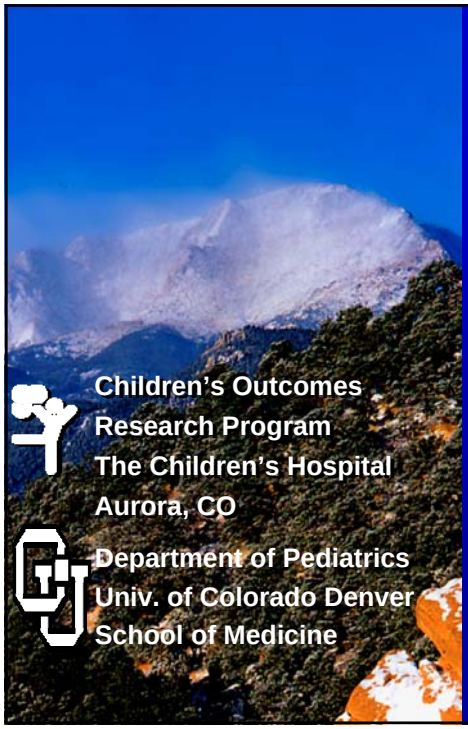

Logistics of Universal Childhood Influenza Vaccination

2009 National Influenza Vaccine Summit
July 1, 2009

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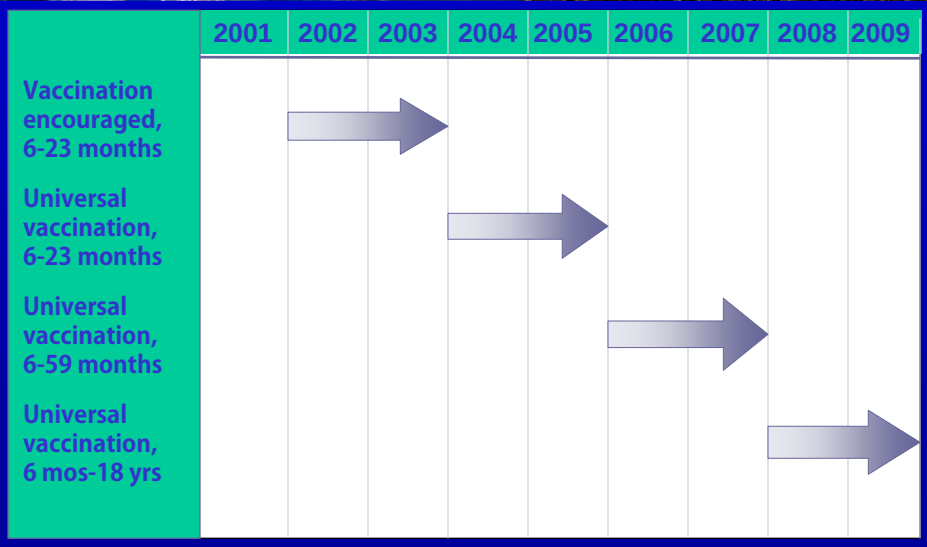
Disclosures

No relevant financial relationships with any commercial interests are present

No reference will be made to the use of medications in manners not licensed by the Food and Drug Administration

Expansion of Childhood Influenza Vaccination Recommendations



Additional Children Needing Vaccination

- Children recommended for vaccination:
  - 2007-08 season: ~40 million children
  - 2008-09 season and beyond: ~74 million children
- Less than one-third of recommended children actually vaccinated
- Immunizing 6 month-18 year olds:
  - 50% coverage rate: ~300% increase in number of children vaccinated
  - 90% coverage rate: ~500% increase

