

# **Influenza Prevention and Control for Children and Youth with Special Health Care Needs**

## **Clinician Outreach and Communication Activity (COCA) Conference Call September 27, 2012**

# Objectives

**At the conclusion of this session, the participant will be able to accomplish the following:**

- ❑ **Identify gaps and opportunities to improve influenza prevention and control for children and youth with special health care needs**
- ❑ **Describe which children are at highest/increased risk for influenza complications**
- ❑ **Discuss the importance of developing partnerships between medical subspecialists and primary care pediatricians to promote medical homes for children**
- ❑ **Identify specific strategies to enhance influenza prevention and control for children with neurologic and other chronic medical conditions**

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# TODAY'S MODERATOR



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# TODAY'S PRESENTER



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# TODAY'S PRESENTER



**Lawrence Rhein, MD, FAAP**

Assistant Professor of Pediatrics

Boston Children's Hospital

Harvard Medical School

# “Pediatrics” released a CDC-authored study describing 2009 H1N1 influenza-related deaths in children during the 2009 influenza A pandemic.

Blanton, L., Peacock, G., Cox, C., Jhung, M., Finelli, L., & Moore, C. (2012). Neurologic Disorders Among Pediatric Deaths Associated with the 2009 Pandemic Influenza. *Pediatrics*, 130, 390-396. doi: 10.1542/peds.2011-3343.



Link to article <http://www.cdc.gov/NCBDDD/features/flu-neurological-disorders.html>



## Major Findings

- ❑ **Of 343 pediatric deaths reported to CDC that were associated with the 2009 H1N1 pandemic, 336 had information on the children's underlying medical conditions.**
- ❑ **Of these, 68% of pediatric deaths reported to CDC (n=227) were in children who had at least one underlying condition that put them at high risk for influenza-related complications. Seventy percent (n=158) had more than one high-risk condition.**
- ❑ **Neurologic disorders were the most frequently reported underlying medical conditions in this study. Sixty-four percent (n=146) of children had an underlying neurologic disorder.**

# Major Findings

**TABLE 1** Neurologic Disorders Among pH1N1-Associated Deaths in Children, United States, 2009–2010<sup>a</sup>

Neurologic Disorder <sup>b</sup>	No. (%) (N = 146)
Neuromuscular disorders	9 (6)
Muscular dystrophy	6 (4)
Mitochondrial disorders	3 (2)
Epilepsy	74 (51)
Neurodevelopmental disorders	137 (94)
Intellectual disability	111 (76)
Cerebral palsy	51 (35)
Hydrocephalus with ventriculoperitoneal shunt	16 (11)
Autism	3 (2)

<sup>a</sup> Denominator is the total number of children with neurologic disorders (N = 146). Sum of percentages is > 100 because 71 children had neurologic diagnosis in > 1 category (neuromuscular disorders, epilepsy, and neurodevelopmental disorders).

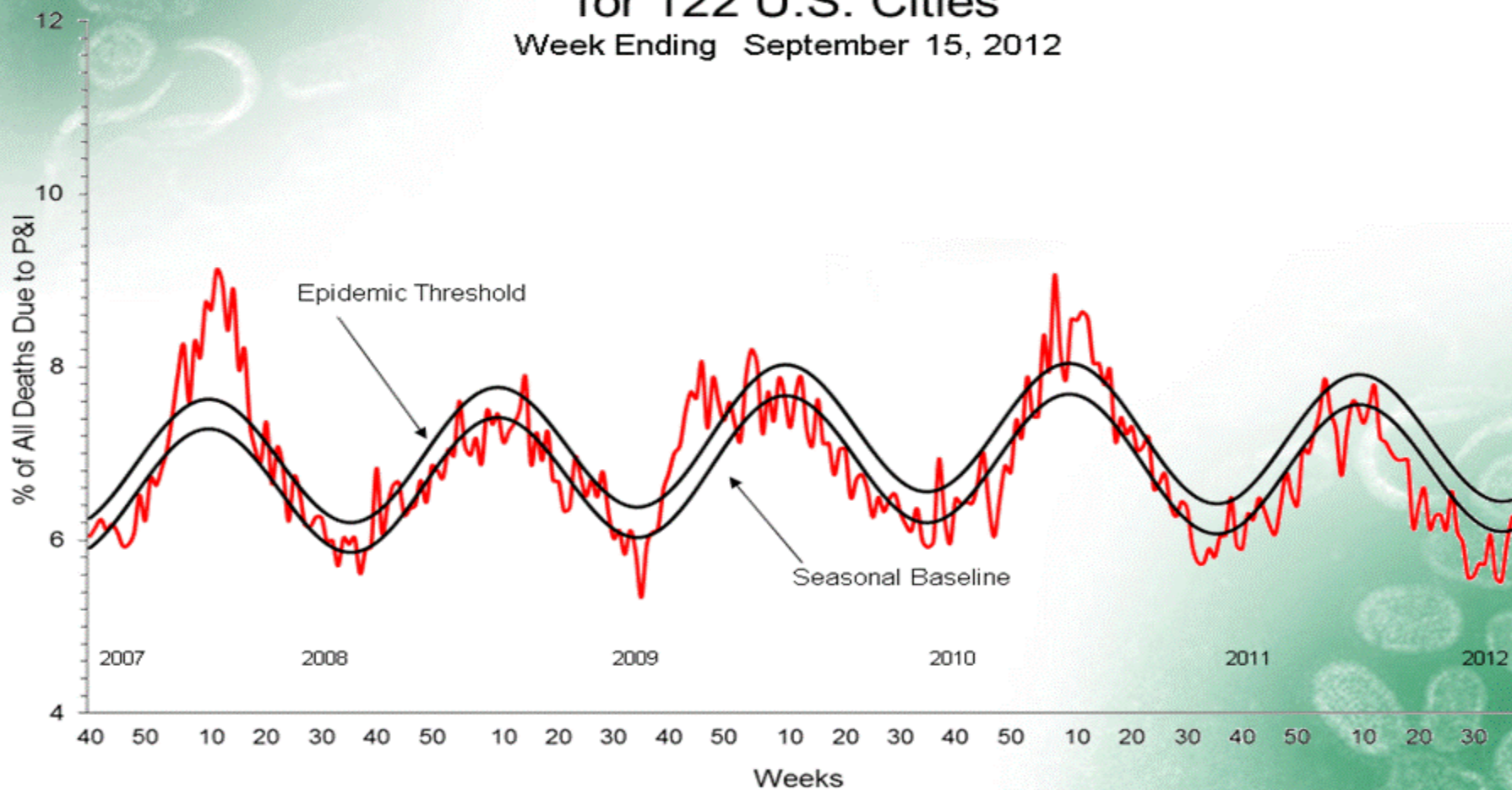
<sup>b</sup> Diagnoses that were reported in ≤ 1% in children with neurologic disorders are not included.

