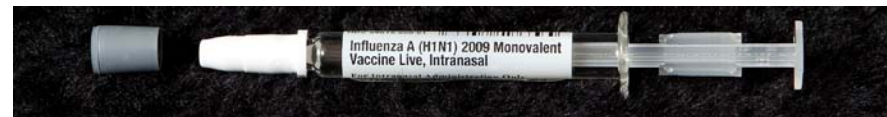
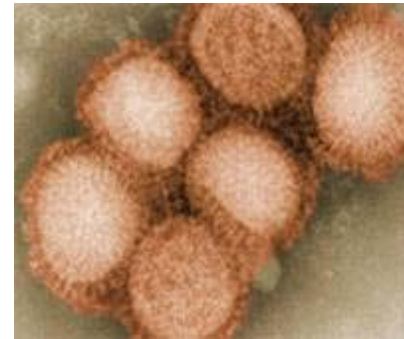


H1N1 Influenza: National Perspective—What Happened and What Can We Expect?

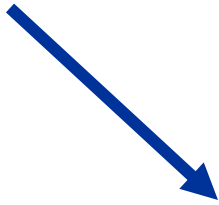


Jay C. Butler, MD, FAAP, FACP

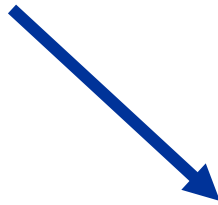
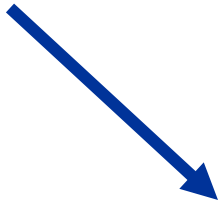
**Senior Director for Community Health Services,
Alaska Native Tribal Health Consortium**



- **Mesoscale device used to diagnose influenza in 10 year old boy during clinical trial in San Diego on April 1, 2009**
- **Result is influenza A positive, however, H1, H3, H5 negative**



- **San Diego public health notified**
- **Recommends sending specimen on to designated reference laboratory in Wisconsin as part of the clinical trial**



**Wisconsin State
Public Health Laboratory**

- **“Unsubtypable” confirmed by reference laboratory and by designated State Public Health Laboratory using FDA-cleared 5 Target PCR**



