Meeting the Mark:
What's New in Adult Immunization?

WV Immunization Network (WIN) Conference
June 10, 2022

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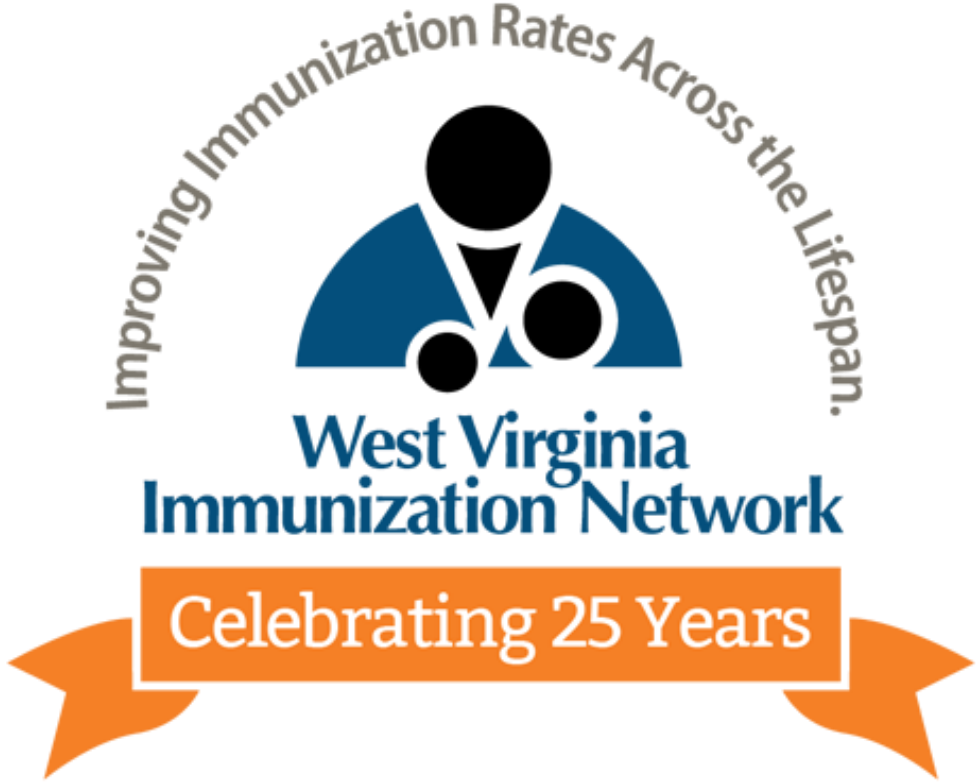
Objectives

- Identify recent changes in ACIP Adult Vaccine Guidelines
  - Special focuses on Hepatitis, Pneumococcal, HPV, and Flu
- Discuss what's new with COVID 19 vaccines
- Identify evidence-based approaches to increasing adult vaccination in the practice setting.

Disclosures

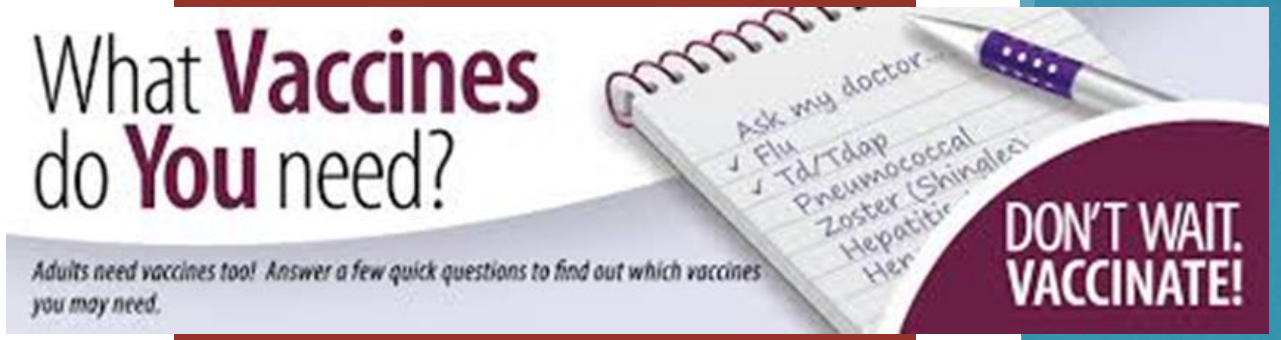
- No financial relationships with any commercial products referenced
- This presentation was developed on behalf of the West Virginia Immunization Network (WIN) for several healthcare provider audiences.