- **The most common neurologic conditions were:**
  - neurodevelopmental disorders, such as cerebral palsy, moderate to severe developmental delay and hydrocephalus (94%)
  - epilepsy (51%), and
  - neuromuscular disorders, such as muscular dystrophy, spinal muscular atrophy and mitochondrial disorders (6%)
- **These children were more likely to die during while hospitalized (80%) rather than in an emergency department or at home.**
- **Only 23% had received the seasonal influenza vaccine and 3% were fully vaccinated for 2009 H1N1.**

A Weekly Influenza Surveillance Report Prepared by the Influenza Division

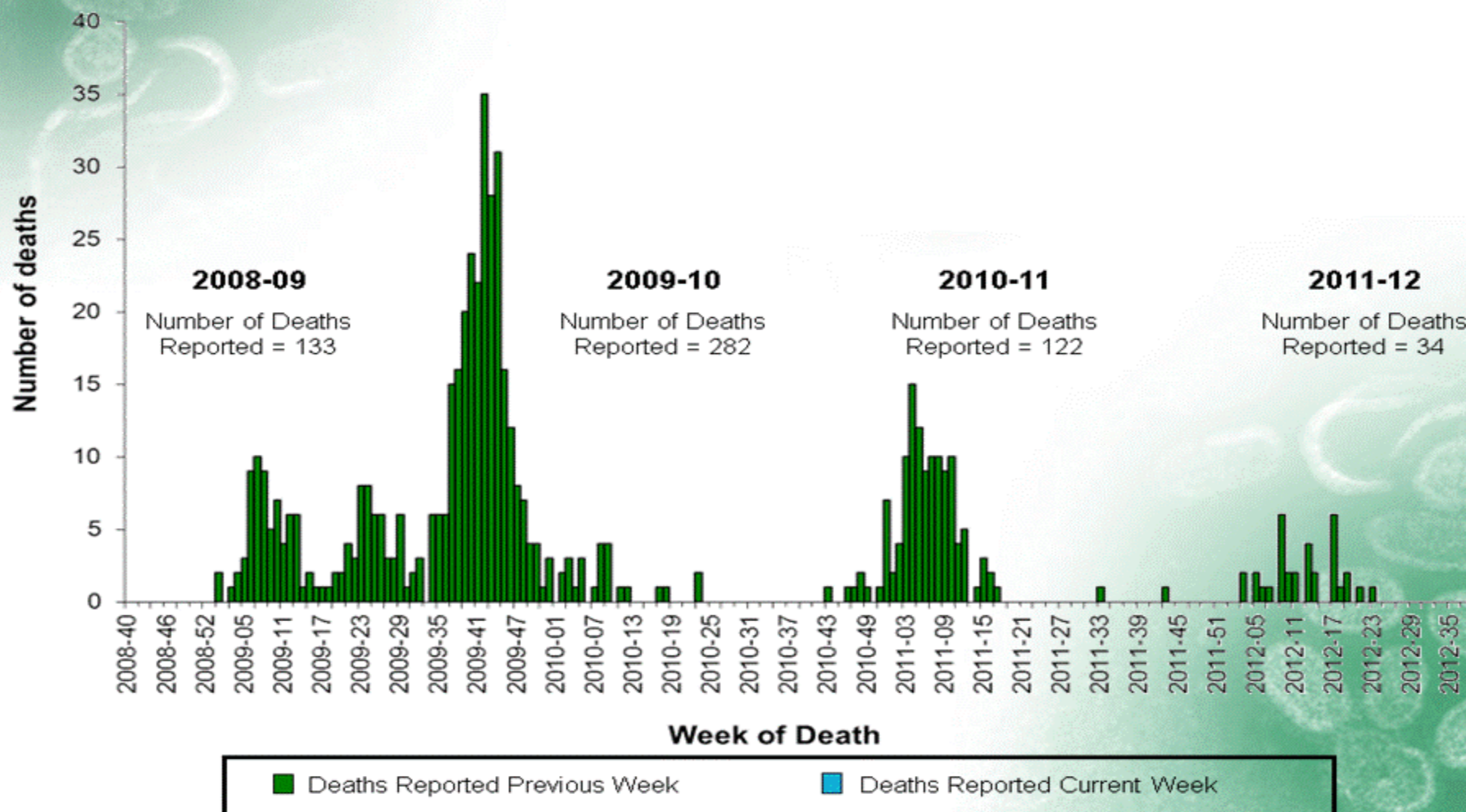
## Pneumonia and Influenza Mortality for 122 U.S. Cities

