सत्यमेव जयते

Goverment Of India

Disease Surveillance during Prayagraj Kumbh, January–March 2019

India National Centre for Disease Control and Partner Agencies

Aim of the presentation

- To describe the planning and risk assessment for designing and implementing an onsite surveillance system in context of a religious mass gathering

- To describe the legacy of this experience for future events

Kumbh Religious Mass Gatherings in India

- India country with largest number of religious mass gatherings

- Every year, in the Hindu month of *Magh* (mid-January to mid- February), pilgrims perform a series of sacred rituals - notably to bathe in the rivers at the confluence of the Ganges and Yamuna rivers

- In the 12th year (the Maha Kumbh Mela) more than 100 million people attend

- > 10 million can be present on a single bathing day

- Large number of elderly persons and ascetics attend this pilgrimage believing to wash away sins and attain salvation

Ariel View of Prayagraj Kumbh 2019, pilgrims congregating to take bath during Magh Purnima (full moon)

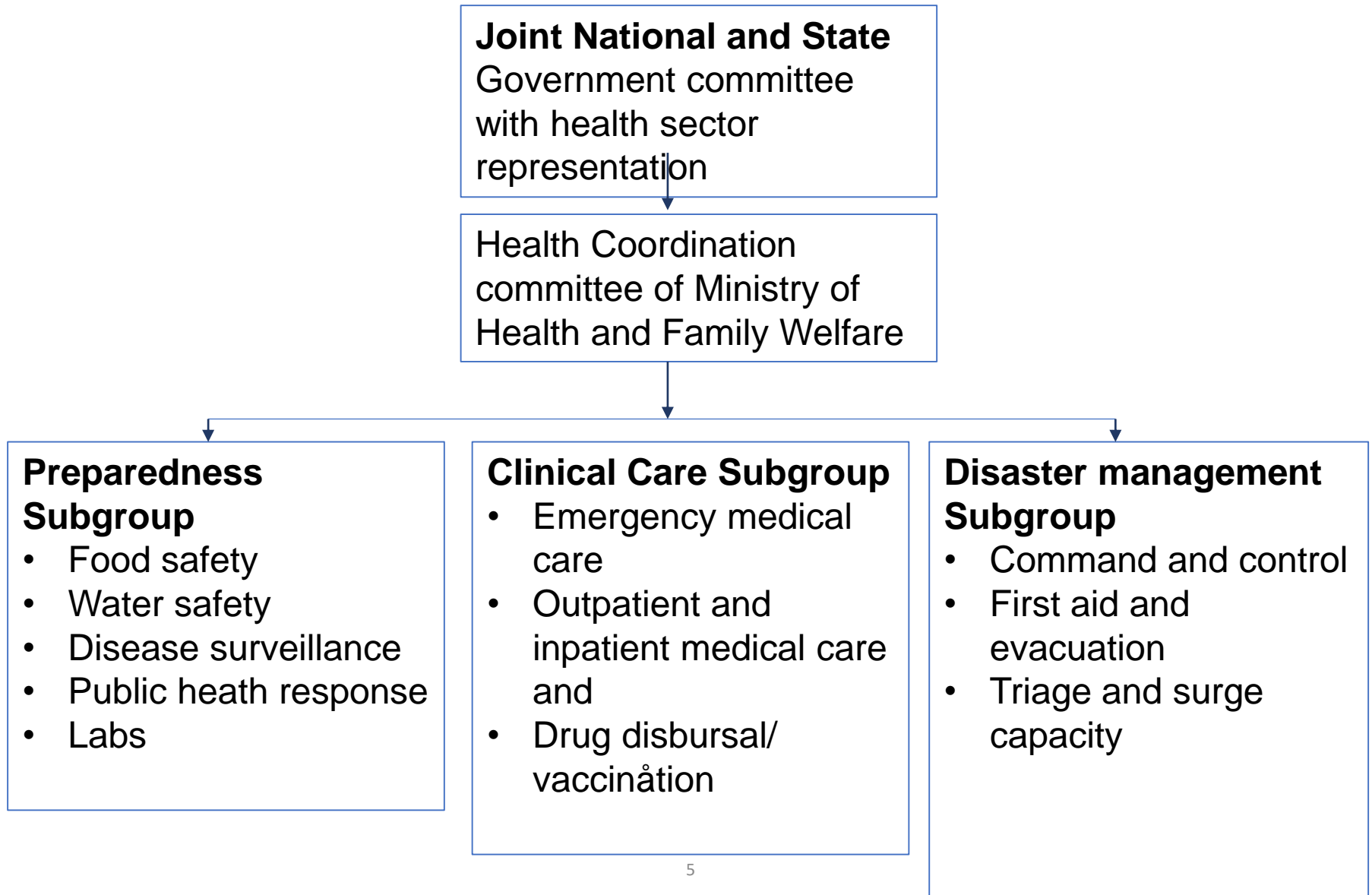# Kumbh Religious Mass Gatherings in India

