The State of Adult Immunizations in the United States

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Disclosures

• I have no conflicts of interests.

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

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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
- Describe recommended strategies for improving coverage rates
- Discuss the changing environment for adult immunization

Burden of Adult Vaccine-preventable Disease Among U.S. Adults

- Invasive pneumococcal disease (IPD)
  - 30,400 total cases and 3,690 total deaths in 2016
  - 81% of all IPD deaths in adults 50 and older
  - 649/100K patients hospitalized annually with community acquired pneumonia (CAP); 6.5% mortality

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

- Pertussis
  - 15,808 total reported cases 2017
  - 3,429 among adults 20 years of age & older

- Hepatitis B
  - 3,218 acute cases reported 2016
  - 20,900 estimated new infections in 2016

- Zoster
  - About 1 million cases of zoster annually in U.S.

- Measles
  - California/multi-state 2015 outbreak, 55% of infections were in adults 20 years of age and older
Incidence of invasive pneumococcal disease among adults aged 18-64 years with select underlying conditions, United States, 2009

Impact of influenza on pregnant women

- Up to 4X increased risk of hospitalization, especially in third trimester, and for those with co-morbid conditions*
- Up to 8X increased risk for influenza-associated complications, including death, particularly for those with co-morbid conditions**
- Increased risk for influenza-associated complications among postpartum women
- Risk highest during the first postpartum week

* Chronic cardiac disease, chronic pulmonary disease, diabetes mellitus, chronic renal disease, malformations, and immunosuppression disorders
** Preexisting diabetes mellitus, pulmonary disease that included asthma, heart disease, renal disease, and anemia

Recent Burden of Other Diseases Among U.S. Adults

- Ebola: 4 cases
- H5N1 Avian Influenza: None
- E. coli O26 (STEC O26) from eating at Chipotle: 60 cases (no deaths)
- Zika virus (2015-2018): 5,700 cases (through May 2, 2018, most travel-associated)
### Cost Burden of 4 Adult Vaccine-Preventable Diseases in Persons Age 65 Years and Older, United States, 2013

<table>
<thead>
<tr>
<th>Vaccine-Preventable Disease</th>
<th>Estimated # of CASES</th>
<th>Estimated COSTS (Medical &amp; Indirect) (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza</td>
<td>4,019,759</td>
<td>8,312.8</td>
</tr>
<tr>
<td>Pneumococcal</td>
<td>440,187</td>
<td>3,787.1</td>
</tr>
<tr>
<td>Zoster</td>
<td>555,989</td>
<td>3,017.4</td>
</tr>
<tr>
<td>Pertussis</td>
<td>207,241</td>
<td>212.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>$15,329.8</strong></td>
</tr>
</tbody>
</table>

Additional $11.2 billion in costs if ages 50 – 64 years included


### There are Evidence-Based Adult Vaccination Recommendations

### Recommended Adult Vaccines

CDC, NCIRD. 2018 Combined Recommended Immunization Schedule for Adults. www.cdc.gov/vaccines/schedules/hcp/adult.html www.cdc.gov/travel
There are Effective Vaccines!

Vaccine Effectiveness in the Adult Population

- Vaccine effectiveness (VE) varies by vaccine type, the disease outcome, and the age or health of the person vaccinated
  - Zoster (shingles) VE:
    - ZVL: 51% against shingles, and 66% against post-herpetic neuralgia (PHN)\(^1\)
    - HZ/su: 97% against shingles, and 91% against PHN\(^2\)
  - PCV13 (pneumococcal conjugate vaccine) VE: 45% against vaccine-type pneumococcal pneumonia, and 75% against vaccine-type invasive pneumococcal disease among adults age ≥65 years\(^3\)

\(^1\) Oxman MN, et al. NEJM 2005;352:2271-84.
\(^2\) Cunningham, et al. NEJM 2016;374:1019-1032
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
  - 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)

