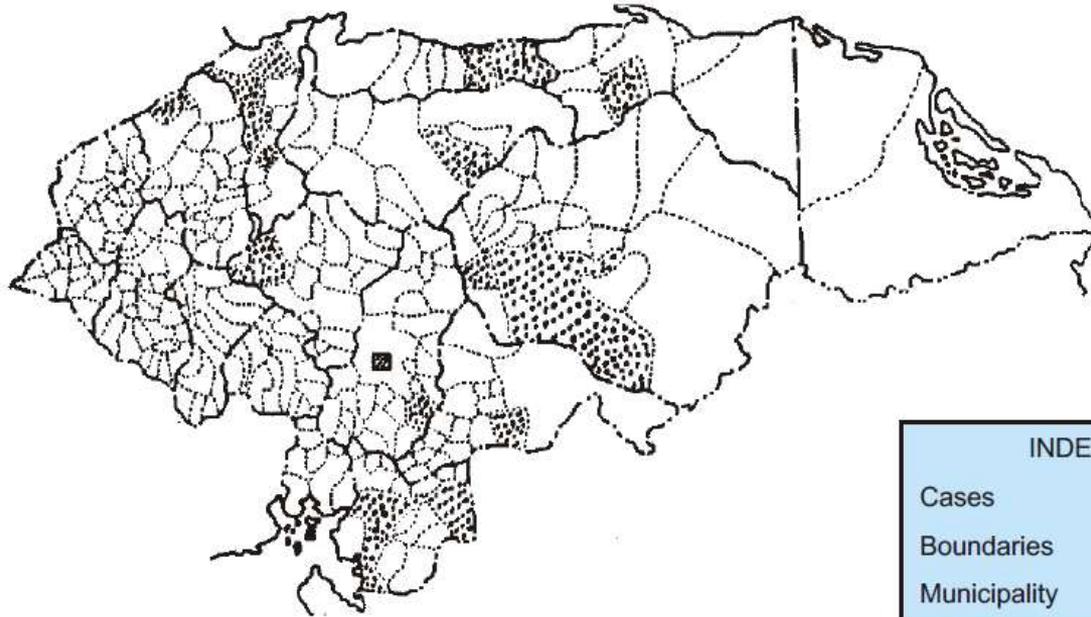
# Advocacy : An Example of Measles Outbreak



# Advocacy : An Example of Measles Outbreak

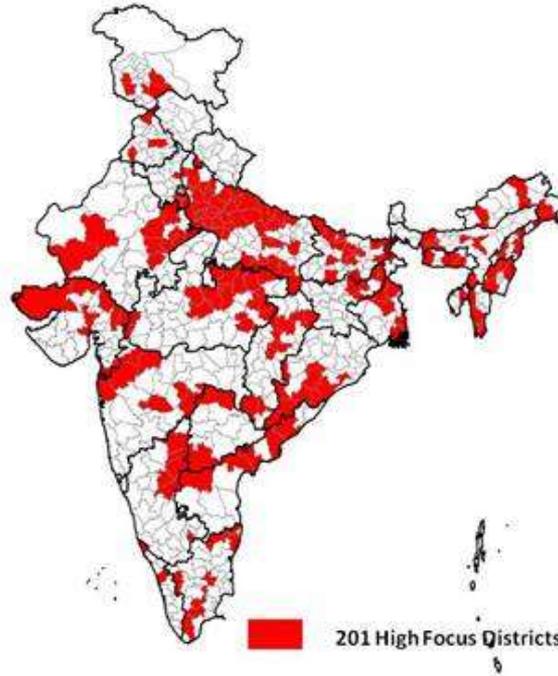


# Spot map shown location of measles cases



INDEX	
Cases	
Boundaries	
Municipality	

# Districts with Low Immunization Coverage: 201



# Advocacy : An Example of Measles Outbreak



# Advocacy : An Example of Measles Outbreak



# Advocacy : An Example of Measles Outbreak





# Choropleth Map



- A thematic map in which areas are shaded or patterned in proportion to the measurement of the **statistical variable** being displayed
- Choropleth Maps are effective tools of visualizing Health Indicators across areas.