https://wvruralhealth.org/programs/win/

2022 ACIP Schedule: (endorsed by CDC, ACP, AAFP, ACOG, AAPA, ACAM, SHEA)

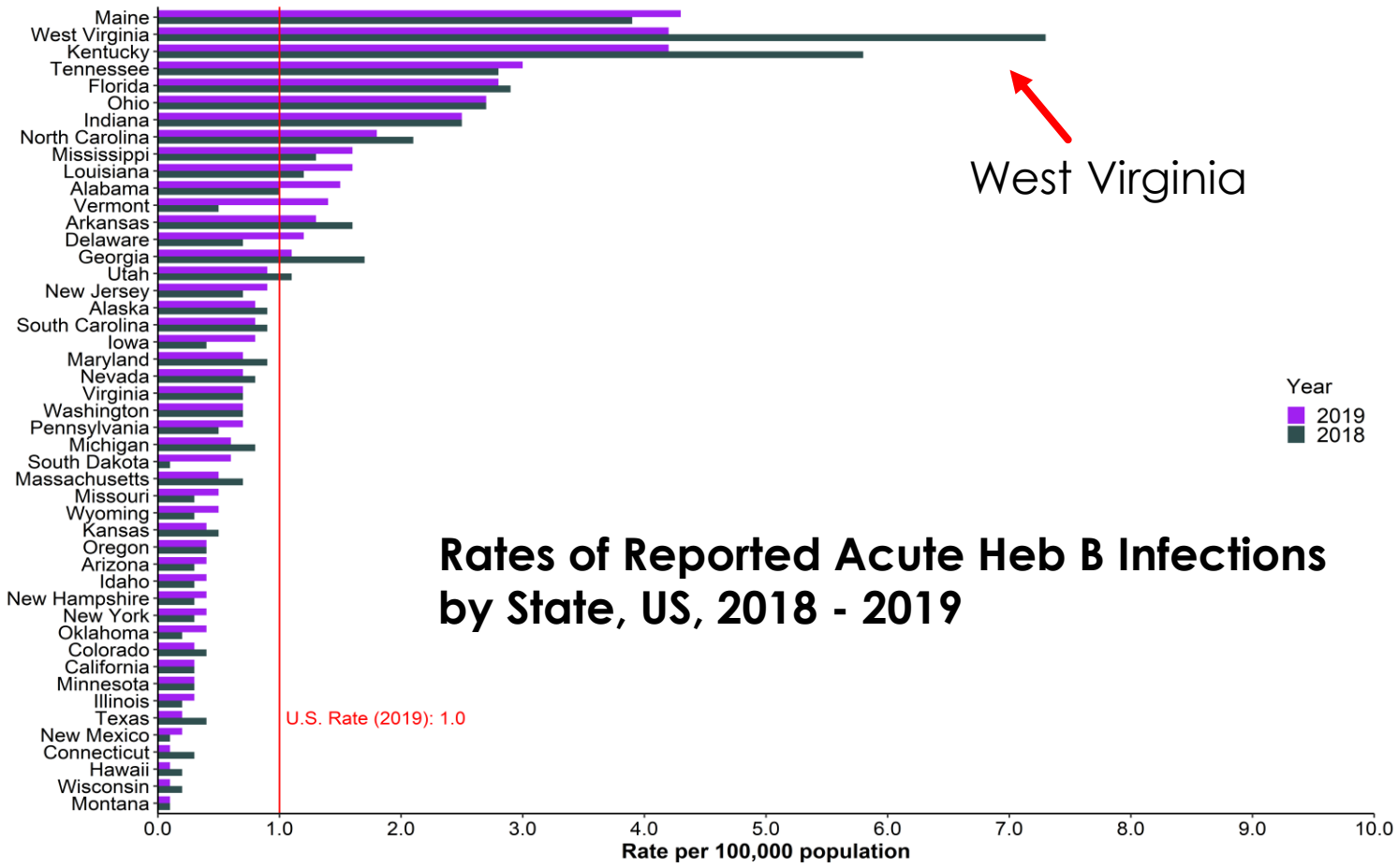
ADULT IMMUNIZATION



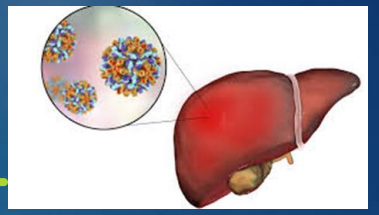
What's New in 2022 Adult Immunizations?

Hepatitis B

- Hep B is the world's leading cause of liver cancer. 6 million Americans have chronic HBV infection (Globally: 296 million; 800,000 deaths/year)
- Rates declined in recent years but leveling off.
- WV has long held some of the highest rates of Hepatitis B in the nation



Hepatitis B Vaccine



- US has a strategy to eliminate Hep B. Started with universal vaccination of infants in 1991, universal birth dose start – 2005, moved to within 24 hrs of birth in 2018.
- Traditionally, immunization of adults against HBV was based on risk. Now expanding universality further across the lifespan.
- **What's new in 2022?**
- **Hep B Immunization of <u>ALL adults 19-59 yo</u>.**
- **Risk based vaccination for age 60+** (chronic liver disease, HIV, Sexual exposure risk, IDU, bloodborne risk, incarcerated, travel to high or mid endemic areas)
- **May vaccinate 60+** if interested in vaccine (for patients may be hesitant to disclose risks).

