Adult immunization matters - Yet we are not doing well

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Disclosures

• I have received honoraria from Pfizer, Sequiris, Temptime Corp., TruMedSystems, and Sanofi Pasteur for service as a scientific consultant.
  ▪ My honoraria is donated to the IAC

• I do NOT intend to discuss an unapproved or investigative use of a commercial product/device in my presentation.
Disclaimer

The opinions expressed in this presentation are solely those of the presenter and do not necessarily represent the official positions of the Immunization Action Coalition, or the National Adult and Influenza Immunization Summit
Outline

• Review the burden of adult vaccine-preventable diseases in the United States

• Review adult vaccination coverage in the United States

• Discuss the changing environment for adult immunization

• Describe recommended strategies for improving coverage rates
Burden of Adult Vaccine-preventable Disease Among U.S. Adults

- **Invasive pneumococcal disease (IPD)**
  - 39,750 total cases and 4,000 total deaths in 2010
  - 86% of IPD and nearly all IPD deaths among adults

- **Influenza**
  - 3,000 to 49,000 total related deaths per year
  - ~90% among adults 65 years and older

- **Pertussis**
  - ~24,231 total reported cases 2013
  - ~5,000 among adults

- **Hepatitis B**
  - 2,890 acute cases reported 2011
  - 18,800 estimated

- **Zoster**
  - about 1 million cases of zoster annually U.S.

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3. CDC. Provisional 2013 Reports of Notifiable Diseases. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6252md.htm?s_cid=mm6252md_w.
# Cost Burden of 4 Adult Vaccine-Preventable Diseases to the U.S. (65 years and older)*

<table>
<thead>
<tr>
<th>Disease</th>
<th>Est. Cases</th>
<th>Est. Medical Cost (per case)</th>
<th>Est. Indirect Cost (per case)</th>
<th>Est. Total Cost (per case)</th>
<th>Est. Total Medical Cost (millions)</th>
<th>Est. Total Indirect Cost (millions)</th>
<th>Est. Total Cost (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza</td>
<td>4,019,759</td>
<td>$1867</td>
<td>$201</td>
<td>$2068</td>
<td>$7503.3</td>
<td>$809.5</td>
<td>$8312.8</td>
</tr>
<tr>
<td>Pneumococcal</td>
<td>440,187</td>
<td>$721</td>
<td>$328</td>
<td>$1049</td>
<td>$3572.2</td>
<td>$214.9</td>
<td>$3787.1</td>
</tr>
<tr>
<td>Bacteremia</td>
<td>19,960</td>
<td>$25,181</td>
<td>$879</td>
<td>$26,060</td>
<td>$502.6</td>
<td>$17.6</td>
<td>$520.2</td>
</tr>
<tr>
<td>Meningitis</td>
<td>1278</td>
<td>$32,803</td>
<td>$879</td>
<td>$33,682</td>
<td>$41.9</td>
<td>$1.1</td>
<td>$43.0</td>
</tr>
<tr>
<td>NPP (inpatient)</td>
<td>187,982</td>
<td>$15,221</td>
<td>$641</td>
<td>$15,862</td>
<td>$2861.3</td>
<td>$120.4</td>
<td>$2981.7</td>
</tr>
<tr>
<td>NPP (outpatient)</td>
<td>230,968</td>
<td>$721</td>
<td>$328</td>
<td>$1049</td>
<td>$166.4</td>
<td>$75.8</td>
<td>$242.2</td>
</tr>
<tr>
<td>Zoster</td>
<td>555,989</td>
<td>$2354</td>
<td>$3074</td>
<td>$5427</td>
<td>$1308.5</td>
<td>$1708.9</td>
<td>$3017.4</td>
</tr>
<tr>
<td>Pertussis</td>
<td>207,241</td>
<td>$432</td>
<td>$593</td>
<td>$1026</td>
<td>$89.6</td>
<td>$122.9</td>
<td>$212.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>5,223,176</td>
<td>$12,473.7</td>
<td>$2856.2</td>
<td><strong>$15,329.9</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NPP is non-bacteremic pneumococcal pneumonia caused by S. pneumoniae. ‘NPP inpatient’ refers to cases of NPP that require hospitalization whereas ‘NPP outpatient’ refers to cases of NPP that do not require hospitalization.

