

Module 9, Part 2:
**Non-pharmaceutical
Interventions to Contain a
Pandemic**

Learning Objectives

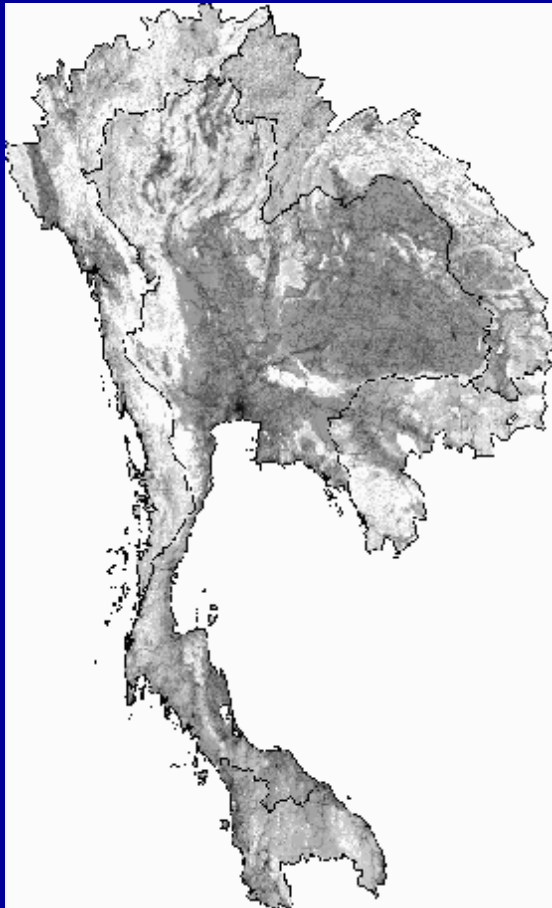
- Describe individual and community level non-pharmaceutical interventions
- Understand how and when to use non-pharmaceutical interventions
- Describe the factors involved in deciding to use non-pharmaceutical interventions

Session Outline

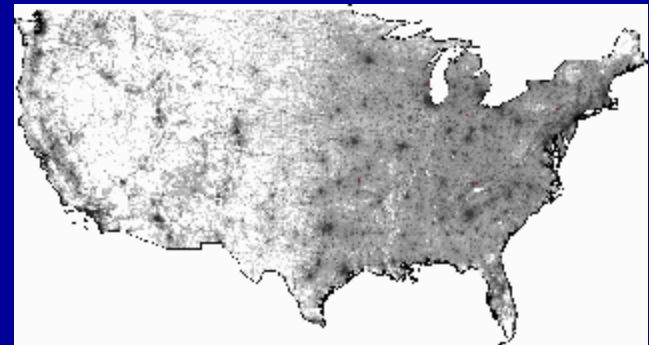
Non-pharmaceutical Interventions (NPI)

- Types of interventions
- Legal authorities and ethical framework
- Factors that affect when to use NPI
- Implementation of NPI
- Evaluation
- Scaling back

Complete Containment Unlikely



→ Without intervention, → expect international spread in 1 month and U.S. cases in 1 to 2 months.



