H1N1 101

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August 20, 2009

Where will H1N1 be taking us?

GOALS FOR ADDRESSING H1N1:

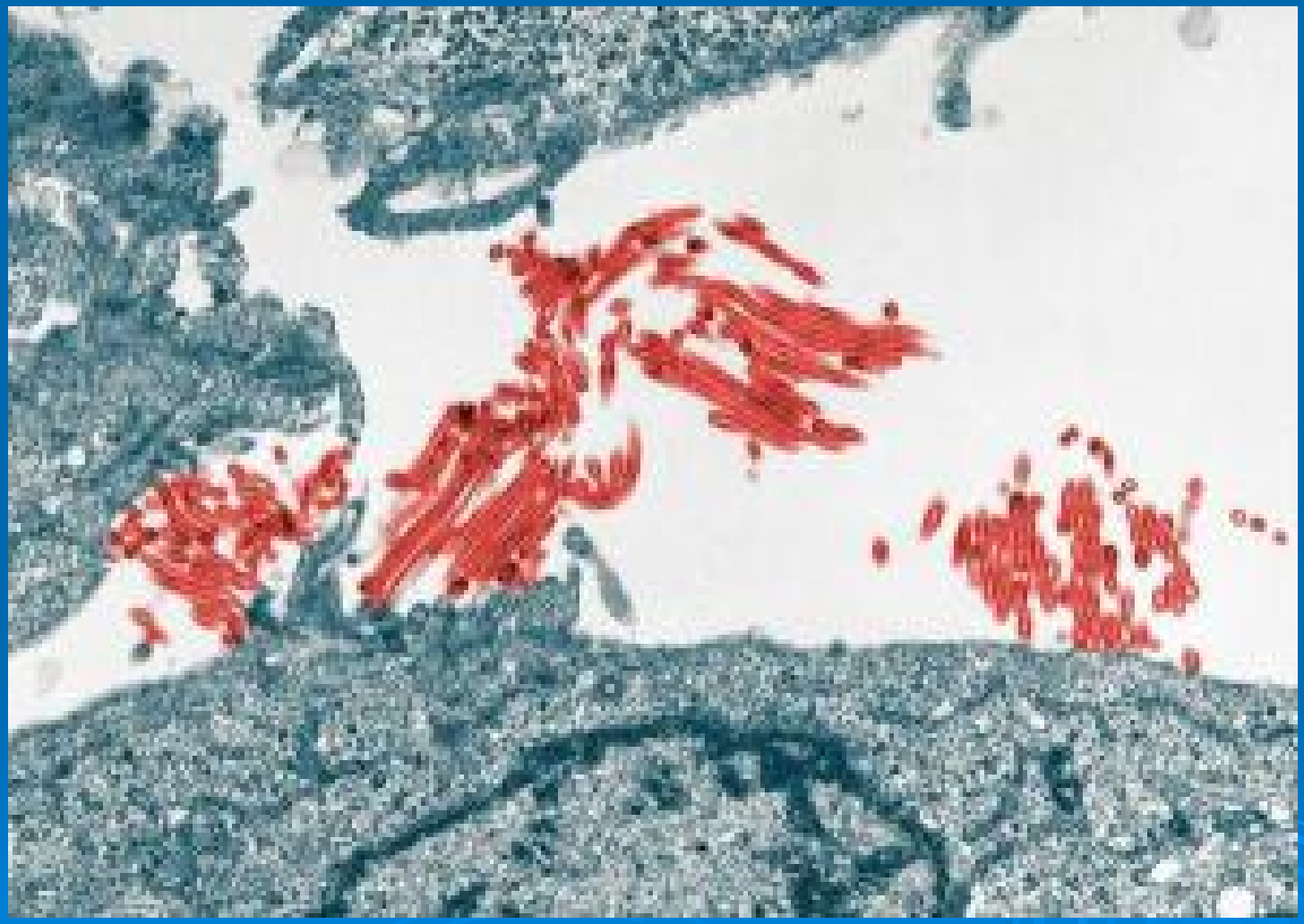
- To limit the burden of disease
- To minimize social disruption

H1N1 101

4 Major Pandemic Public Health Functions:

- Surveillance
- Mitigation
  - Prevention
  - Early Detection
  - Isolation
  - Treatment
- Vaccination
- Communication

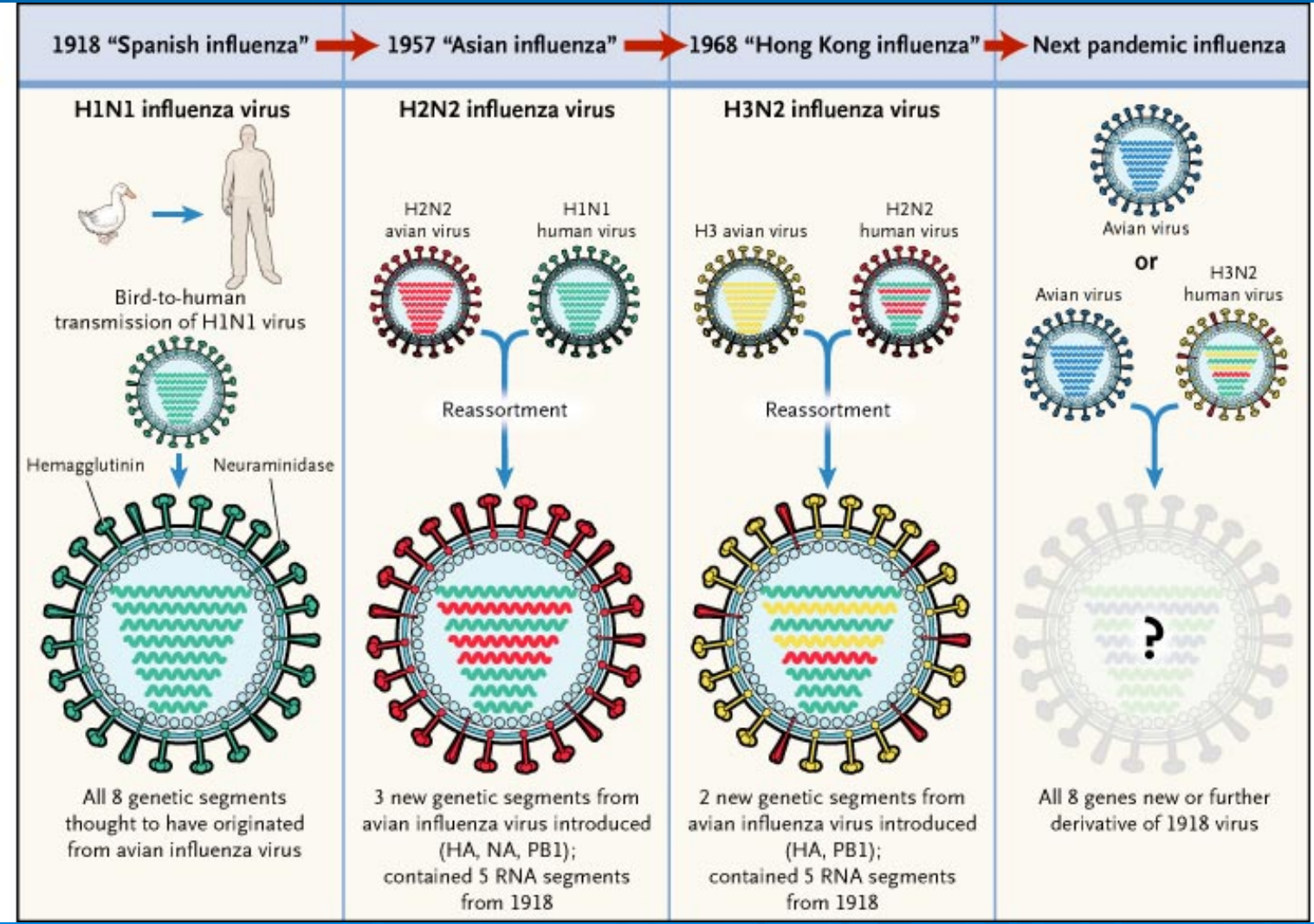
Shared Responsibility



H1N1 Virus

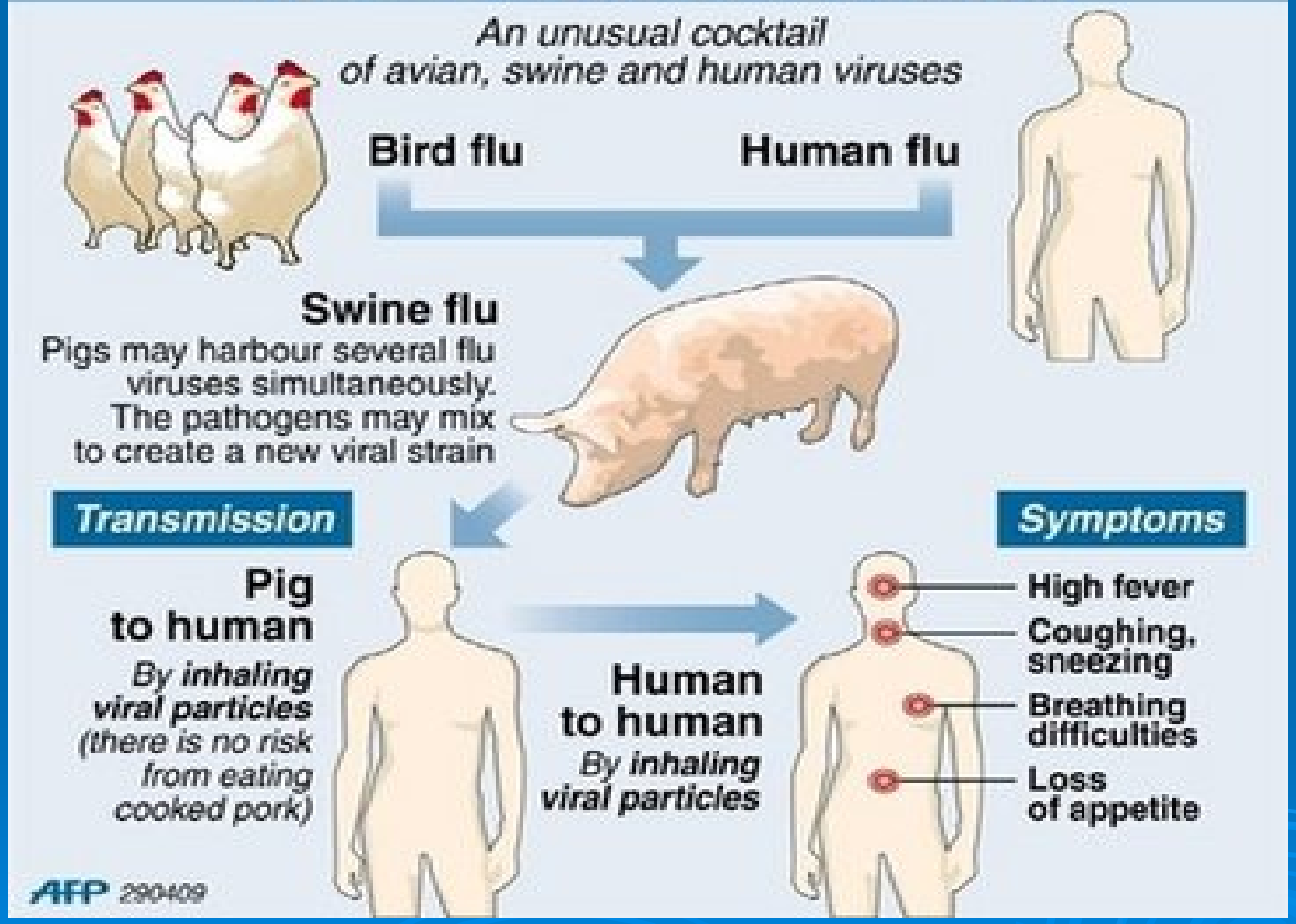
- What is the influenza virus?
- What is the novel H1N1 “swine flu” virus?
- What are the types of influenza viruses?
- What is the meaning of the “H” and the “N” in the name of Influenza A viruses?
- What other animals are commonly infected by influenza viruses? Dogs? Cats?
- How do influenza viruses change over time?