~$9 billion more in costs if you include the 50-64 year old population!

Reminder: Why do we vaccinate?!  

- Important for optimizing health, protecting persons vaccinated and others  
  - Example: Vaccination against influenza and pertussis reduces the risk for the person vaccinated and also prevents the person from spreading these diseases
What is Vaccine Effectiveness? Why is it important for adults?

- Vaccine effectiveness (VE) varies by vaccine type, the disease outcome, and the age or health of the person vaccinated
  - Zoster (shingles) VE: 51% against shingles, 66% against post-herpetic neuralgia (PHN), and almost 80% against most prolonged and extreme cases of PHN\(^1\)
  - PCV13 (pneumococcal conjugate vaccine) VE: 45% against vaccine-type pneumococcal pneumonia, and 75% against vaccine-type invasive pneumococcal disease among adults age ≥65 years\(^2\)

Vaccine Effectiveness (cont.)

- Influenza vaccine: varies annually based on antigenic match and also age and health of person being vaccinated – about 60–70% in younger adults and about 30% in adults 65 years and older against medically-attended influenza with a good match\(^1\)
  - Vaccine Preventable Disability!

- Hepatitis B vaccine: 90% effectiveness after completing a 3-dose series, though lower in persons with diabetes (e.g., 90% with diabetes and age <40 years, 80% with diabetes and 41–59 years, 65% if 60–69 years and <40% if 70 years or older\(^2\))

2. CDC. Use of hepatitis B vaccine for adults with diabetes mellitus. MMWR 2011;60:1709-1711.
Another way to look at vaccine effectiveness – negative outcomes averted

The benefits of flu vaccination 2013-2014

- The estimated number of influenza-associated illnesses prevented by flu vaccination during the 2013-2014 season: 7.2 million
  - enough people to form a line from Maine to Oregon

- The estimated number of flu-associated medical visits prevented by vaccination during the 2013-2014 season: 3.1 million
  - more than the population of the city of Chicago

- The estimated number of flu hospitalizations prevented during the 2013-2014 season: 90,000
  - enough to fill Madison Square Garden more than 4 times

Get vaccinated

www.cdc.gov/flu
Vaccination of Pregnant Women: Two-For-One

- **Influenza vaccination of pregnant women**
  - Reduce risk of influenza illness in pregnant women
  - Reduce risk of influenza illness, fevers and influenza hospitalizations in infants during first 6 months of life
  - Vaccinate with inactivated flu vaccine (not live vaccine) during pregnancy\(^1\)

- **Tdap vaccination of pregnant women**
  - Vaccinate in 3\(^{rd}\) trimester to transfer antibody to infant prior to birth
  - Prevents pertussis in mom and protects infant
    - Tdap vaccination during pregnancy estimated to be 93% effective in preventing pertussis in infants <2 months old\(^2\)

- **Pregnant women should NOT routinely receive any live vaccines (e.g., live influenza vaccine, MMR, varicella or shingles vaccines)**

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1. CDC. MMWR 2014; 63(32); 691-697.
Yet, We are Failing to Vaccinate our Adult Population!
Adult Immunization Coverage Rates, National Health Interview Surveys, 2011–2014

- Tetanus past 10y, age ≥65
- Tetanus past 10y, age 19-49
- Pneumococcal, age ≥65
- Pneumococcal, age 19-64 at high risk
- Zoster, age ≥60

Percent

: Healthy People 2020 target

Adults with Diabetes Who Received \( \geq 3 \) doses Hepatitis B Vaccine by Age, National Health Interview Surveys, 2011–2014

