

## ADULT IMMUNIZATION UPDATE

NORTH DAKOTA ACADEMY OF FAMILY PHYSICIANS NOVEMBER 10, 2018  
ANDY NOBLE, CDC PUBLIC HEALTH ADVISOR, NORTH DAKOTA IMMUNIZATION PROGRAM

NORTH DAKOTA DEPARTMENT OF HEALTH

### TRAINING OBJECTIVES

- Be** • Upon completion of the adult immunization training, participants will be able to:
- Discuss** • Discuss the general adult immunization recommendations.
- Describe** • Describe the adult pneumococcal immunization recommendations.
- Discuss** • Discuss the Shingrix® immunization recommendations.
- Discuss** • Discuss strategies to increase adult immunization rates.

### GENERAL ADULT IMMUNIZATION RECOMMENDATIONS

VACCINES AREN'T JUST FOR CHILDREN. ADULTS CAN BE PROTECTED FROM 14 DEADLY DISEASES.

**WHAT ARE THE RISKS?**

Up to 10 million people have pneumococcal infections each year. 50,000 die from pneumococcal pneumonia. 150,000 are hospitalized. 100,000 are hospitalized for meningitis. 100,000 are hospitalized for sepsis.

For more information <https://www.cdc.gov/vaccines/vpd/vaccines-age.html>

### 2018 ADULT IMMUNIZATION SCHEDULE

INFORMATION FOR ADULT PATIENTS 2018 Recommended Immunizations for Adults: By Age

if you are this age	Flu (influenza)	Shingles (Zoster)	Pneumococcal	Meningococcal	MMW (MM, IPV, Hib) (meningitis, pertussis, tetanus)	MMW (MM, IPV, Hib) (meningitis, pertussis, tetanus) for women	MMW (MM, IPV, Hib) (meningitis, pertussis, tetanus) for men	Cholera (oral)	Hepatitis A	Hepatitis B	Hib (meningitis, tetanus)
18-24 years	Yes		Yes	Yes	Yes						
25-26 years	Yes		Yes	Yes	Yes						
27-49 years	Yes		Yes	Yes	Yes						
50-64 years	Yes	Yes	Yes	Yes	Yes						
65+ years	Yes	Yes	Yes	Yes	Yes						

2018 Centers for Disease Control and Prevention Adult Immunization Schedule

### INFLUENZA

- Annual vaccination is recommended for all persons aged ≥6 months.
- High-dose is an option for persons aged ≥65.
  - \*High-dose vaccine was 24.2% more effective in preventing flu in adults 65 years of age and older relative to a standard-dose vaccine.
- The ACIP no longer recommends that egg-allergic recipients be observed for 30 minutes following vaccination.
- Patients with a known history of severe egg allergy, any symptom other than hives, should be vaccinated in a setting under the supervision of a provider.

**the benefits of flu vaccination 2016-2017**

<p>the estimated number of flu illnesses prevented by flu vaccination during the 2016-2017 season:</p> <p><b>5.3 million</b></p> <p>about the population of the state of Mississippi.</p>	<p>the estimated number of flu medical visits prevented by vaccination during the 2016-2017 season:</p> <p><b>2.6 million</b></p> <p>or more than the number of quarters in all 12 schools in Florida.</p>	<p>the estimated number of flu hospitalizations prevented by vaccination during the 2016-2017 season:</p> <p><b>85,000</b></p> <p>or more than the number of hospital beds in California and Oregon.</p>
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get vaccinated [www.cdc.gov/flu](http://www.cdc.gov/flu)

For more information <https://www.cdc.gov/vaccines/vpd/flu/index.html>

\*High dose flu vaccine: DiazGranados A., Dunning A, Kimmel M, et al. Efficacy of High-Dose versus Standard-Dose Influenza Vaccine in Older Adults. N Engl J Med 2014; 371:635-645 August 14, 2014

### FLUMIST

The Advisory Committee on Immunization Practices (ACIP) reviewed Flumist data in February 2018.

