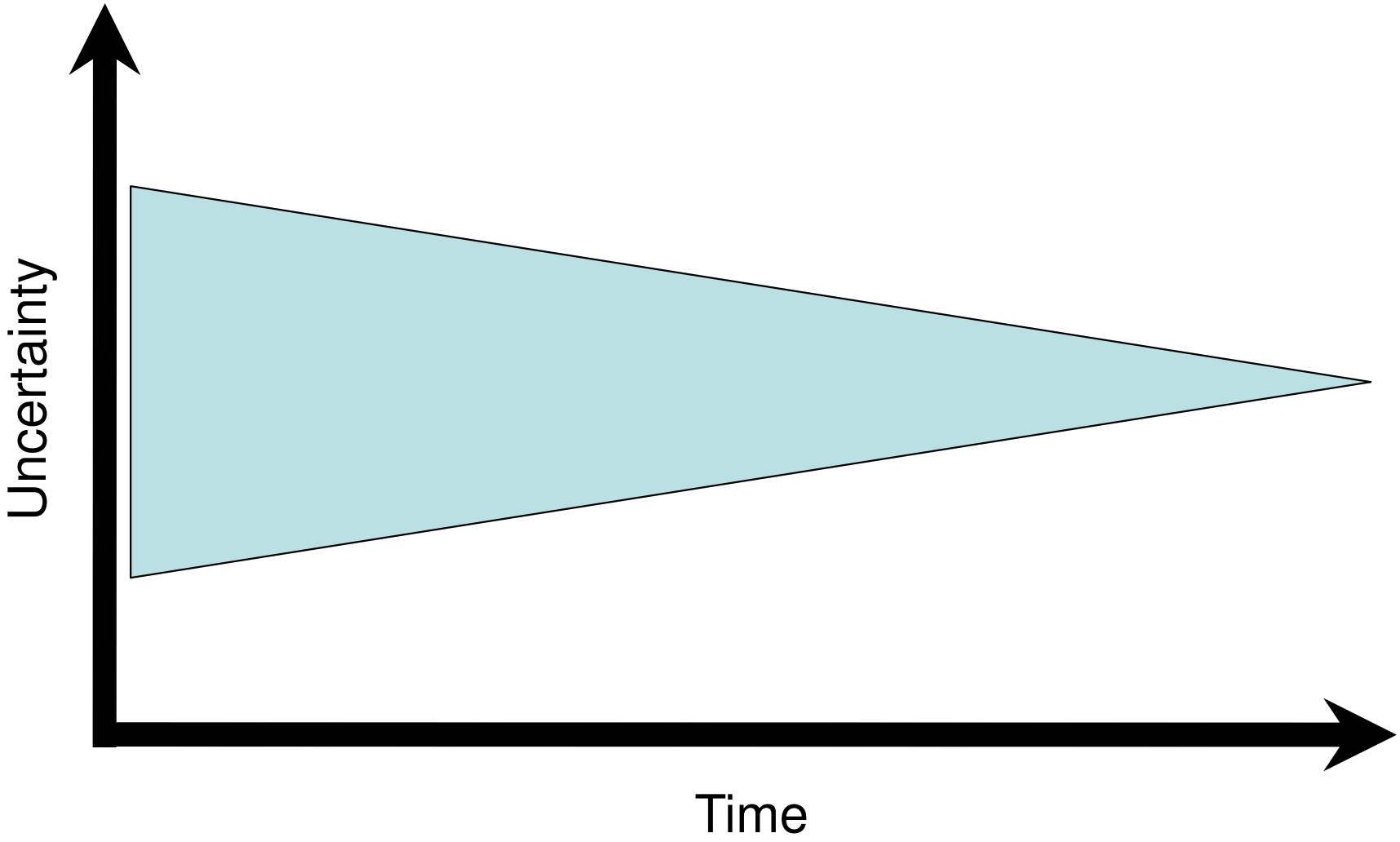
H1N1 Controversies

Michael Gardam
Director, Infectious Diseases
OAHPP

ONTARIO'S PUBLIC HEALTH AGENCY

Ontario
Agency for Health
Protection and Promotion


Uncertainty
Time

What did we plan for?