Wisconsin State
Public Health Laboratory



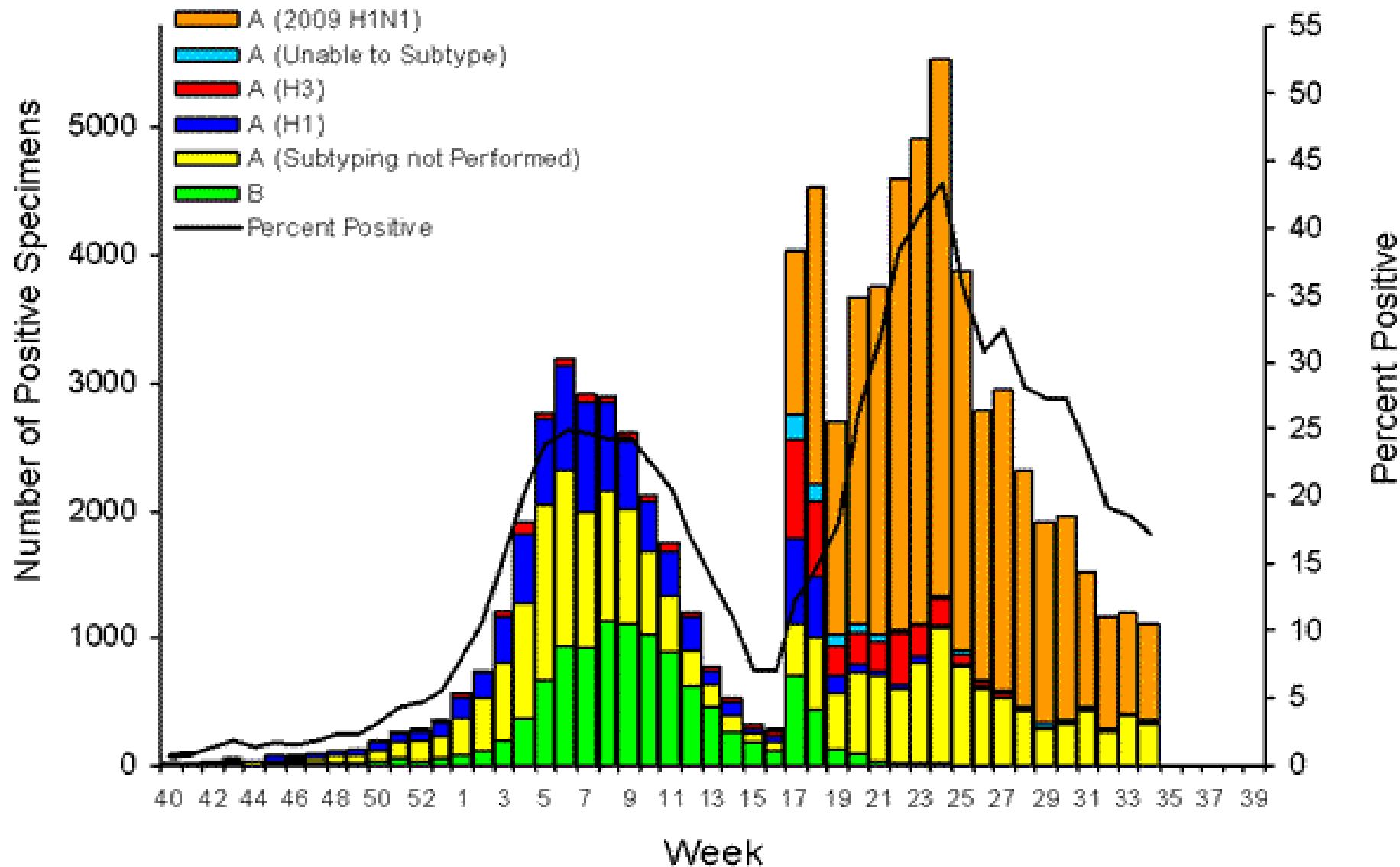
- Specimen tested at CDC
- Identified as a novel H1N1 Swine, triple reassortant
- Novel case reported to WHO...end of story?