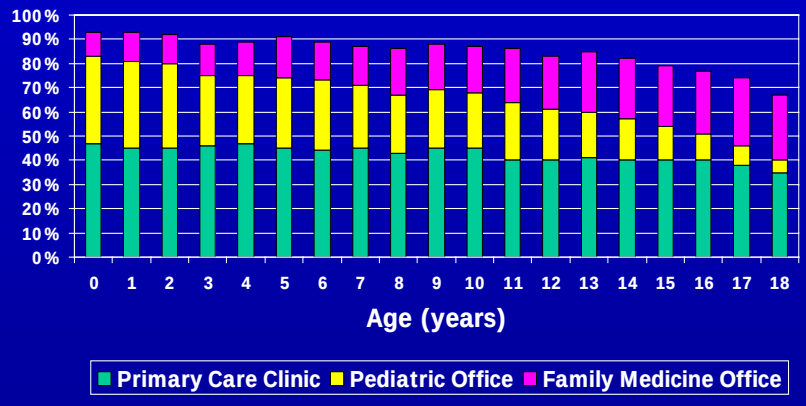
Ref: Erhart, *J Pediatr*, 2004; Schwartz, *J Infect Diseases*, 2006; ACIP Influenza Vaccination Recommendations, MMWR, 2008

Several Implications

- New strategies for influenza vaccine delivery in primary care
- New vaccination settings (schools)
- Improved financial incentives for influenza vaccination
- Influenza vaccination efforts need to be broad, community-based, collaborative

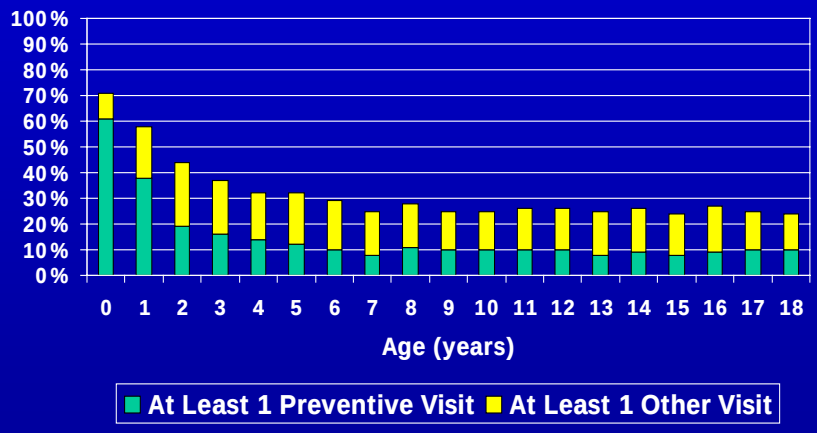
Influenza Vaccination in Primary Care

Percent of U.S. Children with Usual Source of Care (MEPS, 2002)



Ref: Modified from Szilagyi, Universal Vaccination Workshop, www.medicine.emory.edu/id/ecirve/areweready, 2005

Percent of U.S. Children with ≥ 1 Visit to Primary Care During Oct-Dec (2002 MEPS)



Ref: Modified from Szilagyi, Universal Vaccination Workshop, www.medicine.emory.edu/id/ecirve/arewereready, 2005

How Much Time Does Vaccination Take?

- Influenza vaccination-only visits, pediatric patients in primary care offices, 2000-2001

	Median time in minutes	
	Urban	Suburban
Waiting room	7.5	4.1
Exam room	14.3	5.3
Total	21.8	9.4

- Vaccination time short (2.3 min urban, 1.4 min suburban)

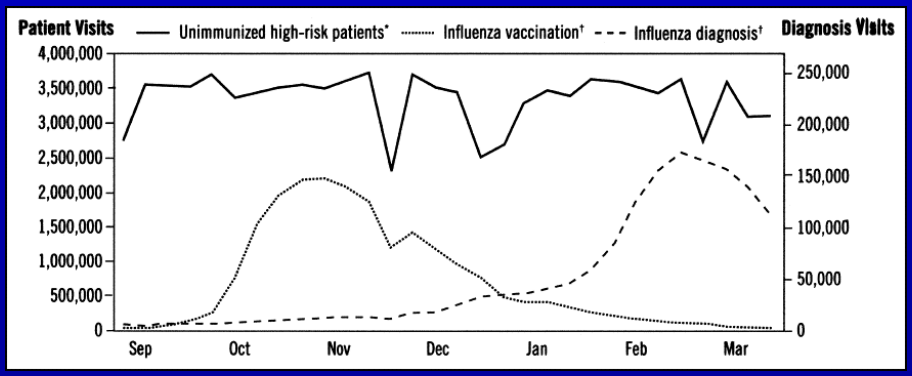
Ref: Szilagyi, *Arch Pediatr Adolesc Med*, 2003