Pneumococcal Disease

- *Streptococcus pneumoniae (*pneumococcus) is a common cause of pneumonia, blood stream infections, and meningitis among other infections (+ in children, a common cause of ear infections).
- ~185,000 hospitalizations/yr for pneumococcal pneumonia alone (CDC).
- In 2019, pneumococcal bacteremia and meningitis caused at least 3250 deaths (CDC).
- People age 65+ and those with various conditions (i.e., asplenia, CSF leak, alcoholism, chronic liver, lung, or heart disease, smoking, HIV, malignancies, etc.) are at increased risk.
- Resistance is of concern – resistance to ≥1 antibiotics seen in ~30%+ of isolates (varies by locality). (2021 study, *V. Gupta, et al* – 48% macrolide resistance in mid-Atlantic region)
- The surface (capsule) is made up of various polysaccharides – these relate to pathogenicity and antigenicity. Serotypes are defined by these. At least 100 serotypes exist. Vaccines target various serotypes.

Pneumococcal Vaccine Recs Have Varied Widely Over Time

- Pneumococcal vaccines vary by the serotypes they cover (PPSV23, PCV13, etc.)
- Recommendations on vaccines have changed over time
- Pneumococccal vaccine (PPSV23, Pneumovax) has been recommended for adults 65+ yo and for those with risk factors since 1980s. Routinely recommended for children (PCV13, Prevnar 13) since 2010.
- Recommended series including PCV 13 and PPSV23 vaccination for adults with risk factors in 2012, expanded to include all 65+ in 2014. PCV 13 moved back to "shared clinical decision making" for 65+ without other risk factors in 2019 based on review of the evidence.
- Recommendations on pneumococcal vaccines and intervals vary widely by age and condition making it confusing.

Effectiveness and Limitations of Pneumococcal Vaccines

- PCV13 (Prevnar 13) is effective against invasive pneumococcal disease (IPD) and pneumococcal pneumonia (PP) in adults. However, it covers a limited number of serotypes.
- PPSV23 (Pneumovax) effective against IPD; data on pneumococcal pneumonia less clear (21-40% effective)
- Now have two new pneumococcal vaccines available
  - **PCV15 (Vaxneuvance) and**
  - **PCV20 (Prevnar 20)**

PCV15 and PCV20 Studies

- Studies showed better immunogenicity with PCV15 + PPSV23 vs PCV13 + PPSV23; vaccine safety similar.
- In comparison with PPSV23, PCV20 showed stronger immune responses to most of the shared serotypes not found in PCV13 with an equivalent safety profile.
- Timing studies of intervals to use with a PCV + PPSV23 series favored longer intervals among immunocompetent adults.
- Cost effectiveness examined as well.
- Summary: Use of either **PCV20** or use of **PCV15 followed by PPSV23** in adults is expected to **decrease disease incidence, reduce cost, simplify recommendations, and maintain safety**.

2022 Pneumococcal Recommendations

For never vaccinated adults (or history unknown)

Medical Indication	Specific Conditions	Age Group	
		19-64 yo	65+
None	NA	None	1 dose PCV20 or PCV15 + PPSV23 ≥ 1 yr later
Underlying Conditions or Risk Factors	Alcoholism, Chronic heart, liver or lung disease; Cigarette smoking; Diabetes; Immunocompromised (incl chronic renal failure)*, cochlear implants,* CSF leak*	1 dose PCV20 or PCV15 + PPSV23 ≥ 1 yr later*	1 dose PCV20 or PCV15 + PPSV23 ≥ 1 yr later* Reminder: No additional doses indicated over 65 if PCV15 or PCV20 were administered when younger.

*For persons who are immunocompromised, have cochlear implants or a CSF leak, can consider a minimum interval of 8 weeks to reduce risk of invasive pneumococcal disease (IPD) earlier.

2022 Pneumococcal Recommendations

For previously / partially vaccinated adults

Vaccine Status	What	When / Why
PPSV23 only	1 dose PCV20 or PCV15	At least 1 year after last PPSV23 dose
PCV13 or PCV13 + PPSV23	Complete previously recommended PPSV23 vaccine series**, ^	Benefit of adding PCV15 or PCV20 not yet evaluated / known

**See Pneumococcal Vaccine Timing for Adults (CDC). Last dose of PPSV23 should be given after age 65 and at least 5 yrs following any prior doses of PPSV23 given (e.g., if PPSV23 was given at <65 yo due to high-risk condition).

^May use PCV20 if PPSV23 is not available

HPV Vaccine = Cancer Prevention

- Every year, an estimated 19,000 cases of preventable Human Papilloma Virus (HPV)-associated cancer among females and 13,100 cases of HPV-associated cancer among males occur. (250 cancers/year in WV) (cancers of the cervix, anus, throat, vagina, vulva, etc.)
- Human papillomavirus is the most common sexually transmitted infection in the United States, affecting about 85% of people in their lifetime. About 13 million people, including adolescents, become newly infected each year.
- HPV-associated diseases cost the United States an estimated $8 billion (2010 dollars) in annual direct medical costs for prevention and treatment of all HPV types.

