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Pfizer is supporting this initiative because it provides focus on the importance of adult immunization. Pfizer has had no role in the creation of content for this presentation or other assets supporting the Take a Stand™ program workshops and therefore accepts no responsibility for the content.
Session 1

Why Adult Immunization Matters

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Adult Immunization Medical Specialist
New York City Department of Health and Mental Hygiene
Outline

• Review the burden of adult vaccine-preventable diseases in the United States
• Review adult vaccination coverage in the United States and in New York City
• Discuss the changing environment for adult immunization
The Burden of Adult Vaccine-Preventable Diseases
Burden of Vaccine-preventable Disease Among U.S. Adults

• **Influenza**
  – 3,000 to 49,000 total influenza-related deaths per year\(^1\)
  – 80%–90% of deaths among adults 65 years and older\(^2\)

• **Invasive pneumococcal disease (IPD)**\(^3\)
  – 33,900 total cases/ 3,700 total deaths in 2013
  – 91% of IPD and nearly all IPD deaths among adults

• **Pertussis in 2014**\(^4\)
  – ~24,000 cases
  – >5,000 among adults 20 years of age and older

• **Hepatitis B**\(^5\)
  – 3,050 acute cases reported in 2013
  – ~19,800 actual cases estimated

• **Zoster**\(^6\)
  – ~1 million cases of zoster annually U.S.

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1. MMWR. 010;59(33): 1057-1062.
Burden of Other Diseases Among U.S. Adults

- Ebola: 4 cases
- Avian Influenza: None
- E. coli H7:O157 from eating at Chipotle: <100 cases
- Zika virus: 618 cases (travel-associated as of 6/1)
Impact of Influenza and Pneumococcal Disease in NYC - 2014

• 2,220 deaths due to influenza/pneumonia.
  – 3rd leading cause of death in NYC.
• 630 cases of invasive S. pneumo disease
  – 489 cases in adults 45 yo+
  – Highest crude rate in adults 65+ (21.6/100,000)

Sources: SUMMARY OF VITAL STATISTICS 2014 CITY OF NEW YORK; EPIDEMIOLOGY AND PREVENTION OF VACCINE PREVENTABLE DISEASES, 13TH EDITION, 2015; New York City Department of Health and Mental Hygiene - Epiquery
Outbreak of Pertussis in Brooklyn

- Since October 2014, there has been an ongoing outbreak of pertussis in the Orthodox Jewish community in Brooklyn.
- As of May 5, 2016, there have been 238 cases.
- 83% in children <19yo (26% in infants <1 yr).
- Young infants are at the greatest risk of severe disease.
- Current Advisory Committee on Immunization Practices (ACIP) recommendation is to vaccinate pregnant women during EVERY pregnancy to protect newborns against pertussis.

Source: NYC Department of Health and Mental Hygiene. Bureau of Immunization.
Outbreak of Pertussis In Brooklyn

Tdap Vaccination Among Mothers of Infant Cases (n = 60)

- R = Received
- NR = Never recommended
- RBNR = Recommended but not received
- UBNR = Unknown if recommended but not received
- U = Unknown

Source: NYC Department of Health and Mental Hygiene. Bureau of Immunization.
### Estimated Human and Economic Burden Caused by 4 Major Adult VPDs in 2013, U.S.
(includes only adults > 65 years of age)

<table>
<thead>
<tr>
<th>Disease</th>
<th>Cases</th>
<th>Cost (x $1,000,000)</th>
<th></th>
<th></th>
<th></th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Medical</td>
<td>Indirect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza</td>
<td>4,019,759</td>
<td>7,503</td>
<td>810</td>
<td></td>
<td></td>
<td>8,313</td>
</tr>
<tr>
<td>Pneumococcal disease</td>
<td>440,187</td>
<td>3,572</td>
<td>215</td>
<td></td>
<td></td>
<td>3,787</td>
</tr>
<tr>
<td>Herpes zoster</td>
<td>555,989</td>
<td>1,309</td>
<td>1,709</td>
<td></td>
<td></td>
<td>3,017</td>
</tr>
<tr>
<td>Pertussis</td>
<td>207,241</td>
<td>90</td>
<td>123</td>
<td></td>
<td></td>
<td>213</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5,223,176</strong></td>
<td><strong>$12,474</strong></td>
<td><strong>$2,856</strong></td>
<td></td>
<td></td>
<td><strong>$15,330</strong></td>
</tr>
</tbody>
</table>

Influenza Costs Lives and Money

• Direct medical costs in U.S.: ~$10.4 billion
• Add in loss of work and life: ~$87 billion
• Vaccination (41% in 2013–14) prevented:
  – 7 million+ illnesses
  – 3 million+ medically-attended illnesses
  – 90,000+ hospitalizations