Week Ending September 15, 2012



A Weekly Influenza Surveillance Report Prepared by the Influenza Division

## Number of Influenza-Associated Pediatric Deaths by Week of Death: 2008-09 season to present

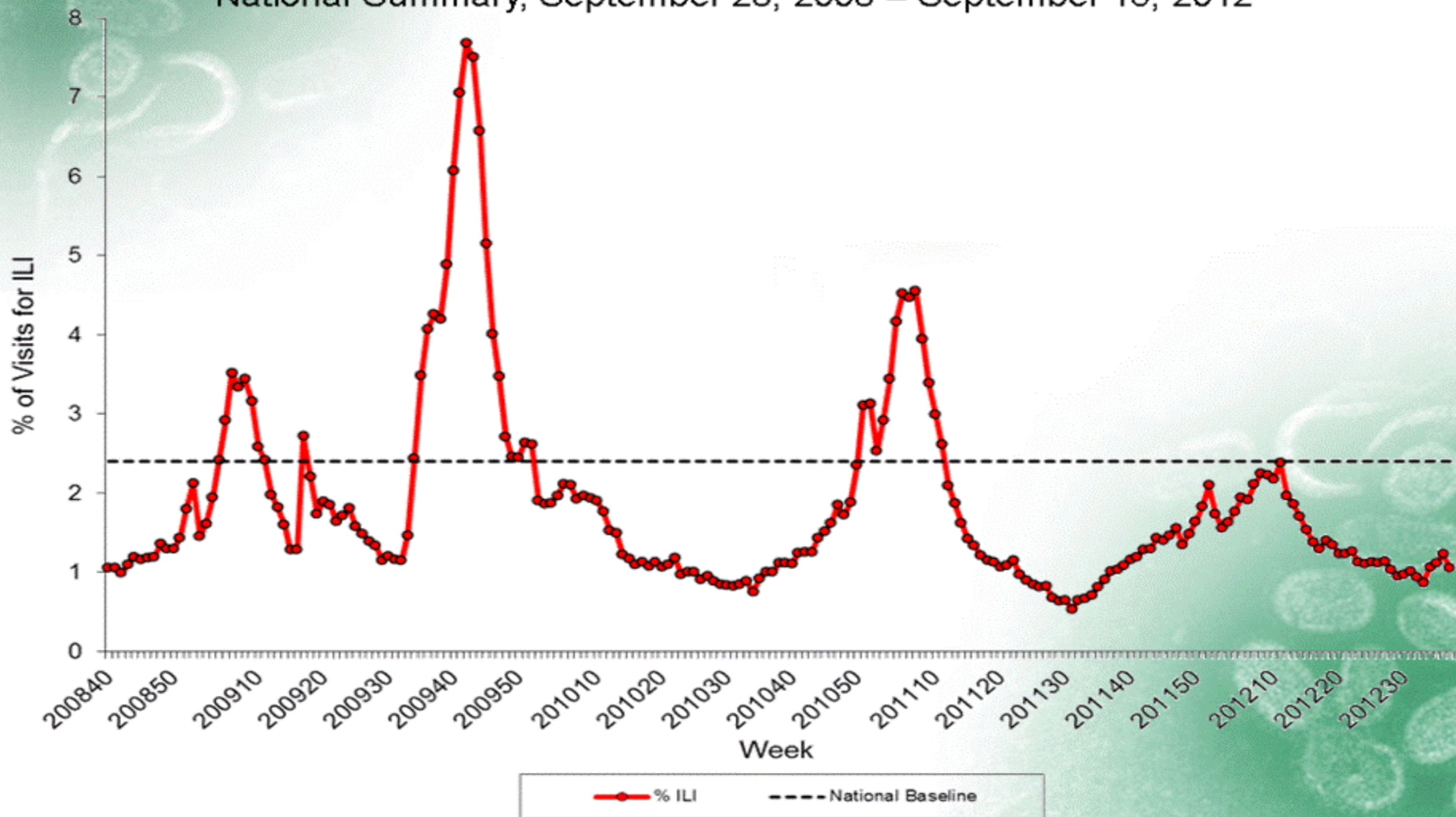


# FLUVIEW



A Weekly Influenza Surveillance Report Prepared by the Influenza Division

Percentage of Visits for Influenza-like Illness (ILI) Reported by the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), Weekly National Summary, September 28, 2008 – September 15, 2012



# Influenza Recommendations 2012-2013



HOFSTRA NORTH SHORE-LIJ  
SCHOOL *of* MEDICINE  
AT HOFSTRA UNIVERSITY

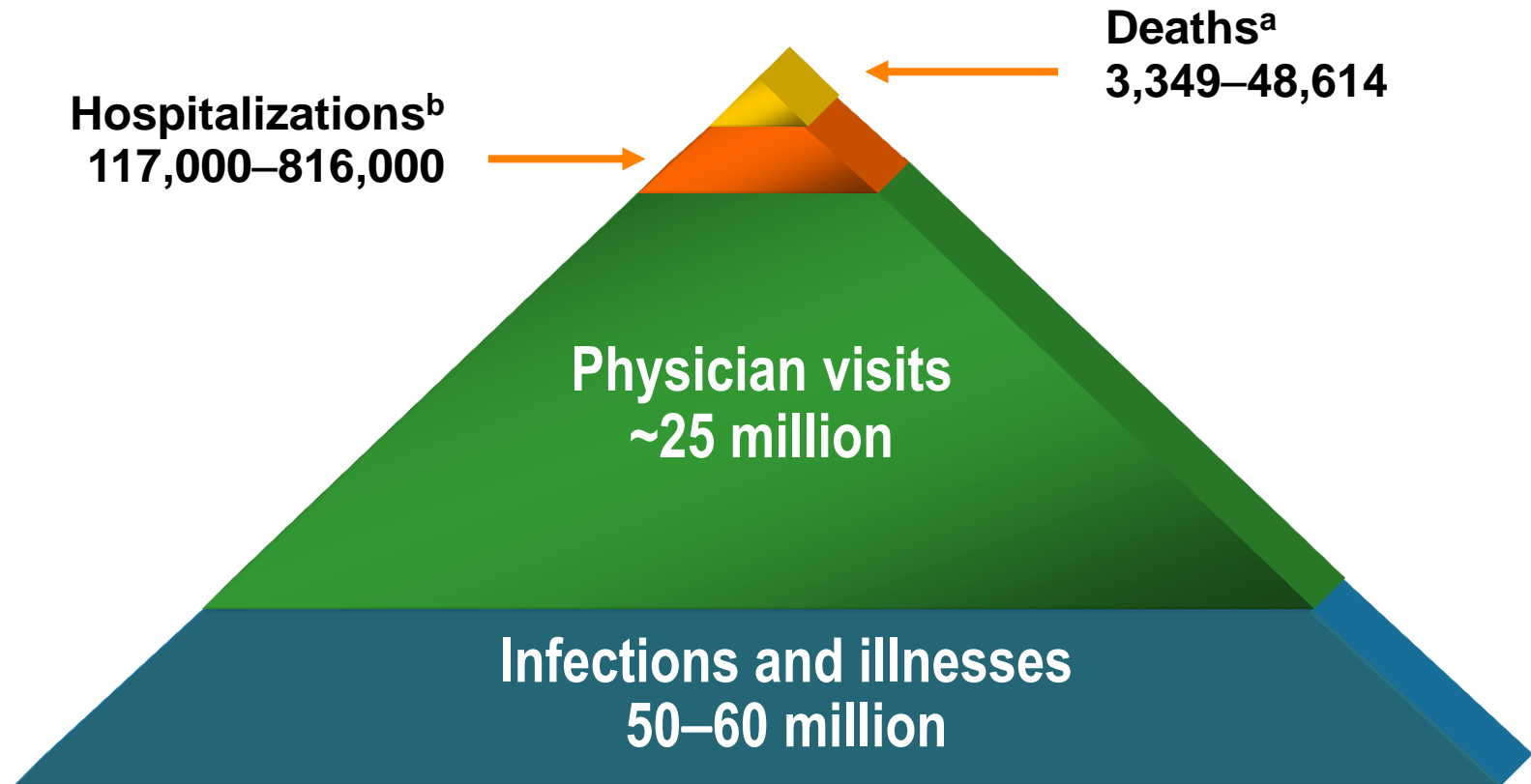
**Henry (Hank) Bernstein, DO, FAAP**  
**American Academy of Pediatrics**  
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**School of Medicine**

The findings and conclusions in this presentation are those of the author and do not necessarily represent the views of the Centers for Disease Control and Prevention.