The Two Mechanisms Whereby Pandemic Influenza Originates



Belshe R. N Engl J Med 2005;353:2209-2211

The A/H1N1 virus



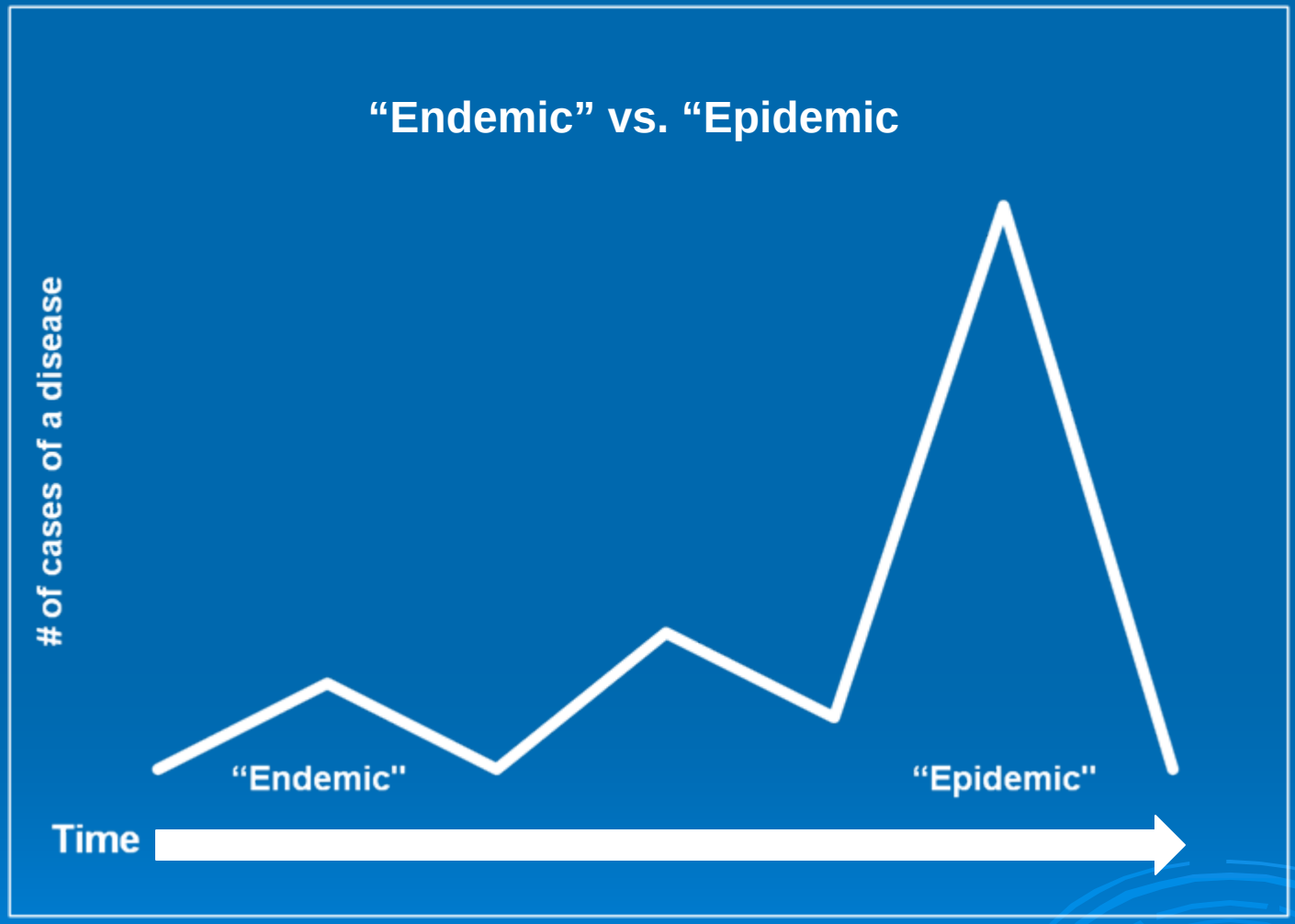
http://www.usatoday.com/news/health/swine-flu-map-timeline.htm

H1N1 101

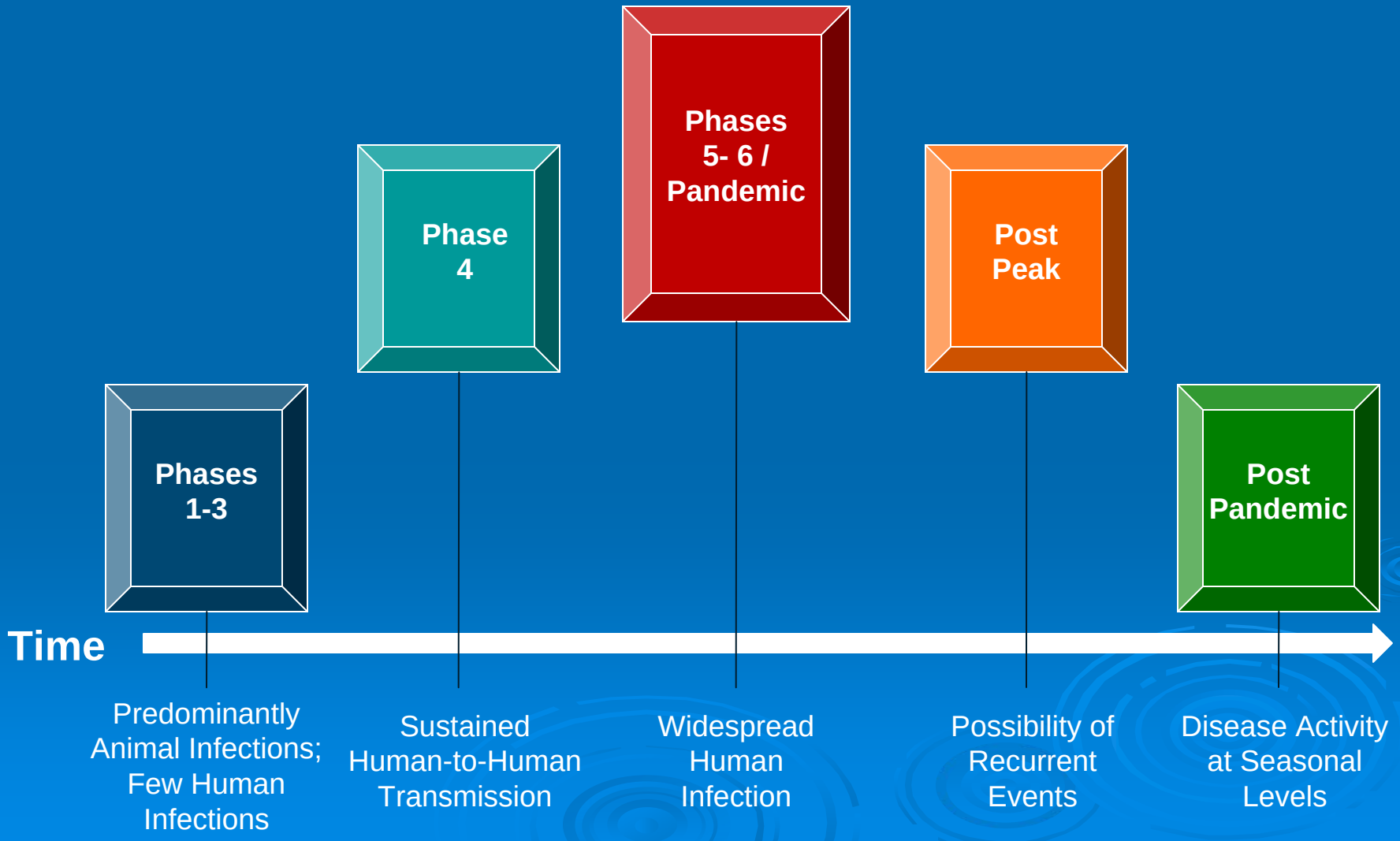
- **SURVEILLANCE**
- Mitigation
  - Prevention
  - Early Detection
  - Isolation
  - Treatment
- Vaccination
- Communication

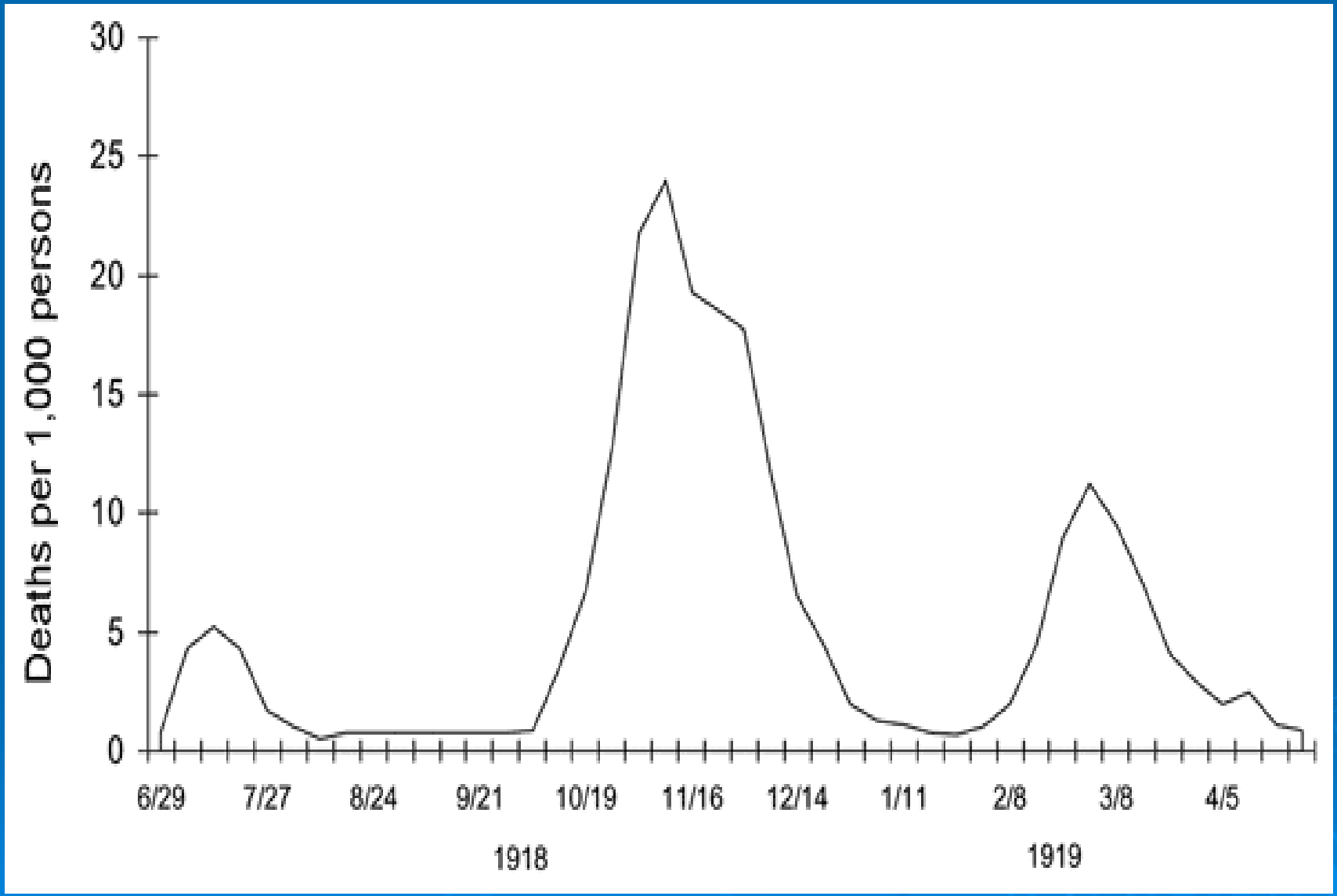
Pandemic is a public and private sector problem; the solutions are also public and private