MMWR

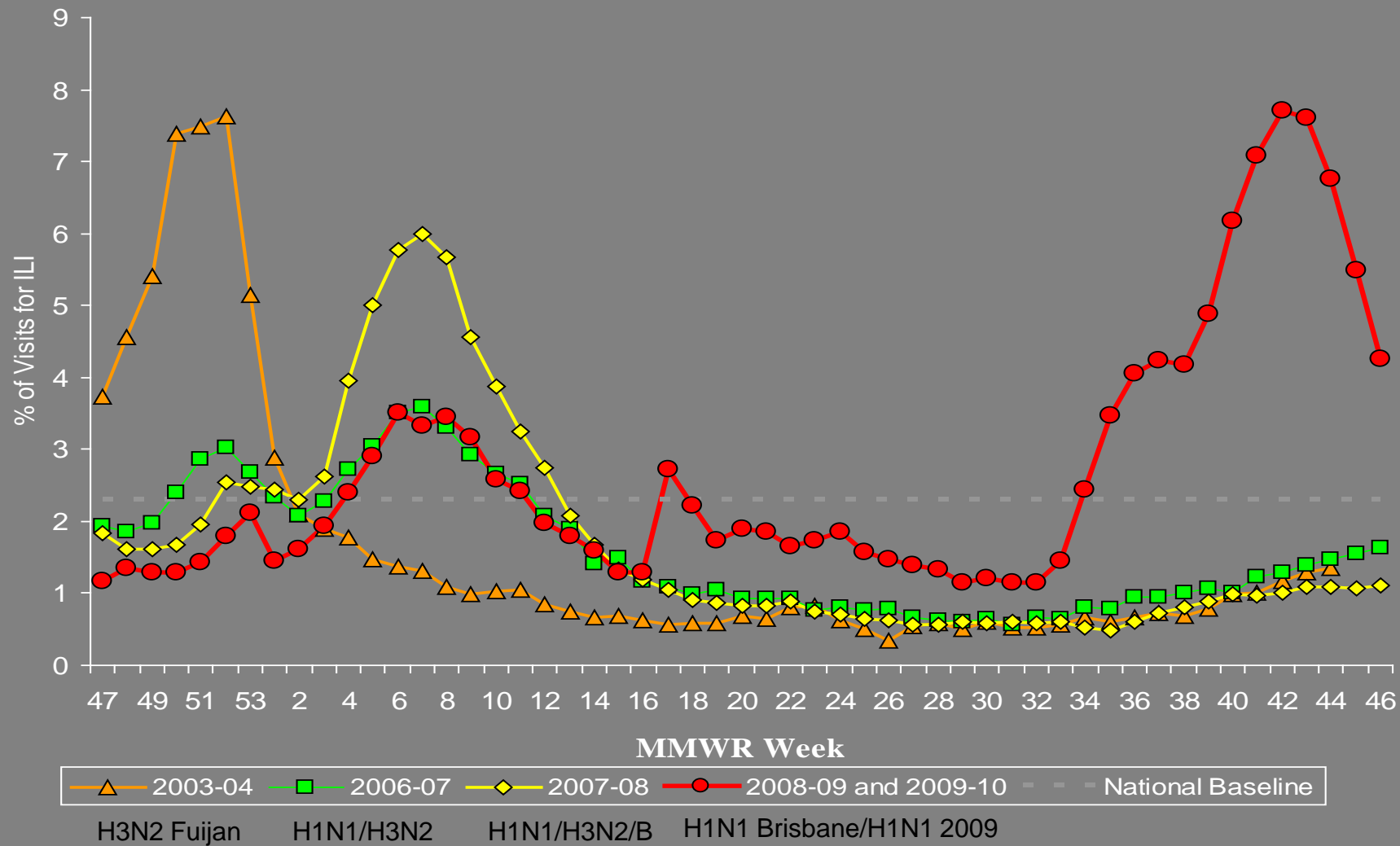
**Swine Influenza A (H1N1)
Infection in Two Children –
Southern California, March–April
2009**

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

Influenza Positive Tests Reported to CDC by U.S. WHO/NREVSS Collaborating Laboratories, National Summary, 2008-09



Percentage of Visits for Influenza-like Illness (ILI) Reported Through ILINet, Week 47- Week 46, 2003-04, 2006-07, 2008-09, 2008-09, and 2009-10

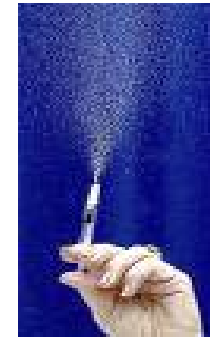


Vaccine Development and Evaluation

- Seed strain isolated at CDC and provided to manufacturers in May
- Vaccine purchased by US Government for national voluntary vaccination program



