

Interim Mitigation Strategies: Use of Non-pharmaceutical Interventions (NPIs)

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Background

Introduction

- *Pandemic Influenza Plan* (May 2006)
- CDC issued a Federal Interim Pre-pandemic Planning Guide (February 2007)
- MDH created a supplement to the original pandemic influenza plan regarding non-pharmaceutical interventions

**NIGHT
EXTRA**

THE SEATTLE
DAILY TIMES
PUBLISHED DAILY
EXCEPT SUNDAYS
AND HOLIDAYS
5 CENTS PER COPY

The Seattle Daily Times

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CHURCHES, SCHOOLS, SHOWS CLOSED

EPIDEMIC PUTS BAN ON ALL PUBLIC ASSEMBLIES

DR. BOYDEN'S COMMENT

Dr. Boydén, Seattle's health officer, today issued a public statement regarding the epidemic of influenza which has been spreading rapidly in the city. He said that the disease is highly contagious and that it is necessary to take prompt action to prevent its further spread. He advised that all public assemblies, including churches, schools, and shows, should be closed for a period of time. He also recommended that all persons who are in contact with the sick should be isolated and that all persons should wear masks and avoid public places.

SEATTLE TO MAKE FIGHT ON DISEASE

Seattle and the state will today begin a battle against the epidemic of influenza which has been spreading rapidly in the city.

THREE MEN IN DANGER

Three men are in danger of losing their lives as a result of the epidemic of influenza which has been spreading rapidly in the city.



AMERICANS AND FRENCH SMASH FOE

American and French troops today smashed the foe in a battle which lasted for several hours.

U.S. TROOPS SMASH ENEMY IN ARBONE

U.S. troops today smashed the enemy in a battle which lasted for several hours in Arbone.

BUILD ONE-HALF OF
CITY'S BUDGET FOR
LOAN SUBSIDIES

BLAST CHATTERS
DROPS OF DUNKS
IN NEW JERSEY

NEW WAGE SCALE
IN SHIPYARDS TO
BUY FROM WOE. 1

1918 Interventions

- Limited access to crowded places
- Closings in Minneapolis and St. Paul
- Canceling sporting events
- Restricting elevator use
- Use of gauze masks



Lessons Learned

- Public must be educated about reasoning behind health measures.
- Approaches and plans should be based on scientific data whenever possible, and include input from ethicists.
- Experts in risk communication should assist in developing messages that are scientifically accurate, understandable, clear, and useful.

Lessons Learned, cont.

- Develop a plan that incorporates all levels of government health infrastructure and describes clear lines of responsibilities and roles.
- Plans for surge capacity and **community containment** must be discussed with stakeholders and consensus must be achieved.
- General approaches should be put forth for public comment and approval.

Projected Impact of Pandemic Influenza in MN

- 1,544,000 ill
- 772,000 outpatient medical care
- 15,000 to 172,000 hospitalized
- 2,250 to 25,700 ICU care
- 1,120 to 12,900 mechanical ventilation
- 3,600 to 32,900 influenza deaths
- Outbreak period – 6 to 8 weeks

Pandemic Impact on Society

- Disruption of workplace and schools
- Maintenance of essential services
- Distribution of scarce resources
- Ethical issues

Planning Strategies

- Vaccines
 - ◆ Pre-pandemic vaccines
 - ◆ Well-matched vaccine
- Antivirals
- Problems with vaccines and antivirals
 - ◆ Limited supply
 - ◆ Questionable effectiveness

NPIs

(non-pharmaceutical interventions)