- Planning assumptions based on a 1957 (moderate) pandemic
  - Most affected groups (similar to seasonal flu)
  - Attack rate, hospitalization and mortality rates
  - Does not take into account possible effectiveness of public health, social distancing measures
  - Does not take into account antibiotic use, intensive care units…modern medical care
  - Assumes all hospital beds are staffed

Table 3.2: Number of People Affected as a Percentage of the Population (based on a 35% attack rate)

	No. of People	% of People who are Clinically Ill (#2 in Table 3.1)	% of Total Population (#1 in Table 3.1)
People who can be managed through self care	**2,043,345**	45.2%	15.8%
People who will require an outpatient visit	**2,411,308**	53.3%	18.7%
People who will be hospitalized and recover	**54,572**	1.2%	0.4%
Fatal cases (70% in hospital)	**12,635**	0.3%	0.1%
Hospitalizations (recoveries + 70% of fatal cases)	**63,417**	1.4%	0.5%

OHPIP 2008

Canadian Assumptions

- Assumed 165 thousand hospitalizations
  - We have seen 0.6% so far
- Assumed 33 thousand deaths
  - We have seen 0.2% so far
- Assumed 1 in 5 of hospitalized would die
  - We have seen 1 in 21 of hospitalized die

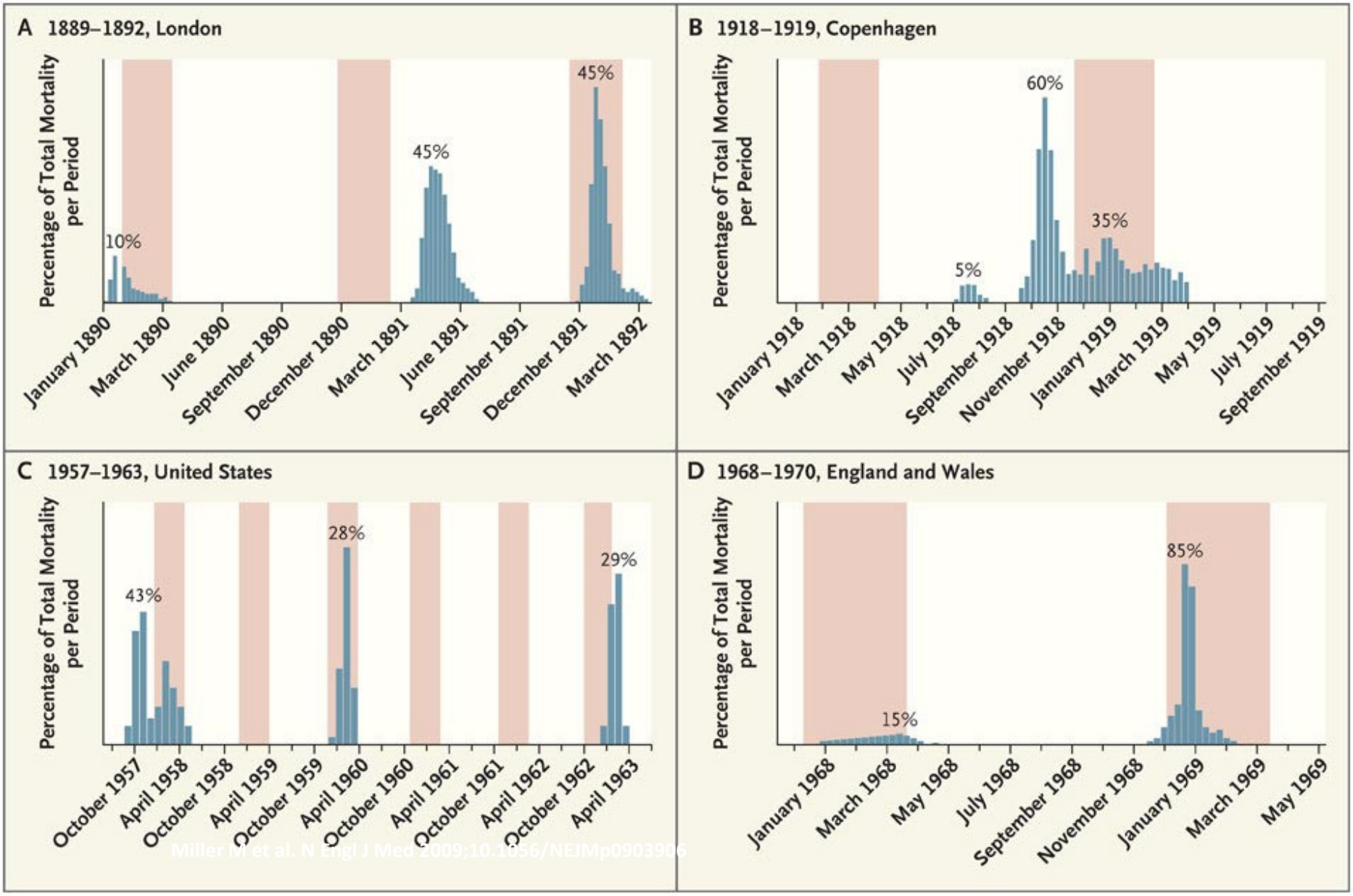
Understanding Influenza Backward

David M. Morens, MD
Jeffery K. Taubenberger, MD, PhD

largely seasonal postpandemic influenza mortality peaks recognized in many large cities between 1890 and 1894.[7] What happened in 1918 was quite different. A recent tendency to refer to any influenza-like illness in the first 8 months of

- 1918: Different countries had different sized waves at different times
- 1957, 68: herald wave followed by mostly seasonal recurrence
- Changes in transmissibility and virulence are not inevitable

JAMA, August 12, 2009



The NEW ENGLAND JOURNAL of MEDICINE

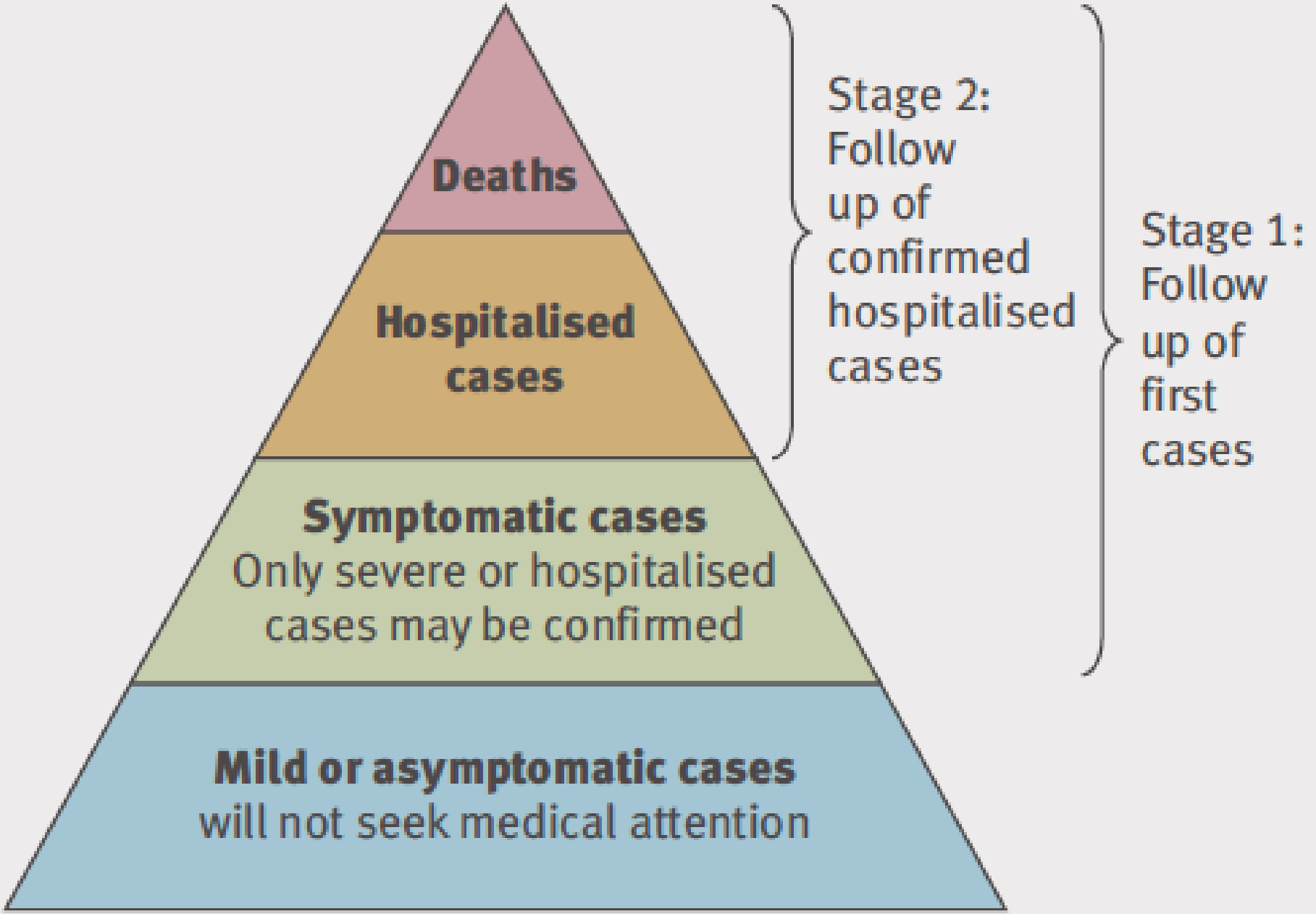
Just how bad is this pandemic anyway?