# Key Messages

- **Influenza vaccine needed every year**
- **Influenza vaccine strains have changed this season**
- **Updated dosing algorithm created**
- **Egg allergic children CAN and SHOULD be vaccinated**
- **No change in recommendations for giving TIV and PCV 13 together**

# Influenza Disease Burden in the US in an Average Year



<sup>a</sup> *MMWR*. 2010; 59(22):1057–1062.

<sup>b</sup> All-cause hospitalization and mortality associated with influenza virus infection.

Thompson WW, et al. *JAMA*. 2003;289:179; Thompson WW, et al. *JAMA*. 2004;292:1333; Couch RB. *Ann Intern Med*. 2000;133:992; Patriarca PA. *JAMA*. 1999;282:75; ACIP. *MMWR*. 2004;53(RR06):1.



# 2012-13 Seasonal Influenza Vaccine Strains

✓ **A/California/7/2009 (H1N1)pdm09-like virus**

✓ **A/Victoria/361/2011 (H3N2)-like virus \*\***

✓ **B/Wisconsin/1/2010-like virus (from the  
B/Yamagata lineage of viruses) \*\***

**\*\* 2 different virus strains from last  
season's vaccine**

# Special Populations to Reach



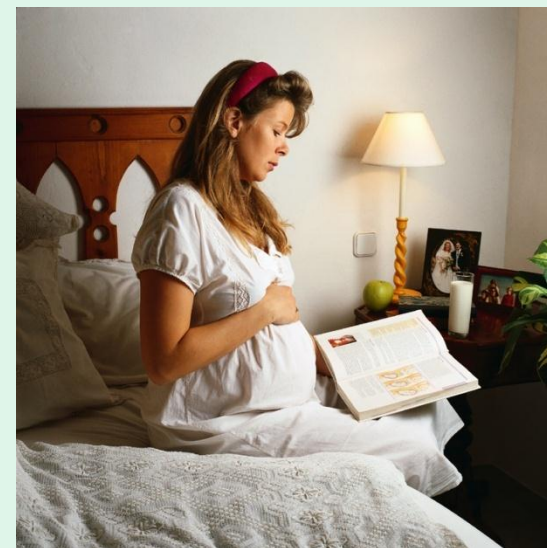
*All Children*



*Health Care Personnel*

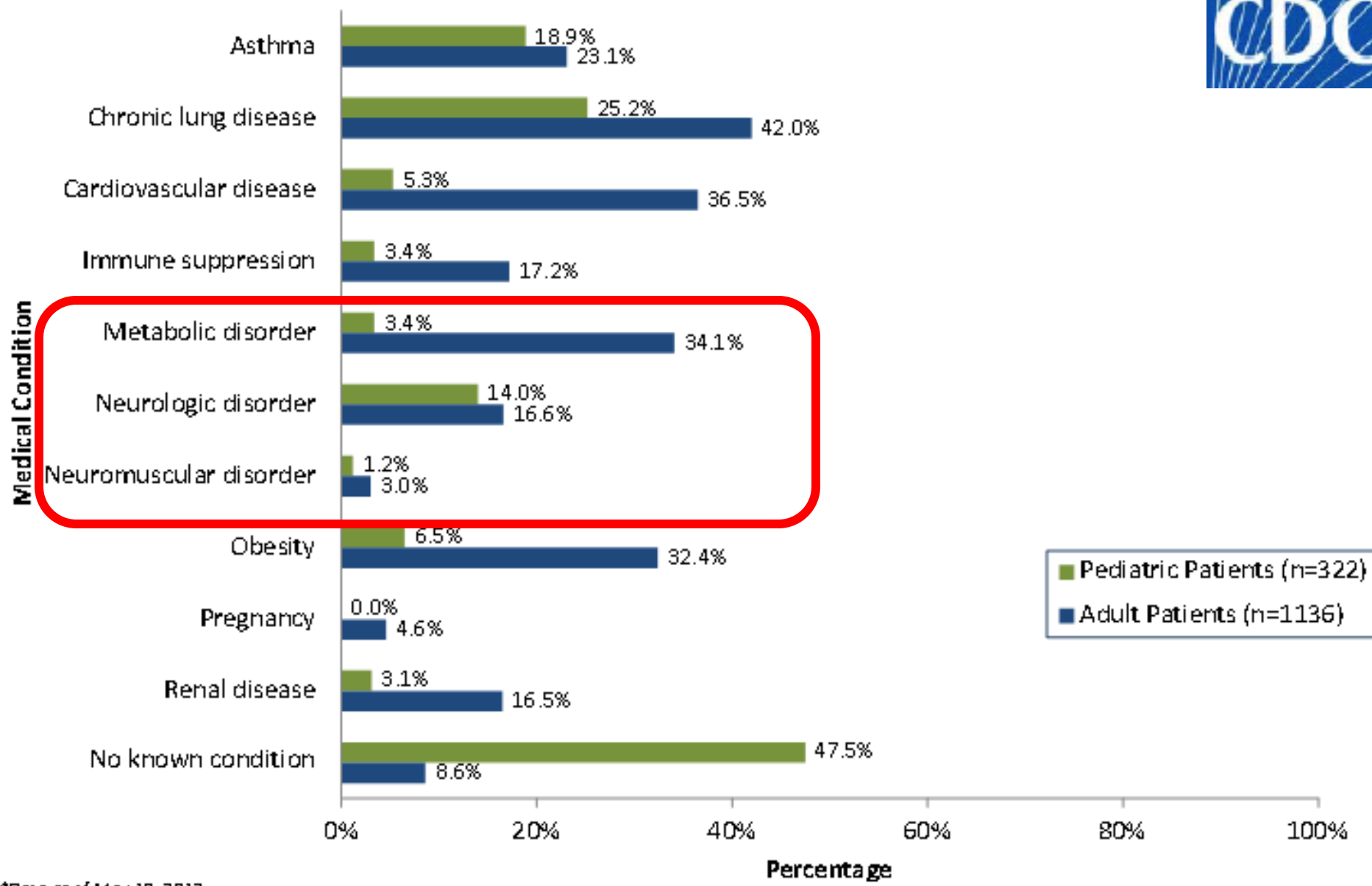


*Household Contacts of High Risk Children  
and of All Children <5*



*Pregnant Women*

# Selected underlying medical conditions<sup>1,2</sup> among laboratory-confirmed influenza-associated hospitalizations, FluSurv-NET, 2011-2012<sup>3</sup>