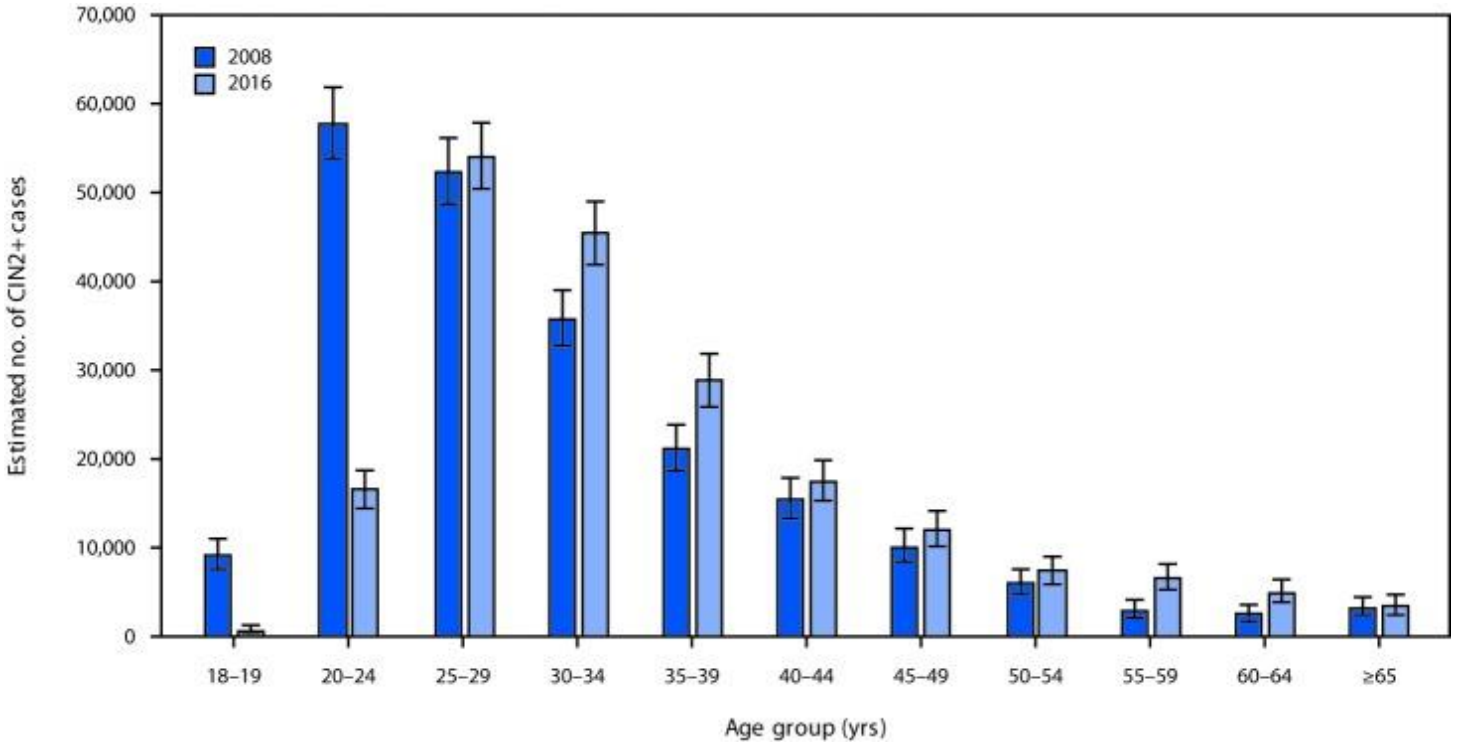
Source: https://www.cdc.gov/mmwr/volumes/68/wr/mm6833a3.htm?s_cid=mm6833a3_w

HPV Vaccine is Highly Effective

Within 12 years of vaccine introduction, infections with the four HPV types prevented by Gardasil decreased in the US by