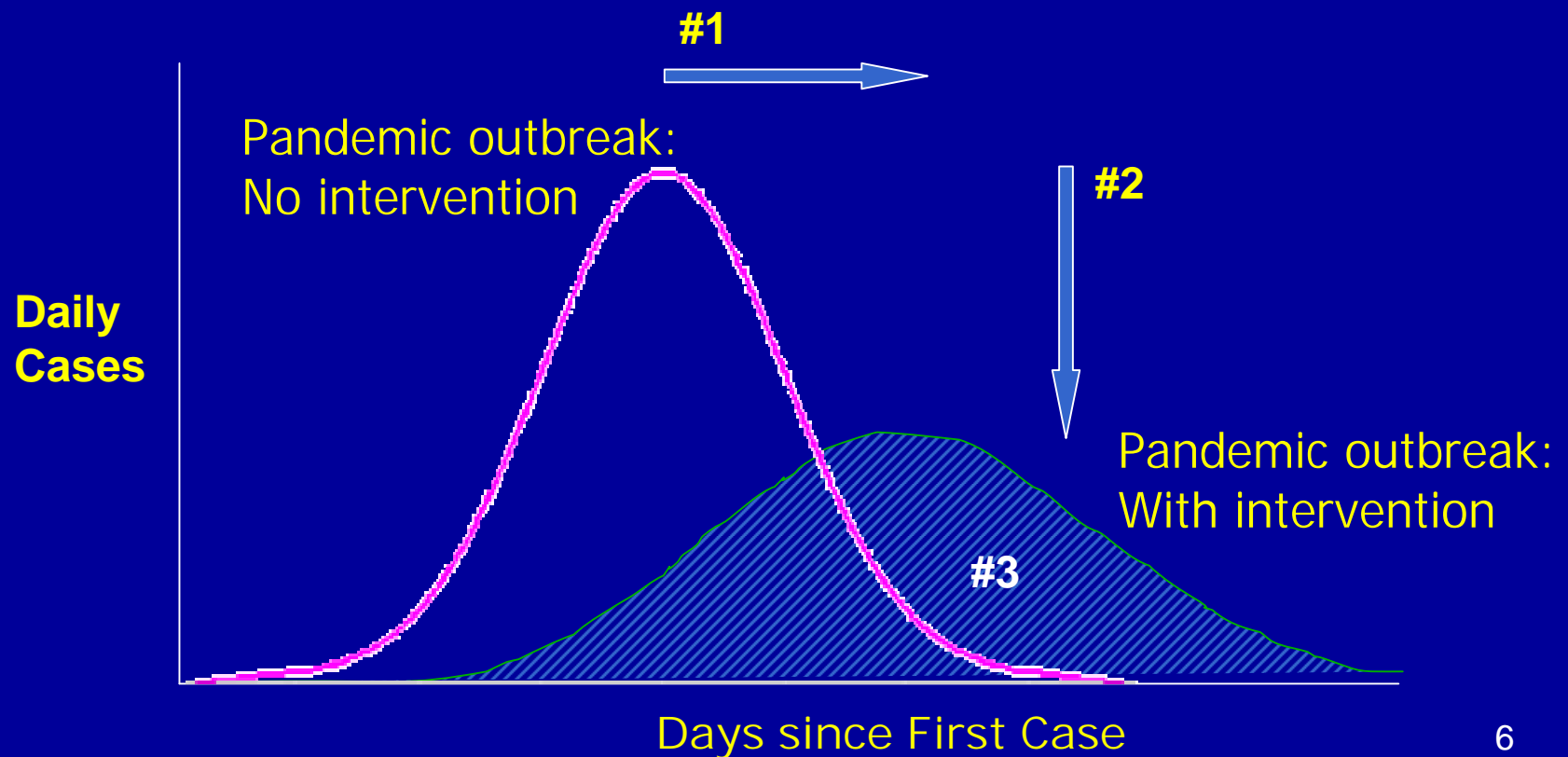
- Interventions may still delay international spread by 1 month

Potential Tools in our Toolbox

- **Our best countermeasure – vaccine – will probably be unavailable during first wave of pandemic**
- **Antiviral treatment may improve outcomes but will have only modest effects on transmission**
- **Antiviral prophylaxis may have more substantial effects on reducing transmission**
- **Non-pharmaceutical interventions may reduce and delay transmission, and may decrease health and human impact**

Non-pharmaceutical Interventions

1. Delay disease transmission and outbreak peak
2. Decompress peak burden on healthcare infrastructure
3. Diminish overall cases and health impacts



Considerations for Non-Pharmaceutical Interventions

- Limited evidence to evaluate NPI for influenza
 - § Observation and modeling
- Tailor NPI to each locality's situation
- NP interventions likely useful in delaying spread of disease, and should be used in coordination with other interventions

Overview of NPI

Individual level

- Isolation
- Quarantine
- Infection control

Community level

- Quarantine of groups/sites
- Measures to increase social distance
 - § School closures
 - § Business and market closure
 - § Cancellation of events
 - § Movement restrictions
- Infection control

Definitions

- Isolation
 - Separation and restricted movement of *ill* persons with contagious disease
 - Often in a hospital setting
 - Primarily individual level
- Either can be voluntary or mandatory

Isolation

- **Isolate severe and mild cases**
- **Location of isolation (home, hospital) depends on several factors**
- **Do not wait for lab confirmation**
- **Plan for large number of severe cases**
- **Provide medical and social care**

Definitions

- Quarantine
 - Separation and restricted movement of *well* persons presumed exposed
 - Often at home, but may be designated residential facility or hospital
 - Applied at the individual or community level
- Either can be voluntary or mandatory

Principles of Quarantine

- **Used when resources are available to implement and maintain**
 - **Provide essential services and care for those in quarantine**
- **Used in combination with other interventions**
 - **Surveillance, diagnosis, treatment, and preventive interventions**
- **Used only as long as necessary**
- **Does not have to be absolute to be effective**

Principles of Quarantine

- **Implementation requires clear understanding of roles and legal authority at all levels**
- **Implementation requires coordinated planning by many partners**
 - **Public health authorities, health-care providers, emergency response teams, law enforcement, and transportation authorities**
- **Implementation requires trust and participation of the general public**
 - **Effective risk communication**

Quarantine

- Identification of contacts
 - Interview and medical exam
 - Contact tracing and follow-up
 - Becomes difficult as case load and number infected birds and premises increases
 - Essential during rapid response phase

Quarantine

- Regular health monitoring is essential part of quarantine and rapid containment
 - Conduct frequent health checks for high risk groups (e.g. household contacts of suspected cases)
 - Self-health monitoring and reporting
 - Fever telephone hotlines and clinics

Infection Control

- Hand hygiene
- Cough etiquette
- Facemasks
- Cleaning and disinfection of surfaces