How to Increase Capacity Within Primary Care

- Add visits during regular hours:
  - Ties up rooms
  - Impairs clinic flow
  - Other activities deferred
- Extending vaccination “season”
- Dedicated influenza vaccination clinics outside of regular hours

Rationale for Extending Vaccination Window

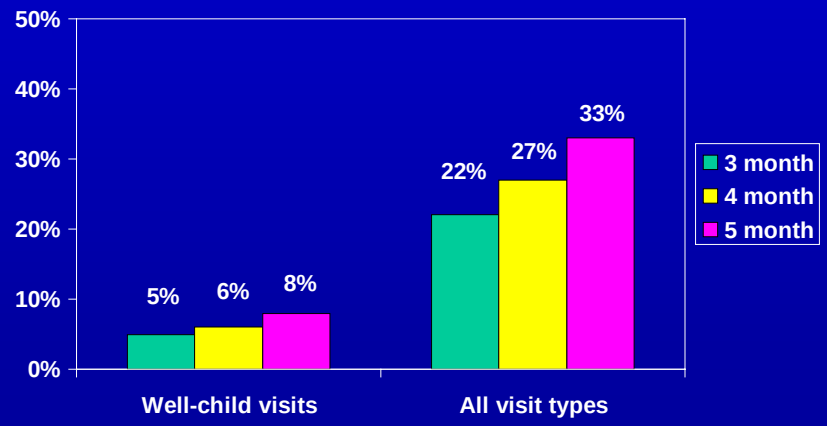
Data source: Electronic claims to Medicare, Medicaid, commercial insurance, 2004 to 2007



Ref: Poland, Johnson, *Am J Med*, 2008

Children: Extending Vaccination Window

Percent of U.S. Children 9-18 Years Old With at Least 1 Visit, By Length of Vaccination Window (2003-04 MEPS)



Ref: modified from Rand, *Arch Pediatr Adolesc Med*, 2008

Influenza Vaccination Clinics Outside of Regular Office Hours

- Potential advantages:
  - Less interference with other routine office functions
  - Better processes, increased efficiency
  - Can be linked to reminder calls and letters
- However:
  - Staff flexibility (weekends, evenings), overtime pay
  - Administrative costs different compared with delivering vaccine during regular visits
  - Advanced planning required (vaccine supplies)

Ref: Fontanesi, *J Med Pract Manag*, 2006; Schwartz, *CTMI*, 2006; Stinchfield, *Am J Med*, 2008

Studies of Influenza Vaccination Clinics

- Efficient influenza vaccination strategies, 5 pediatric practices:
  - Large-volume weekend clinics
  - Medical records not pulled for these clinics
- Influenza clinics vs. routine visits (adults):
  - Influenza clinics more efficient, but poorer documentation of vaccines given
  - Administrative costs similar ($9.33 vs. $10.01/dose)

Ref: Kempe, *Pediatrics*, 2005; Fontanesi, *J Med Pract Manag*, 2006

School-based Influenza Vaccination

- Campaign to vaccinate entire Knox County, Tennessee public school system, 2005
- 76 schools participated, with an enrollment of 53,420 students
- Free intranasal vaccine (LAIV) provided, billing was not done
- Overall influenza immunization rate = 45%

Ref: Carpenter, *Pediatrics*, 2007

Knox County Influenza Vaccination Project

- Resources expended:
  - Health department staff: 4200 person-hours
  - School nursing staff: 2700 person-hours
- Temporary closure of other clinics:
  - Adult preventive care, indigent care
  - 84 half-days (9900 visits) during 5-week campaign

"Even with donated vaccine, the demands on health department and school system personnel…made the vaccine campaign an expensive and disruptive endeavor."