NPI Categories

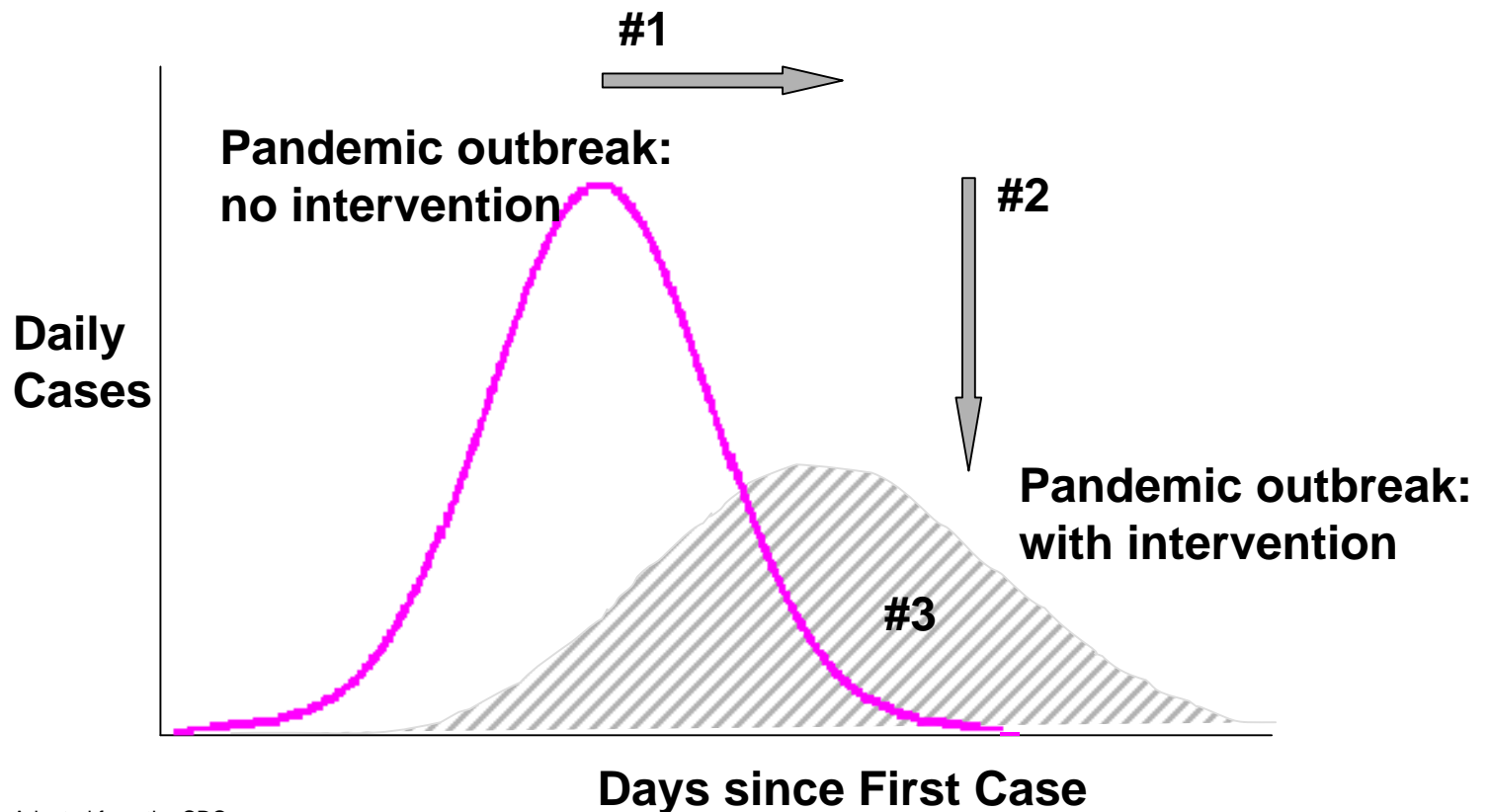
- **Isolation:** restriction of movement/separation of **ill** infected persons with a contagious disease
- **Quarantine:** restriction of movement/separation of **well** persons presumed **exposed** to a contagious disease
- **Social distancing:** reducing interactions between people to reduce the risk of disease transmission

Goals of NPIs

To significantly help delay the upswing of cases, lower the peak of the epidemic, and allow a better match between the number of ill people and the availability of healthcare resources.

Community-based Interventions

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



Adapted from the CDC

Timing of Interventions



A Layered Approach

Individual / Household

- Hand Hygiene
- Cough Etiquette
- Infection Control
- Isolation of Ill
- Living Space Control
- Designated Care Provider
- Face Masks

Community

- Isolation of Ill
- Treatment of Ill
- Quarantine of Exposed
- Prophylaxis of Exposed
- School Closure
- Protective Sequestration of Children
- Social Distancing
 - ◆ Community
 - ◆ Workplace
- Liberal Leave Policies

The NPIs

- **Isolation** of Ill People at Home
- **Quarantine** of Close Contacts and Household Members in Home with an Ill Person
- **Social Distancing** of Adults in Workplace and Community Settings
- **Social Distancing** of Children, Adolescents, and Post-Secondary Students

Pandemic Severity Index (PSI)

| Characteristics | Pandemic Severity Index (PSI) | | | | |
|--|---|-----------------|------------------|----------------------|---------------|
| | Category 1 | Category 2 | Category 3 | Category 4 | Category 5 |
| Case Fatality Ratio (percentage) | <0.1 | 0.1-<0.5 | 0.5-<1.0 | 1.0-<2.0 | ≥2.0 |
| Excess Death Rate (per 100,000) | <30 | 30-<150 | 150-<300 | 300-<600 | ≥600 |
| Illness Rate (percentage of the population) | 20-40 | 20-40 | 20-40 | 20-40 | 20-40 |
| Potential Number of Deaths (based on 2006 U.S. population) | <90,000 | 90,000-<450,000 | 450,000-<900,000 | 900,000-<1.8 million | ≥1.8 million |
| 20 th Century U.S.Experience | Seasonal Influenza (illness rate 5-20%) | 1957,1968 | None | None | 1918 Pandemic |