- Centers for Disease Control and Prevention, (CDC) Atlanta in 2012 has released **“Cartographic Guidelines for Public Health”** through The Geography and Geospatial Science Working Group (GeoSWG) an organization of geographers, epidemiologists, statisticians, and others who work with spatially-referenced data

## Objective:

- To develop a simple way to create Choropleth maps of health indicators in **low resource setting** like a Primary Health Center.

- **Windows based spreadsheet, MS Paint** are used for crating Choropleth Maps.
- **Conditional Formatting** and Colour scales are used for grading IMR (Infant Mortality Rates) across the states of India as an example

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32	4	Chattisgarh	43	49	244												
33	14	Rajasthan	46	51	244												
34	25	Meghalaya	46	..	..												
35	17	Uttar Pradesh	48	57	285												
36	2	Assam	49	66	300												
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Chart1 Sheet1 Sheet2 Sheet3

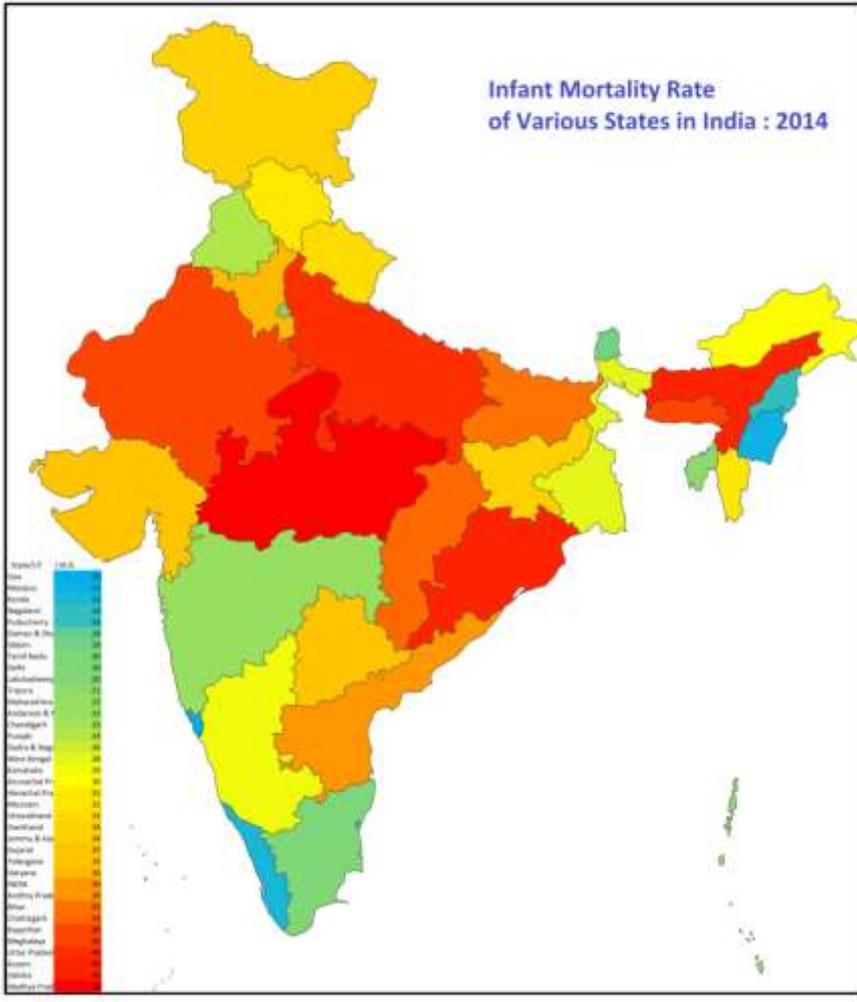
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- Health Management Information System under Ministry of Health & Family Welfare, Government of India is used as a database for Health Indicators , the **IMR of different states** was taken from the database in this current demonstration

Figure 1 Choropleth Map of India depicting IMR: 2014

Infant Mortality Rate  
of Various States in India : 2014



- When mapping quantitative data, **a specific colour progression** is used to depict the data properly. There are several different types of colour progressions used by cartographers.
- Bi-polar progressions are normally used with two opposite hues to show a change in value from negative to positive or on either side of some either central tendency, such as the mean of the variable being mapped.