RESEARCH METHODS & REPORTING

Assessing the severity of the novel influenza A/H1N1 pandemic

Tini Garske, Judith Legrand, Christl A Donnelly, Helen Ward, Simon Cauchemez, Christophe Fraser, Neil M Ferguson, Azra C Ghani

BMJ | 25 JULY 2009 | VOLUME 339


Deaths
Hospitalised cases
Symptomatic cases
Only severe or hospitalised cases may be confirmed
Mild or asymptomatic cases
will not seek medical attention
Stage 2: Follow up of confirmed hospitalised cases
Stage 1: Follow up of first cases

Reporting rates (ratios)

- Case fatality ratios will greatly overestimate severity
- Population fatality ratios will underestimate impact (until the pandemic is over)
- Low fatality ratios may still translate into a higher number of deaths because of high attack rates
  - Won't know until later…..
- Delay between onset, death and reporting

Vaccine

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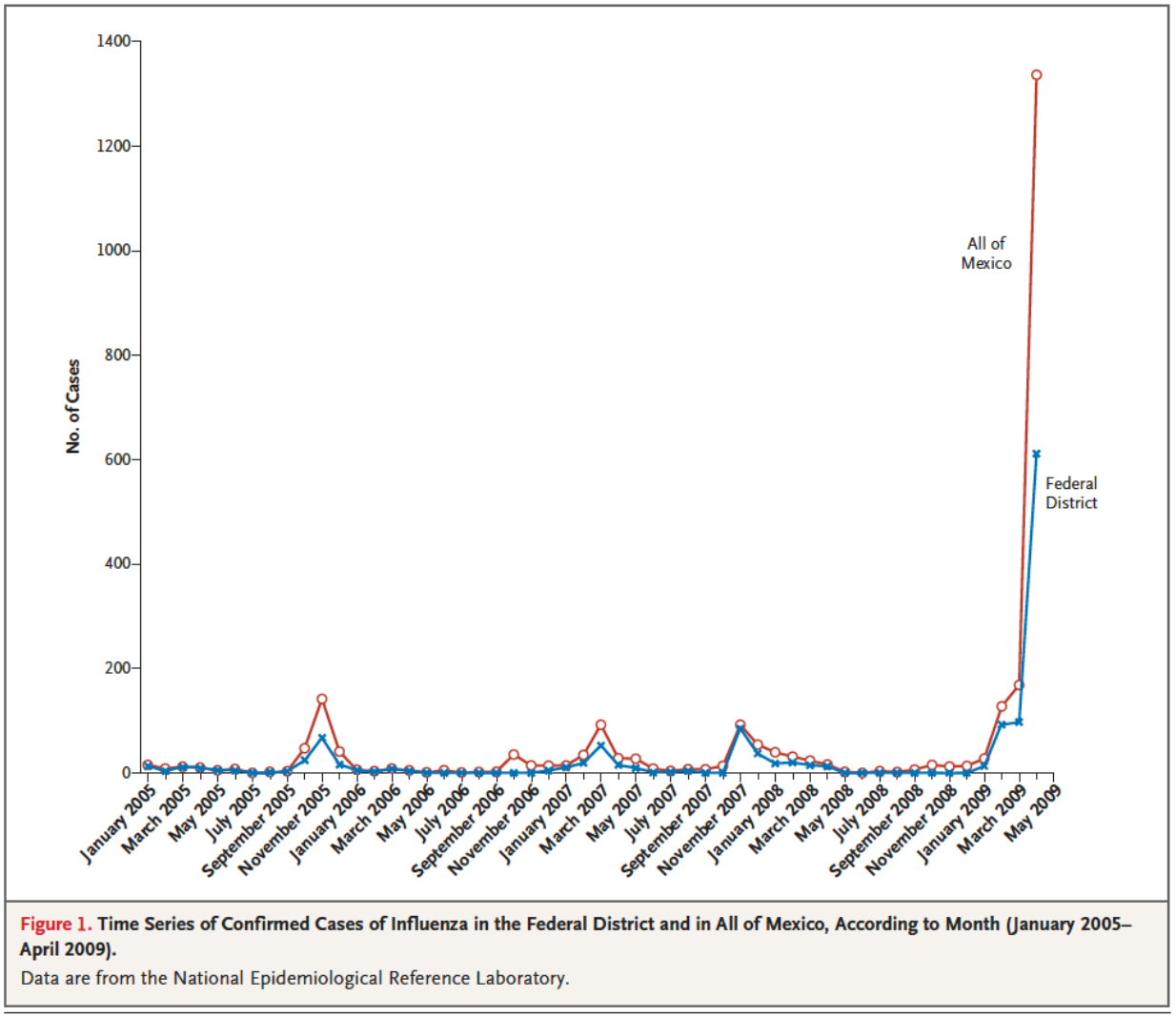