STRENGTHS

- A predicted event
- Potential long planning time
- Non violent, no recreational drugs
- Political will and resource allocation

WEAKNESSES

- Huge numbers: risk of stampedes
- Vulnerable populations: elderly, mendicants
- Illiterate with poor health seeking behaviours, non vaccinated
- Floating population, not registered, difficult to follow up

Prayagraj Kumbh Mass Gatherings Planning

Joint National and State Government committee with health sector representation

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Health Coordination committee of Ministry of Health and Family Welfare

Preparedness Subgroup
- Food safety
- Water safety
- Disease surveillance
- Public heath response
- Labs

Clinical Care Subgroup
- Emergency medical care
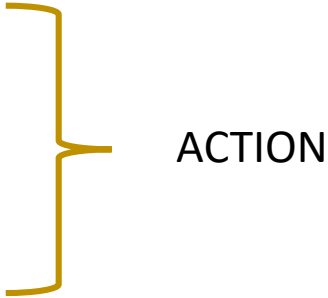- Outpatient and inpatient medical care and
- Drug disbursal/ vaccinåtion

Disaster management Subgroup
- Command and control
- First aid and evacuation
- Triage and surge capacity

Kumbh Religious Mass Gatherings Planning

Joint National and State Government committee with health sector representation

Uttar Pradesh Prayagraj Mela Authority enacted 2017

- Essential civic facilities
- **Health facilities and Disease Surveillance**
- Emergency and disaster services

Health Coordination committee of Ministry of Health and Family Welfare

Preparedness Subgroup
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- Drug disbursal/ vaccinåtion

Disaster management Subgroup
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Preparedness Subgroup Key Strategies

- Disease Surveillance Planning
  - All hazards risk assessment with multiple stakeholders
  - Identifying reporting units
  - Designing a *simple, acceptable, high quality* system

- Identifying training needs and capacity building
  - Disease surveillance reporting
  - Rapid bedside tests
  - Water testing/ vector breeding

- Establishing syndromic surveillance
  - Indicator based
  - Dual paper and web based
  - Media scanning and integration with other

- Verification and alert assessment

- Report and respond

ACTION

All Hazards Risk Assessment with Stakeholders

Hazard Assessment

Biological
- **WASH**
- **ILI**
- Other communicable diseases and AMR

Non communicable diseases and exacerbation of comorbidities in **elderly**

Thermal diseases such as **hypothermia from bathing**

Stampedes, accidents like **drowning**

Environmental pollution

Host Assessment

High concentration of extreme age groups like **elderly**

Vulnerable **unimmunized** groups like **beggars, orphans, mendicants (*sadhus*)**

Foreign tourists susceptible to local diseases and potential source for **importing/ exporting infections**

Hard to reach social networks such as **mendicants (*sadhus*)** with **poor health seeking**

Context Assessment

Outdoor venue, tent city alongside large waterbody,

Dusty/sandy location vulnerable to weather events such as floods or storms

No facility of large scale air-conditioning

Some pilgrims (kalpwasis) reside for upto 3 months, possibility of long term exposure

