

Point of view of that of a p.h. practitioner - 1957 60-66
 Practical realities
 Much published Armageddon, ~~apocalypse~~ of essential services, collapse of the economy.
 needs for school closure 3-8 months, quarantine of families, "shelter in place" for days to weeks

Community Mitigation a public health practitioner's view

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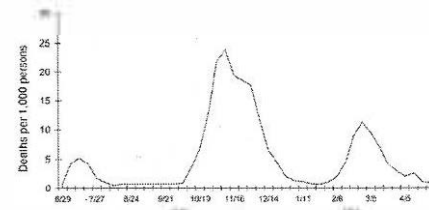
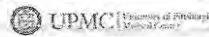


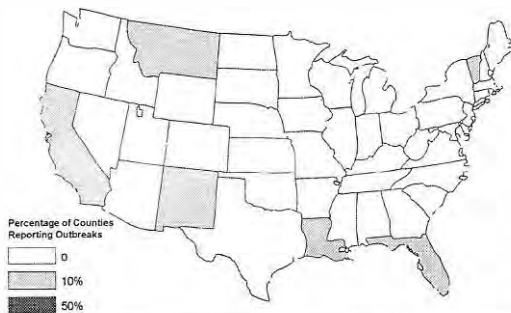
Figure 1. Three pandemic waves: weekly combined influenza and pneumonia mortality, United Kingdom, 1914-1919

Source: Tatemonger & Mounet (EID 2004)

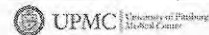
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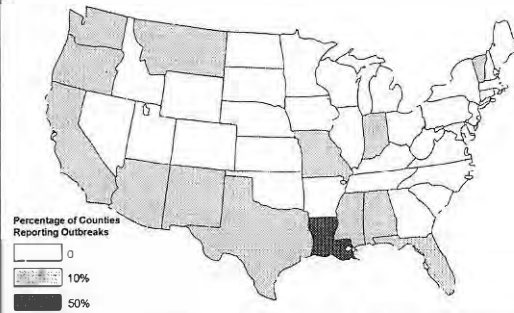
Influenza Outbreaks in 1957: August



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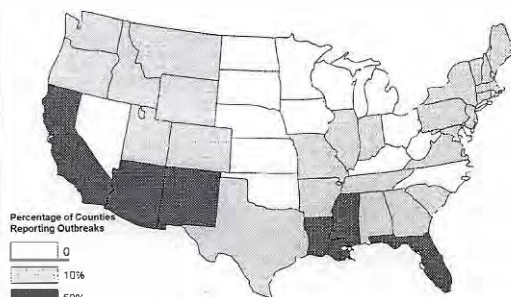
Influenza Outbreaks in 1957: September 14



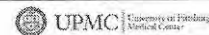
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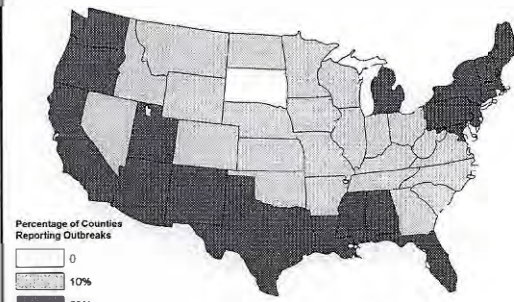
Influenza Outbreaks in 1957: September 28



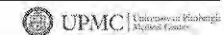
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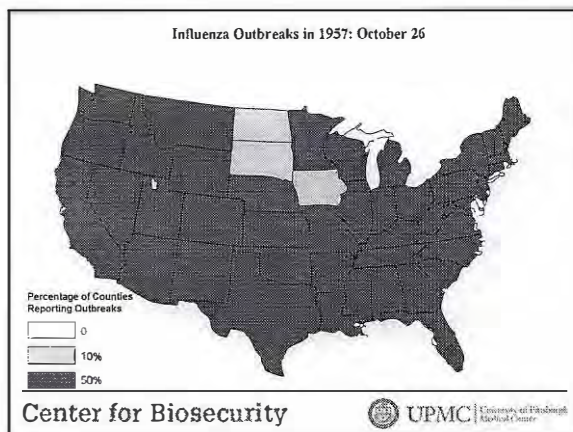
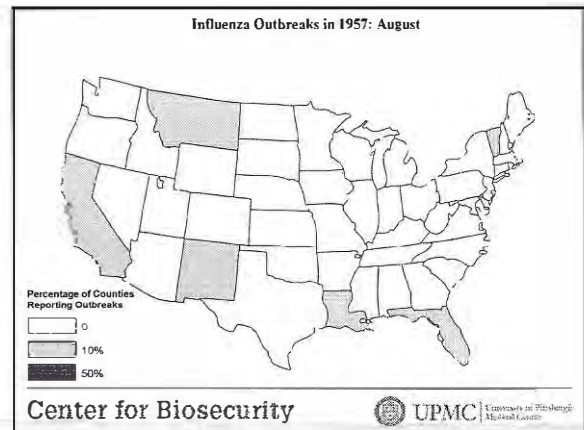
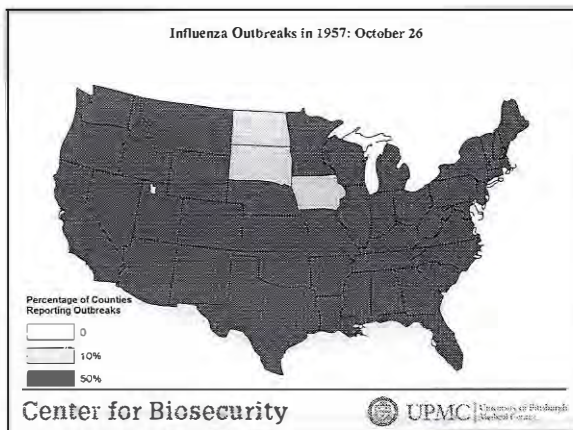


