

# Influenza Vaccine Session

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# Agenda: Influenza Session

- **Influenza update (Fiore)**
  - Current recommendations
  - Vaccination coverage update
- **Use of LAIV (FluMist) for 2-4 year olds (Fiore)**
  - Vote
  - VFC vote (Greg Wallace, ISD, CDC)
- **Summary of September 2007 CDC-CSTE consultation: expanding influenza vaccination recommendations to 5-18 year old children (Fiore)**
- **Influenza Vaccine Workgroup Report: Key issues regarding expansion (Kathy Neuzil, Chair, ACIP Influenza Vaccine Workgroup)**
- **Economic analysis of inactivated influenza vaccine and live attenuated influenza vaccine for 2-4 year olds (Lisa Prosser, Harvard)**
- **Interagency Working Group: pandemic vaccine prioritization recommendations (Ben Schwartz, NVPO)**

## BOX. Persons for whom annual vaccination is recommended

Annual vaccination against influenza is recommended for

- all persons, including school-aged children, who want to reduce the risk of becoming ill with influenza or of transmitting influenza to others
- all children aged 6–59 months (i.e., 6 months–4 years);
- all persons aged  $\geq 50$  years;
- children and adolescents (aged 6 months–18 years) receiving long-term aspirin therapy who therefore might be at risk for experiencing Reye syndrome after influenza virus infection;
- women who will be pregnant during the influenza season;
- adults and children who have chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, hematological or metabolic disorders (including diabetes mellitus);
- adults and children who have immunosuppression (including immunosuppression caused by medications or by human immunodeficiency virus);
- adults and children who have any condition (e.g., cognitive dysfunction, spinal cord injuries, seizure disorders, or other neuromuscular disorders) that can compromise respiratory function or the handling of respiratory secretions or that can increase the risk for aspiration;
- residents of nursing homes and other chronic-care facilities;
- health-care personnel;
- healthy household contacts (including children) and caregivers of children aged  $< 5$  years and adults aged  $\geq 50$  years, with particular emphasis on vaccinating contacts of children aged  $< 6$  months; and
- healthy household contacts (including children) and caregivers of persons with medical conditions that put them at higher risk for severe complications from influenza.

## ACIP Recommendations, 2007

Published June 2007

<http://www.cdc.gov/flu/>

### Simple Version

Vaccinate persons at higher risk for influenza complications

Vaccinate persons who are contacts or provide care for persons at higher risk for influenza complications

Vaccinate anyone who wants to be vaccinated



# Recommendation Changes for Influenza Vaccination: Recent Milestones

## **Before 2000:**

Persons aged 65 or older

Persons with chronic medical conditions that make them more likely to have complications of influenza