Large influx of pilgrims during key days, **crowd control difficult, stampede likely**

No facility for pilgrim registration and tracking

Twenty two reportable syndromes and events identified

1. ADD (including AGE)
2. Cholera
3. Acute viral hepatitis
4. Enteric Fever
5. Malaria
6. Dengue
7. Dysentary
8. Chikungunya
9. Measles
10. Acute respiratory infection/ Influenza like illness

11. Conjunctivitis
12. Skin infection
13. Chikenpox
14. Minor injury
15. Major injury
16. Burn injury
17. Drowning
18. Hypothermia
19. Acute Fever
20. Dog Bite
21. Snake Bite
22. Unusual syndrome

Coordination between Stakeholders

1 **National agencies**
- Health and IHR
- Disaster management
- Food regulator
- Vector control
- International agencies

2 **State agencies**
- Administration
- Police, fire and disaster management
- Health and sanitation department
- Municipal bodies

3 **Integrated Command Centre**
- Representatives of National and local govt
- Administration
- Police, fire and disaster management
- Health and sanitation department
- Rapid response team
- Municipal bodies

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Training: Proportion of Medical Officer aware of case definitions over time

Surveillance Flowchart at Prayagraj Kumbh
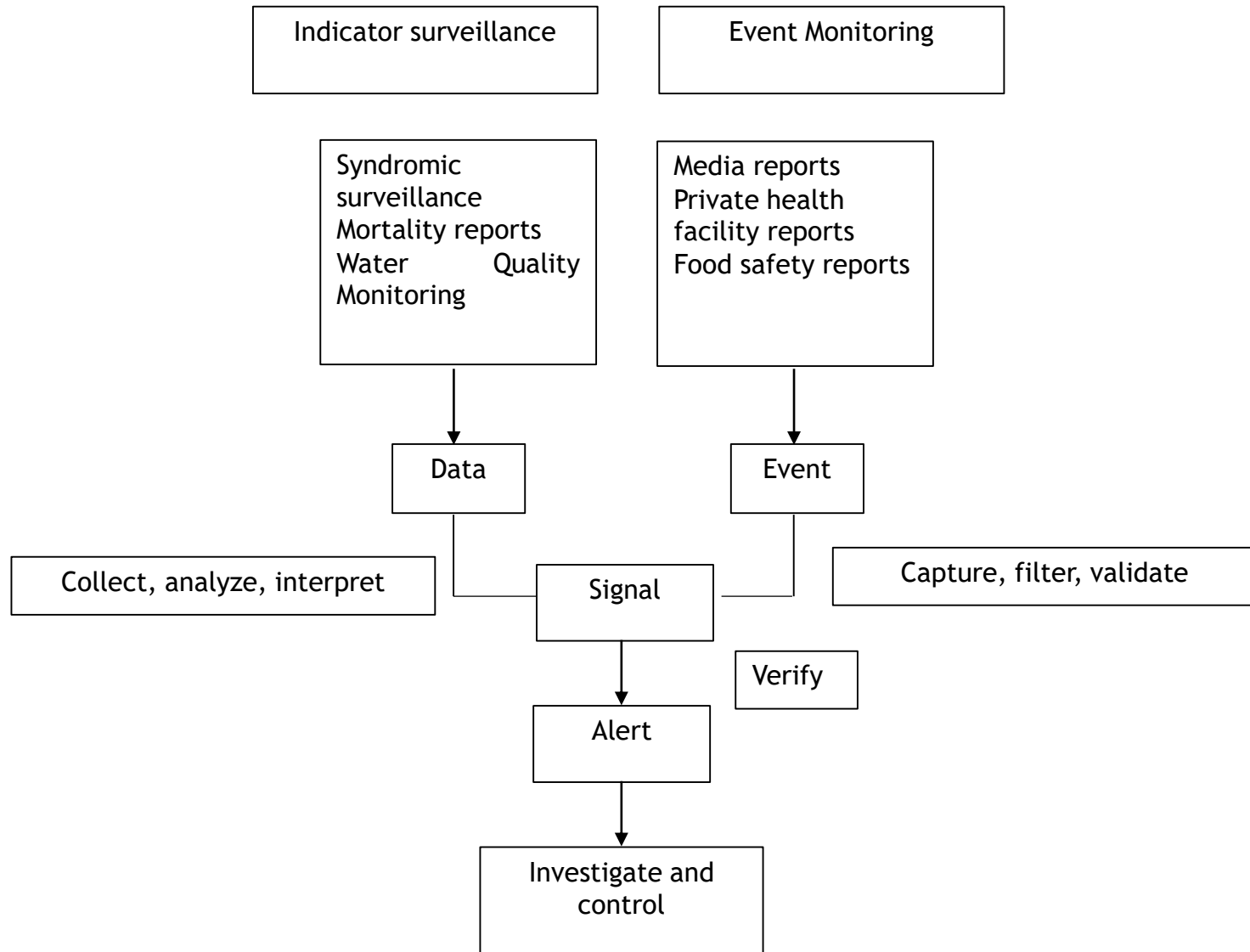
Onsite daily reporting from 65 reporting units
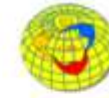