  • Reed, et al. Estimated Influenza Illnesses and Hospitalizations Averted by Vaccination — United States, 2013–14 Influenza Season *MMWR* 2014:63(49);1151-1154.
Recommended Adult Vaccines

• 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
**Recommended Adult Vaccines (cont.)**

![Recommended Adult Immunization Schedule—United States - 2016](www.cdc.gov/vaccines/schedules/hcp/adult.html)

**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 C 4-valent conjugate (Meningi-ACWY) 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 American College of Physicians (ACP), the American College of Obstetricians and Gynecologists (ACOG) and the American College of Nurse-Midwives (ACNM).

[www.cdc.gov/vaccines/schedules/hcp/adult.html](http://www.cdc.gov/vaccines/schedules/hcp/adult.html)
### Recommended Adult Vaccines (cont.)

**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>
<th>HIV Infection CD4+ count (cells/µL)</th>
<th>Men who have sex with men (MSM)</th>
<th>Kidney failure, end-stage renal disease, or hemodialysis</th>
<th>Heart disease, chronic lung disease, or chronic alcoholism</th>
<th>Asplenia and persistent complement component deficiencies</th>
<th>Chronic liver disease</th>
<th>Diabetes</th>
<th>Healthcare personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza</td>
<td></td>
<td></td>
<td>1 dose annually</td>
<td>&lt;200</td>
<td>≥200</td>
<td>2 doses</td>
<td>1 dose annually</td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus, diphtheria, pertussis (Tdap)</td>
<td>1 dose Tdap each pregnancy</td>
<td></td>
<td>Contraindicated</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>
<td></td>
</tr>
<tr>
<td>Varicella</td>
<td></td>
<td></td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td>2 doses</td>
<td>1 dose annually</td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV) Female</td>
<td>3 doses through age 26 yrs</td>
<td></td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td>3 doses through age 26 yrs</td>
<td>1 dose annually</td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV) Male</td>
<td>3 doses through age 26 yrs</td>
<td></td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td>3 doses through age 21 yrs</td>
<td>1 dose annually</td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoster</td>
<td></td>
<td></td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td>3 doses through age 26 yrs</td>
<td>1 dose annually</td>
<td>Contraindicated</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>Contraindicated</td>
<td></td>
<td></td>
<td>1 dose</td>
<td>1 dose annually</td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal 13-valent conjugate (PCV13)</td>
<td>1 dose</td>
<td></td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td>1, 2, or 3 doses depending on indication</td>
<td>1 dose annually</td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal polysaccharide (PPSV23)</td>
<td>2 or 3 doses depending on vaccine</td>
<td></td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td>1 dose</td>
<td>1 dose annually</td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis A</td>
<td></td>
<td></td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td>3 doses</td>
<td>3 doses annually</td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B</td>
<td></td>
<td></td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td>3 doses</td>
<td>3 doses annually</td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal 4 valent conjugate (MenACWY) or polysaccharide (MPSV)</td>
<td>1 or more doses depending on indication</td>
<td></td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td>2 or 3 doses depending on vaccine</td>
<td>2 or 3 doses depending on vaccine</td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal B (MenB)</td>
<td>3 doses post-HSCT recipients only</td>
<td></td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td>2 or 3 doses depending on vaccine</td>
<td>2 or 3 doses depending on vaccine</td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neomorphus influenza type b (Hib)</td>
<td>1 dose</td>
<td></td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td>2 or 3 doses depending on vaccine</td>
<td>2 or 3 doses depending on vaccine</td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*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 indication)

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 vaccine's 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 manufacturer's 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
The vaccines are effective!
Influenza vaccine effectiveness depends on:

- How you decide if someone has influenza
- What population you study—most vaccines work less well in the very young and very old
- What you mean by effective:
  - Prevents death
  - Prevents hospitalization
  - Prevents a visit to the doctor or emergency room
  - Prevents any symptoms
Effectiveness

Influenza vaccine

![Bar chart showing efficacy or effectiveness in young adults and age ≥65.](chart.png)
Effectiveness

PCV13

Efficacy or effectiveness (%)

Pneumonia

Invasive disease

0

20

40

60

80

100
Effectiveness

**Zoster vaccine**

![Bar chart showing the efficacy or effectiveness of the Zoster vaccine for Shingles, PHN, and Severe PHN, with percentages ranging from 0% to 100%.]
Effectiveness

Hepatitis B vaccine

Diabetic (age group, yr)

Efficacy or effectiveness (%)

- Overall
- <40
- 41-59
- 60-69
- ≥70

Take a STAND! Use Standing Orders to Vaccinate Adults
Pregnant Women

Two-for-one vaccination!

