Future public health strategies for influenza

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National Influenza Vaccine Summit
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Outline

- Lessons learned from H1N1 programs
- Improved flu surveillance
- Old and new partners
- Approaches to special populations
- Coverage assessment
- Vaccine safety monitoring
- Vaccine effectiveness
- Implications of a universal recommendation
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CDC Virologic Surveillance – 2008-10 Influenza Seasons

As of April 3, 2010

>600,000 Specimens Tested
- 2.5 fold increase over prior season

www.cdc.gov/H1N1flu
Virologic Surveillance

- Virologic surveillance is critical for directing vaccine strain selection and monitoring for viruses with pandemic potential
  - Increased support with reagents and TA to domestic and international labs
  - Increased antiviral resistance monitoring
  - Surveillance for reassortant viruses having genes from animal-origin viruses
Surveillance plans

- Surveillance will need to be resourced at a level that is greater than pre-pandemic but less than pandemic level
  - Flexible capacity for vigilance and follow-up in place
  - Need to be prepared for early influenza season in 2010-11
  - Increased need for urgent contemporaneous analyses and visualization
  - Planning for fall internally and with partners
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Partners

- State and Local epi/surveillance, immunization, emergency preparedness, schools
- Medical specialists
  - Ob/gyn
  - Neurology
  - Others
- Retailers
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Special Populations

- Persons with medical indications
- School-aged children
- Pregnant women
- Health care workers
- Underserved populations
Underlying conditions among hospitalized patients and those who died from H1N1 compared to the general population

Special Populations and Venues for Vaccination

- Persons with medical indications
  - Retail establishments
  - Medical specialists

- School-aged children
  - School-located vaccination

- Pregnant women
  - Prenatal programs

- Health care workers
  - Workplace vaccination

- Underserved populations
  - Multiple venues
School-aged children

- Some school-located vaccination occurred in most states during the H1N1 campaign
  - During school
  - Afternoon, evening, weekend clinics at school
  - Students transported to central sites

NHFS – Place of Vaccination
School-aged children

- Some school-located vaccination occurred in most states during the H1N1 campaign
  - During school
  - Afternoon, evening, weekend clinics at school
  - Students transported to central sites

- Many immunization programs planning school-located vaccination for fall

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Pregnant Women
H1N1 Vaccination Coverage, BRFSS

Sample sizes were 218, 161, 136, and 185 currently pregnant women in Nov, Dec, Jan and Feb, respectively.
States not included: VT in Nov and Dec; AZ, CT, DC, RI, UT, VT in Jan; DC, VT in Feb.
Pregnant Women

- Will continue to be a focus for communications efforts
  - Vaccine safety
  - Importance of early ILI treatment, low threshold for intervention
- New CDC working group
- Increasing OB and prenatal clinic vaccinators

Estimated vaccine coverage among healthcare personnel:
- Seasonal influenza: 62%
- pH1N1: 37% (31% - 39%)
  - Either vaccine: 64%
  - Both vaccines: 35%
Health Care Personnel

- Coverage varies greatly by job type among health care personnel
  - Targeting different professions
  - Employer recommendation/requirement
- Using/developing new methods to assess vaccination coverage

Racial/Ethnic Disparities in H1N1 and Seasonal Vaccination Coverage by mid-March, NHFS, February 28 – March 27, 2010

<table>
<thead>
<tr>
<th></th>
<th>Difference in coverage rate, Black – White</th>
<th>Difference in coverage rate, Hispanic – White</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>H1N1</td>
<td>Seasonal</td>
</tr>
<tr>
<td>Children</td>
<td>-4.2</td>
<td>-5.6</td>
</tr>
<tr>
<td>Adults</td>
<td>-9.8*</td>
<td>-16.5*</td>
</tr>
<tr>
<td>All</td>
<td>-7.6*</td>
<td>-13.7*</td>
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</tbody>
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* Coverage rate difference statistically significant, p<0.05
Underserved Populations