NCDC EIS Officer collecting data from field, Kumbh 2019

Federal Government Ministry of Health and NCDC (IHR Focal Point)

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Provincial Government Department of Health

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Command Centre
Data collation and analysis
Daily situational report
Risk assessment and coordination with stakeholders
Rapid response

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Feedback

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| Zone 1 RU=15	Zone 2 RU=13	Zone 3 RU=16	Zone 4 RU=13	Zone 5 RU=08
Central Hospital 1 Infectious Disease Hospital 1 Circle Hospital 3 First Aid Point 10	Circle Hospital 3 First Aid Point 10	Circle Hospital 3 Infectious Disease Hospital 1 First Aid Point 12	Circle Hospital 3 First Aid Point 10	Circle Hospital 1 Infectious Disease Hospital 1 First Aid Point 6

Digital and Paper Based Reporting Established


Kumbh Module created in the National Surveillance Portal

- **Kumbh form**: Captures line list of conditions reported
- **Lab form:** Captures lab diagnosis
- **Sanitation form:** Captures water samples tested
- **Event alert form**

Integration with Non-Health Surveillance

- Entomological surveillance

- Quality of water surveillance

- Food surveillance

- Air quality surveillance

- Sanitation surveillance
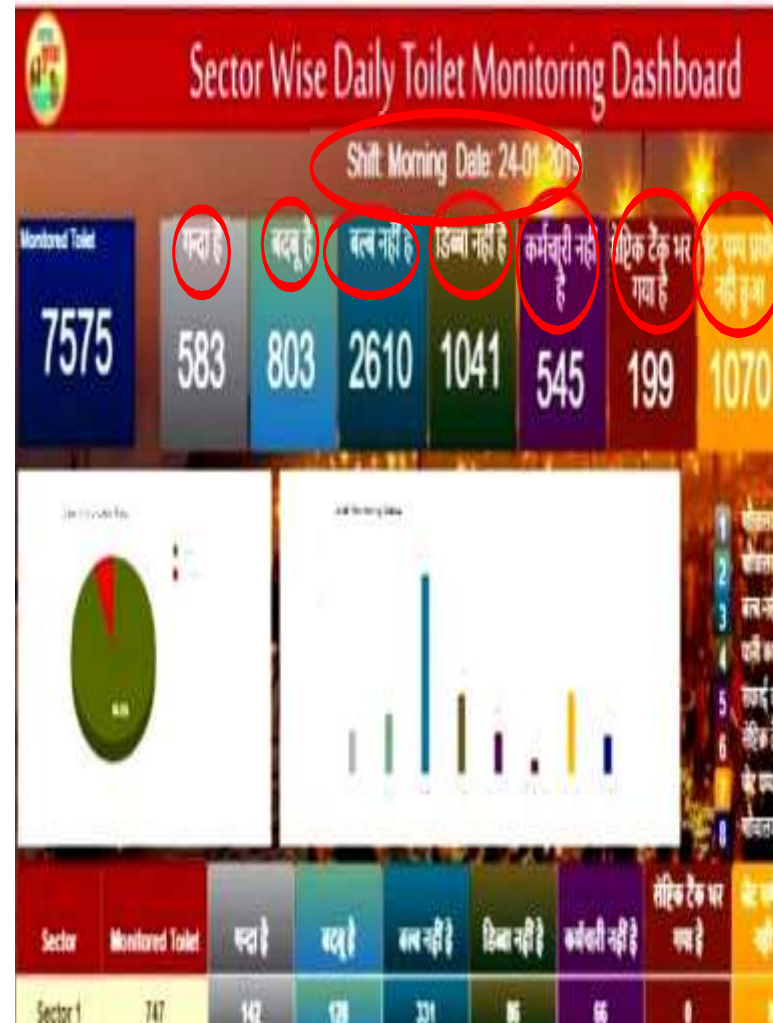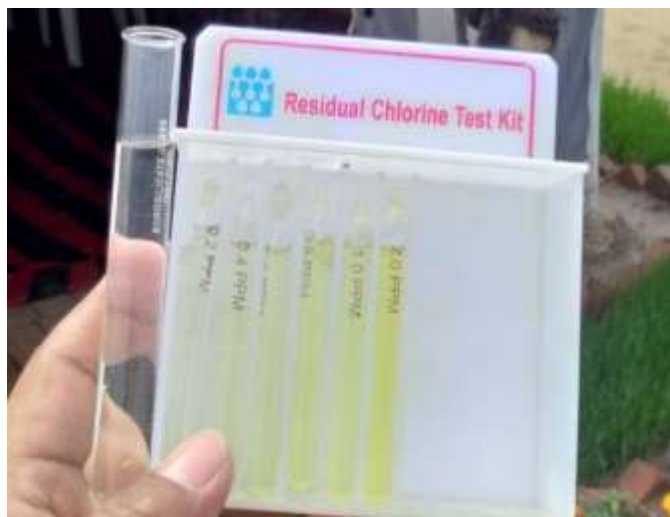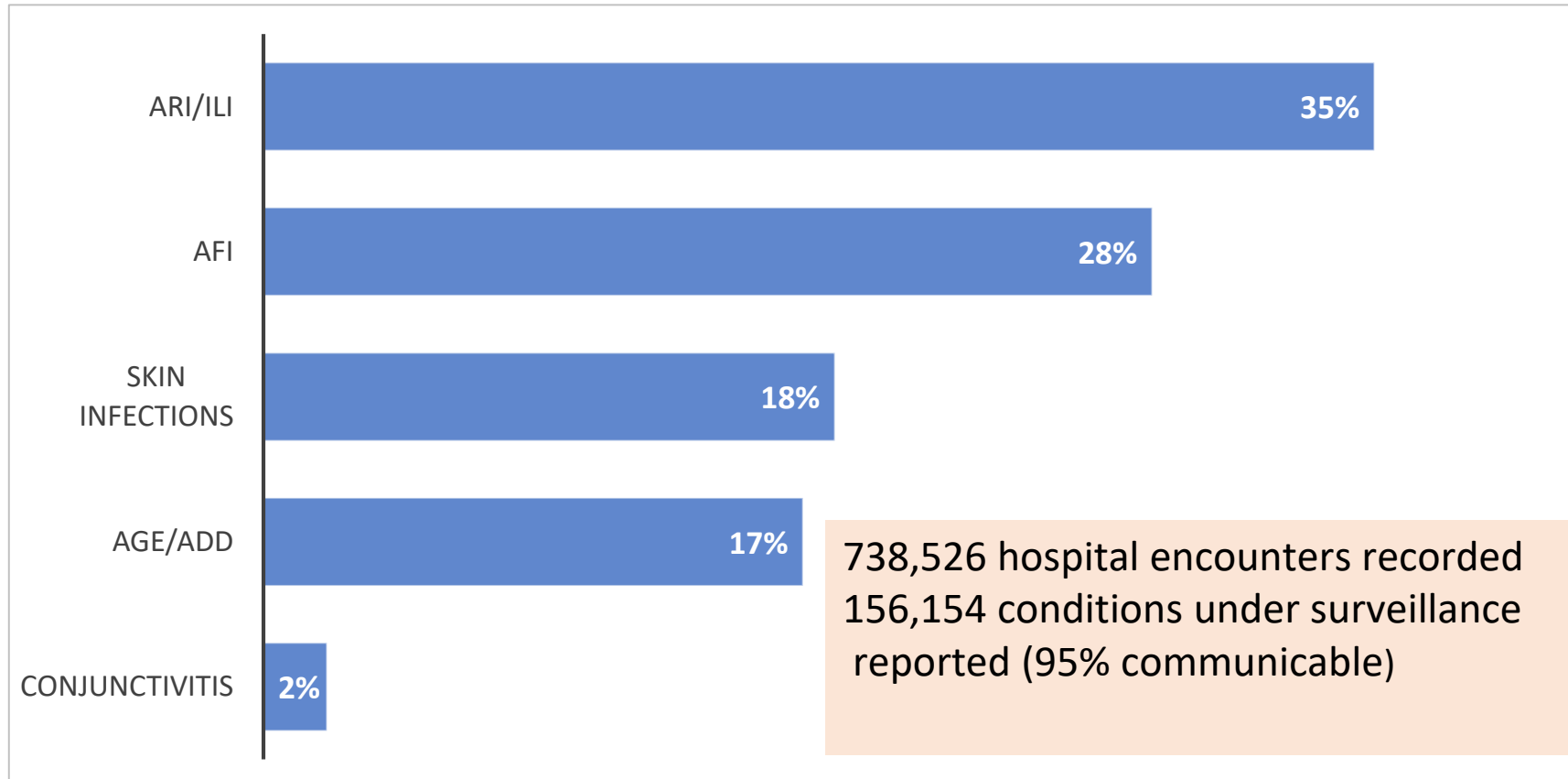
Daily Review and Reporting