- What is disease surveillance as it applies to influenza?
- What is surveillance NOT?
- What data sources does influenza surveillance rely on?
- Pandemic vs Epidemic vs Endemic


“Endemic” vs. “Epidemic
# of cases of a disease
“Endemic"
“Epidemic"
Time

World Health Organization Pandemic Influenza Phases




Deaths per 1,000 persons
30
25
20
15
10
5
0
6/29
7/27
8/24
9/21
10/19
11/16
12/14
1/11
2/8
3/8
4/5
1918
1919

What has novel H1N1 surveillance shown us?

MMWR

Swine Influenza A (H1N1) Infection in Two Children – Southern California, March–April 2009

On April 21, this report was posted as an MMWR Early Release *on the* MMWR *website* (http://www.cdc.gov/mmwr).

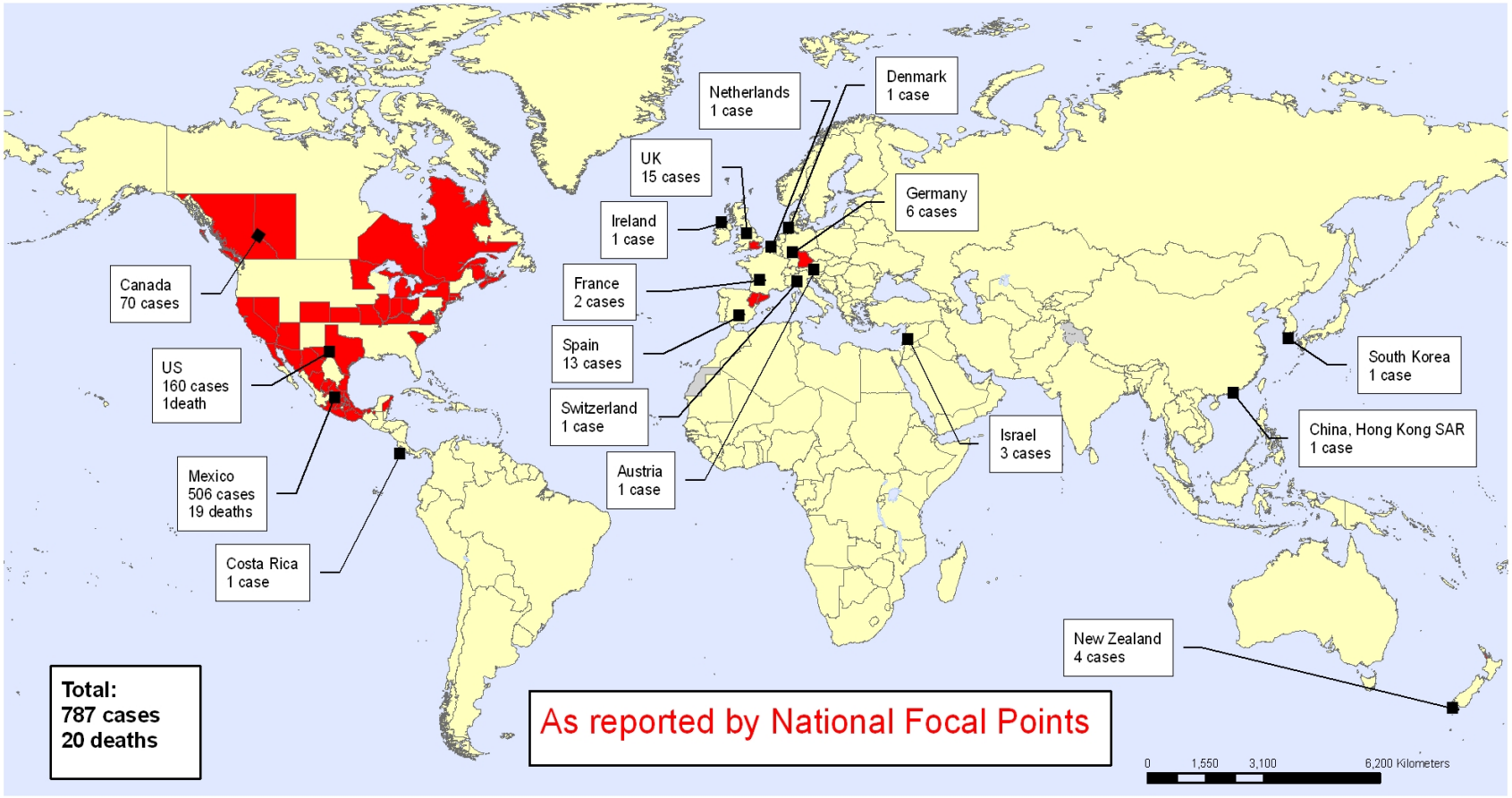
Novel Influenza A (H1N1) Detected

- March 2009
  - 2 cases of febrile respiratory illness in children in late March
  - No common exposures, no pig contact
  - Uneventful recovery
  - Residents of adjacent counties in southern California
  - Tested because part of enhanced influenza surveillance

http://www.usatoday.com/news/health/swine-flu-map-timeline.htm

New Human influenza A (H1N1)
Number of laboratory confirmed cases and deaths

Status as of 3 May 2009
08:00 CET



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization
Map Production: Public Health Information and Geographic Information Systems (GIS)
World Health Organization

World Health Organization

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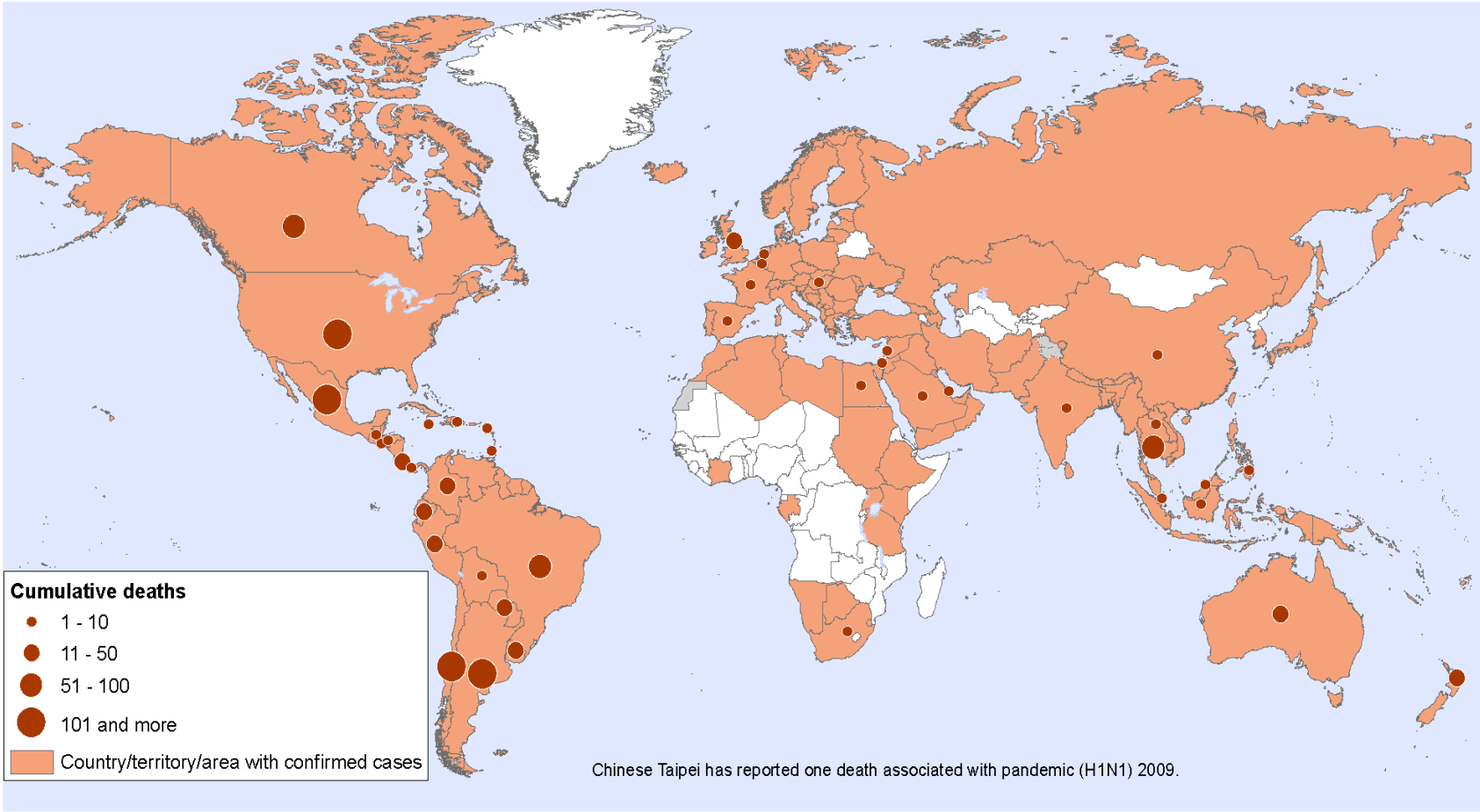
Map produced: 3 May 2009 12:07 CET

Pandemic (H1N1) 2009

Status as of 06 August 2009

Countries, territories and areas with lab confirmed cases and number of deaths as reported to WHO



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Data Source: World Health Organization
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World Health Organization

World Health Organization

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Map produced: 10 August 2009 14:00 GMT