- ACIP voted to reintroduce LAIV4 as an option for the 2018-19 season.

AAP and CDC each support the use of LAIV4 for the 2018-19 influenza season with the aim of achieving adequate vaccination coverage and optimal protection in children of all ages, the AAP is making the following recommendations:


- Annual influenza vaccination is recommended for everyone 6 months and older.
- For the 2018-19 season, the AAP recommends inactivated influenza vaccine (IIV3/4) as the primary choice for all children because of the effectiveness of LAIV4:
- was inferior against A/H1N1 during past seasons; and
- is unknown against A/H1N1 for this upcoming season.
- LAIV4 may be offered for children who would not otherwise receive an influenza vaccine.

## Pregnant? You Need a Flu Shot!

**Information for pregnant women**

### INFLUENZA AND PREGNANCY

- Pregnant and postpartum women have been observed to be at higher risk for severe illness and complications from influenza.
- ACIP and the American College of Obstetricians and Gynecologists recommend that all women who are pregnant or who might be pregnant during the influenza season receive influenza vaccine.\*
- LAIV should not be used during pregnancy.
- Influenza vaccine can be administered at any time during pregnancy, before and during the influenza season.
- Vaccination reduces the risk of flu-associated acute respiratory infection in pregnant women by up to one-half.\*\*



**The flu is a serious illness, especially when you are pregnant.**

Getting the flu shot can protect you and your unborn baby. If you are generally healthy, changes in immune, heart and lung functions during pregnancy make you more likely to get severely ill from the flu. Pregnant women who get the flu are at high risk of developing serious illness, including being hospitalized.

**Flu shots are the best available protection for you – and your baby.**

When you get your flu shot, your body starts to make antibodies that help protect you against the flu. Antibodies also can be passed to your developing baby, and help protect them for several months after birth. This is a special natural flu shot because it does not contain any live virus. It is safe for you and your baby. If you are unsure about other medicines, discuss this with your doctor. If you are unsure about other medicines, discuss this with your doctor. If you are unsure about other medicines, discuss this with your doctor.

**The flu shot is safe for pregnant and breastfeeding women and their infants.**

Even though the flu shot is safe for pregnant women, who are an important source of antibodies to protect their babies, the flu shot has never caused problems in babies. In fact, the flu shot can be given safely during pregnancy.


If you already are fully vaccinated, you do not need to get the flu shot. If you are not fully vaccinated, you should get the flu shot. If you are not fully vaccinated, you should get the flu shot. If you are not fully vaccinated, you should get the flu shot.

**Common side effects of the flu shot are mild.**

After getting the flu shot, you may have some soreness and redness at the injection site. You may also have a low-grade fever. These are normal reactions to the vaccine. If you have any concerns, talk to your doctor.

\*https://www.cdc.gov/mmwr/ohwmmw4671n16708a8.htm  
\*\*https://www.cdc.gov/mmwr/ohwmmw4671n16708a8.htm

## TETANUS, DIPHTHERIA, PERTUSSIS (Tdap)



Not Vaccinated?  
No Kisses!

Get the adult whooping cough vaccine.  
[www.vaccinateyourfamily.org](http://www.vaccinateyourfamily.org)

- Administer 1 dose of Tdap vaccine to pregnant women during each pregnancy (preferred 27-32 weeks).
- Persons ≥11 years who have not received or have unknown immunization status should receive a dose.
- Unvaccinated adults administer Tdap
  - Td 4 weeks later
  - Td 6-12 months after dose two.

For more information: <https://www.cdc.gov/vaccines/vpd/pertussis/index.html>

## ZOSTER - SHINGRIX®



- October 20, 2017, the U.S. Food and Drug Administration (FDA) licensed Shingrix®, for adults 50 years and older in the United States.
- Shingrix® inactivated vaccine is a recombinant, adjuvanted vaccine for the prevention of herpes zoster (shingles).
- Two doses of the new shingles vaccine are given two months apart.
- The vaccine is administered intramuscularly.
- Approximate cost is \$280 for both shots.