Pregnant women in the second or third trimester

Contacts (household and out of home caregivers) of the above groups

Healthcare workers

**2000:** Adults 50 and older

**2004:** Children aged 6--23 months

Contacts (household and out of home caregivers) of children aged 0--23 months

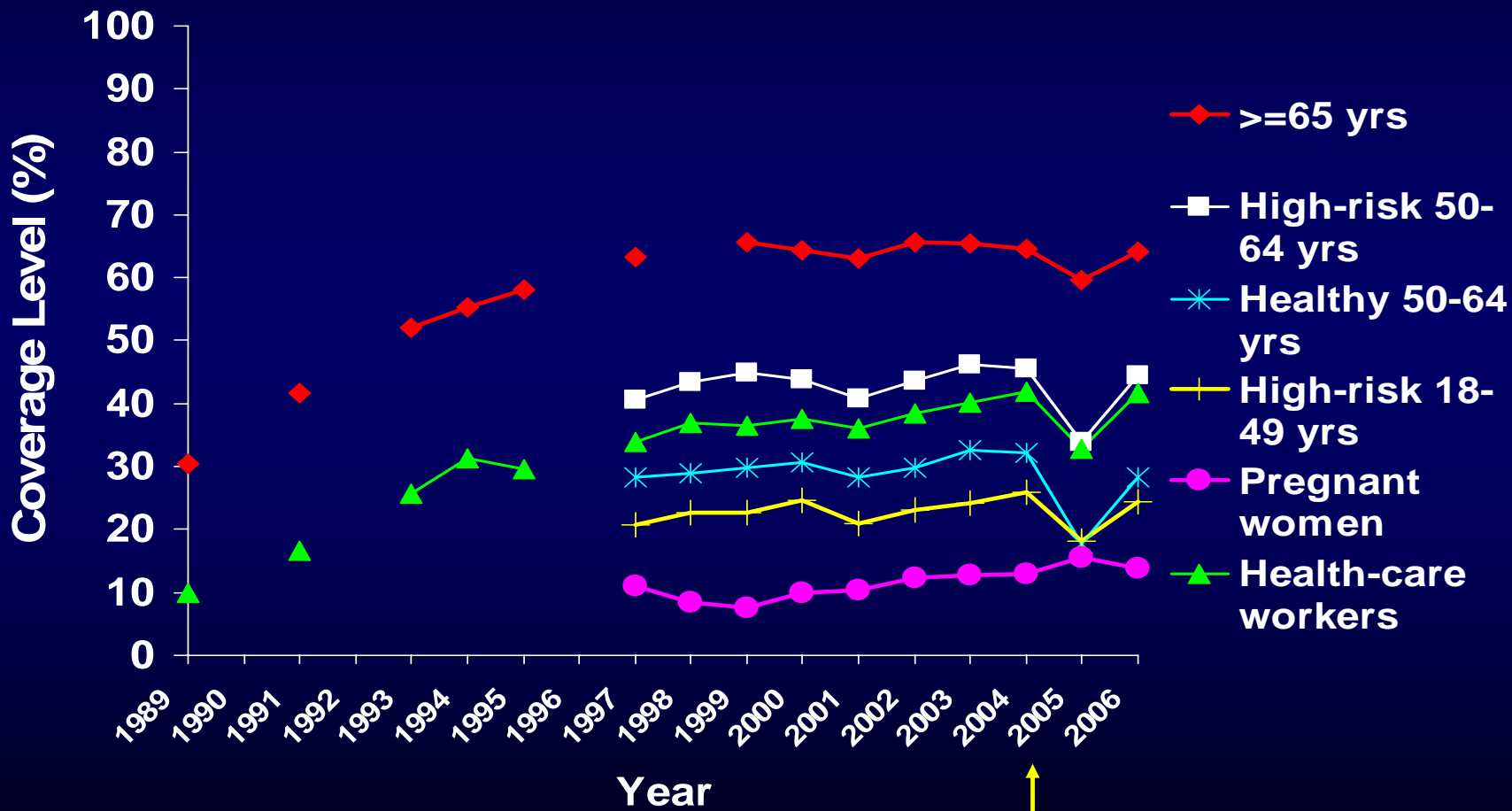
Women who will be pregnant during influenza season

**2006:** Children aged 6--59 months

Contacts (household and out of home caregivers) of children aged 0-59 months

# Recent Influenza Vaccine Coverage Data, United States

# Self-Reported Influenza Vaccination Coverage Levels Among Selected Priority U.S. Adult Populations, 1989-2006, National Health Interview Survey