And Other Adult Immunization Rates Are Low

Source: National Health Interview Surveys

Hep B ≥3 doses, HCP ≥19 yrs
- 2012: Yellow
- 2013: Green
- 2014: Purple

HPV (≥1 dose), Women 19-26 yrs
- 2012: Yellow
- 2013: Green
- 2014: Purple

HPV (≥1 dose), Men 19-26 yrs
- 2012: Yellow
- 2013: Green
- 2014: Purple

Tdap, HCP 19-64 yrs
- 2012: Yellow
- 2013: Green
- 2014: Purple

HPV (≥1 dose), Women 19-26 yrs
- 2012: Yellow
- 2013: Green
- 2014: Purple

Source: National Health Interview Surveys
## Influenza Vaccination Coverage Among U.S. Adults, Past Four Seasons*

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Persons ≥ 18 yrs</td>
<td>38.8</td>
<td>41.5</td>
<td>42.4</td>
<td>43.6</td>
</tr>
<tr>
<td>Persons 18-49 yrs, all</td>
<td>28.6</td>
<td>31.1</td>
<td>32.3</td>
<td>33.5</td>
</tr>
<tr>
<td>Persons 18-49 yrs, high risk</td>
<td>36.8</td>
<td>39.8</td>
<td>38.7</td>
<td>39.3</td>
</tr>
<tr>
<td>Persons 50-64 yrs</td>
<td>42.7</td>
<td>45.1</td>
<td>45.3</td>
<td>47.0</td>
</tr>
<tr>
<td>Persons ≥ 65 yrs</td>
<td>64.9</td>
<td>66.2</td>
<td>65.0</td>
<td>66.7</td>
</tr>
</tbody>
</table>

* Flu vaccination coverage estimates from the BRFSS survey were calculated using Kaplan-Meier survival analysis to determine the cumulative flu vaccination coverage (≥1 dose) July 2014 through May 2015 using monthly interview data collected September 2014 through June 2015. Only BRFSS data were used to estimate coverage for adults ≥18 years.

[www.cdc.gov/flu/fluvaxview/index.htm](http://www.cdc.gov/flu/fluvaxview/index.htm)
Why is it so hard to vaccinate adults?
Barriers to Adult Immunization

• Competing social and economic demands among adults
• Competing demands for providers’ time and vaccines often not integrated into adult medical care practice
• Adult vaccine schedule is complex
  • Especially for certain occupational and medical target groups
• Fewer public health resources for adult immunization
  • Pediatric purchases on federal contracts in Dec 2010-Dec 2011: $3,535 billion (including both VFC and 317 program funds)
  • Adult vaccine purchases: $44 million (317 only)
• Limited patient awareness and demand for adult vaccinations except perhaps for influenza vaccine
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### U.S. Adult Immunization Schedule

#### Figure 1. Recommended immunization schedule for adults aged 19 years or older, by vaccine and age group

<table>
<thead>
<tr>
<th>VACCINE</th>
<th>AGE GROUP</th>
<th>19-21 years</th>
<th>22-26 years</th>
<th>27-49 years</th>
<th>50-59 years</th>
<th>60-64 years</th>
<th>≥ 65 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza*</td>
<td>1 dose annually</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus, diphtheria, pertussis (Td/Tdap)*</td>
<td>Substitute Tdap for Td once, then Td booster every 10 yrs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicella*</td>
<td>2 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV) Female*</td>
<td>3 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV) Male*</td>
<td>3 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoster*</td>
<td>1 dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)*</td>
<td>1 or 2 doses depending on indication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal 13-valent conjugate (PCV13)*</td>
<td>1 dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal 23-valent polysaccharide (PPSV23)*</td>
<td>1 or 2 doses depending on indication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis A*</td>
<td>2 or 3 doses depending on vaccine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B*</td>
<td>3 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal 4-valent conjugate (MenACWY) or polysaccharide (MPSV4)*</td>
<td>1 or more doses depending on indication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal B (MenB)*</td>
<td>2 or 3 doses depending on vaccine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haemophilus influenzae type b (Hib)*</td>
<td>1 or 3 doses depending on indication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Covered by the Vaccine Injury Compensation Program.