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Quarantine of Groups or Sites

- **Household or community quarantine**
 - Evidence or suspicion of human-to-human transmission
 - Monitor for illness and provide essential services and medical care
- **Cordon sanitaire**
 - Barrier that restricts travel in and out of an area
 - Helpful in closed settings (military barracks, dormitories)
 - May be impractical in some settings

Measures to Increase Social Distance

- **Social Distancing**
 - **School closure**
 - **Business and market closure**
 - **Cancellation of public gatherings**
 - **Movement restrictions**

Closure of Schools and Facilities

- **Schools**
 - **Should be implemented early**
 - **Especially useful if high morbidity among children**
- **Business and market closures**
 - **Access to and availability of necessities**
 - **Economic considerations**

Cancellation of Events

- **Population measures to increase social distance and reduce mixing**
 - **Discourage mass gatherings such as festivals and sporting events**
 - **Impact on economy**
 - **Cultural significance**

Movement Restrictions

- **Other population measures**
 - Restrictions on public transportation and gatherings
 - Voluntary or involuntary work holidays
- **Issues to consider**
 - Effectiveness
 - Implementation
 - Alternative infrastructure
- **Early, rapid response may be key to successful containment effort**

Legal Authorities and Ethical Framework

Legal Authorities

- **Health officials have legal authority**
 - Laws differ by country
 - Review existing laws prior to pandemic
- **Some questions to consider:**
 - Which agency has legal authority?
 - Under what conditions can authority be used?
 - How is quarantine/isolation enforced?
 - Consequences for violation?

Legal Authorities

- **Mandatory vs. voluntary restrictions**
- **Administrative communication & coordination**
 - Define who will make decisions about which NPI to use
 - Define who will be responsible for implementation and enforcement
 - Rapid response teams, MOH and WHO should communicate regularly and coordinate activities

Ethical Issues

- **Several ethical issues will arise**
 - Discuss prior to pandemic phase
- **Ethical issues include:**
 - Restriction of individual freedom
 - Lost wages
 - Compensation for mandatory isolation and quarantine

Triggers for Non-Pharmaceutical Interventions

Contextual Factors

- **Current pandemic phase**
- **Local public health and emergency infrastructure**
- **Community understanding**

Outbreak-Specific Factors

- **Geographic extent**
 - Area small enough that containment would be logistically possible
 - Supply of food, shelter, medical care etc to affected area
- **Pandemic potential**
 - Presence of clusters in defined area over short period of time

Recommendations for NPI

	Phase 3 (Current)	Phase 4 & 5 (Rapid response)	Phase 6 (Pandemic)
Isolation	Yes	Yes	Yes
Quarantine	No	Yes	Possibly
Identification of contacts	Yes	Yes	No
Health monitoring	Yes	Yes	No
Cordon sanitaire	No	Possibly	No
Facility closure, movement restrictions, cancellation of events	Possibly	Yes	Possibly

Implementation of NPI

Coordination

- **Governmental and non-governmental organizations (NGO) must work together**
 - **Help spread health messages**
 - **Get community buy-in for interventions**
 - **Assist directly with health monitoring, medical care etc.**
- **Pre-event planning is key to successful implementation**

Concurrent Measures

- **Combining measures reduces spread more than using only 1 measure**
- **Early implementation is essential**
- **NPI can delay spread of disease, allowing time for vaccine development and other response measures**

Logistics and Security

- **Work with local police/military**
- **Logistics requires significant planning**
- **Logistical and security issues**
 - **Isolation**
 - **Quarantine of individuals or groups**
 - **Measures to increase social distance**

Psychological and Social Impact

- Explain why measures are necessary
- Provide updates on when ban will be lifted
- Hotlines to answer questions

Health Monitoring and Medical Care

- **Self-health monitoring may reduce burden on hospitals and clinics**
 - Hotlines to answer questions about signs and symptoms
- **Effective medical care requires well trained staff**
 - Ensure health care providers are available

Scaling Back

- **What requirements are necessary prior to scaling back?**
 - **Number of new cases**
 - **Spread of disease to surrounding areas**

Summary

- **NPI likely useful in delaying and reducing disease transmission, and may decrease health and human impact**
- **NPI should be used in coordination with other interventions, and early implementation is crucial**
- **All measures should be implemented within context of local situation**

References

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Glossary

Isolation

The physical separation and confinement of an individual or groups of individuals who are infected or reasonably believed to be infected with a contagious disease. Isolated people may be cared for in their homes, hospitals, or other designated healthcare facilities

Quarantine

Physical separation and confinement of an individual or groups of individuals who are or may have been exposed to a contagious disease and who do not show signs or symptoms.

Social Distancing

Measures taken to reduce the opportunity for the spread of infection by decreasing contact and gatherings among people

Cordon Sanitaire

Derived from the French for quarantine line. Barrier designed to prevent disease from spreading by preventing ill and exposed persons from mixing with other parts of society