H1N1 Transmission

Worldwide

April: 2 countries

August: >200 countries

US

Early April: 2 cases

August: >1 million cases

- Hospitalizations = 7,511
- Deaths = 477

Influenza Disease

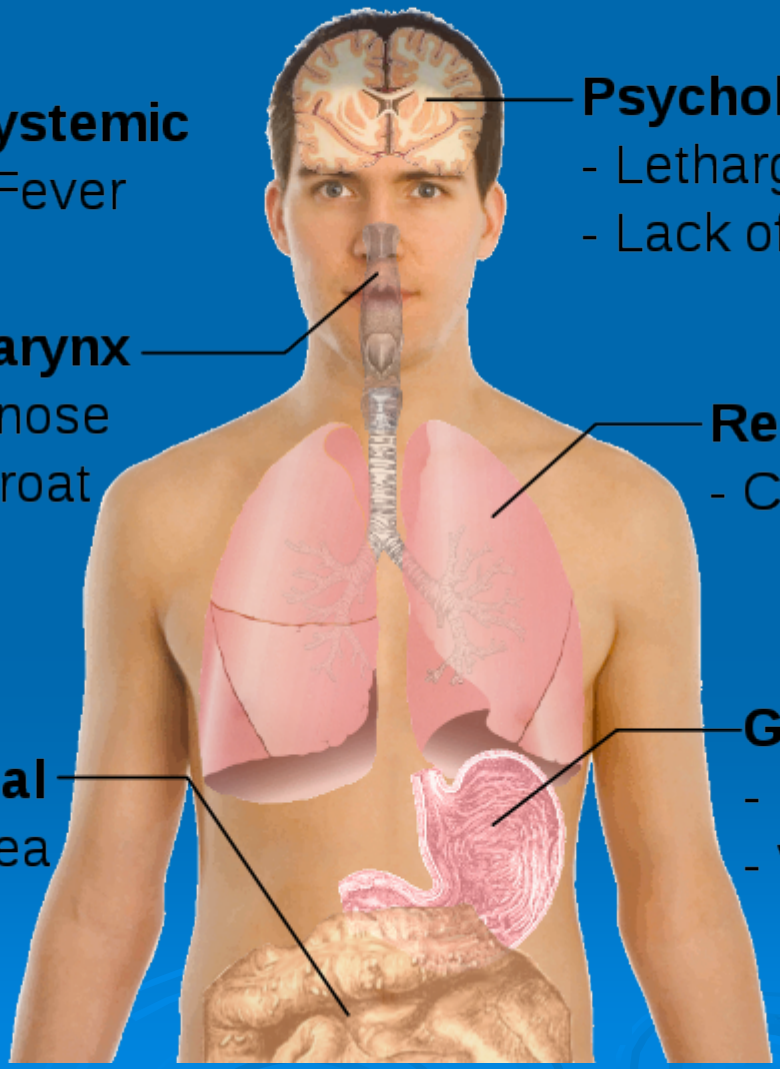
- **Spread**
  - Aerosolized droplets from coughing or sneezing up to a 6 foot radius
  - Hand to face contact (nose, eyes, or mouth) after touching infected areas
  - Virus infectious only up to 2-8 hrs on surfaces
- **Incubation period**
  - 1 to 7 days (avg H1N1 3-4 days)
- **Symptom duration**
  - 3 to 7 days but up to 14 days (avg H1N1 3-5 days)
- **Contagious**
  - 1 day before symptoms to 10 days after symptoms
  - peak period while febrile

Influenza Like Illness (ILI)

- **Symptoms to meet criteria for ILI:**
  - Fever plus sore throat or cough
- **Other common symptoms**
  - Headache
  - Muscle & joint aches
  - Nausea, vomiting, or diarrhea
  - Fatigue
  - Pneumonia
  - Shortness of breath