Report all clinically significant postvaccination reactions to the Vaccine Adverse Event Reporting System (VAERS). Reporting forms and instructions on filing a VAERS report are available at [www.vaers.hhs.gov](http://www.vaers.hhs.gov) or by telephone, 800-822-7967.

Information on how to file a Vaccine Injury Compensation Program claim is available at [www.hrsa.gov/vaccinecompensation](http://www.hrsa.gov/vaccinecompensation) or by telephone, 800-338-2382. To file a claim for vaccine injury, contact the U.S. Court of Federal Claims, 717 Madison Place, N.W., Washington, D.C. 20005; telephone, 202-357-6400.

Additional information about the vaccines in this schedule, extent of available data, and contraindications for vaccination is also available at [www.cdc.gov/vaccines](http://www.cdc.gov/vaccines) or from the CDC-INFO Contact Center at 800-CDC-INFO (800-232-4636) in English and Spanish, 8:00 a.m. - 8:00 p.m. Eastern Time, Monday - Friday, excluding holidays.

Use of trade names and commercial sources is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services.

The recommendations in this schedule were approved by the Centers for Disease Control and Prevention’s (CDC) Advisory Committee on Immunization Practices (ACIP), the American Academy of Family Physicians (AAFP), the America College of Physicians (ACP), the American College of Obstetricians and Gynecologists (ACOG) and the American College of Nurse-Midwives (ACNM).
# U.S. Adult Immunization Schedule

Figure 2. Vaccines that might be indicated for adults aged 19 years or older based on medical and other indications

<table>
<thead>
<tr>
<th>VACCINE ▼</th>
<th>INDICATION ▲</th>
<th>Pregnancy</th>
<th>Immuno-compromising conditions (excluding HIV infection)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza*2</td>
<td>1 dose annually</td>
<td>1 dose Tdap each pregnancy</td>
<td></td>
</tr>
<tr>
<td>Tetanus, diphtheria, pertussis (Td/Tdap)*3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicella*4</td>
<td>Contraindicated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV) Female*5</td>
<td>3 doses through age 26 yrs</td>
<td>3 doses through age 26 yrs</td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV) Male*5</td>
<td>3 doses through age 26 yrs</td>
<td>3 doses through age 21 yrs</td>
<td></td>
</tr>
<tr>
<td>Zoster*6</td>
<td>1 dose</td>
<td>1 or 2 doses depending on indication</td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)*7</td>
<td>Contraindicated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal 13-valent conjugate (PCV13)*8</td>
<td></td>
<td>1 dose</td>
<td></td>
</tr>
<tr>
<td>Pneumococcal polysaccharide (PPSV23)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis A*9</td>
<td></td>
<td>1, 2, or 3 doses depending on indication</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B*10</td>
<td></td>
<td>2 or 3 doses depending on vaccine</td>
<td></td>
</tr>
<tr>
<td>Meningococcal 4-valent conjugate (MenACWY) or polysaccharide (MPSV4)*11</td>
<td></td>
<td>3 doses</td>
<td></td>
</tr>
<tr>
<td>Meningococcal B (MenB)</td>
<td></td>
<td>1 or more doses depending on indication</td>
<td></td>
</tr>
<tr>
<td>Haemophilus influenzae type b (Hib)*12</td>
<td>3 doses post-HSCT recipients only</td>
<td>2 or 3 doses depending on vaccine</td>
<td></td>
</tr>
</tbody>
</table>

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*Covered by the Vaccine Injury Compensation Program

Recommended for all persons who meet the age requirement, lack documentation of vaccination, or lack evidence of past infection; zoster vaccine is recommended regardless of past episode of zoster