Figure 1. Time Series of Confirmed Cases of Influenza in the Federal District and in All of Mexico, According to Month (January 2005–April 2009).

Data are from the National Epidemiological Reference Laboratory.

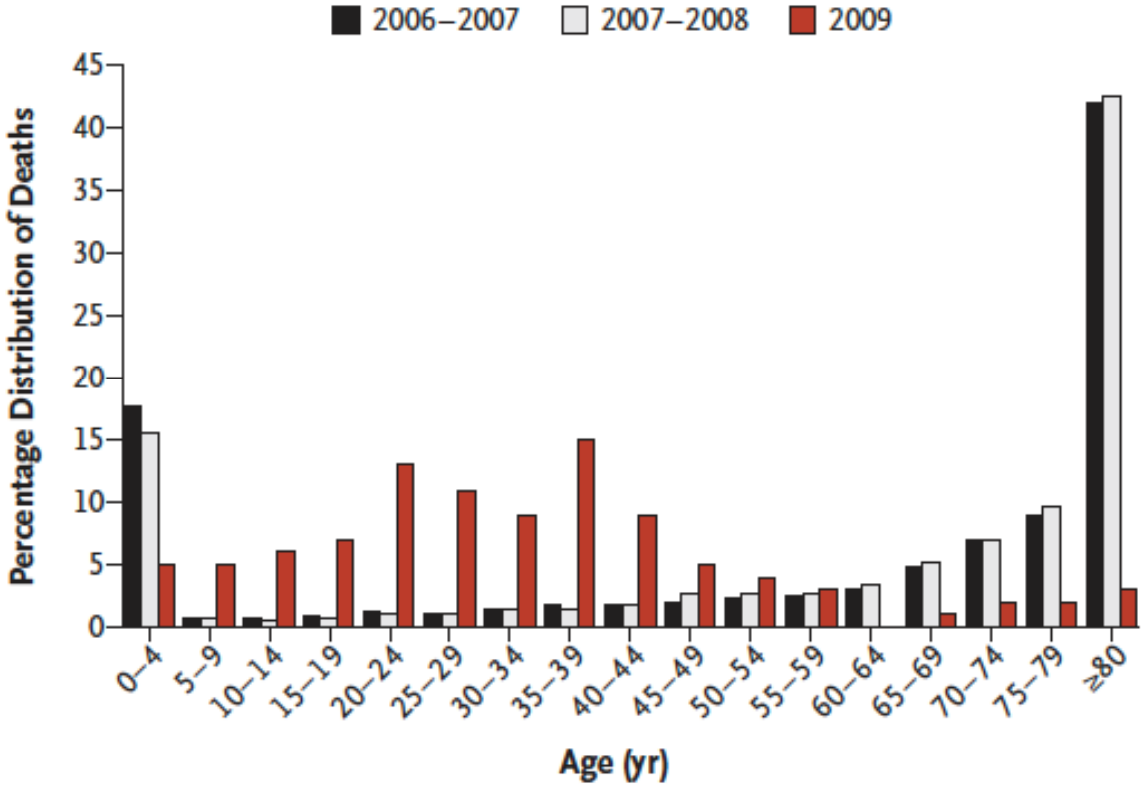