- 88% among 14–19-year-old females, and
- 81% among 20–24-year-old females

Estimated number of CIN2+ cases by age group, US, 2008 vs 2016

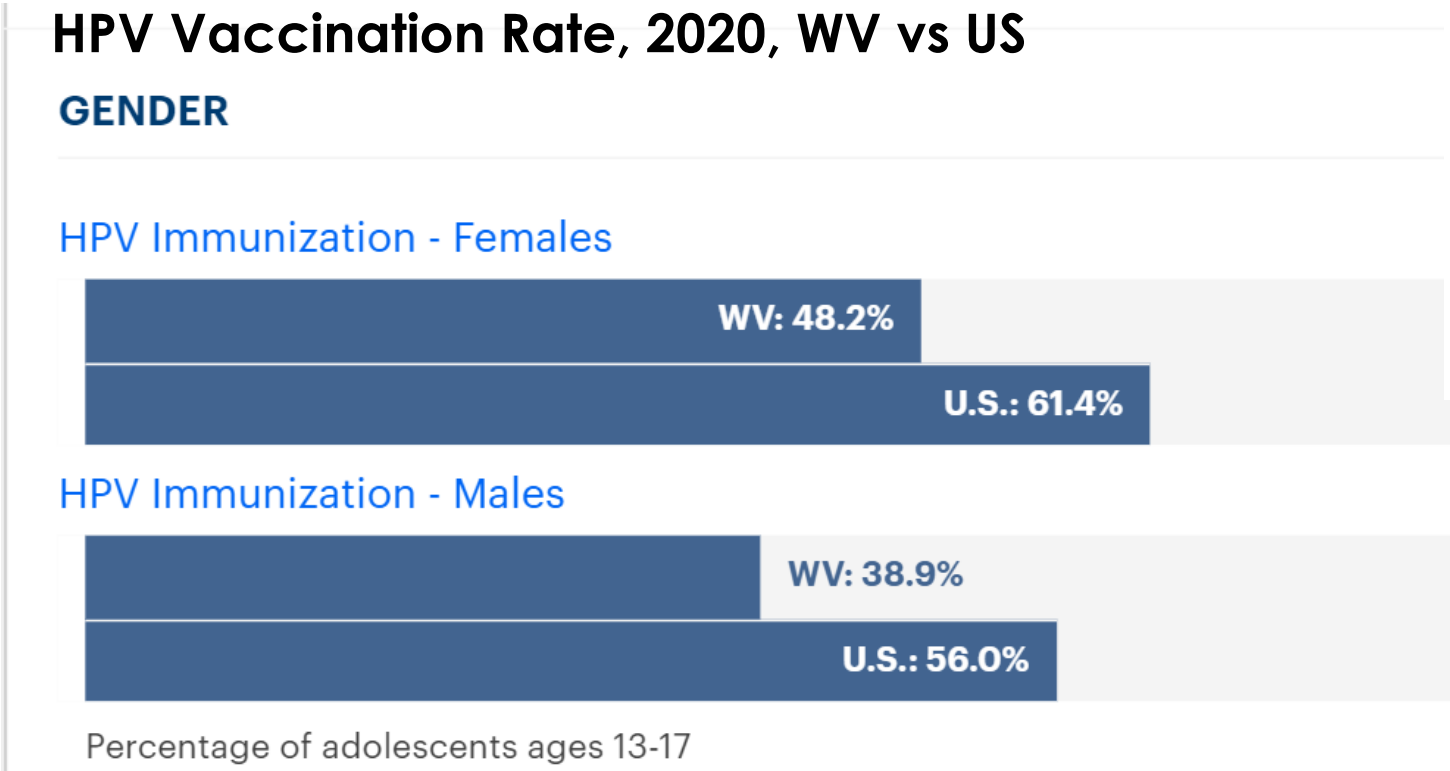


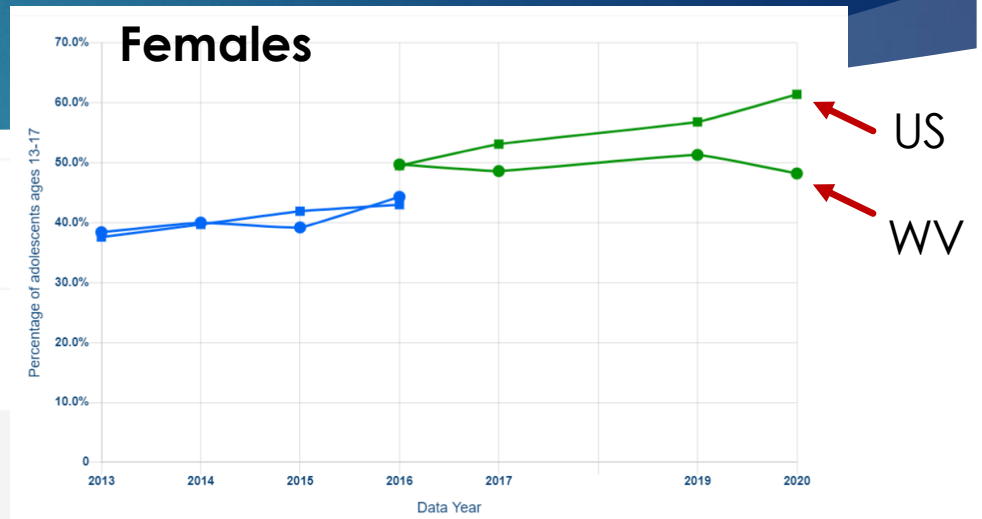
Source: https://pubmed.ncbi.nlm.nih.gov/30998672/