Effectiveness in infants (%)

- Pertussis: 100%
- Influenza: 40%

IAC

Use Standing Orders to Vaccinate Adults
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

2014
2013
2012
2011

Healthy People 2020 target

Adults with Diabetes Who Received ≥3 Doses Hepatitis B Vaccine by Age, National Health Interview Surveys, 2011–2014

Percent

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>19-59 yrs</th>
<th>≥60 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.4</td>
<td>12.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15.1</td>
<td>13.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>23.5</td>
<td>13.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>26.3</td>
<td>26.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>26.9</td>
<td>28.6</td>
</tr>
</tbody>
</table>

Most Adult Immunization Rates Still Low

HPV (≥1 dose), Women 19-26 yrs

HPV (≥1 dose), Men 19-26 yrs

Tdap, HCP 19-64 yrs

Hep B ≥3 doses, HCP ≥19 yrs

2014  2013  2012

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 &gt; 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/fluvoxview/index.htm
## US Adult Coverage

*Disparities by race*

<table>
<thead>
<tr>
<th>Vaccination, Group (yrs)</th>
<th>Whites</th>
<th>Disparity from Coverage in Whites</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Blacks</td>
</tr>
<tr>
<td>Tetanus, ≥65</td>
<td>59.6</td>
<td>-19.3</td>
</tr>
<tr>
<td>Tetanus, 19–49</td>
<td>69.0</td>
<td>-14.9</td>
</tr>
<tr>
<td>Pneumo, ≥65</td>
<td>63.6</td>
<td>-14.9</td>
</tr>
<tr>
<td>Zoster, ≥60</td>
<td>27.4</td>
<td>-16.7</td>
</tr>
<tr>
<td>HPV, females 19–26</td>
<td>41.7</td>
<td>-11.1</td>
</tr>
</tbody>
</table>
Pneumococcal Vaccine Coverage in Adults 65+, NYC 2012

Source: New York City Department of Health and Mental Hygiene
Community Health Survey 2012
NY State coverage as per 2014 BRFSS: 60%
NYC Community Health Survey Influenza Vaccination Coverage 2009-2014

Prevalence of flu vaccination among adults, by age group

Source: New York City Department of Health and Mental Hygiene. Community Health Survey, 2009-2014
2014 Flu Vaccination Coverage in NYC Adults 65+

Overall White Black Latino Asian

64% 69% 53% 68% 56%

Source: New York City Department of Health and Mental Hygiene Community Health Survey 2014
NY State coverage as per 2014 BRFSS: 60%
2013 Td/Tdap Vaccination Coverage Adults 18+

Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance Survey 2013
What factors lead to low adult immunization coverage?

- Patient Factors
- Provider Factors
- System Factors
Factors Associated with Low Vaccination Among Adults

- **System factors**
  - Fewer requirements for vaccination (e.g., by employers)
  - State regulations differ on who can vaccinate and what vaccines are allowed (e.g., pharmacists, visiting nurse associations)
  - Complex adult vaccine schedule

- **Patient factors**
  - May not have regular health care provider or only see specialists
  - Inconvenient access, competing social and economic demands
  - Many adults 18–64 years of age still unaware of ACA vaccination coverage, and many still remain uninsured

- **Provider factors**
  - Many other health issues compete with preventive services
  - Lack of effective reminders to offer vaccinations
Factors Associated with Low Vaccination Among Adults

• Provider Factors - NYC DOHMH Focus Groups with Adult Providers (Feb 2016)
  – Providers more concerned with immediate health issues of their patients
  – Specialists defer to primary care physicians
  – Lack of time for education
  – Sense of urgency around immunizations is low
  – The importance of patient satisfaction influences how providers make recommendations now – patients do not want to be “told” what to do
    o Patient/doctor relationships are more reciprocal now; patients want a greater role in decision-making

Source: NYC Department of Health and Mental Hygiene. Bureau of Immunization.
How can my office vaccinate more adults?

