Adult Immunization

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2019 Montana Chapter Scientific Meeting
September 12 - 14, 2019

This program has been made possible by the generous grant support from the Center for Disease Control and Prevention (CDC)
Objective(s)

• Understand the importance of immunization

• Review the *most recent changes* to ACIP vaccine recommendations and guidelines

• Understand the barriers to effective immunization and ways to help clinicians improve their immunization rates
Part I: Immunization as the cornerstone of Public Health
1796 began the era of immunization
Key terms

- **Vaccine**
  - a suspension of *attenuated, live or killed* micro-organisms or their fractions, administered to induce immunity (and thereby prevent infectious disease)

- **Toxoid**
  - a modified bacterial toxin that has been rendered non-toxic but retains the ability to stimulate formation of antitoxin
**Live attenuated**

- organisms passed repeatedly in tissue culture or chick embryos so they lose their capacity to cause disease, but retain ability to induce antibody response e.g. *oral Polio*, *MMR*, *typhoid*, *BCG* vaccines
- are generally believed to confer lifelong protection in those who respond

**Inactivated or killed**

- organisms killed by heat or chemicals yet retain ability to induce antibody response* e.g. *influenza, polio (Salk)*, *rabies* vaccines
Adjuvants
- an aluminum salts used in some vaccines to enhance the immune response to vaccines containing inactivated micro-organisms (e.g., toxoids and hepatitis B vaccine).

Recombinant
- produced by use of specific DNA sequences spliced by molecular engineering techniques to vaccinia virus grown in cell culture (e.g. influenza vaccine)
Vaccines through the years

<table>
<thead>
<tr>
<th>Year</th>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>1798</td>
<td>Smallpox</td>
</tr>
<tr>
<td>1885</td>
<td>Rabies</td>
</tr>
<tr>
<td>1897</td>
<td>Plague</td>
</tr>
<tr>
<td>1923</td>
<td>Diphtheria</td>
</tr>
<tr>
<td>1926</td>
<td>Pertussis</td>
</tr>
<tr>
<td>1927</td>
<td>BCG</td>
</tr>
<tr>
<td>1927</td>
<td>Tetanus</td>
</tr>
<tr>
<td>1935</td>
<td>Yellow Fever</td>
</tr>
</tbody>
</table>

After World War II:

<table>
<thead>
<tr>
<th>Year</th>
<th>Vaccine Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1955</td>
<td>IM Polio (IPV)</td>
</tr>
<tr>
<td>1962</td>
<td>Oral Polio (OPV)</td>
</tr>
<tr>
<td>1964</td>
<td>Measles</td>
</tr>
<tr>
<td>1967</td>
<td>Mumps</td>
</tr>
<tr>
<td>1970</td>
<td>Rubella</td>
</tr>
<tr>
<td>1981</td>
<td>Hepatitis B</td>
</tr>
</tbody>
</table>
The Global Impact of Vaccines
WHO declared **smallpox Eradicated** on May 8, 1980

- caused~300-500 million deaths in the 20\(^{th}\) century alone
- no cases of naturally occurring **smallpox** have occurred since
1988-2015

AFGHANISTAN
PAKISTAN

Only remaining polio endemic countries in the world, 2015

WILD POLIOVIRUS CASES

1991
Last case in Americas Region

1997
Last case in Western Pacific Region

1998
Last case in Europe Region

2011
Last case in South-East Asia Region

1999
Last type 2 poliovirus in the world

2014
Last case in Africa Region

Region = WHO regions
Source: Global Polio Eradication Initiative
Annual estimated measles deaths declined 79%, from 546,800 to 114,900.