Zostavax® 1 dose	Shingrix® (GSK) 2 doses	ZOSTER VACCINE
<ul style="list-style-type: none"> <li>2008 - ACIP recommended for immunocompetent ≥ 60 years</li> <li>Efficacy: 51% zoster; 67% PHN</li> <li>Reduced in older recipients</li> <li>Duration of protection zoster                             <ul style="list-style-type: none"> <li>Year 4: 45%</li> <li>Year 9: 7%</li> </ul> </li> <li>31% adults ≥ 60 years in US have been vaccinated</li> </ul>	<ul style="list-style-type: none"> <li>97% protection against shingles in adults 50-69 years old</li> <li>91% protection against shingles in adults 70 years and older</li> <li>91% protection against PHN in adults 50 years and older</li> <li>Protection of 85% or above was maintained for 4 years after vaccination.</li> </ul>	

## ZOSTER – ACIP UPDATE

ACIP voted that Shingrix® vaccine is:

1. Recommended for the prevention of herpes zoster and related complications for immunocompetent\* adults aged 50 years and older.
2. Recommended for the prevention of herpes zoster and related complications for immunocompetent adults who previously received zoster vaccine live.\*\*
3. Preferred over zoster vaccine live (ZVL) for the prevention of herpes zoster\* and related complications.

\*Being immunocompromised is not a contraindication or precaution to RZV vaccination. The ACIP will discuss formal recommendations for specific high risk groups, including immunocompromised at an upcoming meeting.  
\*\*CDC guidance will state an 8 week minimum interval between RZV and ZVL.

## KEY DIFFERENCES

<ul style="list-style-type: none"> <li>Zostavax® (MERCK)</li> <li>Stored in freezer (-58° to 5° F)</li> <li>Subcutaneous (SC)</li> <li>Single dose</li> <li>Previously recommended for everyone 60 and older</li> <li>Contraindicated in people who are immunocompromised</li> </ul>	<ul style="list-style-type: none"> <li>Shingrix® (GSK)</li> <li>Stored in fridge (35° to 5° F)</li> <li>Intramuscular (IM)</li> <li>Two doses 8 weeks apart</li> <li>Recommended for everyone 50 and older</li> <li>Not contraindicated in people who are immunocompromised</li> <li>Preferred over Zostavax®</li> </ul>
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### SHINGRIX® PATIENT COMMUNICATION

- Purpose for revaccination
- Discuss difference between Zostavax® and Shingrix®
- Discuss additional pain at the injections site
- Discuss duration of pain at the injections site

### SHINGRIX® SUPPLY

- Currently in back order status due to high demand.
- Manufacturer recommends order from multiple distribution centers
  - May increase vaccine supply
- Upon receipt of your order additional doses to maintain a sufficient supply
- For alerts and supply updates see: <https://www.gskdirect.com>

**Alerts** Alert # 1: Due to unprecedented levels of demand for SHINGRIX, providers should anticipate ordering back, backorders, and shipping delays for SHINGRIX. GSK is currently working to make more doses available in the next 90th for the US market in order to meet the demand for this vaccine.

Alert # 2: Due to Merck's continued hepatitis B supply shortage throughout the remainder of 2018, GSK has communicated to the CDC that we will be able to cover the shortage using a combination of GSK's own manufactured hepatitis B vaccine, and PEVARIK (DTaP- Hep B-IPV) (by dose other than the 6th dose). See the full GSK Hepatitis B Supply Update Customer Letter Page.