- Key findings from field visits shared zone-wise
- Improvement plans for data quality discussed
- Data reviewed for EWS and alert verification
- Daily situational analysis report shared with stakeholders
  - Reports generated=58
  - Alerts followed=12
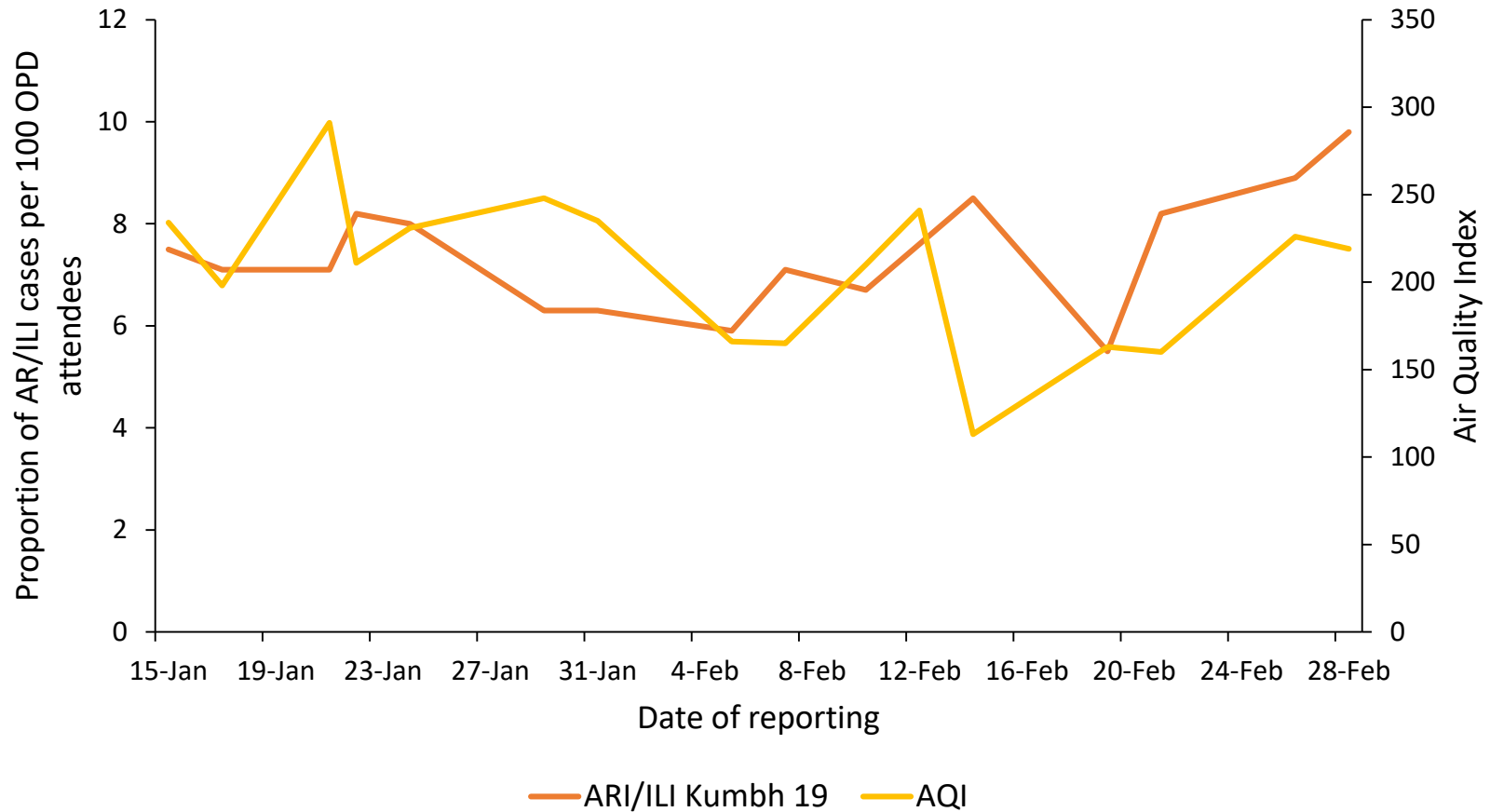 - Outbreaks responded (ADD, measles, foodborne illness, chickenpox, animal bite)