- Advocacy is a major managerial tool when implementing various health programs like RMNCH+A program (Reproductive, Maternal, Newborn, Child and Adolescent Health).

- Whether, in a Primary Health Center or at the District Magistrate, when advocating health inputs or outputs, it becomes a challenge to Medical officer to convince stake holders on Health Indicators.

# Advocacy : An Example of Maternal Death Review



# Advocacy : An Example of Maternal Death Review

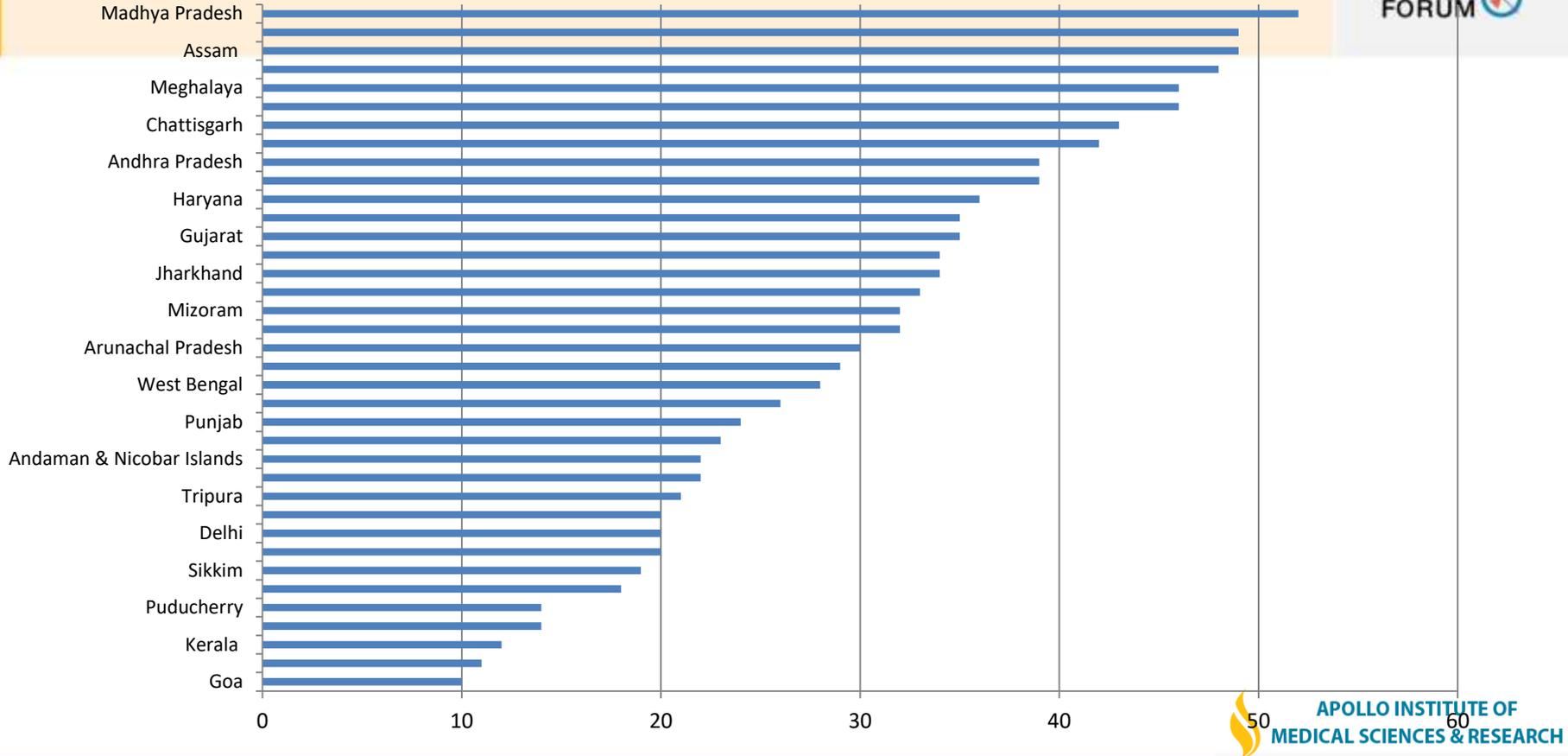


- The **Intersectoral Coordination** and **Community Participations** which are the foundations of Primary Health Care require a Behavioral Change of public in general and public policy makers and implementers in particular.