17.1 million
Deaths averted by measles vaccination

Source: MMWR 2015; 64:1246-51
2011-2020

Estimated deaths averted with vaccines in low-income countries

Total estimated number of deaths averted, 2011-2020

23.3 million

NO. OF DEATHS AVERTED

Measles vaccine
Diseases with new or underutilized vaccines

Measles 1st dose
Measles 2nd dose
Measles supplementary immunization activities
Hepatitis B
Haemophilus influenzae type b
Pneumococcus
Rotavirus
Human papillomavirus
Yellow fever
Meningococcal A
Japanese encephalitis
Rubella

Source: Vaccine 2013; 18;31 (Suppl 2): B61-72
How about the impact of vaccines in the United States?
In 1962, the Vaccination Assistance Act was passed

ACIP was launched in 1964
- outside experts; advise the CDC and DHHS on vaccination practices
- no legal or regulatory authority; relies only on the strength of evidence and analysis to influence public health practice.

ACIP recommendations become official CDC policy signed by the CDC director, accepted by HHS Secretary and published in MMWR

ACIP recommendations are **NOT ALWAYS** consistent with FDA licensing
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964 (May 25–26)</td>
<td>Committee meets for first time</td>
</tr>
<tr>
<td>1964</td>
<td>Hepatitis B vaccine recommended for high-risk groups</td>
</tr>
<tr>
<td>1965</td>
<td>Recommendation for routine smallpox vaccination rescinded</td>
</tr>
<tr>
<td>1970</td>
<td>Vaccination program for “swine flu” recommended</td>
</tr>
<tr>
<td>1971</td>
<td>Recommendation for routine smallpox vaccination rescinded</td>
</tr>
<tr>
<td>1975</td>
<td>Thimerosal information reviewed; joint effort announced for removal of thimerosal from most childhood vaccines</td>
</tr>
<tr>
<td>1976</td>
<td>Routine hepatitis B vaccination recommended for infants</td>
</tr>
<tr>
<td>1980</td>
<td>Vaccines for Children Program launched</td>
</tr>
<tr>
<td>1982</td>
<td>Only inactivated poliovirus vaccine recommended for routine childhood vaccination</td>
</tr>
<tr>
<td>1985</td>
<td>Child and adolescent vaccination schedules harmonized with professional-society recommendations</td>
</tr>
<tr>
<td>1990</td>
<td>2003 Recommendations issued for smallpox vaccination program</td>
</tr>
<tr>
<td>1991</td>
<td>Priority groups for H1N1 influenza vaccination identified</td>
</tr>
<tr>
<td>1995</td>
<td>2006 Human papillomavirus vaccine recommended for adolescent girls and young women</td>
</tr>
<tr>
<td>1999</td>
<td>2009 Annual influenza vaccination recommended for everyone 6 months of age or older</td>
</tr>
<tr>
<td>2000</td>
<td>Affordable Care Act, with vaccination coverage requirements, signed into law</td>
</tr>
<tr>
<td>2015</td>
<td><em>Does not apply to Medicare</em></td>
</tr>
</tbody>
</table>
### Impact of Vaccines in the United States in 20th & 21st Centuries

<table>
<thead>
<tr>
<th>Disease</th>
<th>20th Century Annual Morbidity</th>
<th>2017 Reported Cases</th>
<th>% decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smallpox</td>
<td>29,005</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>Diphtheria</td>
<td>21,053</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>Pertussis</td>
<td>200,752</td>
<td>18,975</td>
<td>91%</td>
</tr>
<tr>
<td>Tetanus</td>
<td>580</td>
<td>33</td>
<td>94%</td>
</tr>
<tr>
<td>Polio (paralytic)</td>
<td>16,316</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>Measles</td>
<td>530,217</td>
<td>120</td>
<td>&gt;99%</td>
</tr>
<tr>
<td>Mumps</td>
<td>162,344</td>
<td>6,109</td>
<td>96%</td>
</tr>
<tr>
<td>Rubella</td>
<td>47,745</td>
<td>7</td>
<td>&gt;99%</td>
</tr>
<tr>
<td>CRS</td>
<td>152</td>
<td>5</td>
<td>97%</td>
</tr>
<tr>
<td><em>Haemophilus influenzae</em></td>
<td>20,000 (est.)</td>
<td>33$</td>
<td>&gt;99%</td>
</tr>
</tbody>
</table>