1. CDC. MMWR 2013; 62(RR07);1-43.
3. 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

Vaccine Effectiveness – Influenza

- Acute respiratory illness or influenza-like illness increases acute MI risk 2x; 5x is those with history of MI
- Influenza vaccination effectiveness: Meta-analyses
  - 29% (95%CI 9,44) against acute MI in persons with existing CVD
  - 36% (95%CI 14,53) against major cardiac events with existing CVD
- Vaccine effectiveness 29% in acute MI prevention
  - "On par or better than accepted preventive measures [as] statins (36%), anti-hypertensives (15–18%), and smoking cessation (26%)"
  - Influenza vaccination recommended as secondary prevention by American College of Cardiology and American Heart Association

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
- Tdap vaccination of pregnant women
  - Vaccinate in 3rd 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
- Pregnant women should NOT routinely receive any live vaccines (e.g., live influenza vaccine, MMR, varicella or shingles vaccines)

Yet, We are Failing to Vaccinate our Adult Population!

Adult Immunization Coverage Rates, National Health Interview Surveys, 2012–2015

1. CDC. MMWR 2014; 63(32); 691–697.
Influenza Vaccination Coverage Among U.S. Adults, Past Four Seasons\(^1\)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Persons ≥ 18 yrs</td>
<td>42.4</td>
<td>43.6</td>
<td>41.7*</td>
<td>43.3 ± 0.6*</td>
</tr>
<tr>
<td>Persons 18-49 yrs, all</td>
<td>32.3</td>
<td>33.5</td>
<td>32.7</td>
<td>33.6 ± 0.8</td>
</tr>
<tr>
<td>Persons 18-49 yrs, high risk</td>
<td>38.7</td>
<td>39.3</td>
<td>39.5</td>
<td>39.3 ± 1.8</td>
</tr>
<tr>
<td>Persons 50-64 yrs</td>
<td>45.3</td>
<td>47.0</td>
<td>43.6*</td>
<td>45.4 ± 1.0*</td>
</tr>
<tr>
<td>Persons ≥ 65 yrs</td>
<td>65.0</td>
<td>66.7</td>
<td>63.4*</td>
<td>65.3 ± 1.0*</td>
</tr>
</tbody>
</table>

* Statistically significant declines/increases from the previous season.

Influenza Vaccination Coverage Among Kansas Adults, Past Four Seasons*

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Persons ≥ 18 yrs</td>
<td>43.7</td>
<td>45.6</td>
<td>40.9</td>
<td>40.5</td>
</tr>
<tr>
<td>Persons 18-49 yrs, all</td>
<td>34.7</td>
<td>36.2</td>
<td>31.9</td>
<td>33.1</td>
</tr>
<tr>
<td>Persons 18-49 yrs, high risk</td>
<td>35.8</td>
<td>42.5</td>
<td>37.7</td>
<td>38.9</td>
</tr>
<tr>
<td>Persons 50-64 yrs</td>
<td>46.8</td>
<td>47.5</td>
<td>43.2</td>
<td>42.3</td>
</tr>
<tr>
<td>Persons ≥ 65 yrs</td>
<td>64.9</td>
<td>68.1</td>
<td>62.4</td>
<td>57.6</td>
</tr>
</tbody>
</table>

*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, while evidence-based, is complex
  - Especially for certain occupational and medical target groups
- Fewer public health resources for adult immunization
  - Delivery infrastructure is poor compared to pediatrics
- Limited patient awareness and demand for adult vaccinations except perhaps for influenza vaccine
Barriers to Adult Immunization

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  - Especially for certain occupational and medical target groups
- Fewer public health resources for adult immunization
  - Delivery infrastructure is poor compared to pediatrics
- 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>

Summary: Factors Associated with Low Vaccination Among Adults

Patient factors
- May not have regular health care provider or only see specialists
- Inconvenient access, competing social and economic demands
- Many underinsured adults 18-64 years of age

Provider factors
- Many other health issues compete with preventive services
- Lack of provider recommendation
- Lack of effective reminders to offer vaccinations

System factors
- Fewer requirements for vaccination (e.g. by employers)
- State regulations differ on who can vaccinate and types of vaccine allowed (e.g. pharmacists, visiting nurse associations)

Complex adult vaccine schedule
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\(^1\)
- 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
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>

http://www.thecommunityguide.org/vaccines/index.html
### 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>


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### 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


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### 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>

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 for those under 65 years, are still predominantly a private sector enterprise
    - Innovation by states to procure and provide adult vaccines
    - Uninsured adults still exist and number will increase
  - 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?
That Delivery Infrastructure...