Symptoms of

Swine flu



Systemic
- Fever

Psychological
- Lethargy
- Lack of appetite

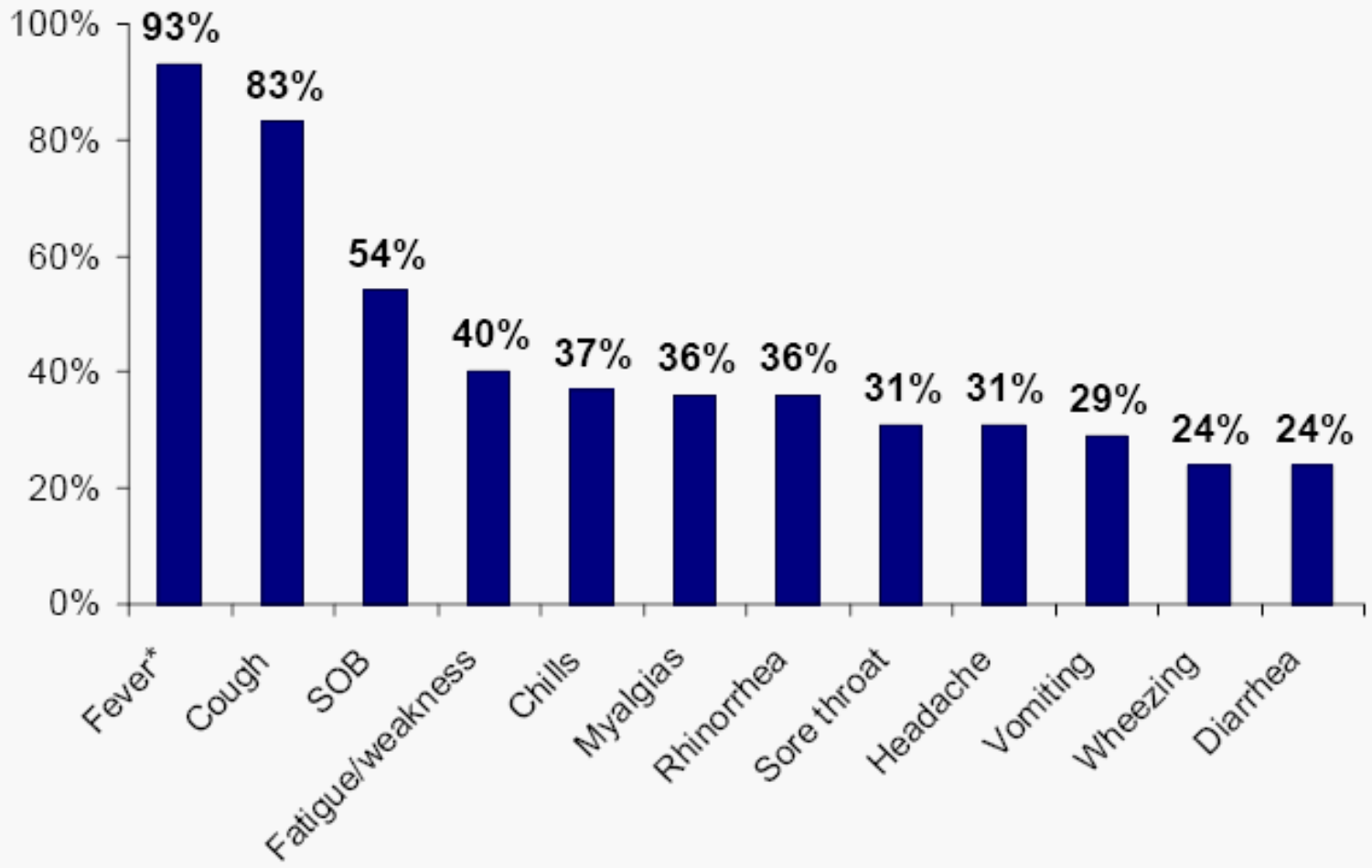
Nasopharynx
- Runny nose
- Sore throat

Respiratory
- Coughing

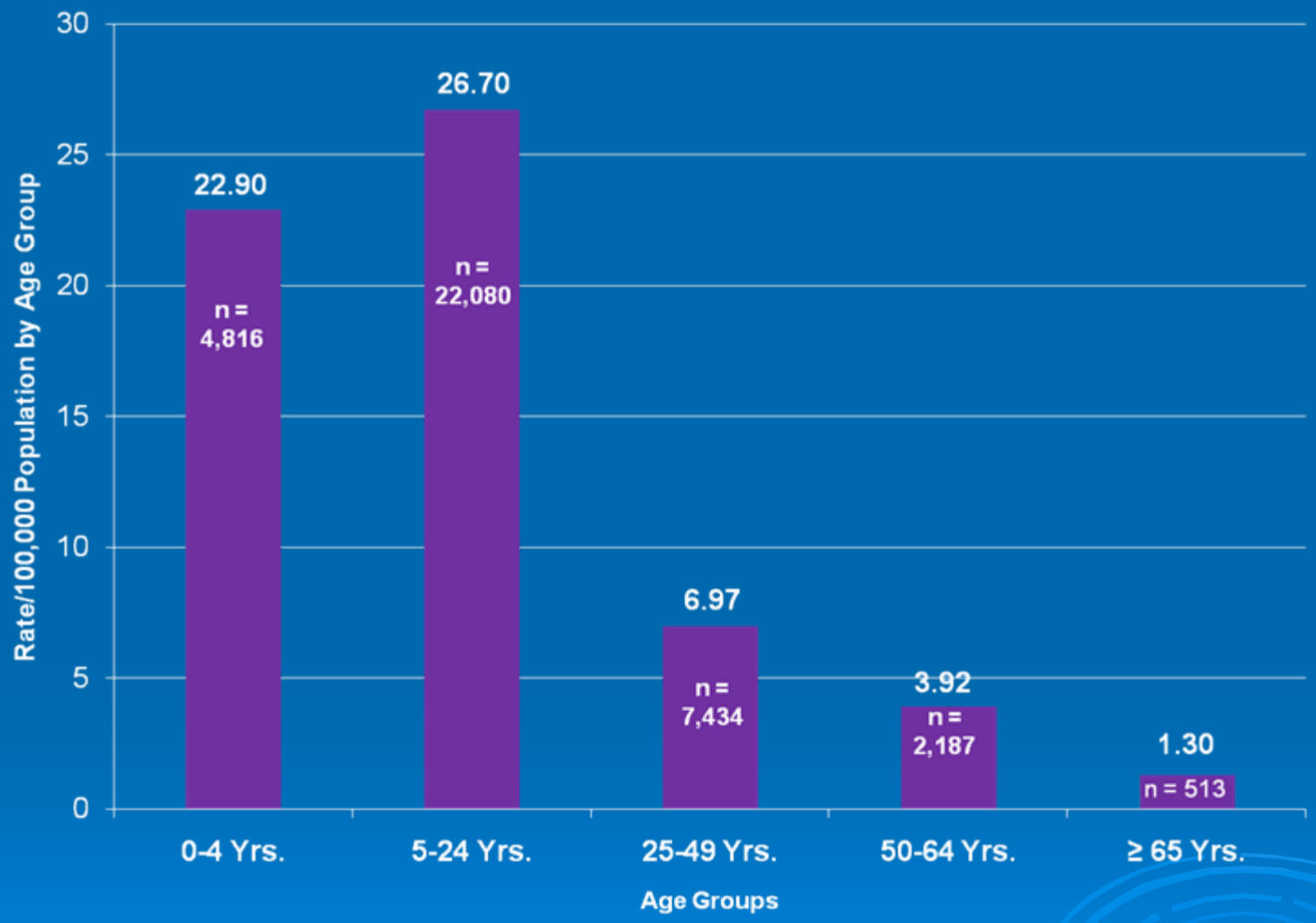
Intestinal
- Diarrhea

Gastric
- Nausea
- Vomiting

Clinical Characteristics of H1N1
US CDC Data

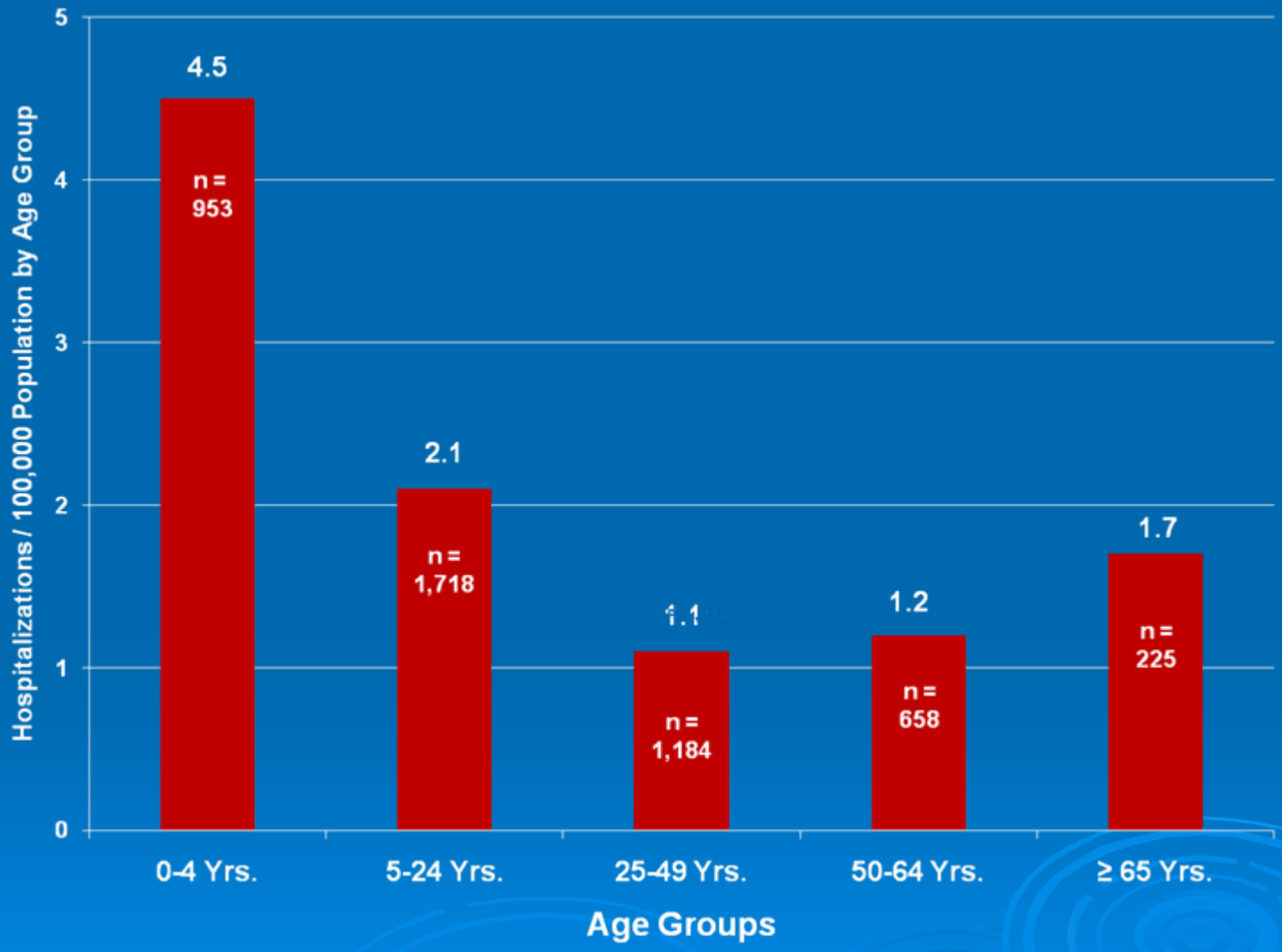


H1N1 Age Distribution



*Excludes 6,741 cases with missing ages
Rate/100,000 by Single Year Age Groups: Denominator Source: 2008 Census Estimates, U.S. Census Bureau

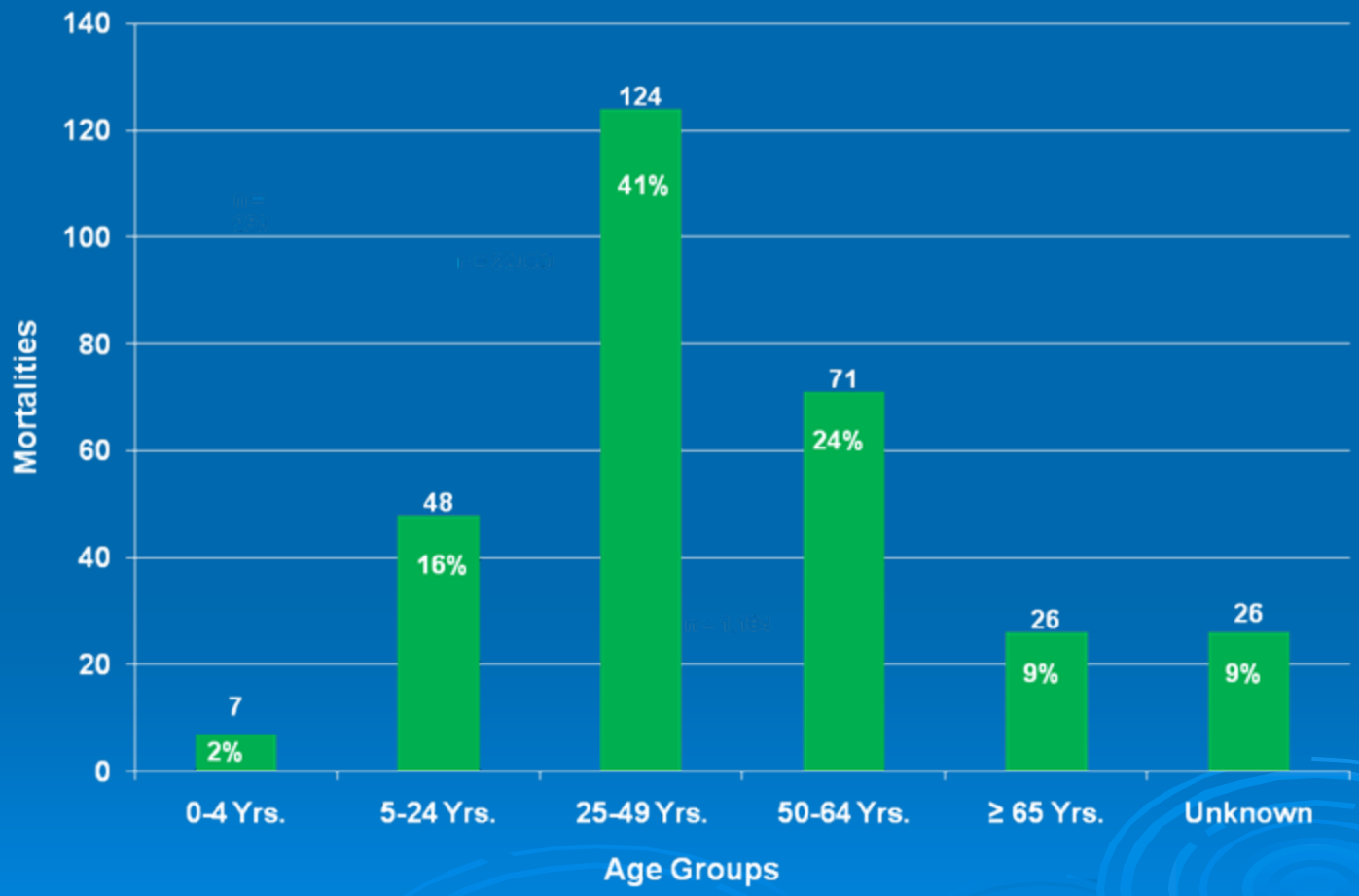
Hospitalization Rates



*Hospitalizations with unknown ages are not included (n = 273)
Rate/100,000 by Single Year Age Groups: Denominator Source: 2008 Census Estimates, U.S. Census Bureau

Death Rates

H1N1 U.S. Deaths, By Age Group



H1N1 Flu vs Seasonal Flu

H1N1 Flu

Median age for cases = 12 yo

Hospitalizations = 20 yo

Deaths = 37 yo

Seasonal Flu

2/3 of hospitalizations >65 yo

>90% of deaths in those >65 yo

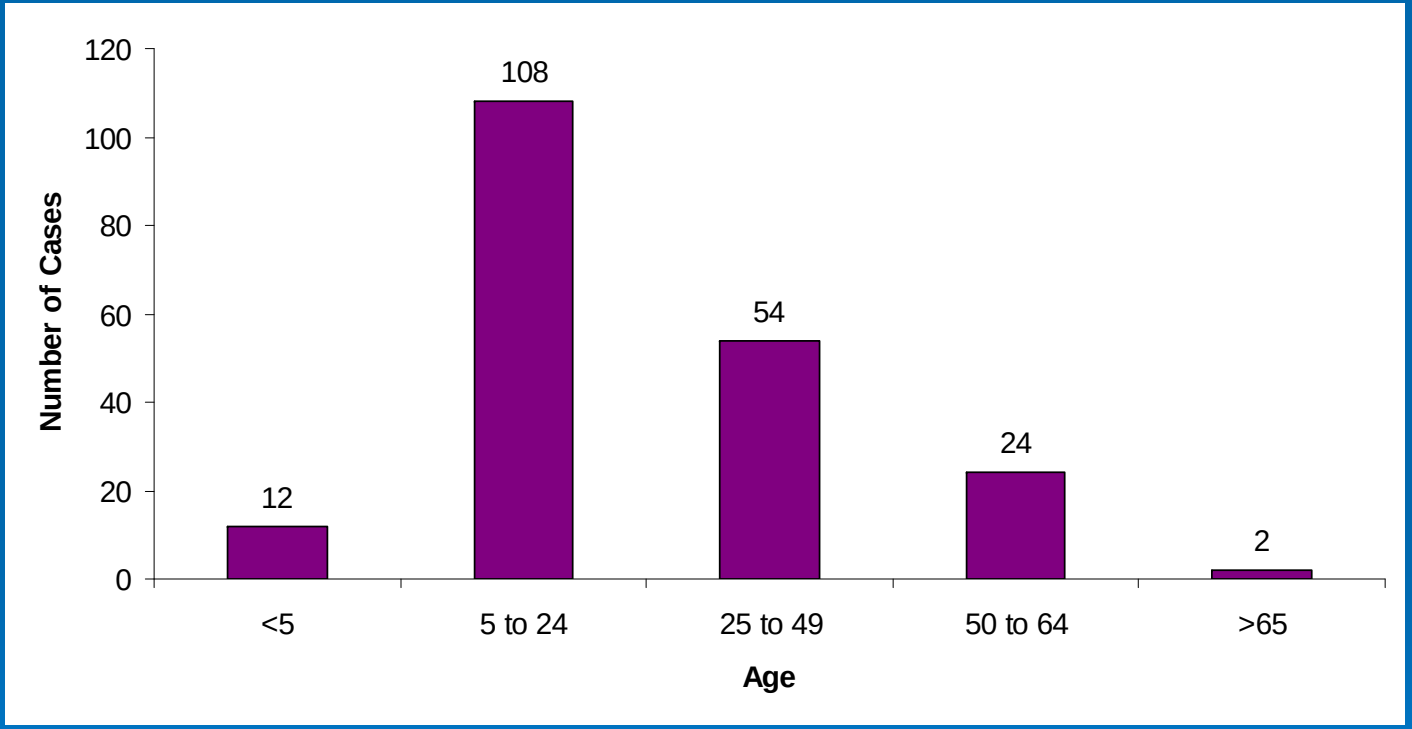
Main Underlying Conditions for H1N1 Hospitalizations & Death