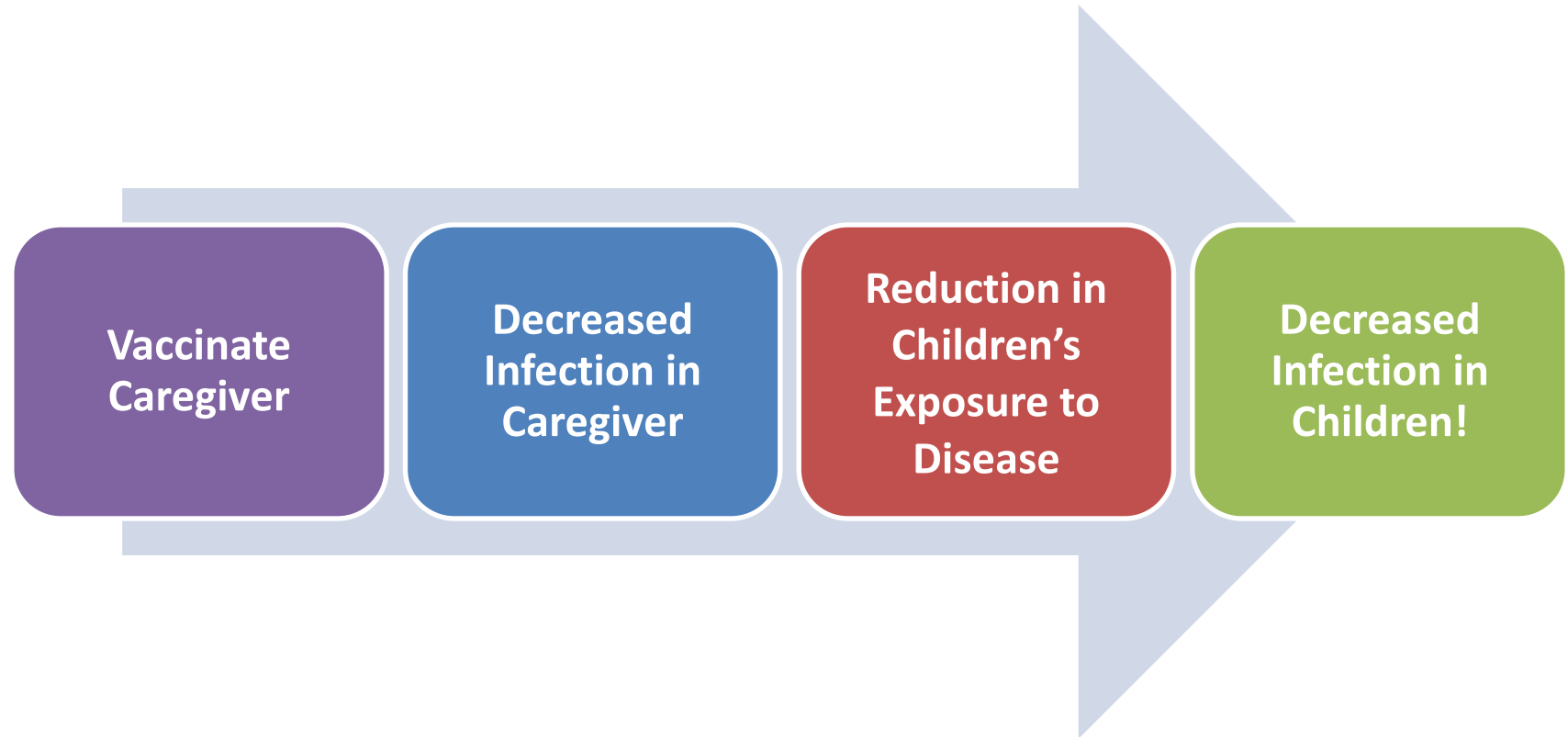
<sup>3</sup>Data as of May 19, 2012

# Vaccination Strategies

- **Prompt initiation of immunization as available**
- **Continue immunization throughout season**
- **Make vaccine easily accessible for all children:**
  - **Create influenza clinics**
  - **Extend office hours during peak vaccination periods**
  - **Consider immunizing parents and adult caregivers**
  - **Work with other institutions or alternative care sites**

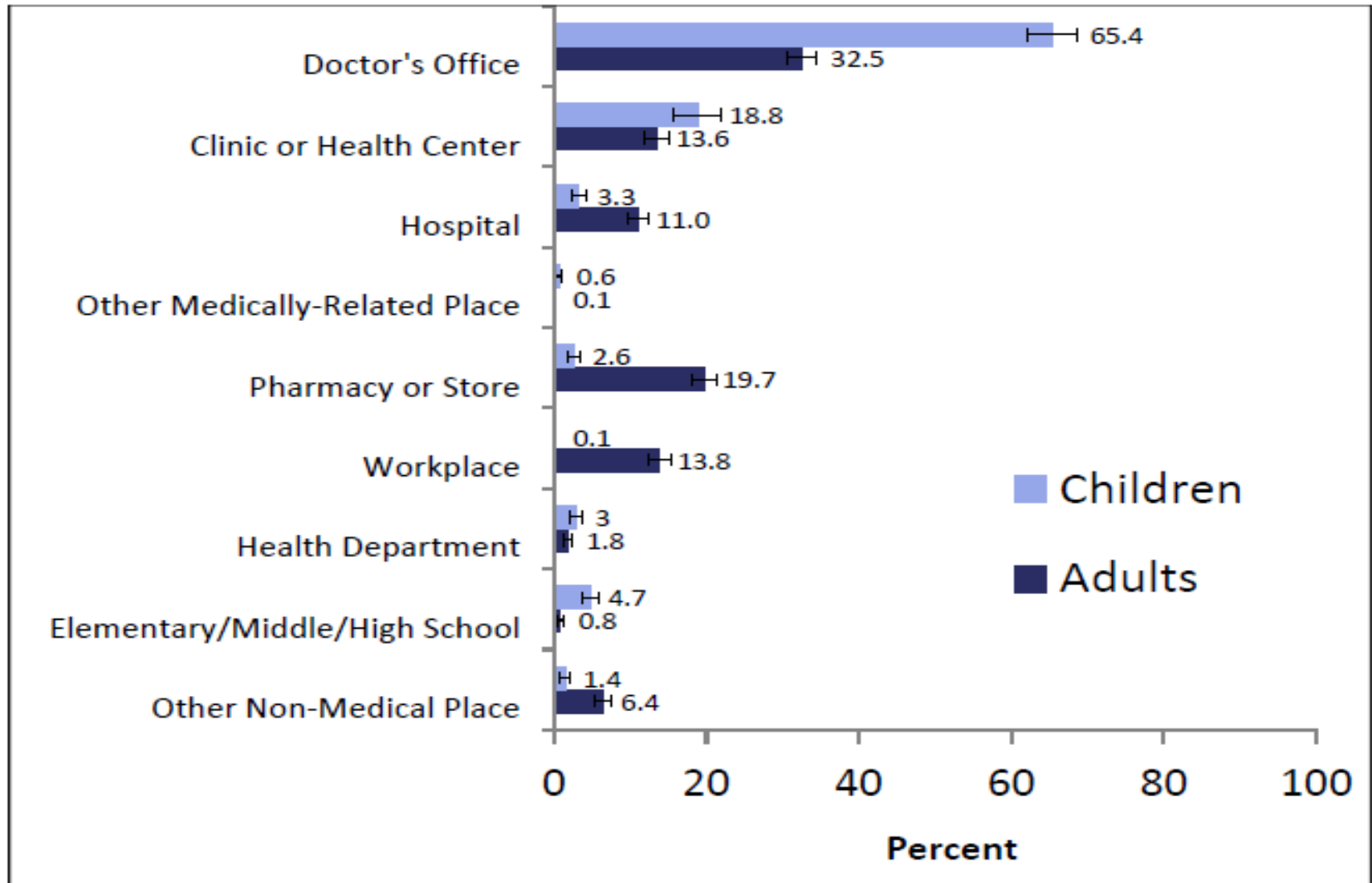
# Cocooning Works!