### PNEUMOCOCCAL CONJUGATE (PREVNAR®, PCV 13)

- Until 2000, pneumococcal infections caused 60,000 cases of invasive disease annually.
- Up to 40% of these infections were caused by drug-resistant *streptococcus pneumoniae*.
- Pneumococcal bacteria are resistant to one or more antibiotics in 30% of cases.
- Adults ≥65 who have not received PPSV23 or have an unknown vaccination history should receive a dose of PCV13.
- Adults ≥65 who have received one or more doses of PPSV23 should receive a dose of PCV13.
- PCV13 and PPSV23 should not be administered simultaneously.

For more information: <https://www.cdc.gov/vaccines/vpd/pneumo/index.html>

### ADULT PNEUMOCOCCAL (PNEUMOVAX® PPSV23)

**What do they all have in common?**

• 65+ Age at onset  
• 100,000+ Cases  
• 100,000+ Deaths  
• 100,000+ Hospitalizations  
• 100,000+ Days in Hospital

They are all at increased risk for a infection called pneumococcal disease.

• Pneumococcal disease can cause pneumonia, meningitis, bloodstream infections, sepsis, ear infections, sinusitis, otitis media, osteomyelitis, or death.

**Getting vaccinated is the best way to protect yourself.**

Nearly one million people get pneumococcal pneumonia in the US every year and 5 to 7 percent of them die.

Pneumococcal meningitis and bloodstream infections are also common, but more deadly.

One in every four for the people over the age of 65 who get it will die.

Ask your healthcare provider about pneumococcal vaccination today. You can get your shot before you're even required to have one shot.

Medical Offices Pharmacy

Receive 10 and offer all of adults with certain health conditions are at risk. Learn more at: <https://www.cdc.gov/pneumo>

- Pneumococcal Polysaccharide Vaccine (PPSV23)
  - Adults 65 years of age and older.
  - Administered 12 months after PCV13.
  - Adults who receive PPSV23 at ≥65 years should receive a single dose (no booster doses).
  - Adult who received a dose of PPSV23 before the age of 65, should receive another dose at least 5 years after the last dose.

For more information: <https://www.cdc.gov/vaccines/vpd/pneumo/index.html>

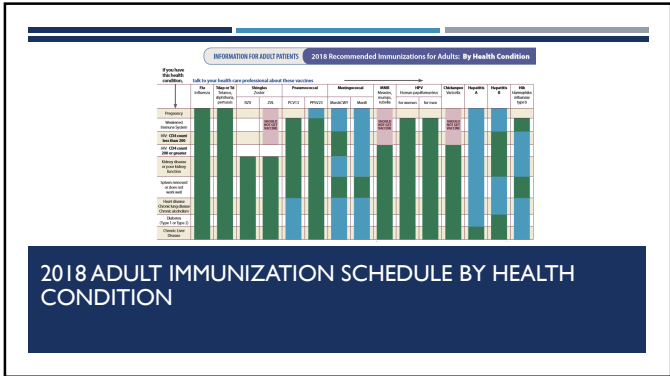
### HEPATITIS B UPDATE

- HEPLISAV – B® received FDA approval in November 2017.
- Licensed and ACIP recommended for adults ≥18 years of age.
- Adjuvanted hepatitis B vaccine
- 0.5 ml, 20 µg HBsAg
- 2 doses over one month
  - Two dose schedule only applies when both doses are Heplisav®.
- A series consisting of a combination of one dose of Heplisav® and a vaccine from a different manufacturer should consist of 3 total vaccine doses and should adhere to the 3-dose schedule.
  - Minimum interval of 4 weeks between dose 1 and 2
  - 8 weeks between dose 2 and 3
  - 16 weeks between dose 1 and 3.
- A series containing 2 doses of Heplisav® administered at least 4 weeks apart is valid, even if the patient received a single earlier dose from another manufacturer.