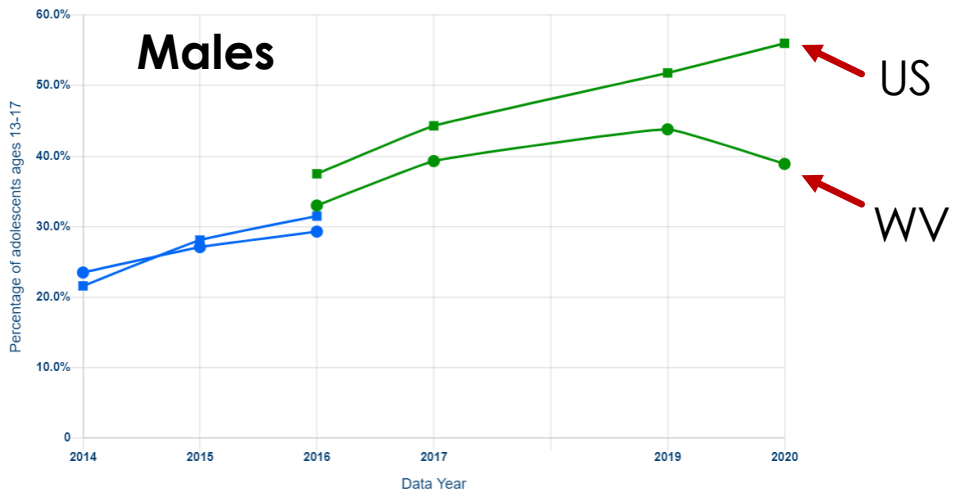
HPV Vaccine Rates (Teens, WV, US)