- Pregnancy
- Respiratory (Asthma, COPD, etc)
- Cardiovascular disease
- Diabetes
- Compromised immune system
- Neuromuscular disorders

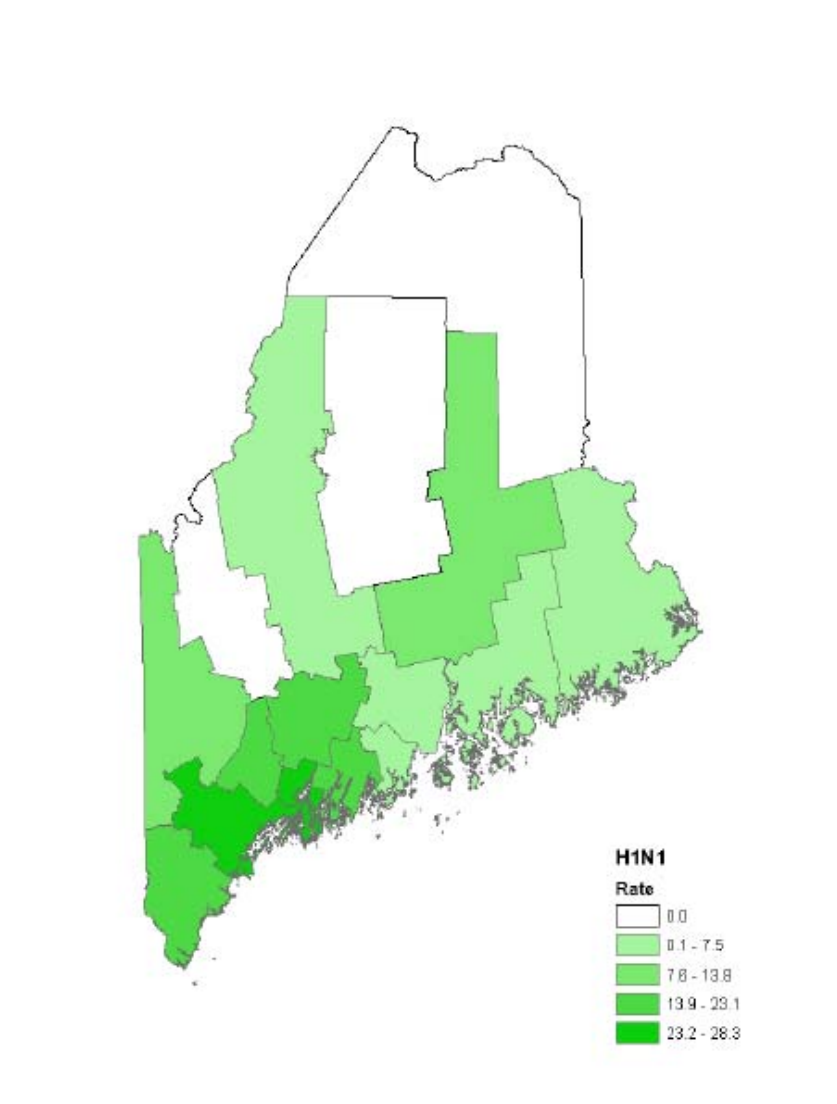
H1N1 in Maine

- 354 confirmed cases
  - 200 in Maine residents
  - 154 in out of state residents
- 19 Hospitalizations
- 1 Death

H1N1 101 in Maine



H1N1 in Maine



H1N1 Surveillance: What Can You Do?

- Maine CDC Weekly Wednesday Update www.maineflu.gov
- H1N1 In-Depth Breakout – Health Care Providers
- Community Response Breakout – Local Health Officers, Schools, and Emergency Management

H1N1 101

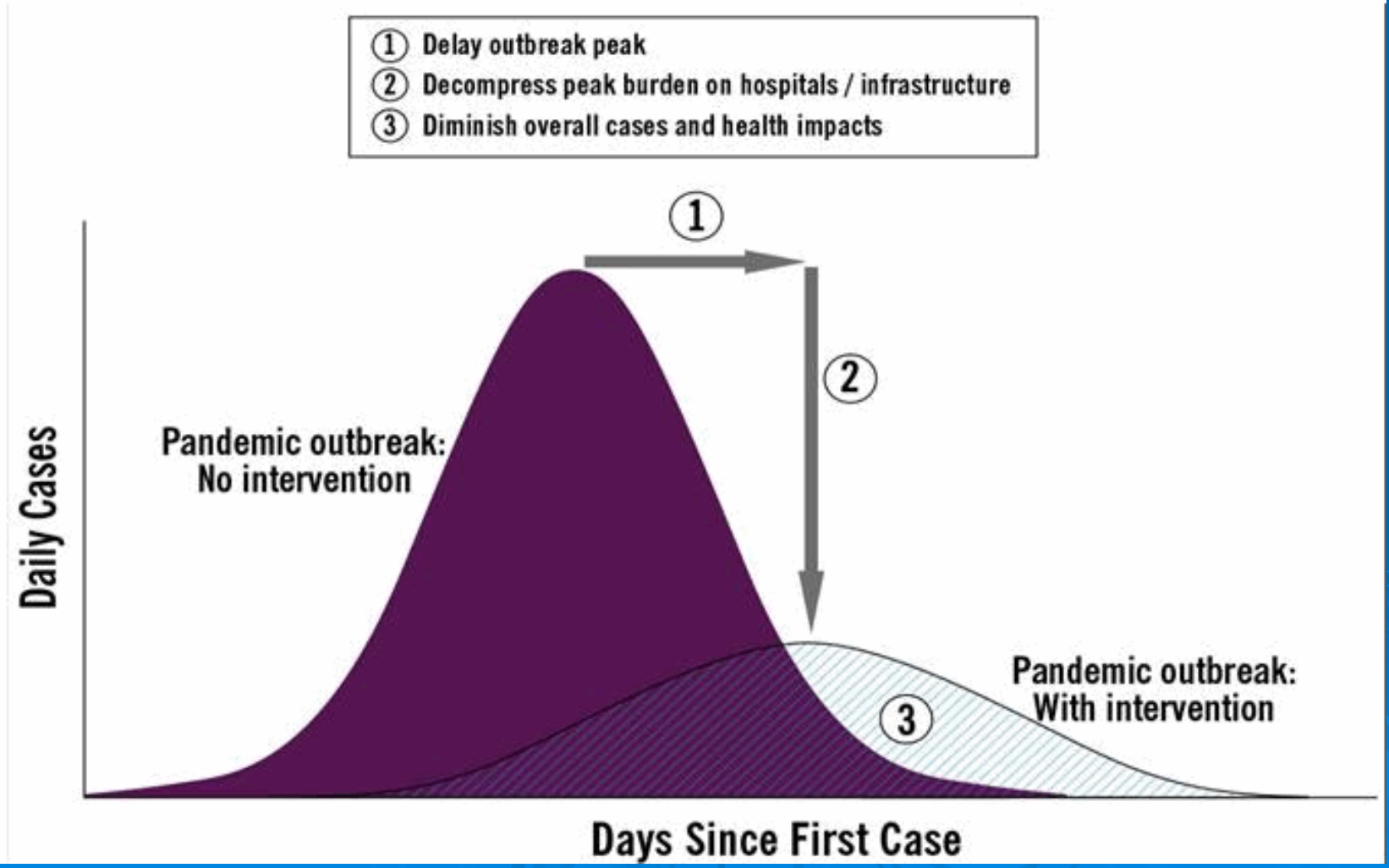
- Surveillance
- **MITIGATION**
  - Prevention
  - Early Detection
  - Isolation
  - Treatment
- Vaccination
- Communication

Hope for the best and…

…prepare for the worst

Goal of Mitigation

Figure 1. Goals of Community Mitigation



H1N1 101 Mitigation

PREVENTION

- How long can influenza virus remain viable on objects (such as books and doorknobs)?
- What kills influenza virus?
- What surfaces are most likely to be sources of contamination?
- What are some prevention steps we can use at work, home, and at school?


Are you the office sprinkler?
Try a tissue or sneeze into your arm.
www.TalkToTheFifthGuy.com
HEALTH

Tissue, Please

If you cough
Or if you sneeze
Cover your mouth
With a tissue, please
If no tissue
Is in site
Use your sleeve
It is polite!

http://www.coughsafe.com/
Maine's own Dr. Ben Lounsbury

Coughs and Sneezes Spread Diseases

As Dangerous as Poison Gas Shells

SPREAD OF SPANISH INFLUENZA MENACES OUR WAR PRODUCTION

U. S. Public Health Service Begins Na
-tion-wide Health Campaign.


HARDIN
"We've considered every potential risk except the risks of avoiding all risks."

H1N1 101 Mitigation

EARLY DETECTION

What are some early detection strategies we can implement in our community?

- Active - testing or prompting
- Passive – reminders
- Context

H1N1 101 Mitigation

ISOLATION

- Isolation vs Quarantine
- What are the new CDC recommendations for isolation?
  - 24 hours symptom free
  - 7 days in high-risk settings (hospitals, infant day care)

Should I consider wearing a mask?

- If I have ILI and must go near others (breast feeding, doctor's office visits, etc.)
- If I am high-risk and must be in a crowded setting or caring for someone with ILI

Masks and PPE

For details of health care and non-health care settings see:

- http://www.cdc.gov/h1n1flu/masks.htm
- H1N1 In-Depth Breakout will have more info

School Mitigation

If H1N1 severity is same as Spring, 2009:

- Stay home when sick
- Quickly separate ill staff and students
- Emphasize respiratory hygiene
- Routine cleaning
- Early treatment of high-risk who are ill
- Consider selective school dismissal

School Mitigation

If H1N1 severity increases:

- Active screening for fever
- High-risk students and staff stay home
- Those with ill household member stay home
- Increased social distancing
- Extend isolation period to >7 days
- Consider school dismissal – reactive vs preemptive

H1N1 101 Mitigation

TREATMENT

- What should I do if I get sick?
- If someone in my household has novel H1N1 flu, should I go to work?
- What medicines are there to treat novel H1N1 infection?