**Comparison of 20th Century Annual Morbidity & Current Morbidity: Vaccine-Preventable Diseases**

Comparison of Pre-Vaccine Era Estimated Annual Morbidity with Current Estimate: Vaccine-Preventable Diseases

<table>
<thead>
<tr>
<th>Disease</th>
<th>Pre-Vaccine Era Annual Estimate</th>
<th>2016 Estimate</th>
<th>% decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis A</td>
<td>117,333*</td>
<td>4,000†</td>
<td>97%</td>
</tr>
<tr>
<td>Hepatitis B (acute)</td>
<td>66,232*</td>
<td>20,900†</td>
<td>68%</td>
</tr>
<tr>
<td>Pneumococcus (invasive)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All ages</td>
<td>63,067*</td>
<td>30,400‖</td>
<td>52%</td>
</tr>
<tr>
<td>&lt;5 years of age</td>
<td>16,069*</td>
<td>1,700‖</td>
<td>89%</td>
</tr>
<tr>
<td>Rotavirus (hospitalizations &lt;3 years of age)</td>
<td>62,500‡</td>
<td>30,625§</td>
<td>51%</td>
</tr>
<tr>
<td>Varicella</td>
<td>4,085,120*</td>
<td>102,128††</td>
<td>98%</td>
</tr>
</tbody>
</table>
Take Home (I):

- Immunization has been one of the most effective means of preventing disease, disability, and death from infectious diseases over the past two centuries.
Part II: Recent Changes to ACIP Adult Immunization Schedule
Understanding the Adult Immunization Schedule

Table 1. Recommended Adult Immunization Schedule for ages 19 years or older, United States, 2019

Always make recommendations by determining needed vaccines based on age (Table 1), assessing for medical conditions and other indications (Table 2), and reviewing special situations (Notes).

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>19-21 years</th>
<th>22-26 years</th>
<th>27-49 years</th>
<th>50-64 years</th>
<th>≥65 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza inactivated (IIV) or</td>
<td></td>
<td></td>
<td>1 dose annually</td>
<td></td>
<td></td>
</tr>
<tr>
<td>influenza recombinant (RIV)</td>
<td></td>
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<td></td>
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<tr>
<td>or Influenza live attenuated (LAIV)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Tetanus, diphtheria, pertussis (Tdap or Td)</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

https://www.cdc.gov/vaccines/schedules/
### Understanding the Adult Immunization Schedule

[Image: CDC logo] Centers for Disease Control and Prevention

By Medical Condition

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### Immunization Schedules

[Navigation links: CDC > Schedules Home > For Health Care Providers]

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#### Table 2. Recommended Adult Immunization Schedule by Medical Condition and Other Indications, United States, 2019

Always make recommendations by determining needed vaccines based on age (Table 1), assessing for medical conditions and other indications (Table 2), and reviewing special situations.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Pregnancy</th>
<th>Immuno-compromised (excluding HIV infection)</th>
<th>HIV infection CD4 count</th>
<th>Asplenia, complement deficiencies</th>
<th>End-stage renal disease, on hemodialysis</th>
<th>Heart or lung disease, alcoholism</th>
<th>Chronic liver disease</th>
<th>Diabetes</th>
<th>Health care personnel</th>
<th>Men who have sex with men</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILIV or RIV</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td>or</td>
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<tr>
<td>LAIV</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tdap or Td</td>
<td>1 dose Tdap each pregnancy</td>
<td></td>
<td></td>
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</table>

- **1 dose annually**
- **CONTRAINDICATED**
- **PRECAUTION**
- **1 dose annually**

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[Website link: https://www.cdc.gov/vaccines/schedules/]
Recommended Adult Immunization Schedule, United States, 2019*