Response Actions

| Pandemic Severity Index | WHO Phase 6, U.S. Government stage 3* | WHO Phase 6, U.S. Government Stage 4† and First human case in the United States | WHO Phase 6, U.S. Government Stage 5§ and First laboratory confirmed cluster in state or region¶ |
|-------------------------|---------------------------------------|---|--|
| 1 | Alert | Standby | Activate |
| 2 and 3 | Alert | Standby | Activate |
| 4 and 5 | Standby** | Standby/Activate†† | Activate |

Triggers

- The primary activation trigger is the arrival and transmission of pandemic virus in MN, or in areas linked to MN by geospatial clustering.
 - ◆ Defined by a laboratory-confirmed cluster of cases infected by a novel virus with evidence of community transmission (epidemiologically linked cases from more than one household).
- Implementing interventions **prior** to a pandemic may cause (without benefit to public health):
 - ◆ compliance fatigue
 - ◆ economic hardship
 - ◆ social hardship

Triggers, cont.

- Implementation **after** the spread of a pandemic may limit public health benefits.
- Non-pharmaceutical interventions that have been in place will need to be reevaluated on an ongoing basis to determine whether the interventions should be continued, modified or ceased.

Isolation

- Restriction of movement of symptomatic persons
- Used throughout U.S. health care system
 - ◆ hospitals
 - ◆ nursing homes
 - ◆ homes

Isolation: MDH Response

- MDH recommends for: those who meet the case definition and those who are symptomatic
- During the period prior to community-wide transmission, the MDH will monitor the health status of people in isolation

Isolation: MDH Response, cont.

- Once there is evidence of community-wide transmission, individual cases will no longer be monitored but still asked to isolate themselves
- Individuals should be isolated until no longer infectious (typically 7-10 days after symptom onset)

Quarantine

- Restriction of movement of healthy individuals exposed to disease
- May be more difficult to implement than isolation

Quarantine: MDH Response

- MDH recommends for: those who have been exposed to a disease but are not ill
- During the period prior to community-wide transmission, the MDH will recommend monitoring the health status of people in quarantine

Quarantine: MDH Response, cont.

- Once there is evidence of community-wide transmission in Minnesota, individual cases will no longer be monitored but still asked to self-quarantine themselves at home
- Duration of quarantine will likely be one incubation period (approx. 7 days) unless another family member falls ill

Success of I/Q Requires:

- Prompt recognition of illness
- Infection control in the home setting
- Voluntary compliance promotion
- Employer commitment
- Financial, social, physical and mental support for patients/ caregivers
- Clear instructions for giving care at home
- Special planning for those who live alone

Social Distancing

- Measures to increase the space between people and decrease the frequency of contact among people
- Interventions to mitigate a pandemic aimed at work, community, and school settings

Social Distancing Measures: Adults and Community

- Adult workplace strategies:
 - ◆ Establishing policies for telecommuting
 - ◆ Staggered shifts
 - ◆ Avoiding face-to-face meetings
 - ◆ Stay home if sick
 - ◆ Infection control practices
- Community strategies:
 - ◆ Cancel public gatherings (concerts, etc)
 - ◆ Mass transit alterations
 - ◆ “Snow days”

Social Distancing Measures: Children and Schools

- School dismissal
 - ◆ Including post-secondary, after-school activities, and childcare
 - ◆ Coordinated, statewide approach
- Issues
 - ◆ Congregating out of school
 - ◆ Alternative educational options
 - ◆ Secondary consequences of closures

Social Distancing: MDH Response

- We will consider social distancing for PSI Category 2/3 Pandemics and recommend it for Categories 4/5
- The duration period for social distancing will be determined by the waves of the pandemic, rather than the MDH

Social Distancing: MDH Response

- Trigger: a laboratory-confirmed cluster of infection with a novel influenza virus and evidence of community transmission

Success of Adult Social Distancing Requires:

- Employer commitment
- Support from:
 - ◆ Political and business leaders
 - ◆ The public

Success of Social Distancing for Children and School Requires:

- Consistency among school districts
- Commitment from community and parents
- Alternative education options
- Clear legal authorities
- Support for parents and adolescents who need to stay home from work

How are NPIs relevant to me?

Factors Affecting Ability to Implement NPIs

- Maintenance of critical infrastructure
- Extent of social cohesion, organization and trust
- Financial support, compensation
 - ◆ Individuals, businesses, governments

Next Steps

- Feedback from CDC will guide revisions to the plan
- Create a process for local involvement to help define local roles and responsibilities

Additional avian and pandemic influenza information

- **MDH**

<http://www.mdhflu.com>

- **CDC**

<http://www.cdc.gov/flu/avian/index.htm>

- **HHS**

<http://www.pandemicflu.gov/>

<http://www.hhs.gov/pandemicflu/plan/>

- **WHO**

http://www.who.int/csr/disease/avian_influenza/en/index.html

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Questions?

