

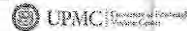
Genesis of paper - despite all the guidance in the released. ? of what should be done at community level.
 The summer is ^{infantry} participation of Sept pandemic
 ① HHS - BIRD planning does not contact a local
 ② Sept. → critical time # of state + local officials
 ③ Tension of recs. of questionable value

Disease Mitigation Measures in the Control of Pandemic Influenza

D.A. Henderson, MD, MPH

Ingleby TV, Nuzzo JB, O'Toole T, Henderson DA
 Biosecurity and Bioterrorism: Vol 4, No 4, 2006
 Upmc-biosecurity.org

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Public health realities

- History
 - Pandemic flu spreads very rapidly – locally, nationally and internationally
 - A variety of non-vaccine mitigation measures have been used to try to deter influenza spread. None have been shown with any certainty to be effective
 - Applications of deterrent measures involving large numbers have the potential to cause serious adverse secondary effects that are difficult to anticipate and impossible to model

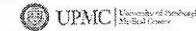
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Epidemiologic expectations

- Pandemic planning premises:
 - Proportion of population ill: 25 – 30%
 - Duration of outbreak: 8 weeks
 - Average duration of illness: 10 days
 - Case/fatality ratio: 2.5%
 - Maximum % ill on any given day ~10%
 - Outbreak "waves" occur at intervals no more often than once in 6 months

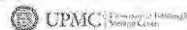
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Clarification of terms

- Isolation
 Confinement of symptomatic persons in the home or hospital
- Quarantine
 Separation from circulation of asymptomatic persons who may have been exposed to infection so that they will not infect others if they become ill
 May pertain to a household up to an entire city and extend for periods of days to weeks

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Evaluation of mitigation measures

- Epidemiologic assessment: Do available data or experience suggest measures that will work?
 - Historical data – limited and incomplete
 - Modeling predictions – potentially misleading
 - Epidemiological data re: influenza are very limited
 - Contagiousness of patients during illness
 - Transmissibility variation with humidity and temperature
 - Uncertainty re: aerosol vs. droplet spread
 - Role of fomites
 - Probable secondary and tertiary effects of interventions can be serious but cannot be modeled

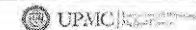
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Evaluation of mitigation measures

- Logistical assessment: Is the disease mitigation measure feasible?
 - Implications of duration of enforcement
 - Manpower needed for mandatory or voluntary measures
 - Economic impact

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my experience & research

Toronto

absorb

Evaluation of mitigation measures

- Social, Economic, and Political Assessment:
What are the possible unintended adverse societal consequences?
 - School closure
 - Increased absenteeism of work force
 - School feeding programs (30 million children)
 - Cessation of payments for school employees
 - Home quarantine
 - Increased work-force absenteeism

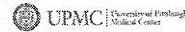
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Potential disease control measures *recommended*

- Vaccination
 - Most important measure to be taken
 - Vaccine will not be available until 6 months after disease begins human-to-human spread
 - No vaccine available until after first wave
- Isolation of sick in hospital or at home
 - The sick are presumably most contagious
 - Isolation throughout symptomatic phase
 - Mandatory isolation – not feasible and counter-productive

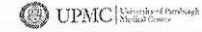
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Potential disease control measures *recommended*

- Use of anti-viral medications
 - Potential for epidemic “quenching” – low to nil
 - Supply is limited
 - Amount needed for prevention for epidemic period requires 5-7 times amount needed for treatment
 - Priorities for use and method for distribution -- ?
- Hand-washing and respiratory etiquette

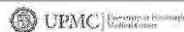
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Potential disease control measures *not recommended*

- Large-scale quarantine
 - “forced isolation and quarantine are ineffective and impractical” (WHO)
- Home quarantine
 - Secondary problems
 - Absentee rates in essential and commercial services
 - Provision of supplies to those in quarantine
 - Loss of wages for hourly workers
 - What to do for such as college students

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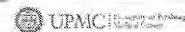


Potential disease control measures *not recommended*

- Travel restrictions

“screening and quarantining entering travelers at international borders did not substantially delay virus introductions in past pandemics...and will likely be even less effective in the modern era” (WHO)

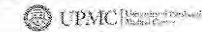
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Potential disease control measures *selective use*

- Prohibition of social gatherings
 - Widespread prohibition not advisable
 - Potentially, many possible sites --e.g. theaters, churches, restaurants, bars, athletic events, malls, stores.
 - Selective for large, crowded events
- School closure
 - 7 to 10 closure early in epidemic is common
 - Longer closure has serious secondary effects

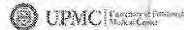
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Potential disease control measures *selective use*

- Masks and personal protective equipment
 - Hospital
 - Staff – N95 masks or PAPRs if possible
 - Patients – surgical masks
 - Community
 - Masks are not recommended

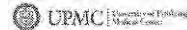
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Community response to a pandemic *an overriding principle*

Experience has shown that communities faced with serious adverse events respond best and with the least anxiety when the normal social functioning of the community is least disrupted.

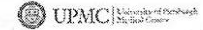
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Community response to a pandemic *summary*

- 1) Community-wide vaccination
- 2) Provision for medical care and isolation of patients
 - Regional Health Care Operations Committee
 - Community wide plan for caring for large numbers of patients
 - Stockpiling of masks, antibiotics, etc
 - Plan for added staff for medical care facilities
 - Control center to monitor beds, supplies, personnel

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Community response to a pandemic *summary*

- 3) Planned communications strategy
 - Frequent communication with public thro press and civic leaders
 - Requests for those who are ill to remain isolated
 - Encouragement of employees to come to work so as to assure continuity in essential services
- 4) Hand washing and respiratory hygiene

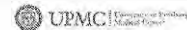
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Community response to a pandemic *summary*

- 5) Possible early closure of schools for 10-14 days
 - 6) Selective canceling or postponing of large meetings or events to be held in crowded halls
- Not recommended
- 1) Mandatory isolation of patients
 - 2) Quarantine of anyone – including families or groups
 - 3) Closure of air or rail hubs or transportation systems
 - 4) Screening of travelers at borders

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Think twice before taking actions driven primarily by the perceived need to demonstrate to the public that government authorities can take some definitive action to cope with the problem.

“primum non nocere”

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