### BENEFITS OF HEPLISAV

- Provides earlier seroprotection
- Primary and secondary endpoint Heplisav produced 90.1% seroprotection rate in 12 weeks (two doses).
- Primary endpoint data in Type 2 Diabetes - Heplisav 90% seroprotection rate in 12 weeks (two doses).
- HEPLISAV-B may reduce impact of low adherence in high-risk adults.
- May increase adherence with 2-dose schedule over 1 month.

## IMMUNIZATION RECOMMENDATIONS – BY HEALTH CONDITION



### PNEUMOCOCCAL VACCINE FOR HIGH RISK

Single dose of PCV13 should be given to adults ≥19 years with certain medical conditions, that have not received previously received PCV13.

- Asplenia
- Chronic renal failure and nephrotic syndrome
- Cochlear implant(s)
- Congenital or acquired immunodeficiencies
- CSF leaks
- Generalized malignancy
- HIV infection
- Hodgkin disease
- Latrogenic immunosuppression solid organ transplant
- Multiple myeloma
- Leukemia or lymphoma
- Sickle cell disease and other hemoglobinopathies

Pneumococcal polysaccharide vaccine recommendations for persons 2 years of age or older with the following conditions.

- Alcoholism
- Asplenia
- Cochlear implant
- Congenital immunodeficiency
- CSF leaks
- Chronic illness (heart, lung, liver)
- Environments or settings with increased risk
- HIV infection
- Individuals 19-64 who smoke cigarettes
- Leukemia
- Routine PPSV23 use is no longer recommended for Alaska Natives or American Indians aged <65 years unless they have medical indications for PPSV23.

For more information: <https://www.cdc.gov/vaccines/vpd/pneumo/index.html>

### MENINGOCOCCAL (MENACWY, MCV4)

- Complement component deficiency (e.g., C5-C9, properdin, factor H, factor D, or are taking soliris®)
- Functional or anatomic asplenia
  - Adults at increased risk because of complement component deficiencies and persons with functional or anatomic asplenia should receive a two-dose primary series 2 months apart and then get a booster dose every 5 years.
- Microbiologist who is routinely exposed to *Neisseria meningitidis* (the causal pathogen)
- Traveling or residing in countries in which the disease is common
- Part of a population identified to be at increased risk because of a serogroup A, C, W or Y meningococcal disease outbreak
- A first-year college student living in a residence hall
- Military recruit

For more information <https://www.cdc.gov/vaccines/vpd/mening/hcp/who-vaccinate-hcp.html>

### MENINGOCOCCAL B VACCINE

Adults **should** get serogroup B meningococcal vaccine if:

- They have complement component deficiency (e.g., C5-C9, properdin, factor H, factor D, or are taking Soliris®).
- They have functional or anatomic asplenia.
- They are a microbiologist who is routinely exposed to *Neisseria meningitidis* (the causal pathogen).
- They are part of a population identified to be at increased risk because of a serogroup B meningococcal disease outbreak.

For more information <https://www.cdc.gov/vaccines/vpd/mening/hcp/who-vaccinate-hcp.html>

### HEPATITIS B

- Seek care in a clinic for sexually transmitted diseases, HIV testing or treatment, or drug treatment.
- Diabetes (Type 1 or 2) and are under the age of 60
- Chronic liver disease
- Kidney disease
- Dialysis patient
- IV drug use
- HIV
- MSM
- Prisoner in a correctional facility
- Sex with more than one partner
- Have sex with or live in the same house as a person with hepatitis B virus infection
- Live or travel for more than 6 months a year in countries where hep B is common

MAP 2-4. PREVALENCE OF CHRONIC HEPATITIS B VIRUS INFECTION AMONG ADULTS\*  
\*Global prevalence 2012. Data from WHO, Hepatitis B Working Group. Global epidemiology of hepatitis B virus infection: new estimates of age-specific HBsAg seroprevalence and antibody to surface antigen 2012. WHO Bulletin 2012; 110(12): 1872-1876.