Recommended for persons with a risk factor (medical, occupational, lifestyle, or other indications)

No recommendation

Contraindicated

These schedules indicate the recommended age groups and medical indications for which administration of currently licensed vaccines is commonly recommended for adults aged ≥19 years, as of February 2016. For all vaccines being recommended on the Adult Immunization Schedule: a vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Licensed combination vaccines may be used whenever any components of the combination are indicated and when the vaccines other components are not contraindicated. For detailed recommendations on all vaccines, including those used primarily for travelers or that are issued during the year, consult the manufacturers' package inserts and the complete statements from the Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/hcp/acip-recs/index.html). Use of trade names and commercial sources is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services.

www.cdc.gov/vaccines/schedules/hcp/adult.html
Barriers to Adult Immunization

• Competing social and economic demands among adults
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  • Pediatric purchases on federal contracts in Dec 2010-Dec 2011: $3,535 billion (including both VFC and 317 program funds)
  • Adult vaccine purchases: $44 million (317 only)
• Limited patient awareness and demand for adult vaccinations except perhaps for influenza vaccine
Are any of the following vaccines recommended for you as an adult?

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Yes (%)</th>
<th>No (%)</th>
<th>Don’t Know (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza</td>
<td>71.8</td>
<td>15.1</td>
<td>13.0</td>
</tr>
<tr>
<td>Hepatitis A</td>
<td>14.3</td>
<td>42.4</td>
<td>43.3</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>20.1</td>
<td>39.9</td>
<td>40.0</td>
</tr>
<tr>
<td>Pneumococcal</td>
<td>26.4</td>
<td>34.9</td>
<td>38.7</td>
</tr>
<tr>
<td>Tdap</td>
<td>11.9</td>
<td>39.0</td>
<td>49.0</td>
</tr>
</tbody>
</table>

FallStyles (September-October, 2012).
Current Adult Immunization Environment

• Adults access medical care at multiple entry points
• There are many types of immunization providers and sites. (including, but not limited to, physicians – generalists and specialists, pharmacists, nurses, physician assistants, nurse practitioners, retail stores and clinics, community immunizers, worksites, public health departments, hospitals, travel clinics)
• Many more adults have become aware of annual influenza vaccination, but fewer are aware of other recommended adult vaccines
Current Adult Immunization Environment

• Many missed opportunities occur to assess patient vaccination needs
  – Patients open to vaccination when recommended by their provider.

• Differences in vaccines covered by Medicare B versus D creates challenges for some providers, but not others

• Vaccine providers are paid different rates by different payers. Not all providers vaccinate. Pay can differ based on in-network status

• The Affordable Care Act has reduced the number of uninsured adults
Current Adult Immunization Environment

- There is no federal “Vaccines for Adults” program
- Manufacturers offer Patient Assistance Programs
- Challenges remain with adult immunization documentation among providers
  - Immunization registries and EHRs vary across states and provider networks, respectively
- MACRA and meaningful use may provide opportunities to improve documentation and communication about vaccination among different providers
- All this is happening in the context of, and in support of, the NVAC recommendations to improve adult immunization
Current Adult Immunization Environment

• Opportunities
  – Most patients willing to get vaccinated when recommended by medical providers
  – Primary care providers believe that immunizations are an important part of the services they provide to patients
  – Systematic offering (e.g., through standing orders) and recommendations from clinicians result in higher uptake
The new National Vaccine Advisory Committee Standards for Adult Immunization Practice (the “Standards”)
Fundamental Paradigm Shift in Adult IZ

- Adult immunization standards should be applied to all providers of care to adults, those who do and do not vaccinate.
- New standards recognize the importance of the healthcare provider recommendation for patients to receive needed vaccines.
- Highlights the current low vaccination rates among U.S. adults.
- Reflects the changed environment within which adult vaccines are now given.
Fundamental Paradigm Shift in Adult IZ

ALL providers of health care to adults are to:

1. **ASSESS** patient’s status for all recommended vaccines at each clinical encounter;

2. Educate and counsel the patient on the recommended vaccines and strongly **RECOMMEND** needed vaccines; and,

3. **VACCINATE** at the same visit, **OR** for providers that do not stock the recommended vaccine, **REFER** the patient to a vaccinating provider.