By Year, 2013-2020

HPV Vaccination Rate, 2020, WV vs US







Source: CDC National Immunization Survey, Teen

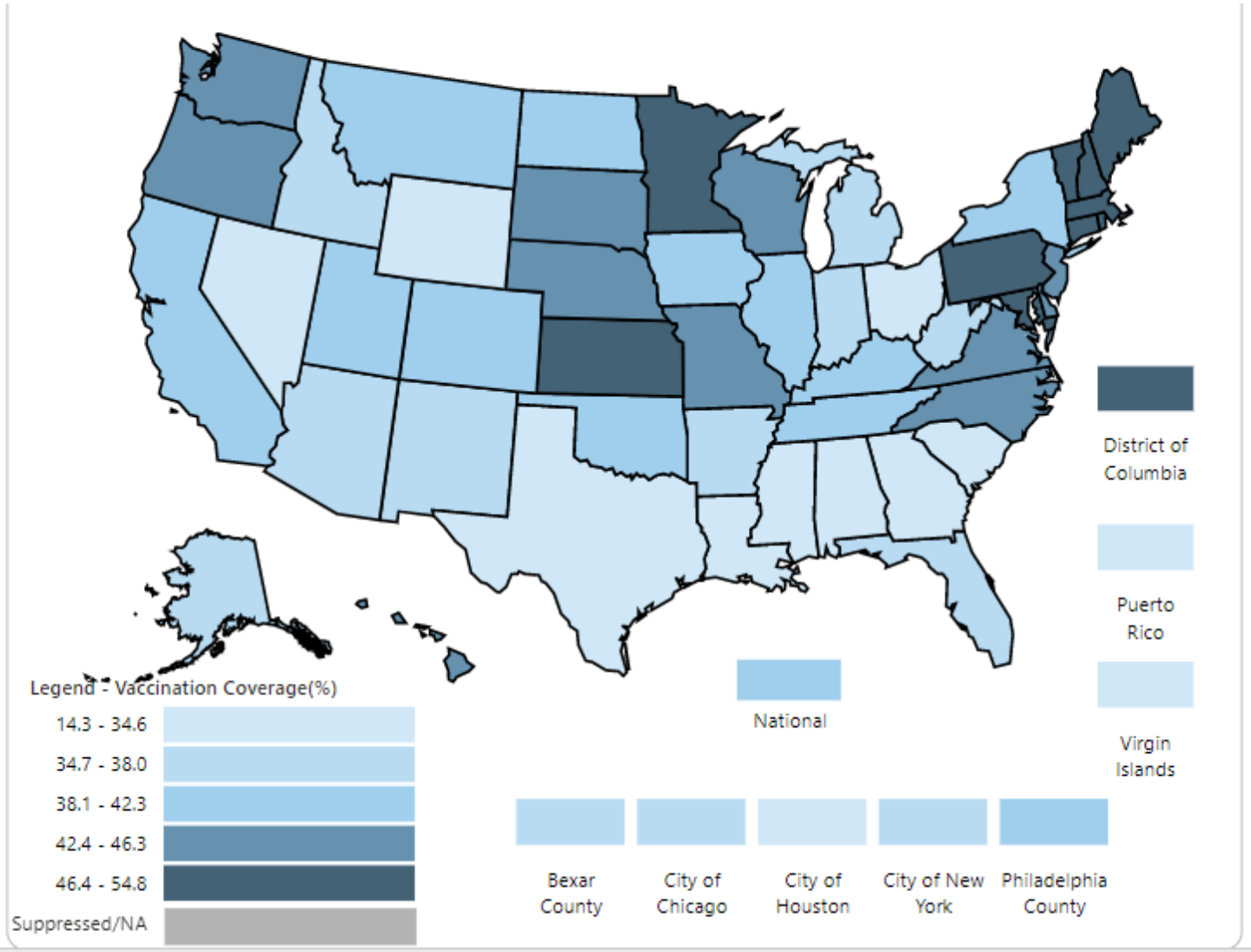
HPV Vaccine Recommendations

- Vaccine works best when given early – before exposure.
- Some benefit still if given later - Reduces infection rate for other HPV viral types.
- Recommended use:
  - All adolescents age 11 – 12 yrs (2 dose series)
  - **All persons through age 26 not vaccinated in adolescence (3 doses if 15+ yo)**
  - **Shared clinical decision making for age 27 – 45 years (3 dose series)**
- Not recommended in pregnancy:
  - no evidence for concern, but there is little data;
  - no need to do pregnancy testing prior to vaccination

Influenza Tips

- All available flu vaccines are now quadrivalent
- COVID and Flu vaccines can be given at the same time. (combined vaccines in development)
- High dose and adjuvanted flu vaccines available for those over 65 yos, but do not delay vaccination if not available. Recombinant flu vaccine also appears more immunogenic in elderly.
- Vaccine timing:
  - Children: typically fine to vaccinate as soon as available – July /August
  - 65+: avoid vaccinating too early as immunity may wane (better Sept / Oct)
  - Pregnant women – may want to vaccinate early for those in 3rd trimester of pregnancy to provide infant protection during season.

2021 Flu Vaccine Coverage by State, as of 12/31/21



Adult Flu Vaccine Coverage Levels by 12/31/2021

<u>For Adults 18+:</u>
WV = 35.9%
US = 40.2%

<u>For 65+:</u>
WV = 63.8%
US = 65.0%

Other 2022 Schedule Changes

- Schedule now includes a page giving contraindications and precautions for all vaccines on the schedule
- **Zoster vaccine** (recombinant, RZV – Shigrix - 2 doses), is now recommended for all persons **19-49 years of age who have immunocompromising conditions (including HIV)**
- RZV vaccination of those with most other chronic diseases (and those who are healthy) remains at 50+yrs.

Immunization Resources

www.immunize.org

CDC: www.cdc.gov/vaccines

CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

A-Z Index

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Vaccines & Immunizations

COVID-19 Vaccination

Vaccine Schedules App

Download "CDC Vaccine Schedules" free for iOS and Android c

Product Specs

Version: 7.0.1

Requirements: Requires iOS 9.0 or later and A
optimized for tablets and useful on smartpho

Updates: Changes in the app are released thr

WV Immunization Network (WIN): https://wvruralhealth.org/programs/win/

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What's new in COVID 19 Immunization ?

COVID Vaccine in Pregnancy

- Pregnant women with COVID-19 are at increased risk for more severe disease and for complications including pre-term labor and still birth
- COVID-19 vaccination is recommended for people who are pregnant, breastfeeding, trying to get pregnant, or might become pregnant in the future.
- People who are pregnant should receive a COVID-19 vaccine booster shot
- **NEW!** Feb 2022 Study (MMWR, CDC*): **COVID 19 vaccination in pregnancy not only protects the mother but also the newborn infant** (61% reduction in hospitalization).
- **NEW!** Feb 2022 Study (JAMA^) **Immunization during pregnancy results in infant antibody levels higher than maternal COVID infection during pregnancy**.

* https://www.cdc.gov/mmwr/volumes/71/wr/mm7107e3.htm

^*JAMA*. Published online February 07, 2022. doi:10.1001/jama.2022.1206

Other COVID Vaccine Changes

- **New! Feb 2022! Increase mRNA dose Intervals to 8 weeks, esp. <u>in young males (12-39 yrs).</u>** Decreases small risk of myocarditis vs earlier immunity. **Consider in others too, except those at high risk of COVID.**

COVID Vaccines on the Horizon.

- **Recombinant-subunit-adjuvanted protein vaccine**
  - Older, traditional vaccine methodology (same as Flublok, Hep B, etc.)
  - Can use existing vaccine infrastructure for manufacturing
  - Cold chain requirements less stringent (refrigeration up to 6 mos.)
  - Feb 2022 – Vidprevtyn (Sanofi/GSK) results showed protection against symptomatic disease ~60%; severe disease / death – 100%. Strong effect as booster to many vaccines. Now under review by European authorities.
  - **NEW! June 2022** – (Novavax) VRBPAC recommended approval to FDA. 2 doses, 3 wks apart. 90% efficacy against symptomatic infection (alpha variant). Delays have been due to previous manufacturing issues now resolved. Being used in several other countries.