**Vaccination strategy which aims to protect children from disease by immunizing caregivers:**

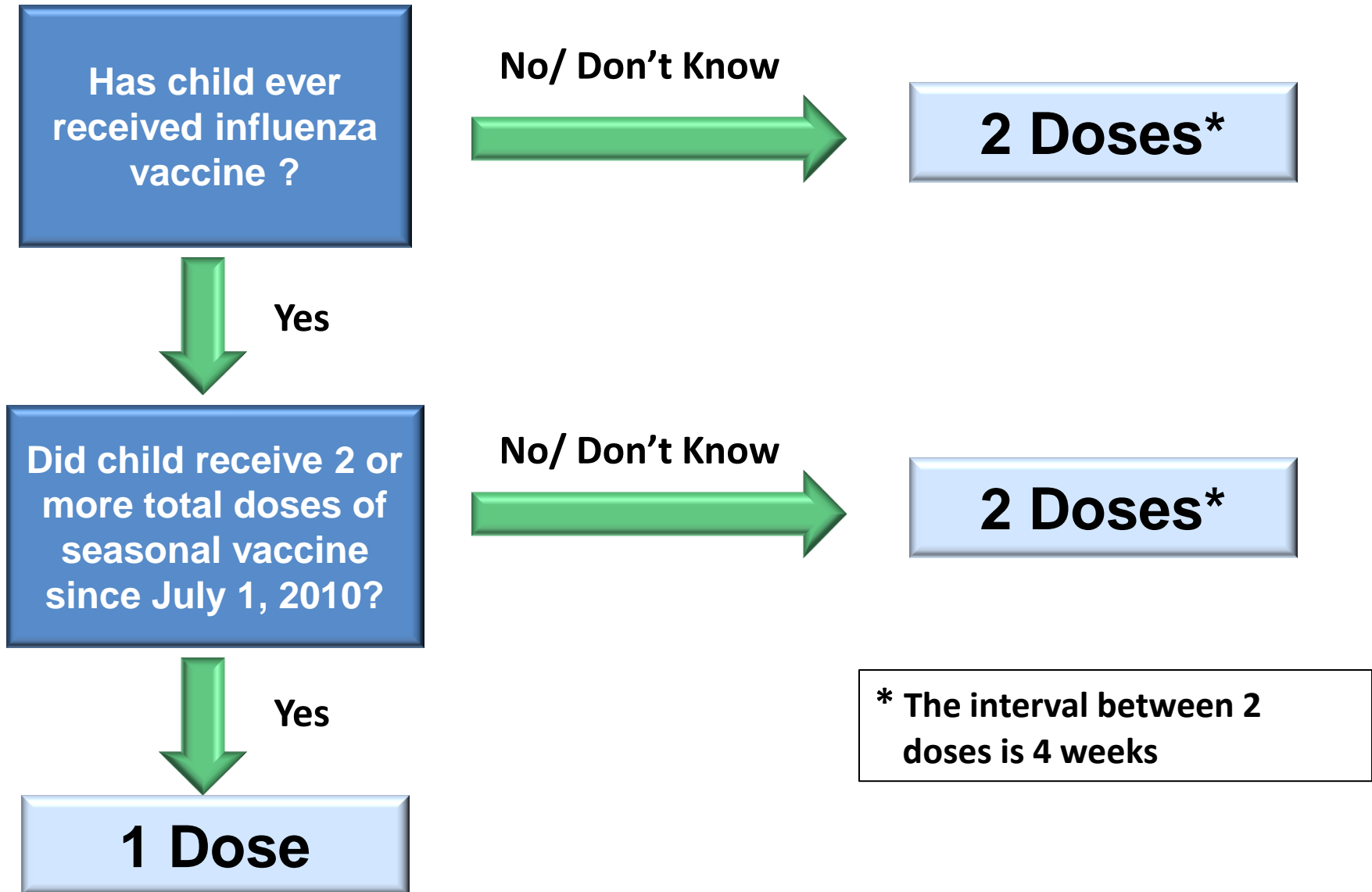


# Place of Vaccination for Children and Adults

## *March 2012, National Flu Survey*



# Number of Seasonal Influenza Doses for Children 6 months through 8 years of Age



# Approach to Children With Presumed Egg Allergy

History of an allergic reaction to eggs?

**NO**

Administer influenza vaccine per usual protocol

**YES**

Was the allergic reaction severe?