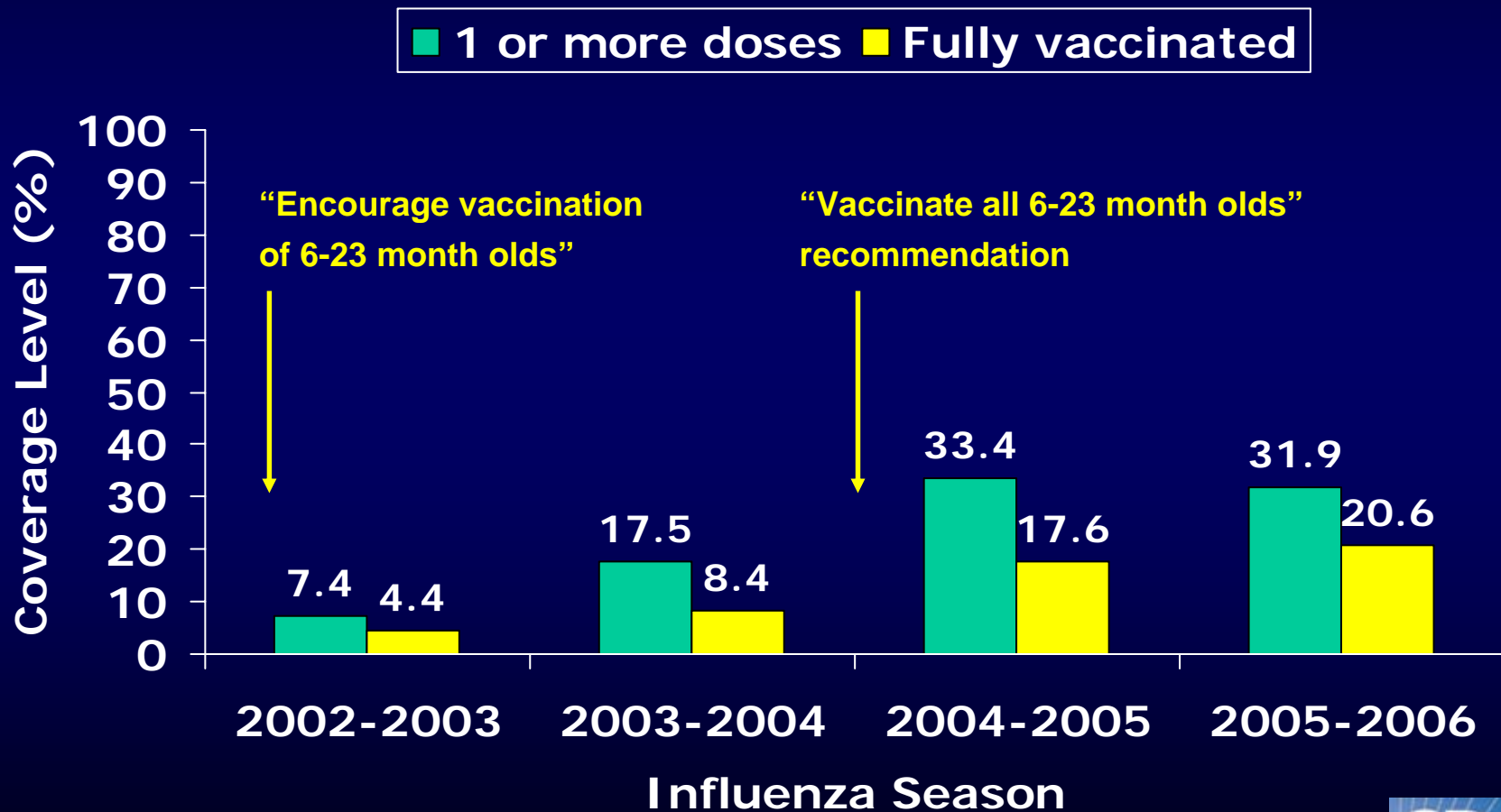
Vaccine shortage: 2004-05 season

Source: CDC.

<http://www.cdc.gov/flu/professionals/vaccination/pdf/vaccinetrend.pdf>



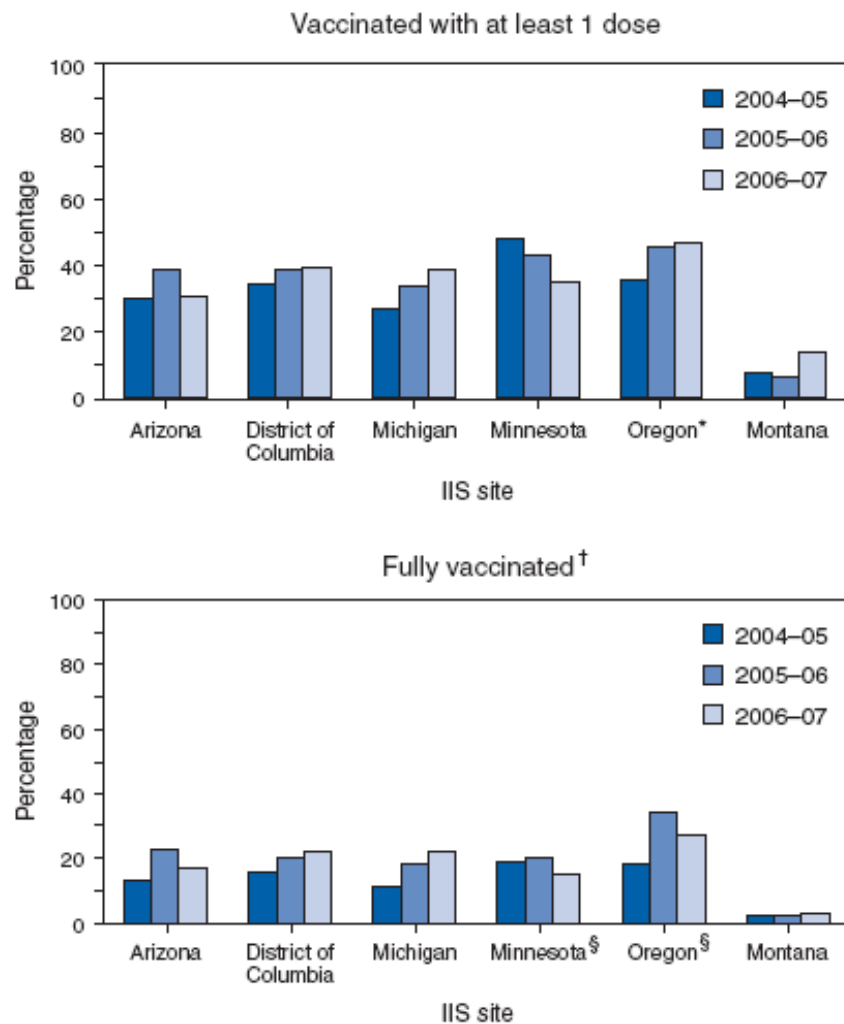
# Influenza Vaccination Coverage among Children 6-23 Months of Age, National Immunization Survey, 2003-2006