CSL, GSK, Sanofi Pasteur, Novartis,



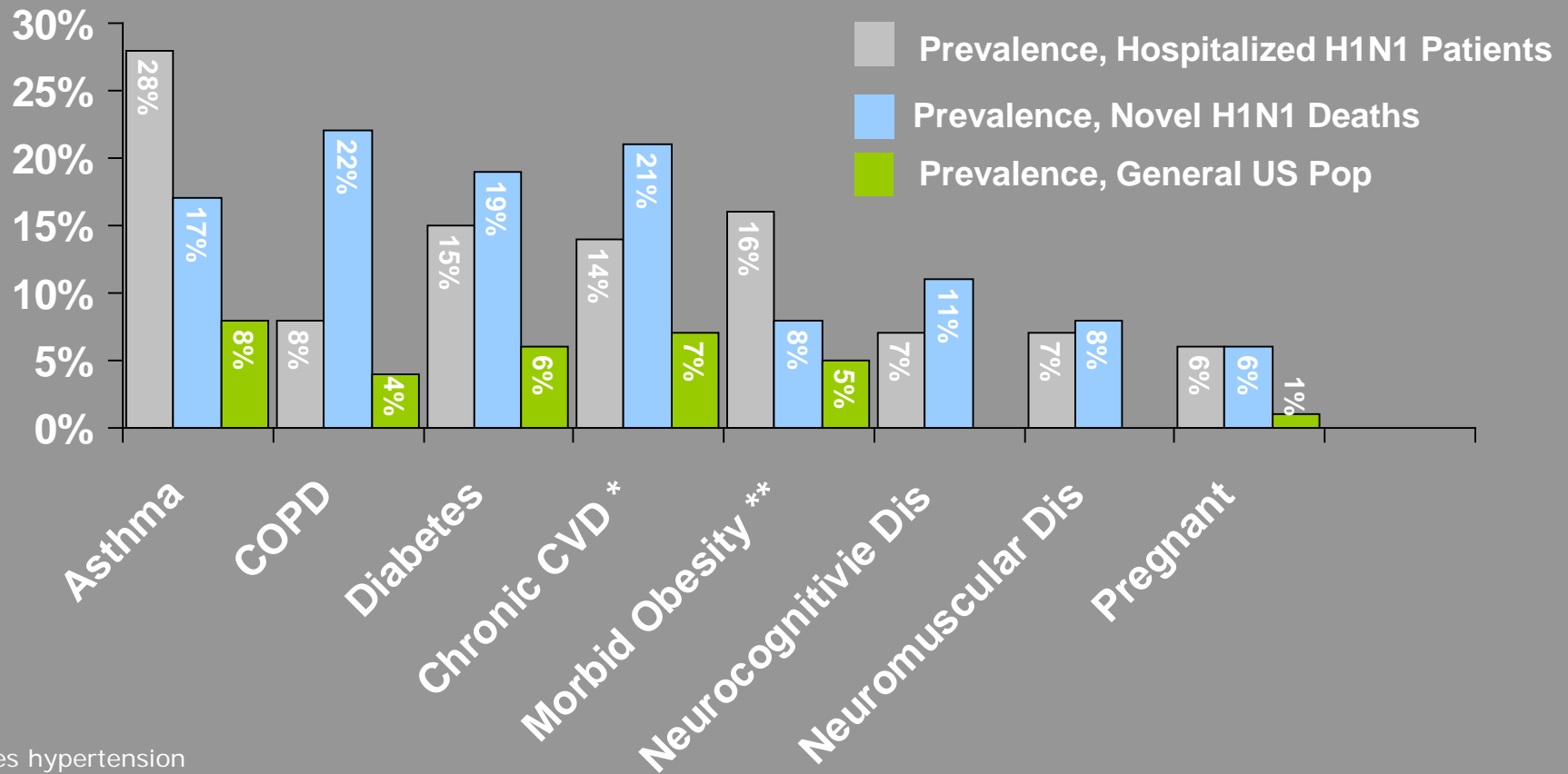
MedImmune

Summary of Clinical and Epidemiological Findings Considered by ACIP

- Distribution of cases/hospitalizations/deaths
 - Highest incidence lab confirmed infections in school age children
 - Highest hospitalization rates among 0 through 4 year olds
 - Hospitalization rates for Apr-Jul 2009 approach cumulative rates for seasonal influenza among school age children and 19 through 49 year old adults
 - Fewest cases but highest case-fatality ratio in older adults
- Distribution of cases by age group is markedly different compared to seasonal influenza
 - Higher proportion of hospitalized cases in children and young adults
 - Few cases in older adults
 - No outbreaks among elderly in long term care facilities
- 70% of hospitalized cases have an underlying medical condition that confers higher risk for complications



People With Underlying Conditions Are More Likely to be Hospitalized, and to Die, from Influenza H1N1