By Age Group

• **19-21:**
  - IIV or RIV OR LAIV
  - Tdap
  - MMR
  - VAR
  - HPV

• **22-26:**
  - IIV or RIV OR LAIV
  - Tdap
  - MMR
  - VAR
  - HPV(F)

• **27-49:**
  - IIV or RIV OR LAIV
  - Tdap
  - MMR
  - VAR

• **50-64:**
  - IIV or RIV
  - Tdap
  - MMR
  - RZV OR ZLV

• **≥65**
  - IIV or RIV
  - Tdap
  - RZV or ZLV
  - PCV-13
  - PPSV 23

[https://www.cdc.gov/vaccines/schedules/](https://www.cdc.gov/vaccines/schedules/)
- Pregnancy
- Immunocompromised
- HIV infection (CD4 < or >200)
- Asplenia, complement deficiencies
- ESRD on HD
- Heart or Lung disease, alcoholism
- Chronic Liver disease
- Diabetes
- Health Care Personnel
- MSM

Vaccines stay mostly the same except for few additions.

The key is for clinicians to know the indications, contraindications and delays.
Recommended Adult Immunization Schedule, United States, 2019*

By Age Group

By Medical Conditions

- Pregnancy
- Immunocompromised
- HIV infection (CD4 < or >200)
- Asplenia, complement deficiencies
- ESRD, on HD
- Heart or Lung disease, alcoholism
- Chronic Liver disease
- Diabetes
- Health Care Personnel
- MSM

- IIV or RIV
- LAIV
- Tdap or Td
- MMR
- VAR
- RZV
- ZLV
- HPV
- PCV13
- PPSV23
- Hep A
- Hep B
- MenACWY
- MenB
- Hib

https://www.cdc.gov/vaccines/schedule
Recommended Adult Immunization Schedule, United States, 2019*

David K. Kim, MD, MA, and Paul Hunter, MD; on behalf of the Advisory Committee on Immunization Practices†

- By Age Group
- By Medical Conditions
- By Vaccine Types/Special Situations

- Anthrax
- BCG
- Cholera
- DTaP/Tdap/Td
- Hepatitis A: UPDATED Feb 2019
- Hepatitis B
- Hib
- HPV: UPDATED Aug 2019
- Influenza: UPDATED Aug 2019
- Japanese Encephalitis: UPDATED Jul 2019
- Measles, Mumps and Rubella
- MMRV
- Meningococcal
- Pneumococcal
- Polio
- Rabies
- Rotavirus
- Smallpox (Vaccinia)
- Typhoid
- Varicella (Chickenpox)
- Yellow Fever
- Zoster (Shingles)

https://www.cdc.gov/vaccines/schedules/
Recent ACIP Vaccine updates
median incidence of *symptomatic* influenza for all ages is 8.3% (8.9% for adults 18-64)

CID 2018; 66 (10): 1511–1518

**Vaccines:**

- **Trivalent:** 2As and 1 B
  
  2019-20: HA derived from an A/Brisbane/02/2018 (H1N1)pdm09–like virus, an A/Kansas/14/2017 (H3N2)–like virus, and a B/Colorado/06/2017–like virus (Victoria lineage)

- **Quadrivalent:** 2As AND 2 Bs
  
  above 3 viruses PLUS a B/Phuket/3073/2013–like virus (Yamagata lineage)

- Gets “UPDATES” each year which are published in MMWR
Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2019–20 Influenza Season

- Routinely vaccinate all persons >6 month with 1 dose of IIV, RIV, or LAIV appropriate for age and health status

- ACIP does NOT express preference for any one vaccine type

- LAIV is an option for adults through age 49 years, except where contraindication exists (Since JUN 2018)

**Special situations:**

- Egg allergy, hives only: IIV, RIV, or LAIV
- Egg allergy more severe than hives (e.g. angioedema, respiratory distress): IIV, RIV, or LAIV (under supervision)
- Immunocompromising conditions*: IIV, RIV
- H/o GBS within 6 weeks of previous influenza vaccine: DO NOT vaccinate
Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2019–20 Influenza Season

Timing of Vaccination

Balancing considerations regarding the unpredictability of timing of onset of the influenza season and concerns that vaccine-induced immunity might wane over the course of a season, it is recommended that vaccination should be offered by the end of October.