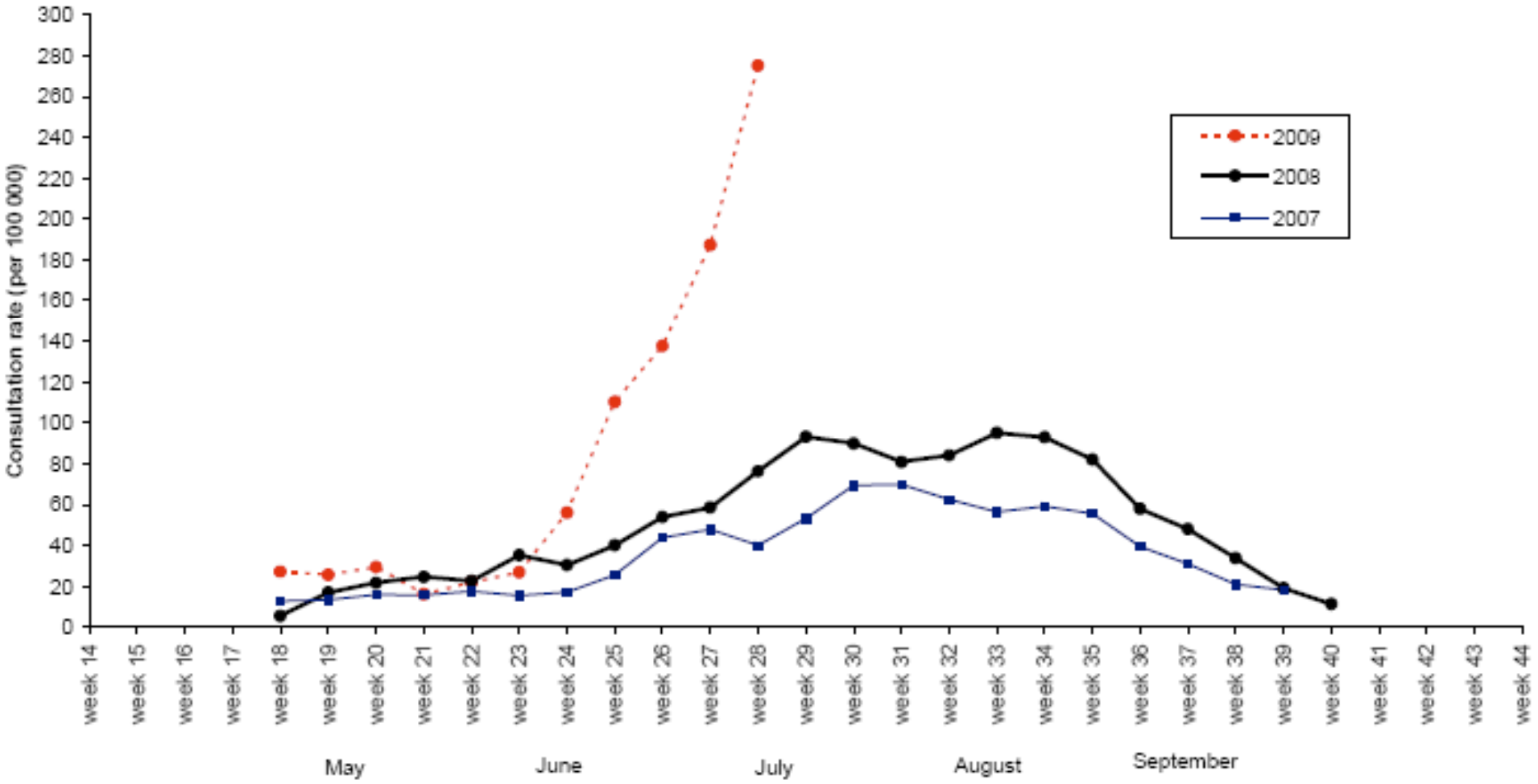


Figure 2. Percentage Distribution of Deaths from Severe Pneumonia during the 2009 Study Period, as Compared with Influenza Seasons from 2006 through 2008, in Mexico, According to Age Group.