Influenza Outbreaks in 1957: October 12



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Outbreak assumptions

- 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%

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1918 Economic impact

- A major recession did not occur
- October retail sales declined but rebounded in November
- Economic impact was modest ~5%
- Sectoral failures did not occur
- The October draft was postponed by 3 months
- “A hit and run epidemic that produced only a brief slow down”

RHC

R. Hatchett, October 17, 2006

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Expected impact –medical care

Peak weeks (5 to 8) at 25% attack rate

Demand for:

Beds – 191% above present capacity

ICU beds – 461% above capacity

Ventilators – 198% above available supply

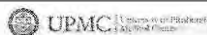
CDC FluSurge model –HHS planning assumptions

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Current status of U.S. hospitals

- 48% of Emergency Departments are at or over capacity
- 46% of time EDs are on diversion due to lack of beds and staff
- Nurse shortage of 100,000 (8% of work force)
- Few municipal areas now with a workable plan to deal with a pandemic

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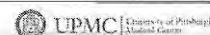
Decisions re: mitigation measures

- Historical data ✓
- Epidemiological observations
- Intuitive good sense
- Models

*1918 vs. 2006
what's NP?*

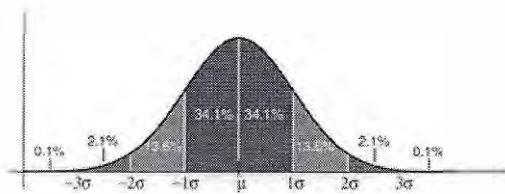
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Decisions -- Historical data

Pandemics Are Biological Events



We expect low mortality in some areas

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Decisions – Epidemiological effects

- Large-scale vaccination
- Use of antivirals – therapy or prevention
- Few observations re: manner of flu spread
 - Problems of diagnosis, rapidity of dissemination, early transmissibility
- Critical data for modeling - not available
 - Contagiousness of patients during illness
 - Variations in transmissibility with humidity and temperature
 - Uncertainty re: aerosol vs. droplet spread

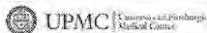
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Decisions – intuitive good sense

- Measures that may diminish transmission and are minimally disruptive
 - Isolation of patients at home or hospital
 - PPE for hospital staff
 - Cough etiquette
 - Hand hygiene
 - Face masks for patients

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Decisions – mathematical models

- A tool to help in trying to understand the epidemiological nature of disease spread
- The product can be no better than the data available to put into the model
- The major variables – public response
 - Compliance
 - Effects of high absenteeism crippling the provision of essential services
 - Severe lack of medical care facilities

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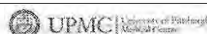


Secondary effects --absenteeism

- Customary level in February -- 8%*
- Due to illness at peak of epidemic -- 10%
- Staying home to care for the ill -- 5%
- Child minding if schools close
 - Households with children <18 -- 16%*
 - Households with children <15 -- 11%*
- Voluntary quarantine of households ?

* Data courtesy of Dr. C. Mecher

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School closure considerations I

- Need to be in effect for time virus is circulating in community or ?nation
- Realities in sequestration of students
- Which schools -- public and private?

K – 12	54.4 million
College	16.7
Nursery	4.9
Church schools	?

makes food for food

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School closure considerations II

- What of school lunch programs
 - National school lunch program 29.6 million
- Schools have large numbers of hourly workers dependent on monthly paycheck
- With time, non-compliance will grow
 - Should malls, fast-food stores, churches and recreation centers be closed as well?

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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 there is competent, confident civic leadership and 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

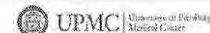
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Community response to a pandemic *summary*

- 3) Plan for use and distribution of antivirals
- 4) Planned communications strategy
 - Frequent communication with public thro press and civic leaders
 - Requests for those who are ill to remain isolated
 - Encourage employees to come to work
- 5) Hand washing and respiratory hygiene

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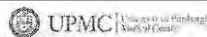
Community response to a pandemic *summary*

- 6) Possible early closure of schools for 10-14 days
- 7) 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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Reference:

Disease mitigation in the control of
pandemic influenza

Inglesby TV, Nuzzo JB, O'Toole T, Henderson DA

Biosecurity and Bioterrorism 2006;4(4)

www.upmc-biosecurity.org

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