For those requiring only 1 dose for the season, early vaccination (i.e., in July and August) is likely to be associated with suboptimal immunity before the end of the influenza season, particularly among older adults.
For the 2017–18 influenza season, the overall estimated vaccine effectiveness was 38% (62% against influenza A[H1N1]pdm09, 22% against influenza A[H3N2] and 50% against influenza B).
Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2019–20 Influenza Season

Older Adults

Because of the vulnerability of older adults to severe influenza illness, hospitalization, and death, efficacy and effectiveness of influenza vaccines in this population is an area of active research.

To date, HD-IIV3 has been the most extensively studied in this regard, and evidence has accumulated for its superior efficacy and effectiveness compared with SD-IIV3 in this population.
Efficacy of High-Dose versus Standard-Dose Influenza Vaccine in Older Adults

- phase IIIb–IV, multicenter, randomized, double-blind, active-controlled trial
- 31,989 participants; 26 centers in the US and Canada
- compared IIV3-HD (60 μg of HA per strain) with standard dose (IIV3-SD [15 μg of HA per strain]) in adults ≥65 years
- Assessed for relative efficacy, effectiveness, safety, and immunogenicity during the 2011–2012 and the 2012–2013 seasons

Among persons 65 years of age or older, IIV3-HD induced significantly higher antibody responses and provided better protection (relative efficacy, 24.2%) against laboratory-confirmed influenza illness than did IIV3-SD.

HPV is a common STI, with acquisition generally occurring soon after first sexual activity. Most new infections occur in adolescents/young adults. Causes ~33,700 (mainly anal, cervical, oropharyngeal) cancers in the US annually.

- **3 HPV vaccines** are licensed for use in the United States: *9-valent* (*9vHPV*), *quadrivalent* (*4vHPV*) and *bivalent* (*2vHPV*).
- Most HPV-associated cancers are caused by HPV *16* or *18*, types targeted by all three vaccines.
- 2 vs 3 dosing schedule.
Human Papillomavirus Vaccination for Adults: Updated Recommendations of the Advisory Committee on Immunization Practices

Elissa Meites, MD; Peter G. Szilagyi, MD; Harrell W. Chesson, PhD; Elizabeth R. Unger, PhD, MD; José R. Romero, MD; Lauri E. Markowitz, MD

Recommendations

Children and adults aged 9 through 26 years. HPV vaccination is routinely recommended at age 11 or 12 years; vaccination can be given starting at age 9 years. Catch-up HPV vaccination is recommended for all persons through age 26 years who are not adequately vaccinated.†

Adults aged >26 years. Catch-up HPV vaccination is not recommended for all adults aged >26 years. Instead, shared clinical decision-making regarding HPV vaccination is recommended for some adults aged 27 through 45 years who are not adequately vaccinated.
Trivia (1): Is pregnancy testing needed before HPV vaccination?
HAV infection is associated with poor sanitation/hygiene and is transmitted by the ingestion of contaminated food or water or by direct contact with an infectious person.