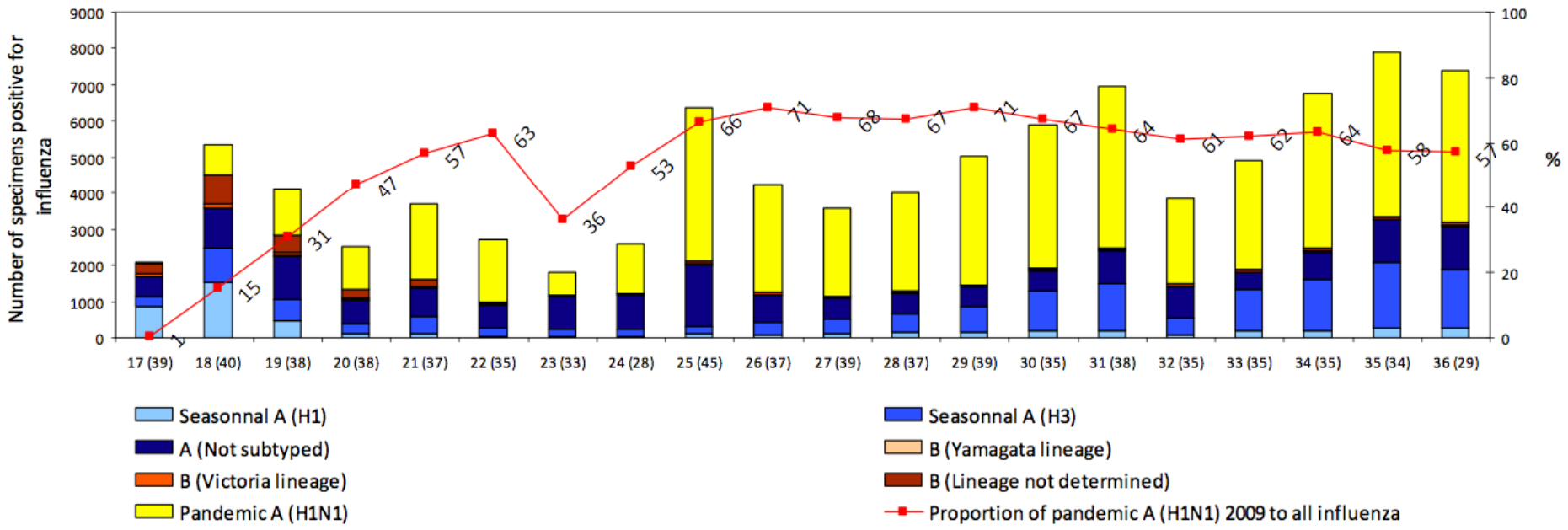
Chowell NEJM 2009


Consultation rate (per 100 000)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
2009
2008
2007
week 14
week 15
week 16
week 17
week 18
week 19
week 20
week 21
week 22
week 23
week 24
week 25
week 26
week 27
week 28
week 29
week 30
week 31
week 32
week 33
week 34
week 35
week 36
week 37
week 38
week 39
week 40
week 41
week 42
week 43
week 44
May
June
July
August
September