- 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
  - How do we ensure that value proposition to integrated delivery networks? Economics?
- Patient Experience
- Chronic Disease
- Healthcare costs
- Provider Burnout
- ACO/Managed Care bundles
  - Quality measurement
  - HIT integration

Working with healthcare systems

White Paper: 

Webinar: 
https://www.youtube.com/watch?v=8uh3QmCv99M

Reduce Coding and Billing errors: Summit Website

Adult Immunizations result in rapid health and productivity gains

- Professionally active person who has influenza-like illness will take, on average, 2 to 5 days of sick leave
  - Multiplied by the number of working individuals infected in different economic sectors
  - Not to mention considerable proportion of their earnings lost
  - In Norway, the mean number of working days lost for seasonal influenza annually was estimated to be 793,000, resulting in an estimated productivity loss of US$231 million
  - Two-thirds of working adults (aged 50-65) who had shingles or PHN stopped working, and about 75% reported decreased effectiveness at work (i.e., presenteeism) for 2 days


Adult Immunizations result in rapid health and productivity gains

- Patients with chronic diseases, such as diabetes or chronic heart disease, are at higher risk of adult VPDs
  - In US, diabetes was associated with 45% and 18% adjusted risks for HZ and PHN
  - People with underlying conditions accounted for the greatest share of total costs avoided due to influenza vaccination
  - Vaccination of the 65 and older contributes to a more active and healthier aging population
  - Higher risk of severe outcomes from infections
  - Vaccine Preventable Disability and its associated costs


We MUST value adult immunizations broadly!

Bärnighausen et al. 2014. PNAS 111(34):12313–12319

Table 1. Framework of vaccination benefits

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Benefit Categories</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Societal</td>
<td>Correlated productivity gains</td>
<td>Savings of patient and caregiver's productive time because vaccination avoids the need for care and comorbidities</td>
</tr>
<tr>
<td></td>
<td>Outcome-related productivity gains</td>
<td>Increased productivity because vaccination improves physical or mental health</td>
</tr>
<tr>
<td></td>
<td>Behavior-related productivity gains</td>
<td>Vaccination improves health and survival, and may thereby change individual behavior, for example by lowering fertility or increasing investment in education</td>
</tr>
<tr>
<td></td>
<td>Community health externalities</td>
<td>Improved outcomes in unvaccinated community members, e.g., through herd effects or reduction in the rate at which resistance to antimicrobials develops</td>
</tr>
<tr>
<td></td>
<td>Community economic externalities</td>
<td>Higher vaccination rates can affect macroeconomic performance and social and political stability</td>
</tr>
<tr>
<td></td>
<td>Risk reduction gains</td>
<td>Gains in welfare because uncertainty in future outcomes is reduced</td>
</tr>
<tr>
<td></td>
<td>Health gains</td>
<td>Ultimate value of reduction in mortality and morbidity above and beyond their instrumental value for productivity and earnings</td>
</tr>
</tbody>
</table>
Example: Cervical cancer hits women during their most economically productive years

More evidence of economic impact

- A multinational measurement of the cost-benefit aspect of vaccination programs against influenza, typhoid fever and hepatitis A in an adult population
  - Costs of the vaccination alternative, including associated immunization services are compared to the benefits i.e. avoided absenteeism and loss of productivity by preventing the diseases.
  - Study showed an average cost of the 3 diseases per 100 employees of US$11,086.81 per year. The net cost-savings per employee vaccinated and per year ranged from US$13.54 to US$80.17.

But we only just beginning to build the ROI evidence

- Many of the broad benefits of immunizations are neglected in economic evaluations
  - The few studies that do are relatively confined in how far they go beyond the narrow benefit
  - Few take into consideration behavior-related productivity gains or community economic externalities
  - Indeed, Ozawa states that there is “little data on long-term and societal economic benefits such as morbidity-related productivity gains, averting catastrophic health expenditures, growth in gross domestic product (GDP), and economic implications of demographic changes resulting from vaccination”
But we only just beginning to build the ROI evidence

- New research is needed to produce more robust evidence on the full benefits of vaccination of adults.
- Initial work that does look at the broad implications of successful immunization programs show:
  - The broad benefits measured tend to be substantial in magnitude
  - HPV vaccination, for example, goes from being cost effective to almost cost saving!
  - Tetanus vaccination shown to promote educational attainment and subsequent wage gains (on the order of 2.5%) in the children of vaccinated mothers.