Summary of Antiviral Resistance, U.S. 2008-09

	Influenza viruses			
Antiviral	**Seasonal A (H1N1)**	**Seasonal A (H3N2)**	**Seasonal B**	**Pandemic H1N1**
Adamantanes	Susceptible	Resistant	No activity	Resistant
Oseltamivir	Resistant	Susceptible	Susceptible	**Susceptible**
Zanamivir	Susceptible	Susceptible	Susceptible	**Susceptible**

CDC

H1N1 101

- Surveillance
- Mitigation
  - Prevention
  - Early Detection
  - Isolation
  - Treatment
- **VACCINATION**
- Communication

Promote vigilance and preparation

Influenza Vaccine 2009-2010

- Seasonal flu vaccine
  - Expected in August/September
  - Will begin prior to H1N1 vaccination program
  - Usual recommendations for who should get it
- H1N1 flu vaccine
  - Initial supply expected in fall
  - Clinical trials currently underway
  - Likely two shots, 3-4 weeks apart
  - Given to priority groups first

Seasonal Flu Vaccine

Get it early, in August or September

People recommended for seasonal influenza vaccination during the 2009-10 season remain the same as the previous season:

- All 6 months through 18 years old
- Pregnant women
- People 50 and older
- Any age with certain chronic medical conditions
- Residents of LTC
- Health care workers
- Caregivers of people at high risk and infants <6 months

H1N1 Vaccine

Current Tier I CDC Priority Groups

- Pregnant women
- Caregivers & household contacts for infants under 6 months of age
- Children 6 months to 25 yrs of age
- Health care workers including EMS
- Adults 25 to 65 with chronic medical conditions at risk for influenza complications

H1N1 Vaccine

- **Will this vaccine be mandatory?**

  Not at this point in time

- **How will I know where to obtain one?**

  Mass media, Maine CDC website, health care providers

- **May I get the seasonal flu vaccine at the same time as the H1N1 vaccine?**

  Most likely

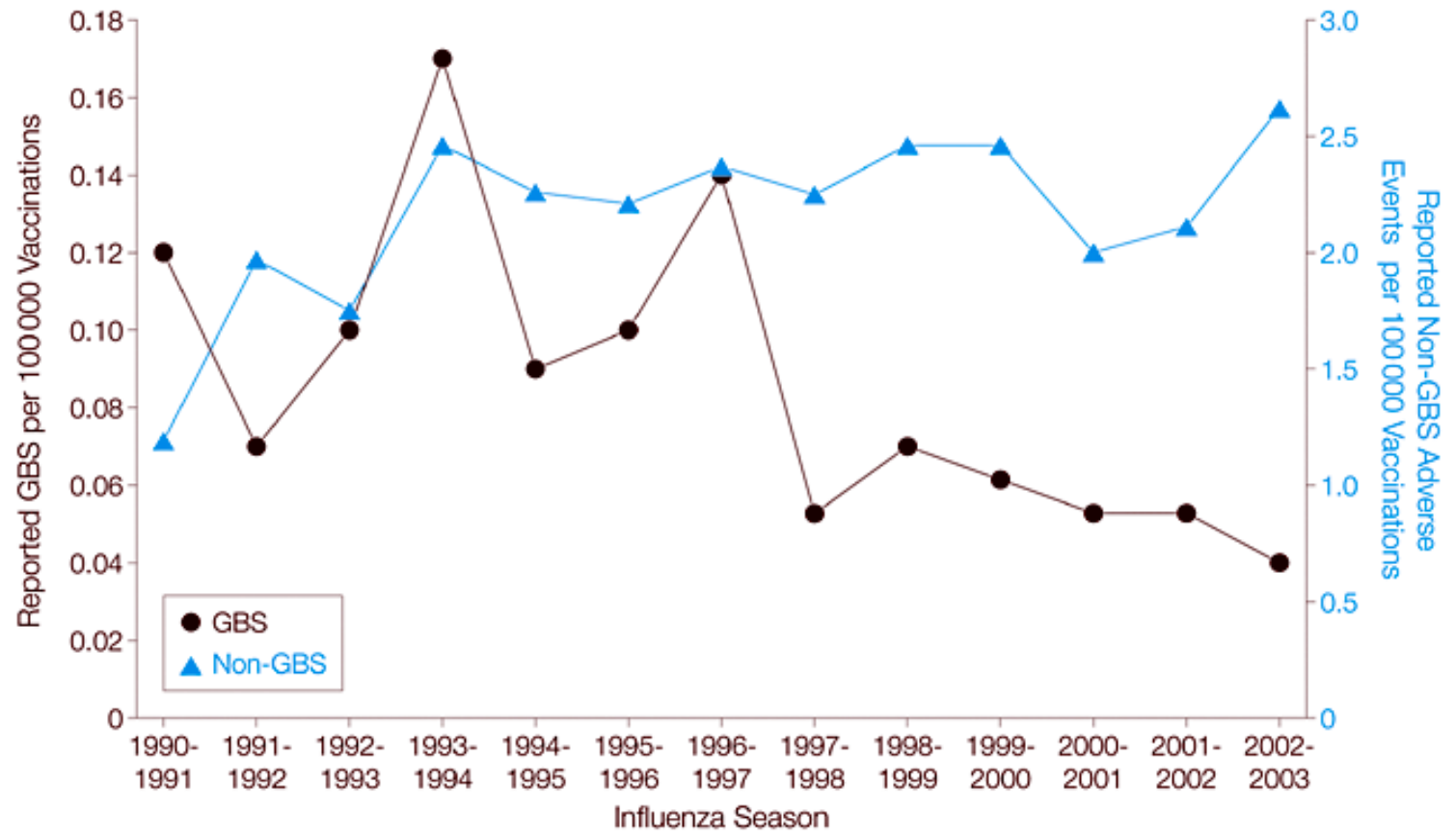
H1N1 Vaccine

- **Will it have thimerosal?**
  There will be some t-free for young children and pregnant women
- **What about the clinical trials?**
  Determining doseage
- **Will it have an adjuvant?**
  Likely not
- **Will the vaccine be administered under EUA?**
  Unlikely

What about the 1976 swine flu and vaccine safety concerns?

- Winter: ~230 infected in Fort Dix, NJ, Jan/Feb
- No spread
- Fall: 40 million vaccinated
- GBS associated with infections, include ILI
- GBS 1/100,000
- 1976 vaccine excess of GBS = 1/100,000
- GBS decrease since 1990
- Enhanced monitoring planned
- Must weigh risks and benefits

JAMA®
The Journal of the American Medical Association



H1N1 Vaccine

- **What will its costs be?**

  Vaccine and supples are free
  Administration may cost – TBD

- **Will health care providers get reimbursed for administration?**

  Most likely from major insurers

- **What about those who cannot pay?**

  Free clinics TBD

H1N1 Vaccine

- **What about vaccine supplies?**

  Needles, syringes, sharps containers, and alcohol swabs are planned to be shipped with vaccine. No gloves.

- **How much vaccine is expected to be shipped?**

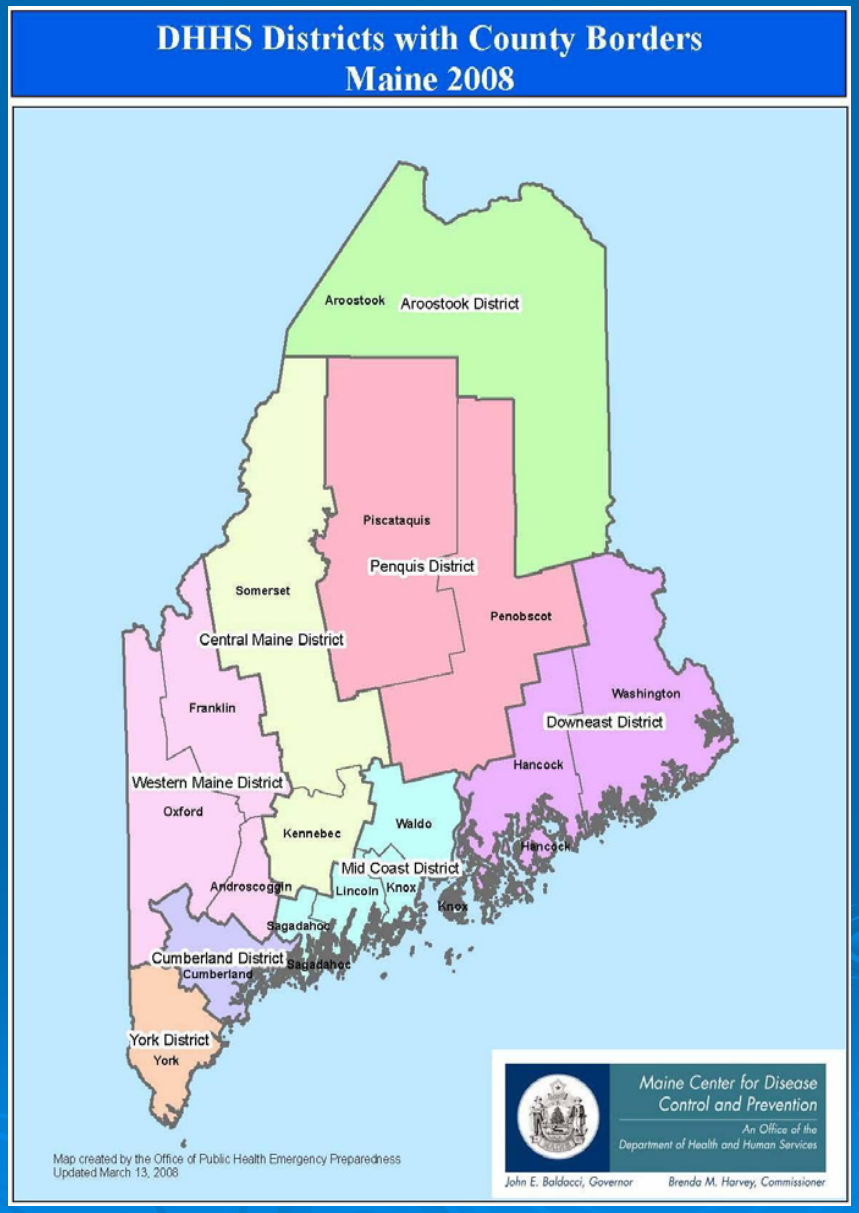
  To be determined, but may likely be ~180,000 in mid-October, then ~80,000 doses per week.