*NCDC EIS Officers and local health team analyzing surveillance data, Kumbh 2019*

Communicable Diseases Reported in Prayagraj Kumbh, January–March 2019

Chart: Percentage of communicable diseases reported
- ARI/ILI: 35%
- AFI: 28%
- SKIN INFECTIONS: 18%
- AGE/ADD: 17%
- CONJUNCTIVITIS: 2%

738,526 hospital encounters recorded 156,154 conditions under surveillance reported (95% communicable)

Trend of ARI and Air Quality Index in Kumbh, January–March 2019

Trend of ARI cases in Kumbh and H1N1 cases in Uttar Pradesh, January–March 2019
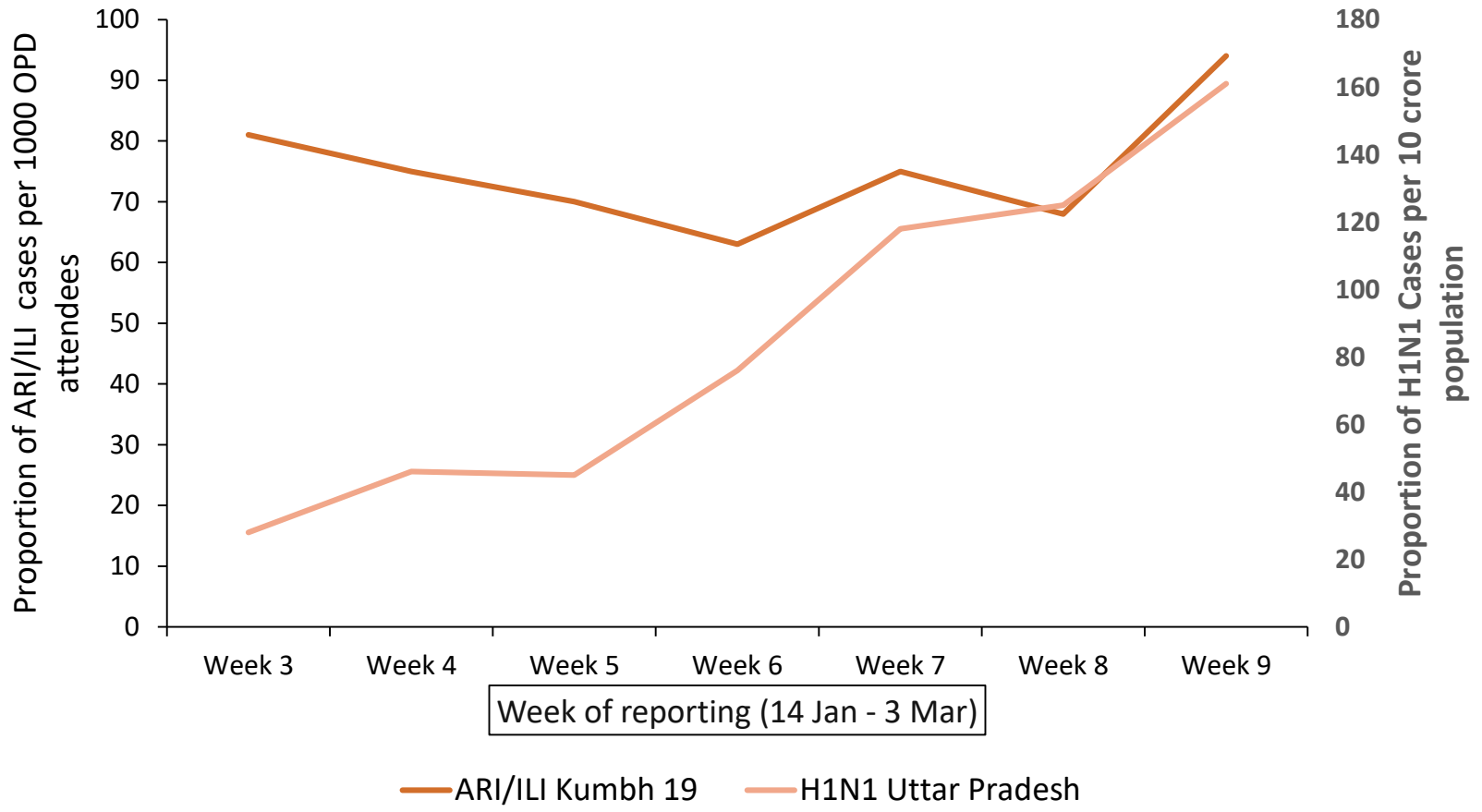
Conclusions and recommendations

- ARI/ILI largest burden of reportable conditions
- Trend of ARI/ILI correlated with air quality index and H1N1 activity
- Disease Surveillance responsive to risks of H1N1 and took appropriate measures
- Rapid response prevented large-scale disease outbreaks
- Planning for disease surveillance requires engagement with multiple stakeholders and capacity-building
- Establishing disease surveillance during mass gathering events useful for tracking and priority-setting
  - Based on Kumbh 2019 legacy, the disease surveillance template will be replicated in future religious mass gathering events (Kumbh 2021 and Amarnath 2023)

Acknowledgements

- Government of Uttar Pradesh
- Directorate General of Health Services, Ministry of Health, Govt of India
- National Centre for Disease Control, Ministry of Health and Family Welfare, Govt of India
- Integrated Disease Surveillance Programme, Govt of India
- National Disaster Management Authority, Govt of India
- Multilateral international agencies

Thank you

Picture Credit- Dashawatar Bade

Disease Surveillance responsive to risks of
H1N1 and took measures for:
    IEC for seeking early treatment
    Patient categorization
    Strengthening hospital infection
    control
    Logistics (masks, antivirals)
    Identifying testing facilities