The 20th General Meeting of the CCIDA Project

City's Efforts Toward Infectious Disease Crisis Management Session

Urban Measles Outbreak Response in Bangkok:

Lessons from Vaccine Hesitancy and Targeted Immunization Strategies in a High-Mobility Urban Setting

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Measles Outbreak: Vaccine Hesitancy Cluster (1)

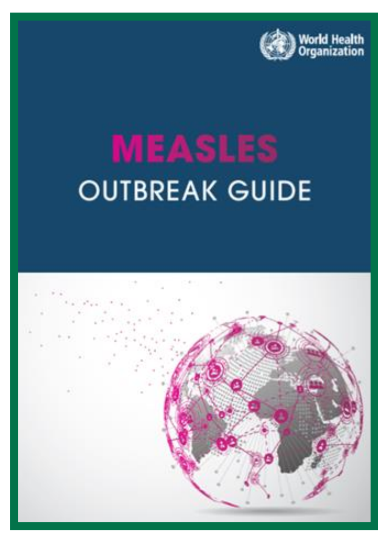
- Bangkok is a high-mobility with 5.6–6 million registered population
- Includes 2.8 million migrants (hidden population)
- International travel hub

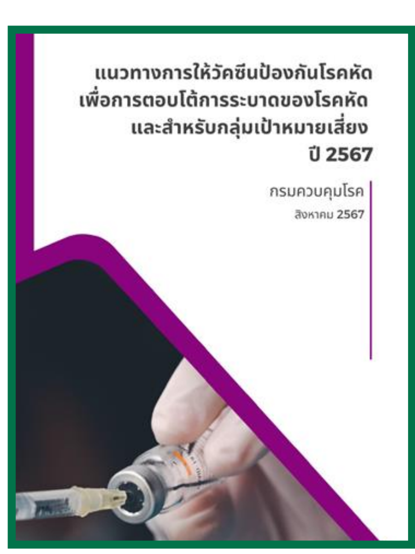
Thailand has established protocols for rapid investigation and control of vaccine-preventable disease (VPD) outbreaks at all administrative levels. **BMA** implements rapid response measures in accordance with **national standards and WHO SEARO surveillance performance indicators**.

- VPD control **key challenges** in Bangkok:
  - Population mobility
  - Hidden populations
  - Fragmented vaccination records

Measles Outbreak: Vaccine Hesitancy Cluster (2)

- Situation & Key characteristics:
  - Local measles outbreak cluster with low vaccine coverage among cases
  - Occurred in a vaccine-hesitant community
  - Social network transmission
  - Rapid household spread
- BMA Rapid Response & Actions taken:
  - Immediate outbreak investigation
  - Contact tracing and case isolation
  - Risk communication with community leaders
  - Immediate vaccination campaign: National Supplementary Immunization Activities (SIAs) Standard Protocol





Measles Cluster and Outbreak Response: Childcare Unit and Community, Eastern Bangkok, Dec 2024 – Jan 2025 (n=31)

Confirmed measles outbreak and conducted epidemiologic investigation

- Total cases: 31 (3 confirmed, 27 suspected)
- Median age of cases: 4 years
- 58% of cases <5 years; 68% unvaccinated/unknown vaccination history
- Attack rate in the childcare unit: 6.6% (12/181)
- Close contacts identified: 271
- Vaccine coverage:
  - The Childcare Unit 87.8%
  - Schools in high-risk sub-districts 91%

Epidemiologic analysis and local-level risk assessment conducted

- Estimated incidence of severe complications = 2:1000 (Vulnerable groups: young children (<5 years), pregnant women, immunocompromised individuals)
- Key barriers to interrupting transmission: vaccine hesitancy, limited home isolation of unvaccinated contacts.
- Response goal for reducing outbreak extent and duration: >95% coverage (9 months–40 years population)

Non-selective mass vaccination campaign

- Conducted Supplementary Immunization Activities (SIAs) with bundled planning: vaccines, logistics, staffing, communication.
- Coordinated multilevel healthcare providers and local authorities