H1N1 Vaccine

- How will it be distributed?
- Who will administer it?
- What settings will it be administered?
- What about active military and tribal members?
  - DOD will vaccinate active military
  - State and local need to plan with Tribes

Existing players, new model for coordination

- 8 DHHS Districts
- Strengthened Local Health Officer system
- Some core public health functions carried out by Healthy Maine Partnerships
- 8 District Coordinating Councils (DCCs)
- District Public Health Units
- Maine CDC District Public Health Liaison



H1N1 Vaccine

District H1N1 Vaccine Teams:

- Maine CDC Vaccine Coordinators (District Liaisons, Tribal Liaisons, Others) Check www.maineflu.gov and Wednesday Update for contact information
- Regional Resource Centers (EMMC, MMC, CMMC)
- Emergency Management

H1N1 Vaccine

PRIORITY GROUPS FOR H1N1 VACCINE

8,500	1%	Pregnant women
18,500	3%	caregivers of infants <6 months old
390,000	64%	6 months – 24 years of age
155,000	25%	25 – 65 year olds w/chronic conditions
37,000	6%	Health care workers
6,000	1%	EMS
615,000		**TOTAL**

H1N1 Vaccine

LICENSE ALLOWS TO VACCINATE

3,800	15%	Physicians (MDs and DOs)
19,000	74%	Nurses
500	2%	Physician Assistants
500	1%	Pharmacists (1,100 total, but new law 9/12/09)
2,000	8%	EMS vaccinators
25,500		**TOTAL**

Ballpark Figures
(Assumptions likely to change)

- 2 doses of vaccine x 615,000 priority population x 70% = 861,000 shots
  - 861,000 divided by 2,500 likely willing and able vaccinators = **350 shots per vaccinator for high priority populations**
- 2 doses of vaccine x 1.3 million total population x 85% = 2.21 million shots
  - 2.21 million shots divided by 2,500 likely willing and able vaccinators = **884 shots per vaccinator for most of the population**

Common Settings

- Health care settings
- Schools
- Employment settings
- Retail
- Day care, WIC, preschools
- Large scale clinics
- Homes
- Other

H1N1 101

- Surveillance
- Mitigation
  - Prevention
  - Early Detection
  - Isolation
  - Treatment
- Vaccination
- **COMMUNICATION**

H1N1 101 Communication

Stay Informed:

- Maine State Government www.maineflu.gov
  - Wednesday Updates
  - Subscribe to Health Advisories
- Maine CDC Facebook, Twitter, My Space, Blog
- Maine CDC Conference Calls
- Call or Email Maine CDC
- US CDC http://www.cdc.gov/h1n1flu/
- Federal H1N1 http://www.flu.gov/

Basic Communications on H1N1

Messaging:

- What we know
- What we do not know
- What we are doing
- What you (the audience you're communicating with) can do

Whom are you reaching and NOT reaching?

- Linguistic barriers
- Cultural barriers (youth, immigrants)

The Future? (changes likely)

- Presently it is expected that the current pandemic will affect 30% population over six month period with ~1% mortality rate
- Most cases will be mild:
  - People will be sick at home for a week
  - High risk groups more likely to be hospitalized or die
- Vaccines available for
  - Seasonal influenza (now)
  - H1N1 (later in fall)

The Unknown????

Major Strategies

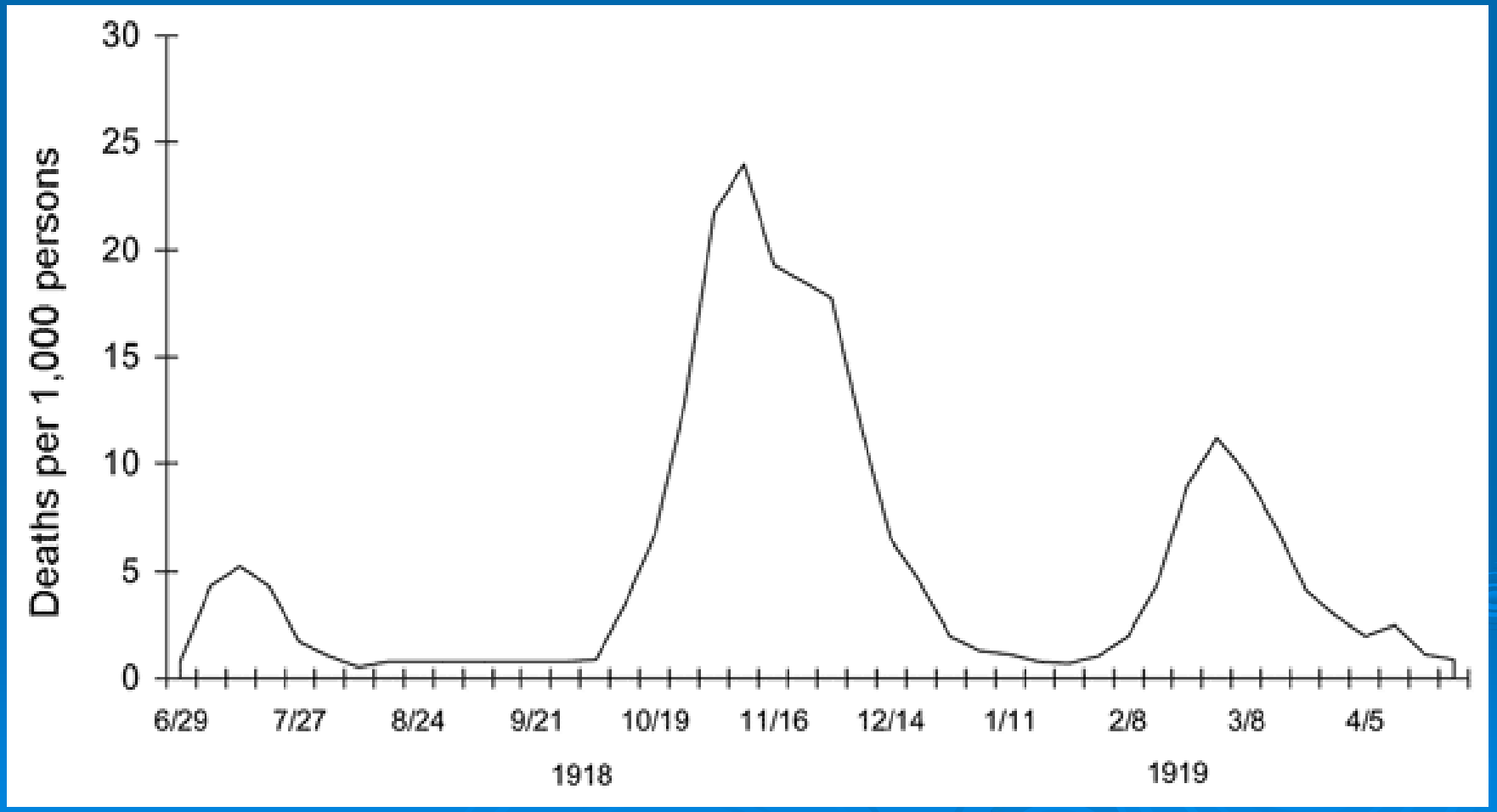
- **Prevent people from becoming ill**
  - Vaccination
  - Hand washing
- **Prevent spread between people**
  - Hand washing
  - Cover nose/mouth with arm/tissue: not with your hand
  - Stay home when you are ill until fever-free for 24 hrs
- **Treat people who are ill**
  - Mild disease: stay home, rest, fluids, acetaminophen
  - Call physician if ill or have chronic medical condition
  - No aspirin for <18 yr olds

H1N1 101

- **AM Breakouts**
  - H1N1 In Depth for medical providers
  - Community Response
  - Vaccine Refresher
  - Vaccine Clinics 101
- **Lunch**
- **PM Breakouts**
  - Tabletop exercises for each district and one for statewide
  - To plan for H1N1 Vaccine distribution and administration

Where will H1N1 be taking us?

Influenza epidemics are lived forward and understood backward. (paraphrasing Kierkegaard)



Recent Pandemics

- **1918** **Spanish flu (H1N1)**
  - 5,000 deaths in Maine
  - 500,00 in U.S.
  - 40,000,000 worldwide
- **1957** **Asian flu (H2N2)**
  - 70,000 deaths in U.S.
  - 1-2,000,000 worldwide
- **1968** **Hong Kong flu (H3N2)**
  - 34,000 deaths in U.S.
  - 700,000 worldwide

Past Pandemic Influenza Estimates for Maine

	Moderate (1957/1968)	Severe (1918)
Illness	390,000	390,000
Hospitalization	5,000	40,000
Deaths	**1,100**	**9,100**


www.mainememory.net/item/5274
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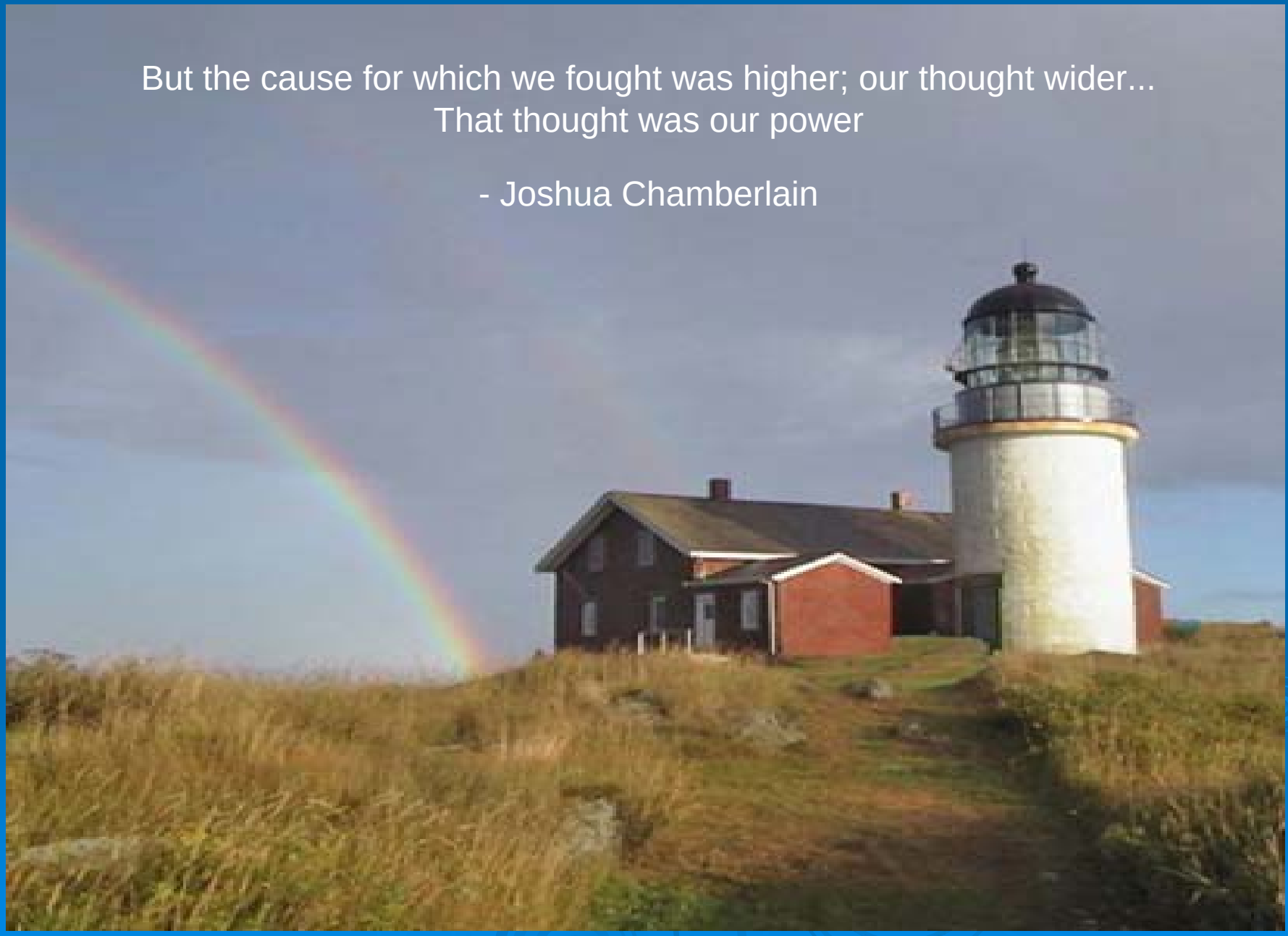
Things will change; be creative and flexible

Maine CDC H1N1 Exec Team


But the cause for which we fought was higher; our thought wider...
That thought was our power
- Joshua Chamberlain