Vaccine issues

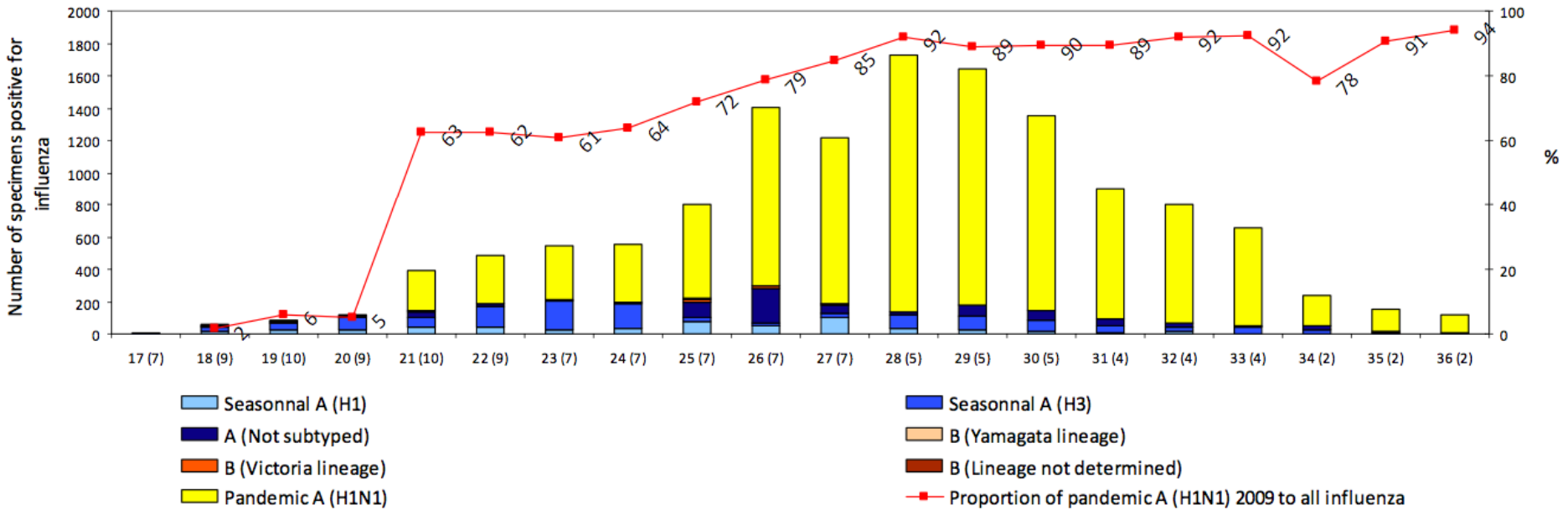
- Milder disease than planned for
- Affected age groups
- Timing of waves versus availability
- Logistics
  - Number of vaccinations
  - Seasonal vaccine
- Adjuvant concerns
- Thimerosol concerns
- Testing concerns
- Association with1976 swine flu
- Public, medical understanding
- Seasonal vs. pandemic

Number of specimens positive for influenza by subtypes (from 19 April to 5 September)



WHO FluNet

Number of specimens positive for influenza by subtypes (from 19 April to 5 September)



WHO FluNet

Pregnancy and H1N1

H1N1 2009 influenza virus infection during pregnancy in the USA

*Denise J Jamieson, Margaret A Honein, Sonja A Rasmussen, Jennifer L Williams, David L Swerdlow, Matthew S Biggerstaff, Stephen Lindstrom, Janice K Louie, Cara M Christ, Susan R Bohm, Vincent P Fonseca, Kathleen A Ritger, Daniel J Kuhles, Paula Eggers, Hollianne Bruce, Heidi A Davidson, Emily Lutterloh, Meghan L Harris, Colleen Burke, Noelle Cocoros, Lyn Finelli, Kitty F MacFarlane, Bo Shu, Sonja J Olsen, and the Novel Influenza A (H1N1) Pregnancy Working Group**

Summary

Background **Pandemic H1N1 2009 influenza virus has been identified as the cause of a widespread outbreak of febrile respiratory infection in the USA and worldwide. We summarised cases of infection with pandemic H1N1 virus in pregnant women identified in the USA during the first month of the present outbreak, and deaths associated with this virus during the first 2 months of the outbreak.**

Published Online
July 29, 2009
DOI:10.1016/S0140-6736(09)61304-0

*Members listed at end of paper

- Admission rate for pregnant women 4 fold higher than for general population
  - 3.2 per million pregnant women (1.3-5.2) versus 0.76 per million population (0.7-0.9)
- 6 deaths reported
  - Range in time to antivirals: 6-15 days

Pregnancy issues

- Does epidemiology justify an aggressive approach?
- Concerns about vaccine safety
- Concerns about antiviral safety
- Uptake of seasonal vaccine
- Work safety
- Public health measures
- Public health direction versus education

Walk softly and carry a big stick

Theodore Roosevelt

Plan appropriately, Act responsibly