Reinforced routine immunization & Enhanced surveillance

Environmental measures & disinfection intensified

Public communication & cross-district alerts activated

Provided an additional vaccine dose to healthcare providers in the target area, regardless of prior immunization history

Map of red-spot areas:

Measles outbreak in Eastern Bangkok,

January 2025

- Soi R.
- Data as of **28 January 2025**

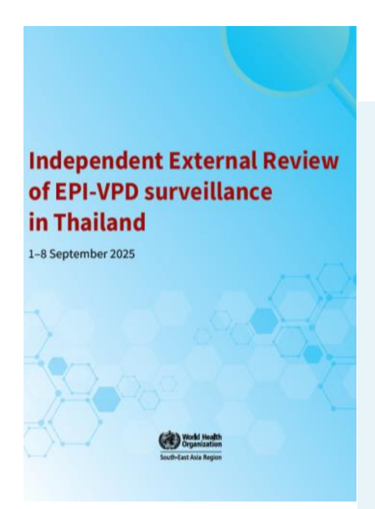
- Child Development Center, R. School, Soi R
- Data as of **28 January 2025**

First targeted SIAs in Bangkok → Rapidly close immunity gaps in urban clusters → Rapid containment

Using Outbreak Data as Indirect Immunity Evidence

"Indirect evidence, such as data from recent measles outbreaks, suggests that immunity levels among most children in Bangkok are good."

(Communicable Diseases, 2026)



Bangkok's Future Pathway

1. Integrate BMA immunization data with the national reporting system.
2. Assess vaccination status among migrant and mobile populations. Implement targeted strategies for unreached groups.
3. Apply outbreak investigation findings to guide immunization strategies.
4. Engage major hospitals and clinicians in VPD reporting and surveillance

Local Immunity Gaps Exist

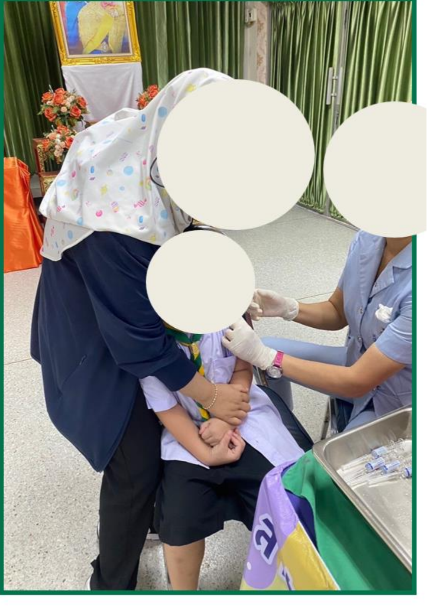
- vaccine-hesitant groups
- migrant populations
- communities with incomplete/fragmented records

Comparative Incidence of Measles per 100,000 Population (Selected Age Groups)

Age group (Year)	Thailand 2019 (Jan–Dec)	Thailand 2020 (Jan–Jul)	The 4 provinces (low-coverage areas) 2020 (Jan–Jul)	The cluster's district, Bangkok 2025 (Jan)
<1	128.6	12.46	83.85	0
1–4	32.47	1.98	20.65	421.1
5–9	11.58	0	3.23	146.3
10–14	0	0	2.94	35.6
15–19	0	0.99	0	0
20–29	12.43	2.17	0	0
30–39	0	1.64	0	0
15–59	0	0	0	0
≥60	0	0	0	0

- **In elimination-level settings,** measles cases cluster in infants under one year who are too young for vaccination, while adults 15–60 years remain largely immune from past infection or early campaigns, with cases limited to travelers or unvaccinated pockets.
- In low-coverage areas, however, high infant incidence reflects early exposure under intense transmission pressure rather than high community coverage, and susceptible teenagers/young adults may also contribute due to historic vaccination gaps.

Conclusion



- Rapid outbreak investigation & SIAs in high-risk areas
- Using outbreak data to understand immunity gaps
- Integration of surveillance and immunization data
- Special focus on mobile populations

"Bangkok's experience shows that even with high overall immunity, localized immunity gaps can still generate outbreak risk. Risk-based surveillance and targeted immunization are critical to detect vulnerabilities, close immunity gaps, and protect highly mobile urban populations."