## HEALTHCARE WORKER IMMUNIZATION RECOMMENDATIONS

### HEALTH CARE PERSONNEL


Include but not limited to:

Physicians	Emergency Medical Service Personnel	Autopsy Personnel	Housekeeping
Nurses	Laboratory Personnel	Students and Trainees	Laundry
Therapists	Technicians	Contractual Staff not Employed by the Healthcare Facility	Administrative/Clerical
Pharmacists	Dietary	Maintenance	Billing
Nursing Assistants	Dental Personnel	Security	Volunteers


**Other personnel not directly involved in patient care but potentially exposed to infectious agents.**

### INFLUENZA HCP REQUIREMENT

- HCP should get one dose annually.
- Early season 2017–18 flu vaccination coverage among hcp was 67.6%, similar to early season coverage during the 2016–17 season (68.5%).
- By occupation, early season flu vaccination coverage was highest among pharmacists (86.4%), physicians (82.7%), nurses (80.9%), nurse practitioners/physician assistants (79.7%), and other clinical professionals (75.1%).
- Early season flu vaccination coverage was higher among HCP whose employers required (88.4%) or recommended (65.1%) that they be vaccinated compared with those HCP whose employer did not have a requirement or a recommendation regarding flu vaccination (29.8%).



Mandatory Influenza Vaccination for Healthcare Personnel Supported endorsed by:



### HEPATITIS B

If documented evidence of a complete and valid hepatitis B vaccination series **AND** up-to-date blood test demonstrating hep B immunity is not available, then HCP should receive the hep B series.

Dose	Recommended Interval	Minimum Interval
One	Today	
Two	Four weeks following dose one	Four weeks following dose one
Three	Four to six months after dose two	Eight weeks between dose two and three and 16 weeks between dose one and three

Get anti-HBs serologic tested 1–2 months after dose #3.

If serology is negative:

- Repeat the 3-dose series
- Test for anti-HBs 1–2 months after the third dose of vaccine

### MEASLES, MUMPS, RUBELLA (MMR)

#### UNVACCINATED COMMUNITIES


**90%** Rate of infection among unvaccinated people exposed to measles.

Each infected person will spread the virus to 12-18 others.

**Healthcare personnel born in 1957 or later**

- Unvaccinated HCP, or HCP who do not have serology demonstrating immunity to measles or mumps, should get 2 doses of MMR vaccine separated by a minimum of 28 days.
- HCP that have not had the MMR vaccine, or do not have serology demonstrating immunity to rubella, are recommended to receive 1 dose of MMR.

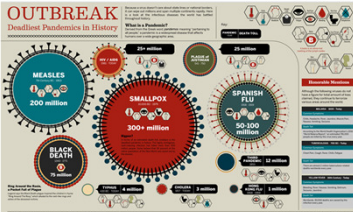
	Dose One	Dose Two
Measles	*95%	99%
Mumps	80%-85% (range: 75%-91%)	79%-95%
Rubella	95% (85%-99% CI)	>99%



### MEASLES, MUMPS, RUBELLA (MMR) CONTINUED

#### OUTBREAK

Deadliest Pandemics in History



**HCP born before 1957**

- HCP lacking laboratory evidence of measles, mumps and/or rubella immunity confirmation of disease, should consider two doses separated by 28 days.
- Healthcare facilities should recommend two doses during an outbreak of measles or mumps and one dose during an outbreak of rubella for unvaccinated HCP or HCP lacking serology of measles, mumps and/or rubella.

### MUMPS ACIP RECOMMENDATION - OCTOBER 2017

- Persons previously vaccinated with two doses of MMR vaccine who are identified by public health as at risk for mumps because of an outbreak should receive a third dose of MMR vaccine to improve protection against mumps disease and related complications.
  - Not necessarily for outbreak control, but to reduce an individual's risk for mumps.

