School-located influenza vaccination

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Seasonal influenza in the United States

- Each year, 5-20% of the US population contracts influenza\(^1\)
- Influenza results in an estimated average of 226,000 hospitalizations and 36,000 deaths annually\(^2\)
- Persons aged \(\geq 65\) years, children aged <2 years, and persons who have certain chronic medical conditions, are at highest risk for complications\(^2\)
- Vaccination is the most effective strategy for preventing influenza and its complications, yet coverage among most groups remains well below 50% for most age groups\(^2\)

1 - http://www.cdc.gov/flu/
2 - Fiore AE et al. Prevention and Control of Influenza Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 57(RR07);1-60, 2008
Influenza and school-aged children

- School-aged children have the highest rates of infection\(^1\)
- Routine vaccination of school-aged children would benefit children, but could also reduce burden among their contacts and the community at large (herd immunity)\(^2\)
- Disease models have shown that, if vaccine supply were limited such as during a pandemic, vaccinating school children would be the most efficient disease control approach\(^3\)

1 - Fiore AE et al. Prevention and Control of Influenza Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 57(RR07);1-60, 2008
February 2008 ACIP meeting

- Voted to recommend routine, annual influenza vaccination for all school-aged children, 5 years through 18 years\(^1\)
  - Children aged <9 years receiving influenza vaccine for the first time or who were vaccinated for the first time during the previous season but only received one dose should receive 2 doses of vaccine at least 4 weeks apart
  - Healthy, non-pregnant children may receive either live attenuated influenza vaccine (LAIV) or trivalent inactivated vaccine (TIV)
  - Children with asthma and other medical conditions should receive TIV

- Full implementation beginning in the 2009-2010 season

- This recommendations adds an estimated 30 million children to the ranks of those already recommended for vaccination\(^1\)
  - Expected to be a challenge since coverage among high risk children for whom vaccination is already recommended is low (<40%)\(^2\)

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1 - http://www.cdc.gov/media/pressrel/2008/r080227.htm
School-located influenza vaccination (SLIV)*

What is it?

- Influenza vaccination administered on school grounds
- Targets students (others may also be offered vaccine)
- Held during or after school hours
- Typically involves collaboration between public health and the schools

* AKA “school-based”, “school-associated”, “school-placed”
Why consider SLIV?

- Providers may not be able to accommodate so many new patient visits
- SLIV may be convenient for parents
  - Taking time off work for a provider visit is challenging
- SLIV may be convenient/practical for vaccinators (e.g., public health departments)
  - Many children are found in schools
  - Schools can usually accommodate mass vaccination clinics
  - Schools have some pre-existing infrastructure
  - School nurses can be supportive and assist
Recent US experience with SLIV

Examples

- Hawaii (statewide)
- Knox County, Tennessee
- 3 counties in Minnesota
- Milford, Connecticut (coming up next!)
Hawaii – statewide program

- Grades K-8 statewide
- Parents given a choice of LAIV or TIV
- Vaccine funding source: state, manufacturer donation, VFC
- 63,153 students vaccinated
- Participation: 43% (higher in the younger grades)
- Parental preference for LAIV vs. TIV
  - 26% LAIV
  - 56% TIV
  - 18% either
- Cost per dose administered
  - ~$24 including the cost of vaccine
  - ~$16 excluding the cost of vaccine

Presented at a NACCHO Influenza Meeting, July 2008, Atlanta, GA
Knox County, TN

- K-12 throughout the county
- LAIV only
- Vaccine funding source: manufacturer donation and VFC
- 24,198 students vaccinated
- Participation: 45%
  - 56% in elementary schools
  - 45% in middle schools
  - 30% in high schools
- Labor and opportunity cost
  - 6900 person-hours expended during the campaign
  - Health department clinics were closed for a total of 84 half days

Three counties in Minnesota

- K-12 throughout 3 counties
- LAIV only
- Vaccine funding source: manufacturer donation and VFC
- 15,453 students vaccinated
- Participation: 41%
  - 47%
  - 33% middle and high
- Cost per dose administered:
  - ~$10 excluding vaccine
  - Administrative costs were not fully quantified and included

Challenges

- Vaccinating outside of the medical home may reduce the incentive to see a provider.
- Burden and opportunity costs can be high:
  - School nurses – often overworked and understaffed
  - Health department staff – often overworked and understaffed
  - Teachers and school administrators – concerned about the disruption and time away from class
- Finding the time and know-how to start a program can be intimidating.
Challenges (2)

- Participation rates are consistently low (typically <50%, less with older children) – could we improve?
  - Seeking provider support for SLIV
  - Raising parental awareness of the new recommendations for children
  - Recognizing that parents may need time to get used to the idea of vaccination occurring in schools
  - Improving consent form return rate (e.g., crumpled-in-bottom-of-backpack syndrome)

- Same challenges as exist with influenza vaccination in general
  - Belief that the vaccine “causes” influenza
  - Belief that the vaccine is ineffective
  - General anti-vaccine sentiment

- SUSTAINABILITY!!!
  - Donated vaccine may be time-limited
  - Billing for vaccine and administration fee?
Other relevant activities

- CDC-funded SLIV pilot projects
- NACCHO-led toolkit
- *Journal of School Nursing* February issue
- *Pediatrics* supplement
- National Immunization Conference
School-located vaccination project
Denver, CO

- 2 year, CDC-funded project
- Led by Denver Health (local health department)
  - University of Colorado – evaluation
  - Denver Community Health Services – community vaccinator
- Objectives:
  - Conduct SLIV in 20 Denver elementary schools
  - Bill public and private insurance for vaccine and administration fee
  - Conduct an evaluation and cost analysis of both SLIV implementation and the billing process
School-located vaccination projects
Rochester, NY

- 2 year, CDC-funded project
- Led by Monroe County Department of Health
  - University of Rochester – evaluation
  - CNE – community vaccinator

Objectives:
- Conduct SLIV in 24 elementary schools
- Examine the effectiveness of varying approaches to promoting the clinics and seeking consent
- Bill public and private insurance for vaccine and administration fee
- Conduct an evaluation and cost analysis of both SLIV implementation and the billing process
NACCHO-led SLIV toolkit

**Objective:** Reduce the burden to local health departments of starting a SLIV program from scratch by providing:

- Suggested processes (e.g., timelines, checklists, who to engage)
- Sample materials (e.g., sample consent forms, letters soliciting principal support)

~10 local health departments, CDC, and other partners formed the workgroup to help design the toolkit.

It is still in draft form, but will be described and hopefully available by the 2009 National Immunization Conference.
Journal of School Nursing
February 2009 issue

Features a toolkit similar to what NACCHO has been developing, although it will be written specifically for school nurses
Pediatrics supplement

- Supplement is being finalized now
- It will be devoted to articles on SLIV demonstration projects and research related to SLIV
Two SLIV workshops

- “No Child Left Unimmunized – Influenza Vaccination in Schools”
  - Monday, March 30th, 3:30-4:30PM
- “School-located Influenza Vaccination Programs”
  - Thursday, April 2nd, 9:00-10:00AM

Lunch roundtable discussion on SLIV

- Tuesday, March 31st, 12:00-1:00PM

NIC website:  http://cdc.confex.com/cdc/nic2009/webprogram/meeting.html
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