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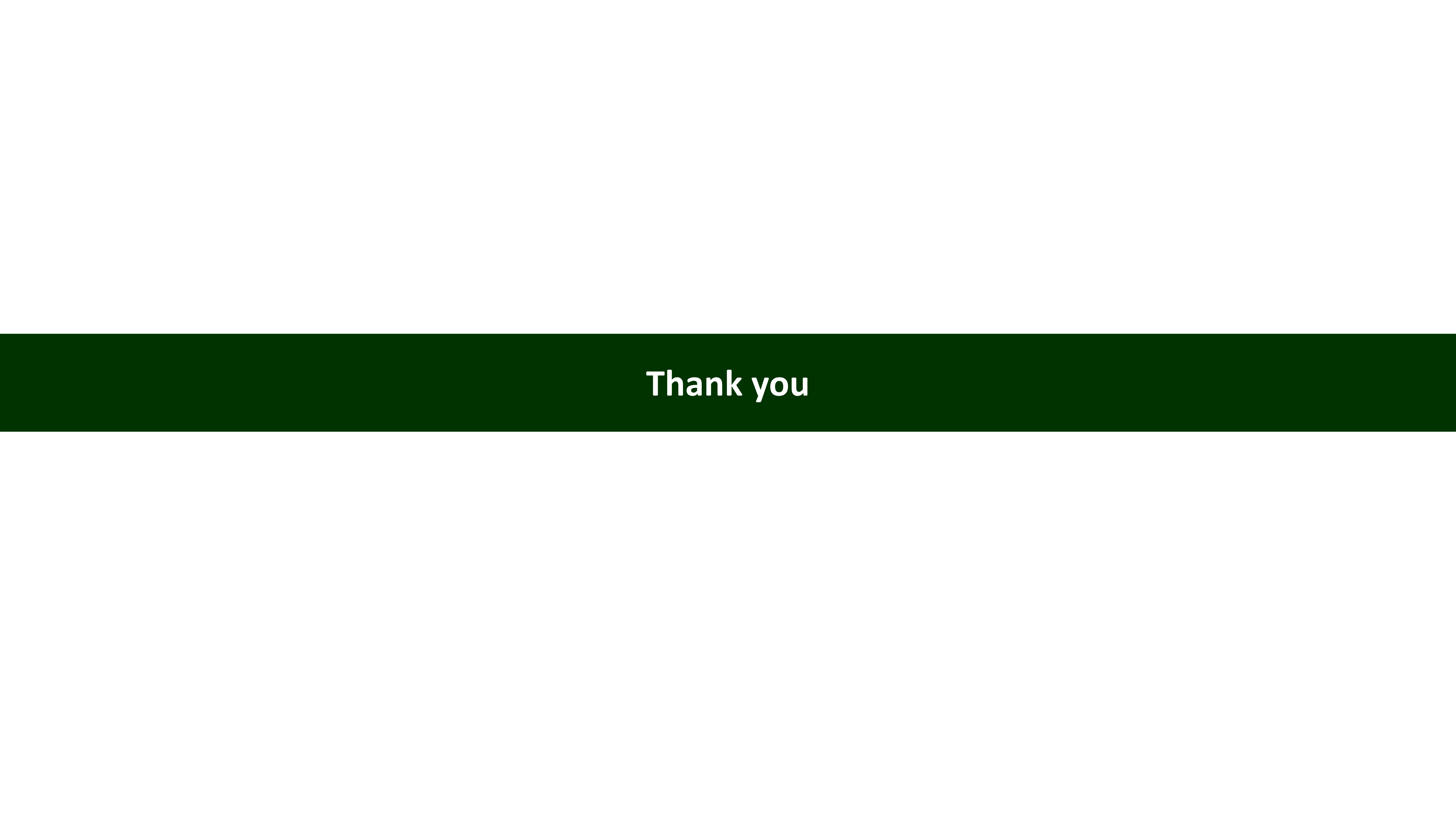
Thank you