Ref: Carpenter, *Pediatrics*, 2007

Additional Data from Schools

- Middle school hepatitis B vaccination program ("catch-up"):
  - 85% with consent completed 3-dose series
  - Billing private insurance challenging (staff time, incorrect information, denials)
- National survey of school-based health centers:
  - 62% not billing private insurance
  - Obtaining parental consent also reported as barrier to immunization

Ref: Deuson, *Am J Public Health*, 1999; Daley, *J Adol Health*, in press

Denver Public Health: School Influenza Immunization Project (PI Shlay)

- School nurses: spread thin, competing priorities, assignments may change
- Billing: contracts needed, managed care a potential barrier, time-consuming, denials
- FERPA: no public health exemption
  - Can't give student roster to community vaccinator
  - School RN needs to manage consent process
- School administration buy-in:
  - Educational mission highest priority
  - Perceived costs high, perceived benefits less tangible

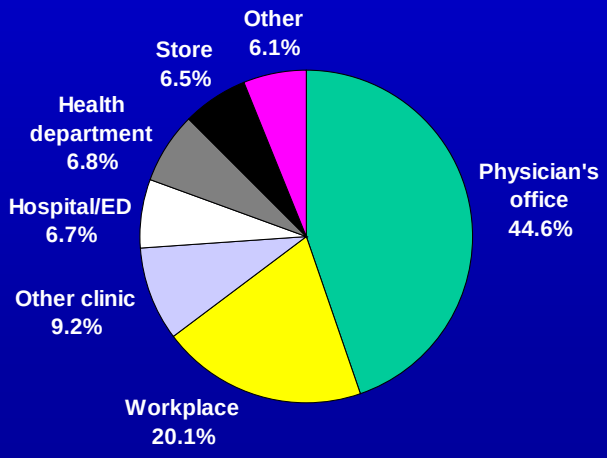
Ref: personal communication, Judith Shlay MD, MSPH, June 2009

Influenza Immunization, Other Settings

	Pharmacies	Emergency Depts.	Public Immuniz. Clinics
Convenient	√		
Low cost	√		√
Capacity		√	
Vaccinate children		√	√
Vaccine tracking			√
Adverse events		√	√
Bill private insurance	√	√	

Immunization in Multiple Settings: Record Scatter

- 50-64 y.o., location immunized (36% immunized overall)



Ref: Singleton, *Am J Infect Control*, 2005

Problems with Scattered Immunization Records

- Compromises ability of primary care to implement strategies to improve rates:
  - Reminders
  - Assessment of clinic rates
- Difficult to estimate vaccine needs
- Record scatter minimized when vaccination sites enter data into community-based immunization registries

Ref: Stinchfield, *Am J Med*, 2008

Vaccination Administration Fees

- Actual costs measured for all vaccination-related activities, routine infant vaccines
- Excluded costs of vaccines

	Total costs, administration (per shot)	Reimbursement for admin. (per shot)	Difference
Family practices/ Community health	$7.57	$6.68	-$0.89
Pediatric practices	$10.67	$8.27	-$2.40

Ref: Glazner, *Pediatrics*, 2004

Many Challenges for Universal Childhood Influenza Immunization

- Current strategies ? high immunization rates
- Many more will need annual vaccination
- An H1N1 vaccine could complicate matters tremendously
- Current capacity in primary care limited, vaccination time-consuming
- Schools lack resources and infrastructure, billing private insurance difficult
- Other settings have substantial limitations
- Vaccine administration fees do not provide much incentive to vaccinate