- In 2017, a total of 1,521 outbreak-associated HAV cases were reported from CA, KY, MI, and UT, with 1,073 (71%) hospitalizations and 41 (3%) deaths.
- Most infections were among the homeless and drug users.
Recommendations of the Advisory Committee on Immunization Practices for Use of Hepatitis A Vaccine for Persons Experiencing Homelessness

Mona Doshani, MD; Mark Weng, MD; Kelly L. Moore, MD; José R. Romero, MD; Noele P. Nelson, MD, PhD

Homelessness is NOW an indication for hepatitis A vaccination

- Routinely vaccinate all persons ≥1 year experiencing homelessness
- *2-dose single-antigen hepatitis A vaccine* or a 3-dose series of combination hepatitis A and B vaccine

ACIP recommendations for other at risk populations remain the same
Trivia (2): Is marijuana use an indication for Hep A vaccination?
HBV is transmitted through contact with infectious blood, semen, and other body fluids.

850,000–2.2 m US people have chronic HBV infection.

At risk for hepatitis B virus infection:
- Hepatitis C, HIV infection, chronic liver disease
- Sexual exposure risk
- Current or recent IV drug use
- Percutaneous or mucosal risk for exposure to blood*
- Incarcerated persons
- Travel in countries with high or intermediate endemic hepatitis B

*Percutaneous or mucosal risk for exposure to blood includes activities such as acupuncture, tattooing, or sharing contaminated needles with a blood contaminant.
Trivia (3): Is diabetes a special indication for Hep B vaccination?
- Hepatitis B vaccination should be administered to unvaccinated adults with diabetes mellitus who are aged 19 through 59 years (recommendation category A; evidence type 2).
- Hepatitis B vaccination may be administered at the discretion of the treating clinician to unvaccinated adults with diabetes mellitus who are aged \( \geq 60 \) years (recommendation category B; evidence type 2).
Heplisav B (HepB-CpG) may be used as a HepB vaccine in persons aged ≥18 years recommended for vaccination against HBV

- 2-dose series given at minimum interval of 4 weeks
- Achieves seroprotective anti-HBs levels in 90.0%–100.0% of subjects vs. 70.5%–90.2% of subjects receiving Engerix-B
- No safety data in pregnancy

The ACIP recommendation regarding the 3-dose series hepatitis B vaccine (at 0, 1, 6 months) or 3-dose series HepA-HepB vaccines remain unchanged.
Herpes Zoster is the consequence of reactivation of the latent VZV

> 90 % of adults in the US have serologic evidence of VZV infection and are at risk for herpes zoster

~1 million cases in the US annually

Post-herpetic neuralgia (PHN) is the most common complication
Trivia (4): Which of the following is **NOT** strongly associated with PHN?

- Immunosuppression
- Age
- Dermatome
- Gender
- Risk increases with age
- Lifetime risk: about 30%

RZV may be used in adults aged ≥50 years, irrespective of prior receipt of varicella vaccine or ZVL, and no need to screen for a history of chickenpox (varicella).

Following the 1st dose of RZV, the 2nd dose should be given 2–6 months later.

Vaccine series need NOT be restarted if more than 6 months have elapsed since the first dose.*

ZVL remains a recommended vaccine for prevention of herpes zoster in immunocompetent adults aged ≥60 years.
Efficacy of RZV was evaluated in a two-part, phase III multicenter clinical trials which enrolled >30,000 people (ZOE-50 and ZOE-70 Trials).

- The efficacy for the prevention of HZ was 96.6% in persons aged 50–59 years and 97.4% in persons aged 60–69 years.
- Using pooled data from both studies, vaccine efficacy was 91.3% (95% CI: 86.8–94.5) in participants aged ≥70 years.

Studies concur that there is a substantial decrease in effectiveness following the first year after receipt of ZVL, and, by 6 years postvaccination, vaccine effectiveness against herpes zoster is <35%.
RZV is preferred over ZVL for the prevention of herpes zoster and related complications.

Based on expert opinion, RZV should not be given <2 months after receipt of ZVL.
Part III: *US Vaccination Rates and Ways to Improve them*
Estimated proportion of adults ≥19 years who received selected vaccines, by age group and increased risk status—National Health Interview Survey, United States, 2010-2016.
How about in Montana?