**NO**

Mild reaction only  
(eg, hives)

Administer influenza vaccine with precautions<sup>a</sup>

**YES**

## Anaphylaxis or Severe Reaction

- Cardiovascular changes (eg, low BP)
- Gastrointestinal (eg, vomiting)
- Respiratory (eg, wheezing, throat swelling)
- Episode required epinephrine

Allergy consultation

<sup>a</sup> Necessary precautions with administering influenza vaccine to any child with presumed egg allergy

- In-office observation for 30 minutes
- Appropriate resuscitative equipment available



# Febrile seizures if TIV and PCV 13 together?

- **Give PCV13 and TIV at same visit**
- **Current AAP and ACIP recommendations for TIV unchanged.**
  - ✓ **Previous febrile seizures are NOT a contraindication to use of TIV.**
  - ✓ **Prophylactic use of antipyretics in TIV-immunized children not indicated.**
- **More information needed, so additional data being collected this influenza season**

# Key Messages

- **Influenza vaccine needed every year**
- **Influenza vaccine strains have changed this season**
- **Updated dosing algorithm created**
- **Egg allergic children CAN and SHOULD be vaccinated**
- **No change in recommendations for giving TIV and PCV 13 together**

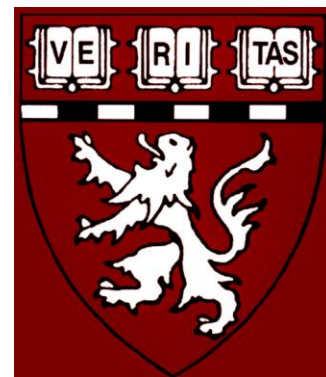
# Influenza Recommendations 2012-2013



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**American Academy of Pediatrics  
Member of Sections of Perinatology and Pediatric  
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Boston Children's Hospital  
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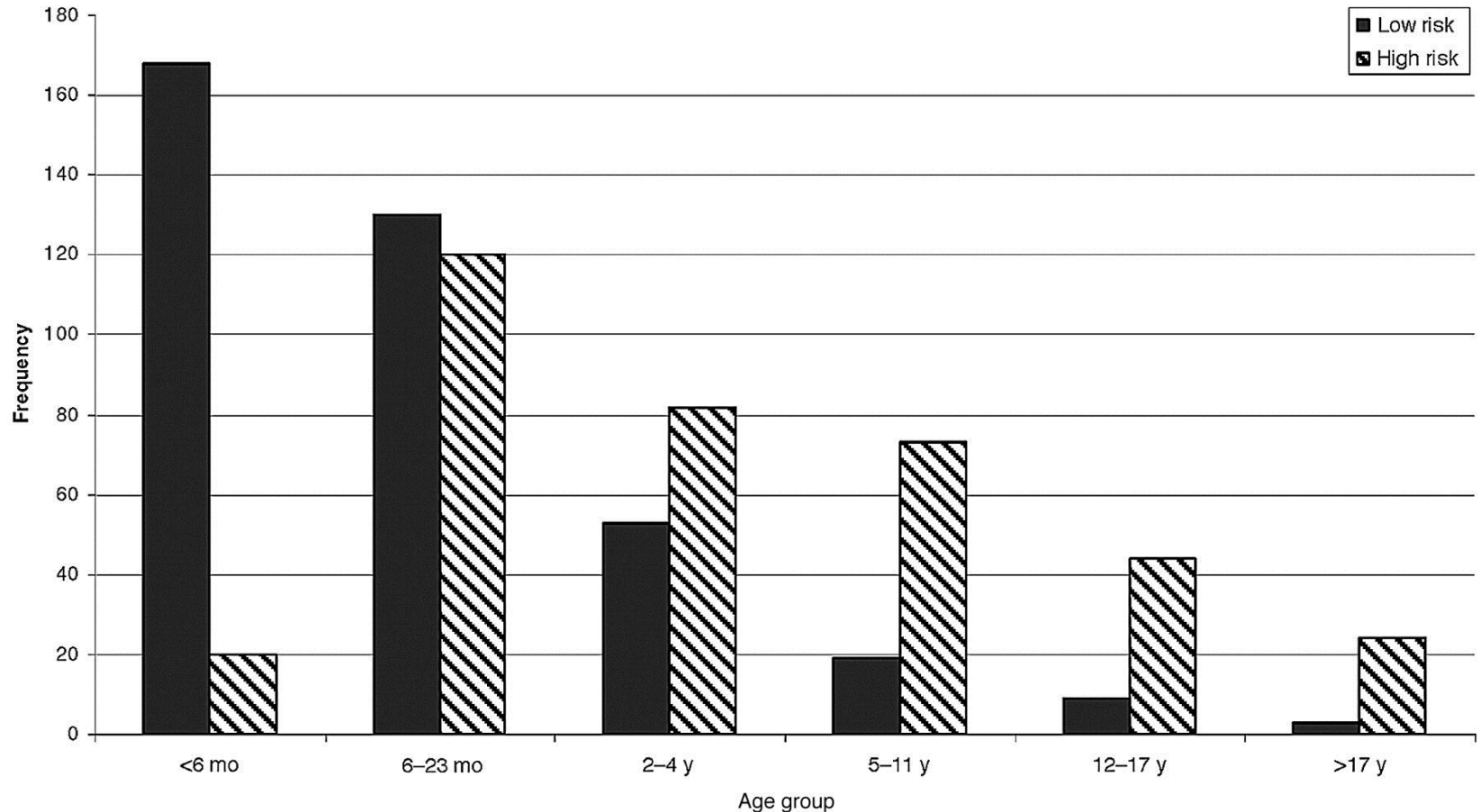