4. **DOCUMENT** the receipt of vaccine by the patient

Even if you don’t vaccinate, you still need to recommend vaccines to your patients
Ultimate Goal of the new Standards - “Immunization Neighborhood”

• Purpose:
  ▪ Collaboration, coordination and communication among immunization stakeholders dedicated to meeting the immunization needs of the patient and protecting the community from vaccine preventable diseases.

• To see all supporting organizations and other resources: http://www.izsummitpartners.org/adult-immunization-standards/

• Also find tools to support implementation, eg. speaker slide deck.
Proven Strategies for Improving Adult Immunizations Rates
## Group 1: Strategies to Enhance Access to Vaccines

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Status of Task Force Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home visits to increase vaccinations</td>
<td>Recommended (Strong evidence)</td>
</tr>
<tr>
<td>Reducing client out-of-pocket costs for vaccinations</td>
<td>Recommended (Strong evidence)</td>
</tr>
</tbody>
</table>

http://www.thecommunityguide.org/vaccines/index.html
### Group 2: Strategies to Increase Community Demand for Vaccines

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Status of Task Force Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client or family incentives</td>
<td>Recommended (Sufficient evidence)</td>
</tr>
<tr>
<td>Client reminder/recall systems</td>
<td>Recommended (Strong evidence)</td>
</tr>
<tr>
<td>Client-held paper immunization records</td>
<td>Insufficient evidence</td>
</tr>
<tr>
<td>Clinic-based client education when used alone</td>
<td>Insufficient evidence</td>
</tr>
<tr>
<td>Community-wide education when used alone</td>
<td>Insufficient evidence</td>
</tr>
<tr>
<td>Community-based interventions when implemented in combination</td>
<td>Recommended (Strong evidence)</td>
</tr>
</tbody>
</table>

### Group 3: Healthcare Provider- or System-Based Strategies

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Status of Task Force Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provider reminder systems when used alone</td>
<td>Recommended (Strong evidence)</td>
</tr>
<tr>
<td>Provider assessment and feedback</td>
<td>Recommended (Strong evidence)</td>
</tr>
<tr>
<td>Standing orders</td>
<td>Recommended (Strong evidence)</td>
</tr>
<tr>
<td>Provider education when used alone</td>
<td>Insufficient evidence</td>
</tr>
<tr>
<td>Health care-based interventions when implemented in combination</td>
<td>Recommended (Strong evidence)</td>
</tr>
</tbody>
</table>

# Meta-Analysis of Interventions to Increase Use of Adult Immunization

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Odds Ratio*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational change (e.g., standing orders, separate clinics devoted to prevention)</td>
<td>16.0</td>
</tr>
<tr>
<td>Provider reminder</td>
<td>3.8</td>
</tr>
<tr>
<td>Provider education</td>
<td>3.2</td>
</tr>
<tr>
<td>Patient financial incentive</td>
<td>3.4</td>
</tr>
<tr>
<td>Patient reminder</td>
<td>2.5</td>
</tr>
<tr>
<td>Patient education</td>
<td>1.3</td>
</tr>
</tbody>
</table>

*Compared to usual care or control group, adjusted for all remaining interventions

Worksite Interventions to Promote Seasonal Influenza Vaccinations among Healthcare Personnel (HCP)

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Status of Task Force Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interventions with on-site, free, actively promoted vaccinations</td>
<td>Recommended</td>
</tr>
<tr>
<td>Interventions with actively promoted, off-site vaccinations</td>
<td>Insufficient Evidence</td>
</tr>
</tbody>
</table>

http://www.thecommunityguide.org/vaccines/index.html
## Worksite Interventions to Promote Seasonal Influenza Vaccinations among Non-HCP