Influenza Vaccination Coverage in Montana 2016-2017

Source: National Immunization Survey-Flu (NIS-Flu) and Behavioral Risk Factor Surveillance System (BRFSS), 2013-17 influenza seasons, CDC.
Numbers don’t lie: the US adult vaccination rates remain unacceptably low.

But Why?
Barriers to Adult Immunization

David R. Johnson, MD, MPH, a Kristin L. Nichol, MD, MPH, b Kim Lipczynski, PhD c

aScientific and Medical Affairs, sanofi pasteur Inc., Swiftwater, Pennsylvania, USA; bMedicine Service, VA Medical Center and University of Minnesota, Minneapolis, Minnesota, USA; cProject Management, Adelphi Research by Design, Philadelphia, Pennsylvania, USA

Reasons for not Receiving Vaccines. Most consumers (79% to 85%, depending on the vaccine) indicated that they were likely to receive a vaccination if their healthcare provider recommended it.

Doesn’t this imply that the vaccination rates are low because we don’t recommend vaccines to our patients?
Other barriers:

- Strong personal beliefs
- Religious convictions
- Political views
- ..................
So how can we overcome these barriers and improve our immunization rates?

1. Recommend and offer the vaccines

- help patients understand the risks and benefits of vaccines

- Studies clearly show that *provider recommendation translates into higher vaccination rates*
  - Even among patients with negative attitudes
### Who Most Influences Adults’ Decisions to Get Immunized?

<table>
<thead>
<tr>
<th>Influence</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal physician</td>
<td>69%</td>
</tr>
<tr>
<td>Family member</td>
<td>19%</td>
</tr>
<tr>
<td>Celebrity physician, public figure, other</td>
<td>7%</td>
</tr>
<tr>
<td>None of the above</td>
<td>4%</td>
</tr>
<tr>
<td>No answer</td>
<td>1%</td>
</tr>
</tbody>
</table>


Factors Associated with Influenza and Pneumococcal Vaccination Behavior Among High-Risk Adults

Impact of provider recommendation on influenza vaccination rates of adults at high risk with positive or negative attitudes toward

2. Be mindful of patients’ concerns about vaccines

- Acknowledge and respect patients concerns about vaccines
  - Use of “refuse” instead of “decline” may set a negative tone
  - Words like “Trust me, I am the doctor” only create more resistance
- Stay on message: describe what science says and give...
3. Be prepared to address the patient barriers

“I don’t want chemicals injected into my body.”

“I’m healthy, I don’t need it.”

“I always get the flu when I get the flu shot.”
4. **Take advantage of the available support tools**

- **ACP's *I Raise the Rates* Initiative** provides the tools to support physicians increase their adult immunization rates
  - [https://www.acponline.org/clinical-information/clinical-resources-products/adult-immunization](https://www.acponline.org/clinical-information/clinical-resources-products/adult-immunization)

- **ACP Advance Curriculum**
  - [https://www.acponline.org/practice-resources/acp-quality-improvement/acp-advance](https://www.acponline.org/practice-resources/acp-quality-improvement/acp-advance)

- **CDC’s National Immunization Program**
  - [https://www.cdc.gov/vaccines/index.html](https://www.cdc.gov/vaccines/index.html)
  - [https://www.cdc.gov/vaccines/schedules/index.html](https://www.cdc.gov/vaccines/schedules/index.html)
  - [https://www.cdc.gov/mmwr/index.html](https://www.cdc.gov/mmwr/index.html)
Adult Immunization

ACP's I Raise the Rates initiative provides important resources as well as vaccine information to help physicians increase adult immunization in their practices.

This resource hub was developed as part of ACP's I Raise the Rates initiative to assist physicians and their teams to assess, understand and improve adult immunization rates and patient outcomes in their clinical settings.
Take Home (II):

- Patients have misconceptions about vaccines BUT *providers hold a lot of influence* in getting them vaccinated.
Ahsantení Sana!