- For example a district or village may have a higher IMR due to diversion of electricity for non-medical uses which is affecting the vaccine cold chain leading to failure in vaccination which inturn is leading to more outbreaks of VPDS (Vaccine Preventable Disease)

- While **graphs** may be used to convince the administrators about higher IMR of the concerned district
- they may accept this fact more easily when they see their district is getting reflected badly in terms of the colour of their districts with reference to neighbouring districts

# I.M.R.



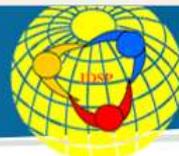




सत्यमेव जयते

# Integrated Disease Surveillance Programme

National Centre for Disease Control, Directorate General of Health Services



Ministry of Health &amp; Family Welfare, Government of India

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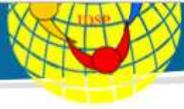
## Disease Alert

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- [Disease Alert: Volume 1 Issue 4 \(April 16\)](#) [987 KB]
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- [Disease Alert: Volume 1 Issue 6 \(June 2016\)](#) [1175 KB]
- [Disease Alert: Volume 1 Issue 7 \(July 2016\)](#) **NEW** [1269 KB]



# National Centre for Disease Control, Directorate General of Health Services



Ministry of Health & Family Welfare, Government of India

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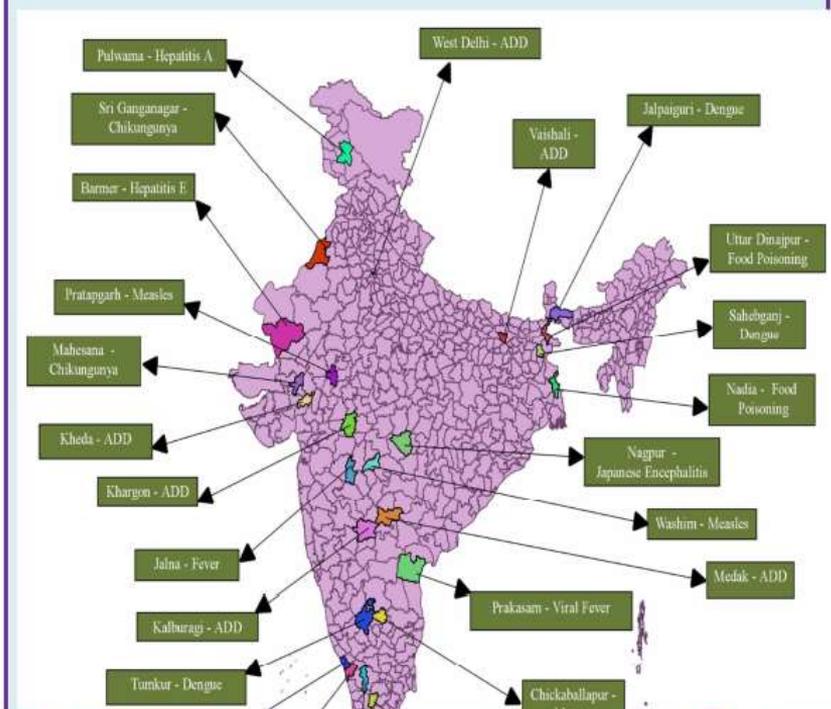
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**DISEASE ALERTS/OUTBREAKS REPORTED AND RESPONDED TO BY STATES/UTs THROUGH INTEGRATED DISEASE SURVEILLANCE PROGRAMME (IDSP)**

**43<sup>rd</sup> Week 24<sup>th</sup> October, 2016 To 30<sup>th</sup> October, 2016**

**District wise disease alerts/outbreaks reported in the 43<sup>rd</sup> Week, 2016**

**43<sup>rd</sup> wk Map**





- Choropleth Mapping can be an effective Advocacy Tool in Public Health
- Wide gaps exist in its use as a tool for lack of awareness and training