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Status of Task Force Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interventions with on-site, reduced-cost, actively promoted vaccinations</td>
<td>Recommended</td>
</tr>
<tr>
<td>Interventions with actively promoted, off-site vaccinations</td>
<td>Insufficient Evidence</td>
</tr>
</tbody>
</table>

http://www.thecommunityguide.org/vaccines/index.html
# Summary: Effective Strategies to Increase Adult Vaccination Coverage

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reducing client out-of-pocket costs for vaccinations</td>
<td>Adults</td>
</tr>
<tr>
<td>Client reminder/recall systems</td>
<td>Adults</td>
</tr>
<tr>
<td>Community-based interventions when implemented in combination</td>
<td>Adults</td>
</tr>
<tr>
<td>Provider reminder systems when used alone</td>
<td>Adults</td>
</tr>
<tr>
<td>Provider assessment and feedback</td>
<td>Adults</td>
</tr>
<tr>
<td>Standing orders</td>
<td>Adults</td>
</tr>
<tr>
<td>Health care-based interventions when implemented in combination</td>
<td>Adults</td>
</tr>
<tr>
<td>Worksite interventions with on-site, reduced-cost, actively promoted influenza vaccinations</td>
<td>Adults, healthcare personnel</td>
</tr>
</tbody>
</table>
Some Concluding Thoughts

• The landscape for adult immunizations is far better today than it was 5 years ago
  – In the US, adult vaccines are still predominantly a private sector enterprise
    • Innovation by states to procure and provide adult vaccines
    • Uninsured adults?
  – If cost to patients is not an issue due to insurance coverage, then we “just” need to develop a supporting delivery infrastructure
    • Political will? What data do we need?
Some Concluding Thoughts

• Healthcare delivery is transforming with the transition to integrated delivery networks (IDNs) and clinically integrated networks (CINs)
  – Movement from volume to value
  – Increased assumption of risk by the systems
  – What is the value proposition to integrated delivery networks?
• MACRA (Medicare Access and CHIP Reauthorization Act of 2015)
  – Movement from traditional fee-for-service payment model to new risk-bearing, coordinated care models
  – Makes a new framework for rewarding health care providers for giving better care not more just more care.
  – Combines existing quality reporting programs into one new system
  – How do we ensure that adult IZ are valued?
Some Concluding Thoughts

• How do we incentivize the infrastructure?
  – Drive adult IZ through quality measurement
    • What gets measured gets done
    • What needs to get done requires a delivery system...
  – Increase access points for getting vaccinated
    • All providers of care for adults have a responsibility to assess, counsel, recommend, and if feasible, deliver the vaccine
    • Break down barriers that reduce access
      – In- versus out-of-network providers
      – Improve collaboration and understanding among all providers
Some Concluding Thoughts

• Improve awareness among public and providers
  – We are reaching a tipping point with influenza vaccination where it is becoming a social norm
  – Piggy back other adult vaccines onto influenza delivery system
  – Vaccine eligibility cards to help patients know which vaccines are paid for by their insurance
  – Help employers understand the ROI on a protected workforce!
Some Concluding Thoughts

- Think about the systems-based interventions that work and innovate around them
  - Decision systems based upon a patient’s prescription record; travel clinics collaborate with travel agencies?
  - Standing Orders!
- The U.S. must improve documentation of adult vaccinations
  - Diverse adult population with diverse providers
  - Lifespan immunization information systems are critical, yet they are under-utilized
  - Opt-out versus opt-in; facilitate the public benefit
  - Make IIS and EHRs integrated with practice management. Eg. Vaccine inventory
- Integrating adult IZ into preventive health is fine but will fail without a preventive health infrastructure!
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  – www.vaccineinformation.org
  – www.standingorders.org
  – www.izcoalitions.org
  – www.izsummitpartners.org (Summit)

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Thank You!