- Existing new and CDC partnerships with minority organizations
- Communications campaigns
- Universal vaccination recommendation

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New Analytic Approaches
Improving Precision
Kaplan-Meier survival estimates – Improving the “enhanced” approach

Interview Month
Nov Dec Jan Feb

Vaccination Month
Oct Nov Dec Jan

Plans for 2010-2011 Season
Influenza Vaccination Surveillance

- Adult coverage surveys: data monthly by state (BRFSS)
- Children:
  - National weekly estimates
  - State-level estimates in November-December
- “Snapshot” surveys in selected metro areas
  - Mid-season and March snapshots
  - Vaccination, opinions, behaviors
- Special population surveys, mid-season & March
  - Health care personnel
  - Pregnant women
- PRAMS, SDI, College Health Database
Within-Season Uses of Influenza Vaccination Data

- At state level
  - Target communications for National Influenza Vaccination Week
  - Brief state government officials
  - Evaluate progress of state vaccination campaign

- At federal level
  - Brief CDC leadership and HHS on progress
  - Identify states doing well or lagging
  - Identify target populations for heightened communications
  - Provide a denominator for vaccine safety surveillance

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Vaccine Safety Monitoring

- Daily review of VAERS reports
  - Follow-up (obtain medical records) for:
    - All serious reports
    - All GBS
  - Generate weekly automated tables
- Collaborate with FDA
  - Signal detection and verification of signal
  - Datamining
  - Vaccine Safety Datalink
  - Share reports received by CDC

Vaccine Safety Monitoring

- Real-time monitoring of specified health events in managed care
  - GBS
  - Demyelinating disease
  - Disorders of the peripheral nervous system, neuropathies
  - Seizures
  - Encephalitis, myelitis, encephalomyelitis
  - Bell's Palsy, Other cranial nerve disorders
  - Ataxia (other cerebellar ataxia, ataxia)
  - Anaphylaxis, allergic reaction
  - Myocarditis, pericarditis
  - Hemorrhagic and ischemic stroke
  - Wheezing, asthma, other diseases of trachea/bronchi, bronchiolitis
- New DoD-DMSS and VA electronic medical record monitoring, developed during pH1N1
**Vaccine Effectiveness (VE) Monitoring**

- **VE for prevention of RT-PCR confirmed medically attended influenza**
  - Assessment conducted in 4 communities
  - Case-control: among persons seeking ARI care
  - Offers earliest estimate of VE

- **VE for prevention of influenza hospitalizations**
  - Diagnosed by provider-ordered clinically available tests in 10 Emerging Infections Program sites
  - Case-control evaluations

**Vaccine Effectiveness (VE) Monitoring**

- **VE among pregnant women**
  - Few data in this high-risk population
  - Will begin in Sept 2010, managed care organizations
  - Will enroll 1,000 women with influenza; 2 control groups
  - Also to evaluate effects of maternal immunization on risk for influenza among infants during first 6 months of life

- **VE in other populations of particular interest**
  - Health care personnel
  - VE for prevention of life-threatening influenza (ICU admission) among children and young adults

- **Overall goal:** monitor VE annually for a common influenza outcome (i.e., health care visit) and periodic assessments of VE for severe outcomes
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Implementing a Universal Vaccination Recommendation

- Simple messaging
- Use surveillance and epidemiology to target programmatic efforts
- Monitor vaccine coverage
- Continue to target communications to highest risk populations
- Improving venue based vaccination
- Increasing child vaccination
- Measuring the impact
Potential Legacies of Pandemic in United States

- Better diagnosis, increased levels of antiviral treatment and surveillance
- More community level vaccination including schools and retail establishments
- More obstetricians vaccinating
- Better links: health care, public health and local, state and federal partnerships

Summary

- Lessons have been learned from H1N1 programs
- Improved flu surveillance
- Work with old and new partners
- Use new approaches to special populations
- Improved coverage assessment
- Enhanced vaccine safety monitoring
- Enhanced vaccine effectiveness monitoring
- Universal vaccination recommendation
Thank you
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