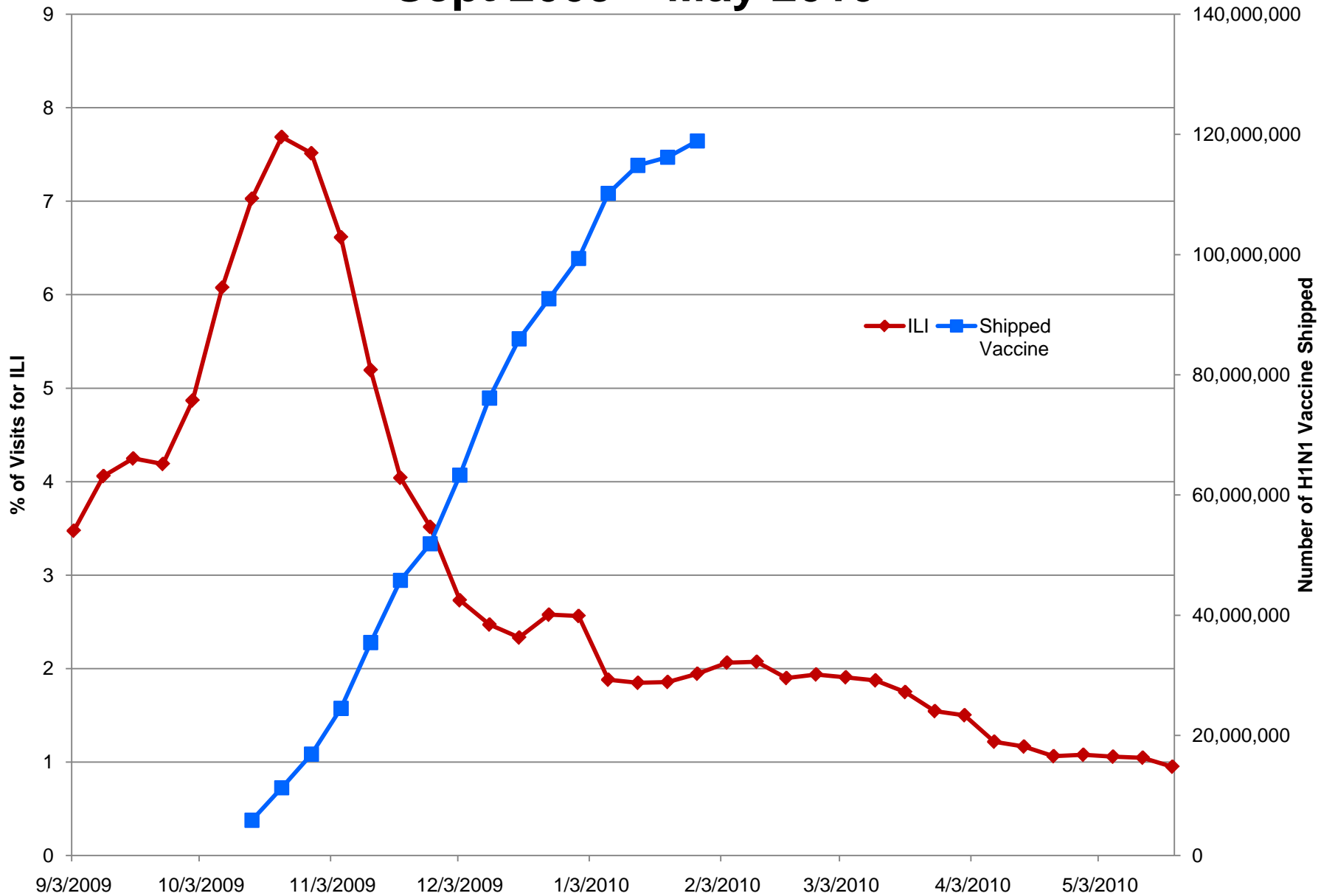


*Excludes hypertension

** Morbid obesity is defined as BMI of 40 or higher. For Hospitalized H1N1 patients, BMI calculation was performed on non-pregnant adults ≥ 20 years ($n=119$). 45% of 119 non-pregnant hospitalized adults ≥ 20 years were missing height and weight information. For Novel H1N1 Deaths, morbid obesity % was calculated for adults only. Prevalence for US non-pregnant adults is based on NHANES (JAMA. 2006;295(13):1577)



Percentage of Visits for ILI and H1N1 Vaccine Distribution, Sept 2009 – May 2010



Source: CDC ILI and Vaccine Distribution Data

Health Impact of H1N1 Pandemic

- US (estimated)
 - 60 million ill
 - 25% in children age <18 years
 - 270,000 hospitalizations
 - 12,270 deaths
 - 1,270 in children age <18 years
 - 9,420 in persons age 18-64 years

Estimates of Number of Deaths, Mean Age of Deaths, and Years of Life Lost Attributable to the 2009 Pandemic In the US.