- Patient Factors
- Provider Factors
- System Factors

You can intervene here!
Some Adult Immunization Facts

• **Challenges**
  – Vaccine coverage among adults is unacceptably low
  – Limited patient awareness about need for vaccines among adults
  – Adult vaccinations less integrated into clinical practice

• **Opportunities**
  – Primary care providers believe that immunizations are an important part of the services they provide to patients
  – Most patients willing to get vaccinated when recommended by medical providers
    – Patients look to their providers to recommend what is needed
  – Systematic offering (e.g., through standing orders) and recommendations from clinicians result in higher uptake
### US Community Services Task Force: 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>

[www.thecommunityguide.org/vaccines/universally/index.html](http://www.thecommunityguide.org/vaccines/universally/index.html)
# 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

New Standards for Adult Immunization Practice*

• National Vaccine Advisory Committee, 2014

• Stresses that all providers, including those who don’t provide vaccine services, have a role in ensuring patients are up to date on vaccines

• Acknowledges that:
  – Adult patients may see many different health care providers, some of whom do not stock some or all vaccines
  – Adults may get vaccinated in a medical home, at work, or retail setting

• Aim is to avoid missed opportunities and keep adult patients protected from vaccine-preventable diseases

* www.izsummitpartners.org/adult-immunization-standards
New Standards for Adult Immunization Practice (cont.)

• Calls to action for health care professionals
  – Assess immunization status of all patients in every clinical encounter
  – Strongly recommend vaccines that patients need
  – Administer needed vaccines or refer to a provider who can immunize
  – Document vaccines given to patients, including entering them into immunization registries when available

www.publichealthreports.org/issueopen.cfm?articleID=3145
New Standards for Adult Immunization Practice (cont.)

• **Assessment and Reporting**
  – Can be accomplished through the Citywide Immunization Registry, NYC’s local Immunization Information System (IIS)

• **Citywide Immunization Registry (CIR)**
  – Database of patient immunization records submitted by NYC health care providers
  – Contains > 6 million patient records, > 82 million immunizations
  – Used by providers for clinical decision support
  – Utilized by the Health Department as a tool to measure vaccine uptake and coverage and assist in surveillance and emergency preparedness activities
Citywide Immunization Registry

Benefits

• A lifetime record of a patient’s immunizations that can be accessed when needed
  – Print out official copies of patient immunization records
  – Can access information on vaccines administered by other providers (e.g., pharmacists)

• Offers decision support on which immunizations are due
  – Patients receive only the vaccines they need
  – Patients do not miss opportunities for vaccination

• Meaningful Use Stage II – requires providers to connect with their local IIS
Citywide Immunization Registry

**Reporting Requirements**

- Mandate to report immunizations administered to children <19 years of age
- Adults aged 19 years and older can be entered into the registry with consent from the patient
- Verbal or written
- Can be embedded into registration and consent for care process
- Consent form available on CIR webpage
  - Keep signed originals at your site. There is no need to send signed forms to DOHMH
Citywide Immunization Registry

Reporting Requirements

• PHL Article 21, Title 6, Section 2168, effective October 21, 2014
  — Registered nurses and pharmacists authorized to administer immunizations **must** report immunizations administered to adults ages 19 years and older upon the consent of the patient

• Can view vaccinations your patients have received at pharmacies

• These requirements apply to nurses who administer immunizations under standing orders
Citywide Immunization Registry

Reporting Options

• Directly using Online Registry
  — Look up individual records, add vaccinations.

• Electronically through batch files
  — Information is extracted from your system and sent to the CIR using a flat file

• Electronically through your EHR:
  — Information is extracted from your encounter, billing or clinical management system and sent to the CIR in real time via the HL7 Web Service.
New Standards for Adult Immunization Practice

- As part of an effort to improve adult immunization coverage in NYC, DOHMH is working with CDC on a new initiative
- DOHMH will offer nurse outreach visits to help assist practices implement the Standards
  - Practices will receive detailed guidance from nurses, incentives, and access to DOHMH for technical questions
- Interested practices should contact: ageevarughese@health.nyc.gov
Conclusions

• Substantial burden of disease in adults for which vaccines are available

• Vaccination rates low among adults in U.S.

• New *Standards for Adult Immunization Practice* emphasize the importance of assessing need for vaccines and providing vaccinations
Conclusions (cont.)

• U.S. Community Services Task Force highlights the use of systems-based interventions to improve immunization rates, including the implementation of standing orders

• Many tools and resources available to:
  – Educate patients on the importance of vaccination
  – Take A Stand™: first of its kind national initiative to assist practices to implement vaccination standing orders
Resources

• Take A Stand™
  – www.standingorders.org

• Read IAC publications
  – www.immunize.org/publications

• Visit IAC websites
  – www.immunize.org
  – www.vaccineinformation.org
  – www.izsummitpartners.org

• Stay ahead of the game!
  Subscribe to IAC weekly updates
  – www.immunize.org/subscribe
THANK YOU!

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New York City Department of Health and Mental Hygiene
Bureau of Immunization

http://www1.nyc.gov/site/doh/health/health-topics/vaccines-and-immunizations.page

http://www1.nyc.gov/site/doh/health/health-topics/flu-seasonal.page