

Community Strategies that Delay or Reduce the Impact of a Pandemic: Non-pharmaceutical Interventions (NPIs)

An Orientation for County Commissioners and other Local Elected Officials

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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





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



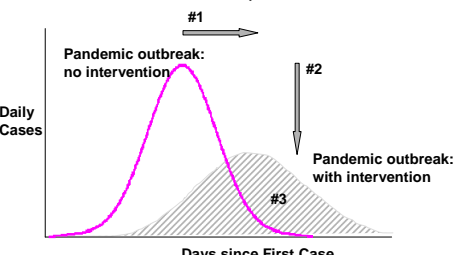
Goals of NPIs

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

Adapted from the CDC

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

Adapted from the CDC

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	90,000-250,000	450,000-900,000	900,000-1.8 million	≥1.8 million
20 th Century U.S. Experience	Seasonal Influenza (mean rate 5.2%)	1957, 1968	None	None	1918 Pandemic

Adapted from the CDC

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



Adapted from the CDC

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, cont.

- 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, 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, cont.

- 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, 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, cont.

- 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, cont.

- 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 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?