Bärnighausen et al. 2014. PNAS 111(34):12313–12319

Our Challenge...

- Immunization advocates, particularly for adult vaccinations, MUST help translate this economic and cost information to policy makers
  - Prevention benefits are often perceived as “not immediate” and can therefore be difficult to document and quantify
    - But there are rapid yields from vaccinating adults!
  - Using disease burden data, even cost burden data, seems less effective in communicating the need to invest immediately in vaccinations
  - Leverage patient experience, chronic disease management, and quality improvement to start the conversation

Wow!! When will we not have to say this anymore?

- Vaccination helps economic growth everywhere, because of lower morbidity and mortality.
- Vaccination removes the healthcare costs associated with managing patients ill with VPDs.
- The annual return on investment in vaccination has been calculated to be between 12% and 18%
- Vaccination leads to increased life expectancy. Long healthy lives are now recognized as a prerequisite for wealth, and wealth promotes health.
- Vaccines are thus efficient tools to reduce disparities in wealth and inequities in health
And there are benefits for businesses and employers!

What do Workplace Wellness programs focus on?

- Chronic disease prevention and management.
  - Reduce health care costs related to cardiovascular disease, diabetes, and tobacco-related illnesses
- Lifestyle changes
  - Promote physical activity, dietary changes, and smoking cessation, all again with goal of reducing healthcare costs
- Specific workplace issues
  - Lower back pain, carpal tunnel syndrome

Health costs at the worksite

- Clinical care – outpatient clinics and hospital costs
- Pharmaceuticals - medications
- Absenteeism – employees absent from work due to poor health
- Presenteeism – employees at work but not performing up to their potential due to poor health

BUT

- Presenteeism – 35%
- Absenteeism – 33%
- Clinical Costs – 24%
- Medications – 8%
We should focus on immunization programs!

- Five percent to 20 percent of the U.S. population gets the flu annually
- 17 million workdays are lost to influenza-related illness in adults aged 18 to 64 years every year.
  - Indirect costs of $6.2 billion annually, mainly from lost productivity
- Considering work loss and productivity, the cost of *pneumococcal disease* among younger working adults (18 to ≤50 years of age) is about $1.8 billion annually
- Parents lose an average of 6 workdays caring for a child with pertussis; yet are a source of transmission
- Productivity losses due to other adult VPDs such as shingles


Summit Awards recognize businesses who urge vaccination of employees

- Orange County Public Schools (OCPS) Employee Wellness program
  - Offered on-site immunization clinics or referred employees to local physicians, convenient care centers and pharmacies to receive the vaccinations they needed
  - Ensured that immunization data was captured accurately for immunization claims
  - Flu vaccinations increased 56%; pneumococcal vaccinations increased 92%; shingles vaccinations increased 50%


- Baxter Employee Wellness program
  - Offers free influenza vaccinations at ALL of its global locations with more than 25 employees.
  - To both employees and contractors
  - In 2016, Baxter documented 23% fewer febrile illnesses and upper respiratory tract infections among its employees
  - Baxter also offers vaccinations for hepatitis A and B, Tdap/Td, as well as other vaccinations specific to their geography and risks, eg. employees traveling for business

More Concluding Thoughts (really!)

- How do we incentivize?
  - Drive adult IZ through quality measurement
    - What gets measured gets done
    - Two new adult immunizations (composite and prenatal) measures coming!
  - 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 – health IT

Support from Health IT necessary

- 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. best practice alerts, vaccine inventory

So...

- Burden of adult VPDs is real, and large
- Barriers to adult immunizations exist resulting in low coverage rates
  - Patient, provider, and system level, and proven interventions exist
- The environment is changing
  - Transition of healthcare from volume to value
  - Integrated delivery systems are becoming more prevalent
  - Need to maximize value
    - Increase efficiency (IT, Q), standing orders
    - Improve ROI
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Thank You!