Source: MMWR 2007;56:959-63



**FIGURE 1. Influenza vaccination coverage among children aged 6–23 months — six immunization information system (IIS) sentinel sites, United States, 2004–05, 2005–06, and 2006–07 influenza seasons**



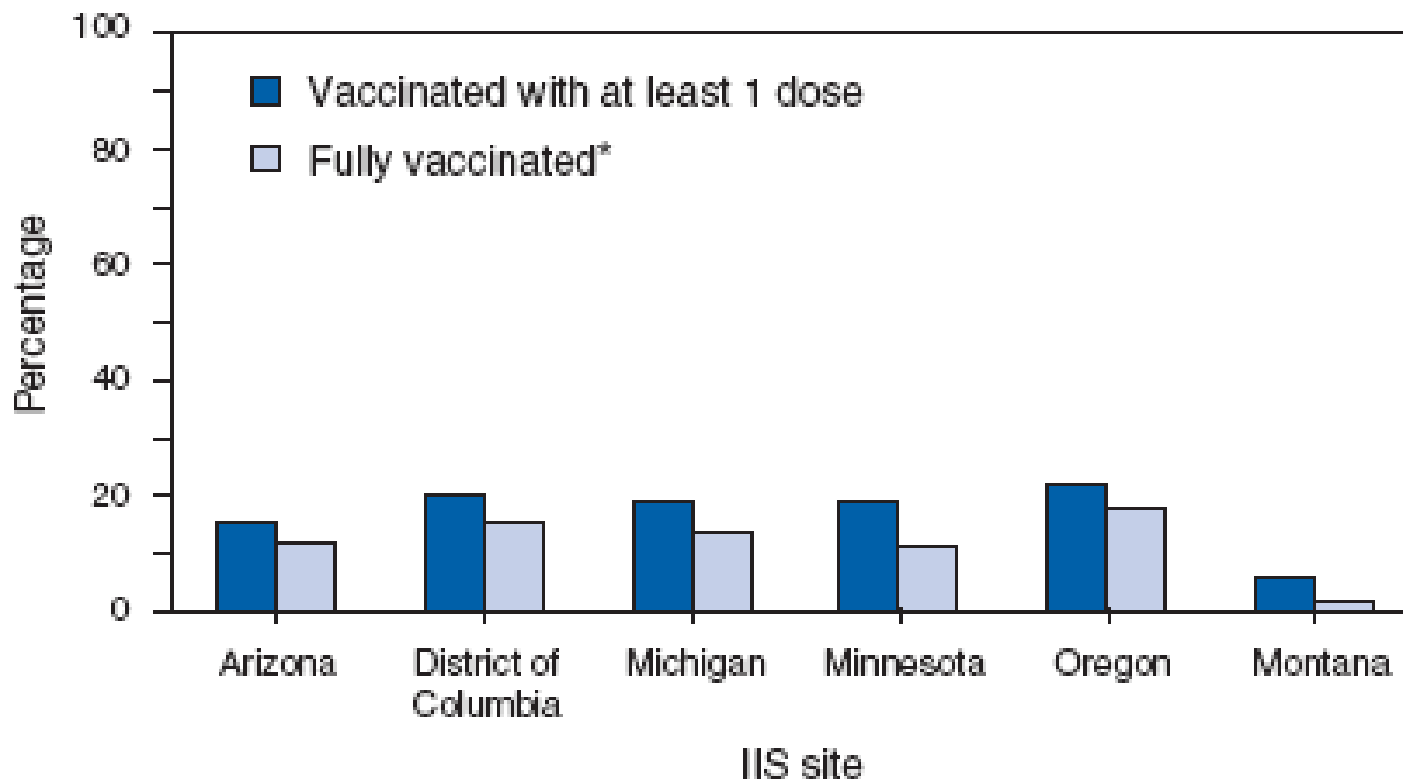
Source: MMWR 2007;56:963-5

**SOURCE:** CDC. Influenza vaccination coverage among children aged 6–23 months—six immunization information system sentinel sites, United States, 2005–06 influenza season. MMWR 2006;55:1329–30.