Vaccine for Children 6 mos - 4 yrs

- As of June – approx. 1250 deaths in pediatric pops due to COVID; ~440 in <5 yo
- COVID in children is generally less frequent and less severe than in adults.
- COVID Vaccine is currently licensed for age 5+ yrs
- **NEW! US poised for EUA use of mRNA vaccines in children age 6 mos – 5 years.**
  - In Feb, FDA delayed making a decision on vaccine for <5 yo age group to await additional data on the effectiveness of a 3rd dose.
  - New data on use in 6 mos to < 5 yrs now submitted to FDA by Moderna and Pfizer.
  - Pfizer vaccine is 1/10th adult dose (3 *ug*) & a 3 dose series (Wk 0,3,11?); Moderna is ¼ adult dose (25 *ug*) & a 2 dose series (Wk 0,4). Pfizer series showing greater efficacy at present.
  - VRBPAC meets June 14-15 to review. If approved by FDA, CDC ACIP would meet and use could begin by ~end of June.
  - If approved, may be a permissive recommendation.
- Infants of mothers vaccinated in pregnancy will likely still require vaccine at 6 mos.

Other Topics on the Horizon.

- **Variant Specific Vaccines? 2022-23 Vaccine composition:** FDA mtg June 28.
- **Combination vaccines**: Flu-COVID and Flu-COVID-RSV in development
- **Other Vaccine Technologies being explored:**
  - Intranasal or enteral COVID vaccines;
  - Microarray patch vaccines (measles)

Think Systems to have the biggest impact.....

Other Opportunities in Practice

- Look for missed opportunities
- Check your data – esp. series completion for multi-dose vaccines.
- Staff engagement and education
- Find an office champion / be a champion
- Standing Orders
- Remember that decision making is about more than data
- Learn Motivational Interviewing Skills
- Look for creative ways to reach / meet high-risk populations

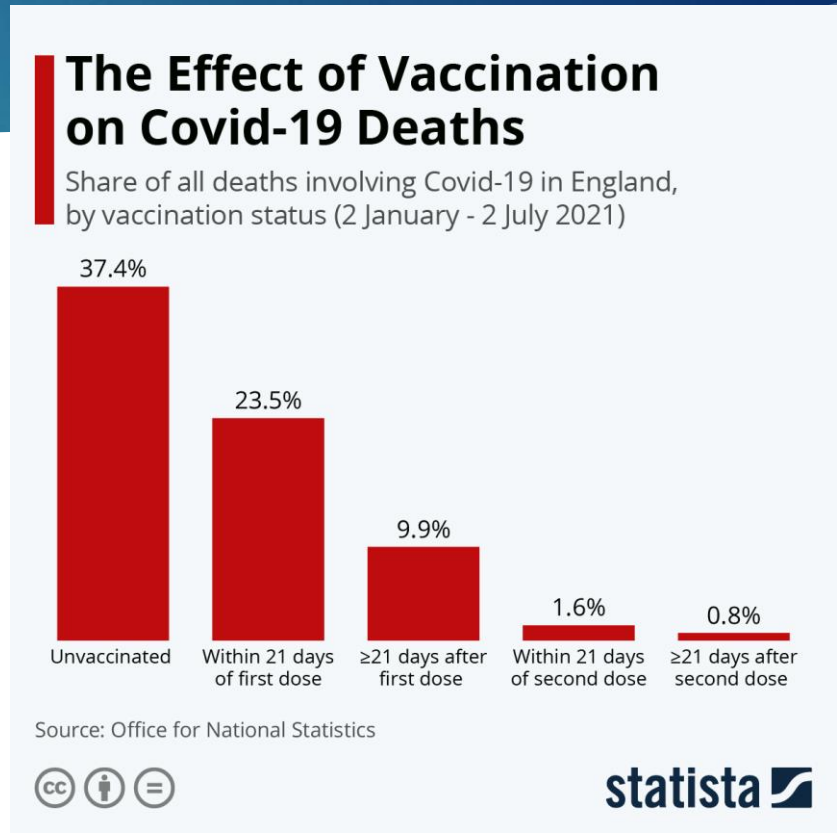
Beyond the Clinic Walls:
Immunization Advocacy & Partnerships

- Meet with your legislators
  - Outside of the legislative session is best.
  - Consider giving them a tour of your clinic/office/health department or meet with you one-on-one.
  - Form a friendly, professional relationship with them.
  - Be a source of public health/healthcare expertise for them to reach out to.
- Remember your county commissioners, CBOs, FBOs, behavioral health, occ health offices, barbers / beauticians, etc.
- Who reaches who you need to give opportunity to???

Vaccines Work.....

Vaccine	Before	(Year)	After	(Year)
Diphtheria	175,885	(1922)	1	(1998)
Hib	20,000	(1982)	54	(1998)
Measles	503,282	(1962)	89	(1998)
Mumps	152,209	(1968)	606	(1998)
Pertussis	147,271	(1925)	6,279	(1998)
Rubella	47,745	(1968)	345	(1998)
Smallpox	48,164	(1904)	0	(1998)

(annual cases in U.S.)



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Thank You!

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