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# Key Messages

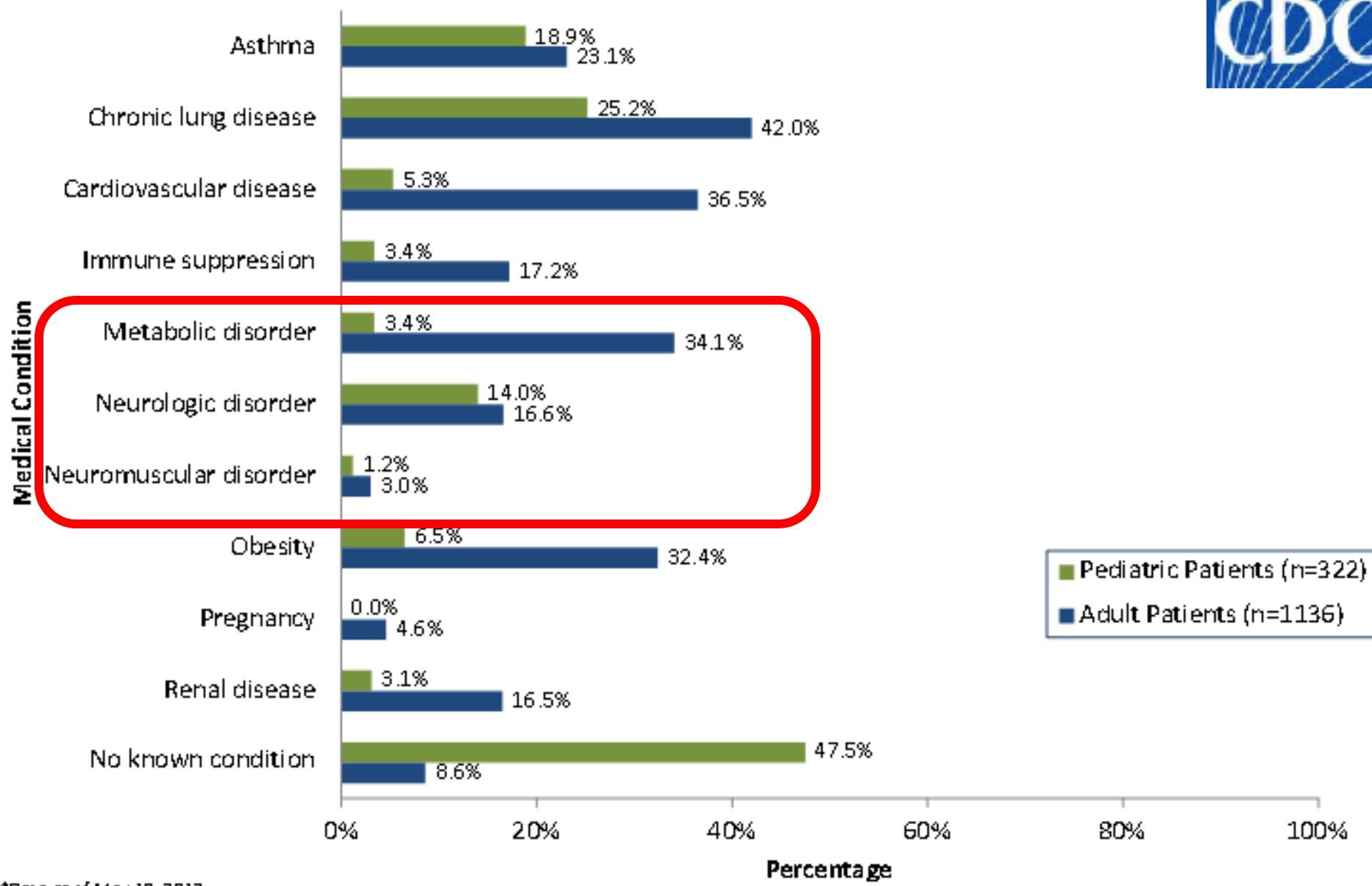
- **Influenza may have serious consequences for healthy children and especially children with chronic health conditions.**
- **Influenza vaccine is safe and effective.**
- **Vaccination rates of susceptible, eligible children are inadequate.**
- **Subspecialists, primary care providers, and parents share responsibility to improve vaccination rates.**

# Influenza has serious consequences for children with and without high-risk medical conditions.



Coffin S E et al. Pediatrics 2007;119:740-748

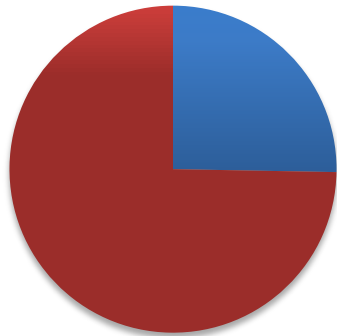
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\*Data as of May 19, 2012

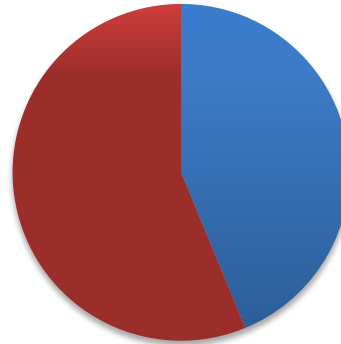
# Vaccination Rates in Children with Chronic Illnesses Remain Unacceptably Low!

**Asthma**



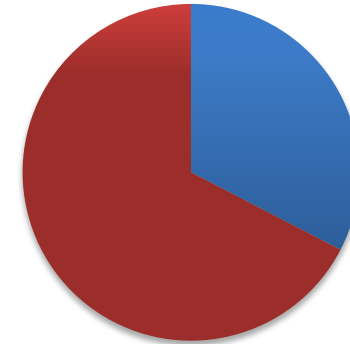
Chung et al  
Ann All Asthm Imm  
1998

**Chronic Renal  
Disease**



Printza et al  
Human Vaccines  
2010

**Parents of NICU  
Patients**



Shah et al  
Adv Neonat Care  
2007

# **Barriers to Vaccination of Children with Chronic Conditions: Logistical Issues**

Frequent hospitalizations result in missed primary care appointments.

Timing of routine clinic visit does not coincide with flu season, resulting in need for “extra” visit just for vaccination.

Susceptibility to acute illnesses results in missed opportunities for immunization

Care by multiple providers makes it difficult to determine who is responsible for keeping immunizations up to date



# Vaccination Strategies

- **Identify eligible patients**
  - “Jonny should receive flu vaccination this winter” or
  - “Since Jonny is too young to receive his own vaccination, his parents should receive flu vaccine and when he is 6 months of age, he should also be vaccinated.”
- **Provide education about vaccination to dispel concerns based on misinformation**
  - Explain true risks and the many benefits of vaccination

# Vaccination Strategies

- **Provide opportunities for vaccination**
  - **Specific vaccine clinics**
- **Communicate with other providers to ensure patients don't fall through cracks**
  - **Document where patient receives or plans to receive vaccine**

# Key Messages

- **Influenza may have serious consequences for healthy children and especially children with chronic health conditions.**
- **Influenza vaccine is safe and effective.**
- **Vaccination rates of susceptible, eligible children are inadequate.**
- **Subspecialists, primary care providers, and parents share responsibility to improve vaccination rates.**





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# Thank you for joining!

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## Influenza Prevention and Control for Children and Youth with Special Health Care Needs

**CE** = Free Continuing Education

**Date:** Thursday, September 27, 2012

**Time:** 2:00 - 3:00 pm (Eastern Time)


**Join By Phone:**


**Dial-In Number:** 1-888-790-6180

**Passcode:** COCA

**Join By Webinar:** <https://www.mymeetings.com/nc/join.php?i=PW7035569&p=COCA&t=c>

**Presenter(s):**

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 **Lawrence Rhein, MD**  
Assistant Professor of Pediatrics  
Medical Director UW Center for Pain Relief  
Director of Center for Healthy Infant Lung Development  
Children's Hospital, Boston

**Overview:**  
Children with underlying medical conditions, to include neurological disorders, are at higher risk for influenza-associated complications. During the 2009-2010 Influenza A (H1N1) Pandemic, children with neurological disorders experienced a greater burden of morbidity and mortality. Influenza prevention and control strategies in this at-risk population should include coordinated care among clinicians and the children's families. During this COCA call, subject matter experts will discuss subspecialist and primary care pediatrician collaborations regarding influenza prevention and control strategies for improving care for high-risk children.

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