**FIGURE 2. Influenza vaccination coverage among children aged 24–59 months — six immunization information system (IIS) sentinel sites, United States, 2006–07 influenza season**



Source: MMWR 2007;56:963-5

Use of LAIV (FluMist) for  
Children Ages 2-4 Years  
(24-59 Months) Old

# BLA Supplement Requested by MedImmune for LAIV (FluMist)

- Children aged 12-59 months w/o history of wheezing and asthma
- Primary data source: Study CP111 (Belshe et al, N Engl J Med, 2007\*)
  - Randomized double blind, active control (TIV) multicenter study
  - Pre-specified analyses for 6-23 months olds and 24-59 month olds
  - Excluded: medically diagnosed or treated wheezing within 42 days before enrollment, or a history of severe asthma (as judged by investigator)

\*Presented to ACIP in October 2006 and February 2007

# Summary Findings from FDA Clinical Reviewer Analyses\*

- FluMist is safe and effective in subjects 24 months of age and older
- Among subjects <24 months of age, participants who received FluMist had:
  - Increased hospitalizations
  - Increased severity of wheezing
  - Increased severity of respiratory events

\*T Cvetkovich, M Baylor and S Ahnn, VRBPAC presentations, May 16, 2007

Available at: <http://www.fda.gov/ohrms/dockets/ac/07/slides/2007-4292S1-0-index.html>

# LAIV (FluMist) Licensure History for 2-4 Year Olds, 2007

- May 2007: FDA issues a Warning Letter to MedImmune
  - BLA supplement decision delayed pending resolution of manufacturing issues
- June 2007: VRBPAC findings reported to ACIP
  - Unable to vote on use pending BLA supplement approval
- September 2007: Warning Letter issues resolved
- September 19, 2007: BLA supplement application approved by FDA

# LAIV (FluMist) Prescribing Information, 2007

- Indicated for persons 2-49 years old
- Do not administer to
  - Children <24 months
  - Individuals with asthma and children <5 years of age with recurrent wheezing
- “Safety not established in persons with underlying medical conditions predisposing them to wild-type influenza infection complications”
- Patient counseling information (from prescribing information):
  - “Ask if vaccinee or their parent/guardian if the vaccinee has asthma. For children <5 years old, also ask if the vaccinee has recurrent wheezing since this may be an asthma equivalent in this age group”

# Influenza Vaccine Workgroup: Conclusions from LAIV Discussions

- LAIV efficacy is at least equivalent to TIV efficacy for children 6 months and older
- Good evidence for safety among healthy children 24 months and older without history of asthma or wheezing
- Additional information on safety is needed for children  $\geq 24$  months old with history of asthma or wheezing
  - Discussed at June 2007 ACIP (Karen Broder)
    - Vaccine Adverse Events Reporting System (VAERS)
    - Vaccine Safety Datalink (VSD)
- Guidance for healthcare practitioners and immunization programs needed to better define “recurrent wheezing”

# Guidance for Persons Administering LAIV to 2-4 Year Olds: Workgroup Considerations

- “Recurrent wheezing”
  - FluMist Prescribing Information does not define
  - Medical literature is not consistent
- Asking about recurrent wheezing would not exclude some children who were excluded from the studies
  - Children with single recent severe wheezing episode
- Young children predisposed to reactive airways diseases might not be old enough to have had more than 1 episode of wheezing
- A single simple question consistent with guidance from other organizations is most likely to be understood and used



# Screening for Wheezing in 2-4 Year Olds: Suggested Approach

FluMist is not recommended for use in children with underlying medical conditions, including asthma, that predispose them to influenza complications. However, some 2-4 year old children have a history of wheezing with respiratory illnesses but have not been diagnosed with asthma. Therefore, to identify children who might be at higher risk for asthma, persons administering FluMist should ask parents/guardians of 2, 3 and 4 year olds (24-59 month olds):

*“In the past 12 months, has a healthcare provider ever told you that your child had wheezing or asthma?”*

LAIV (FluMist) is not recommended for children whose parent or guardian answers yes to this question, or for children who had a wheezing episode noted in the medical record within the past 12 months.

- Guidance developed in collaboration with representatives from the Committee on Infectious Diseases, American Academy of Pediatrics
- Additional guidance might be considered as more post-marketing safety data is available.



# Influenza Vaccine Workgroup: Ongoing Topics

- Use of LAIV for children with history of wheezing
- Optimal influenza vaccination strategies for use of LAIV and TIV in young children
- LAIV safety analyses from VAERS, VSD, post-licensure studies

# Influenza Vaccine Workgroup Recommendations

- Either TIV or LAIV can be used for healthy persons aged 2-49 years
  - Healthy = persons who do not have an underlying medical condition that predisposes them to influenza complications