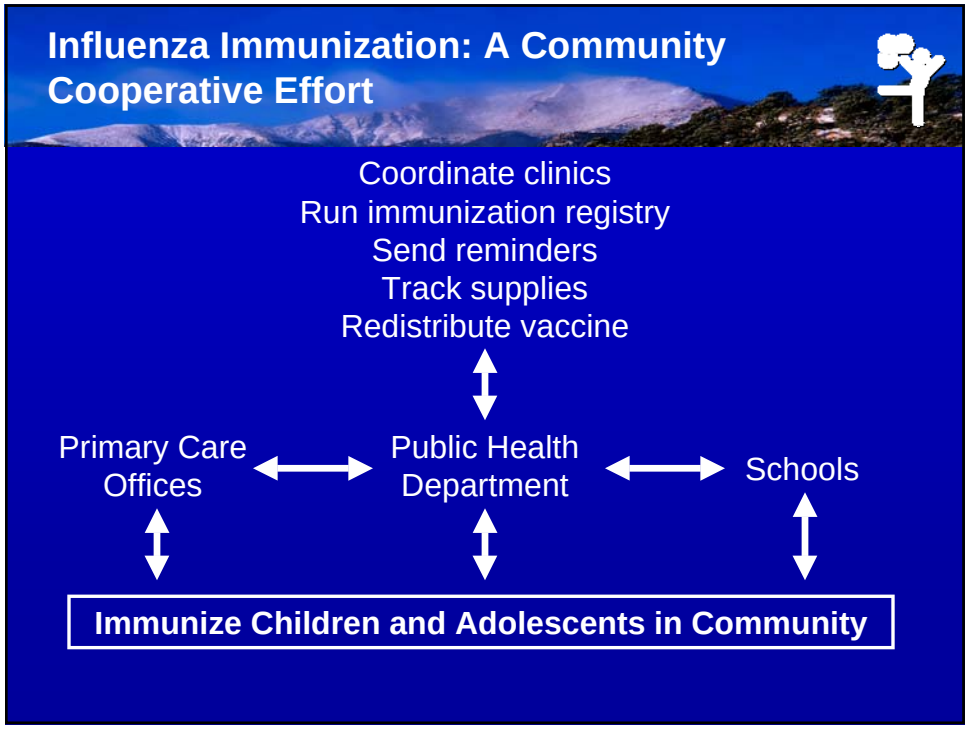
Barriers and Solutions: Primary Care

Limited vaccination capacity	→	Influenza immunization clinics
Competing clinical priorities	→	Influenza immunization clinics
Concern about vaccine supplies	→	Adequate and early vaccine
Limited financial incentive to vaccinate	→	Improve reimbursement for vaccine administration; vaccines on consignment

Barriers and Solutions: Schools

Parental consent	→	Systematically obtaining parental consent at school registration
Billing for vaccines and admin. fees	→	Centralized billing; universal influenza vaccine purchase
Resources and infrastructure	→	Engage community vaccinators; improve reimbursement

Influenza Immunization: A Community Cooperative Effort



Conclusions

- "Tinkering" with current approaches will fail to achieve adequate vaccination coverage
- Transformational change is needed:
  - Immunization "silos" broken down
  - Close cooperation between primary care, public health, schools
- Health care system must place a higher value on influenza vaccination

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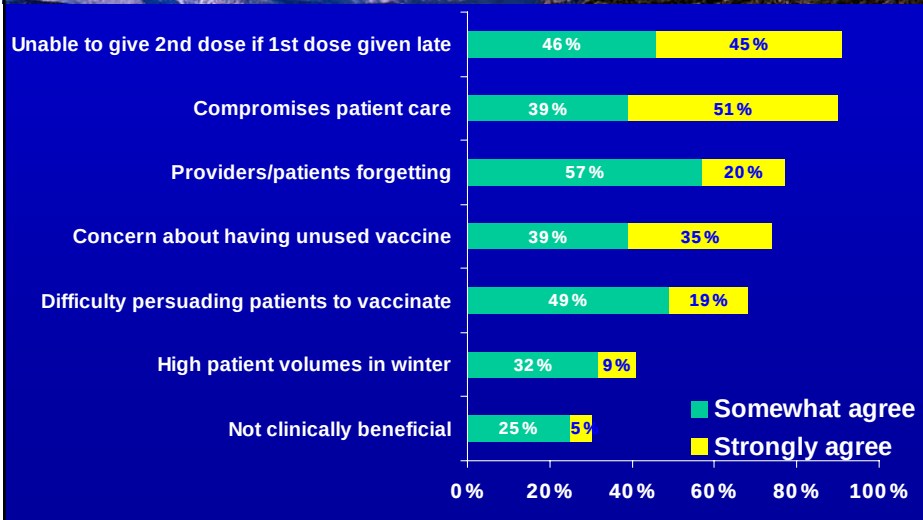
- Jennifer Pyrzanowski, BA
- Jennifer Barrow, MSPH
- Christine Babbel, MSPH

Provider-Identified Barriers to Late Season Vaccination



Ref: McQuillan, National Immunization Conference, 2008

Vaccinating for Five Months

- Potential advantages:
  - Vaccination better matched to delivery patterns
  - Reduce problems of unused vaccine
  - More vaccination opportunities (?)
- However:
  - Expectations need to change (providers, patients)
  - Competing clinical priorities
  - May have only minimal impact unless directly linked to interventions to bring patients in