	Number of deaths (adjusted to 2000 pop.)	Mean age of deaths (yrs)	Years of life lost (adjusted to 2000 pop.)
2009 Pandemic	12,000 (8,500-17600) *	37.4	463,300 (328,900 – 680,300)
1968 Pandemic	86,000 **	62.2	1,693,000
1957 Pandemic	150,600 **	64.6	2,698,000
1918 Pandemic	1,272,300 **	27.2	63,718,000
Average A/H3N2 season, 1979-2001	47,800 **	75.7	594,000

* Estimates based on CDC's probabilistic estimates, using 2009 pandemic survey data (different from CDC's excess mortality method for measuring seasonal influenza burden)

** Estimates based on excess mortality approach applied to final national vital statistics and adjusted to the 2000 population age structure

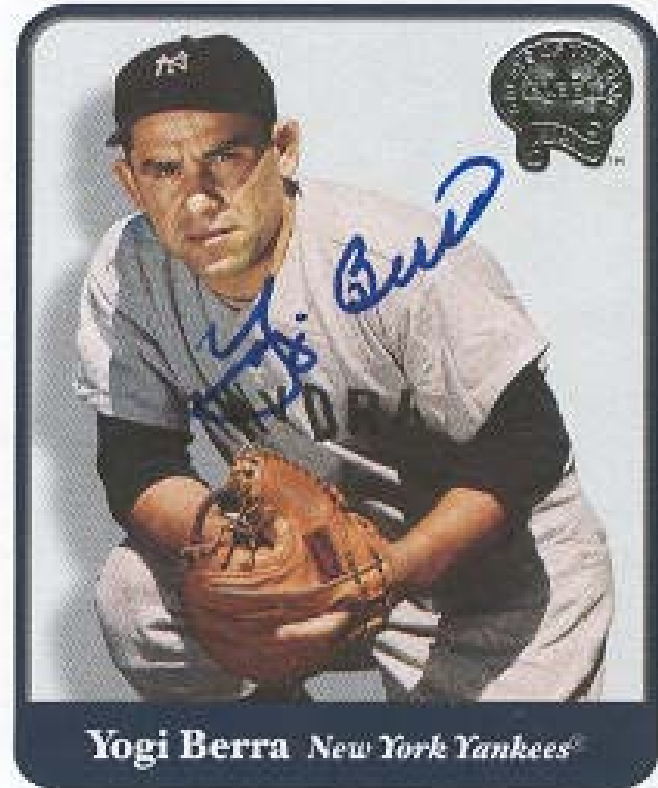
What To Expect in 2010-11

- Why is this flu season different from other flu seasons?
- 2010-11 Vaccine
 - H1N1: A/California7/2009-like virus (the pandemic strain), which replaces A/Brisbane/59/2007
 - H3N2: A/Perth/16/2009-like virus, which replaces A/Brisbane/10/2007
 - Type B: a Brisbane/60/2008-like strain (the same as last year)
 - Recommended for everyone age ≥ 6 months
- Antivirals: $>99\%$ of 2009 H1N1 susceptible to oseltamivir; no oseltamivir resistance in H3N2
 - No sustained transmission of 2009 H1N1 strains with H275Y mutation
 - Have previously circulating oseltamivir-resistant H1N1 strains been completely displaced?



- "Predictions are hard to make, especially about the future"
 - Niels Bohr

- **“The future ain't what it used to be.”**
– Yogi Berra



FLU VACCINE CATEGORIES



ANY QUESTIONS?