Morbidity and Mortality Weekly Report (MMWR)

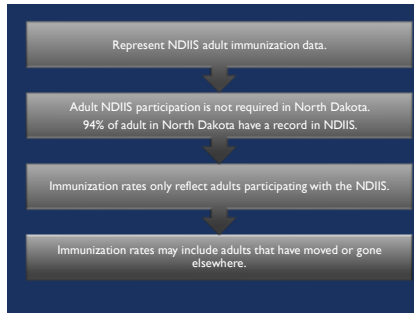
10/16/2018

Recommendation of the Advisory Committee on Immunization Practices for Use of a Third Dose of Mumps Virus-Containing Vaccine in Persons at Increased Risk for Mumps During an Outbreak  
 Weekly / Issues 12, 2018 / 47(12):35-39

### VARICELLA

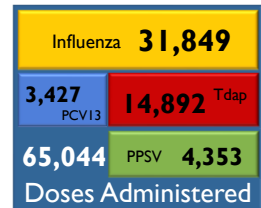
- HCP who do not have evidence of immunity should receive two doses of varicella vaccine, with a minimum interval of 4 weeks between dose one and two.
- Evidence of Immunity**
  - Documentation of 2 doses of vaccine given no earlier than 12 months of age, at least 3 months between doses for children younger than age 13 years, or at least 4 weeks between doses for people 13 years and older.
  - A healthcare provider's diagnosis of varicella or verification of history of varicella disease.
  - History of herpes zoster, based on healthcare provider diagnosis
  - Laboratory evidence of immunity or laboratory confirmation of disease
  - Birth before 1980 is not considered evidence of immunity for HCP.

### NORTH DAKOTA ADULT IMMUNIZATION RATES

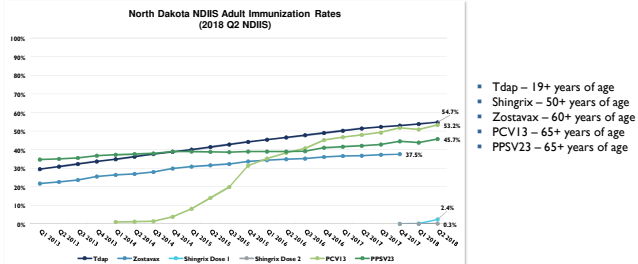


### 2018 Q3 NDIIS DOSES ADMINISTERED (7/1/18 – 9/30/18)

- Pneumococcal Conjugate (PCV13) 65+ years of age
- Pneumococcal Polysaccharide (PPSV23) 65+ years of age
- Shingrix® 50+ years of age
- TD/Tdap 19+ years of age
- Influenza 19+ years of age

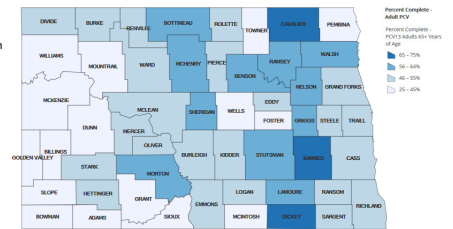


### NORTH DAKOTA ADULT NDIIS IMMUNIZATION RATES

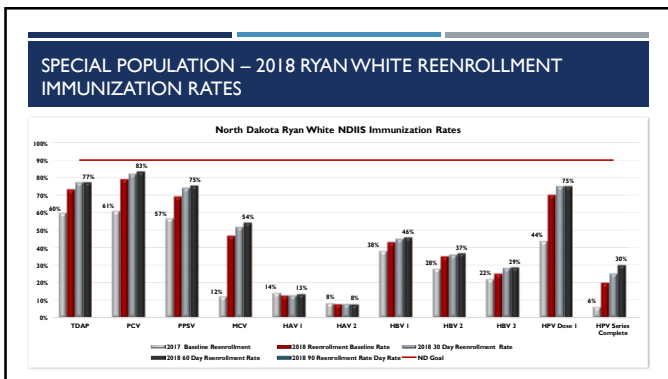
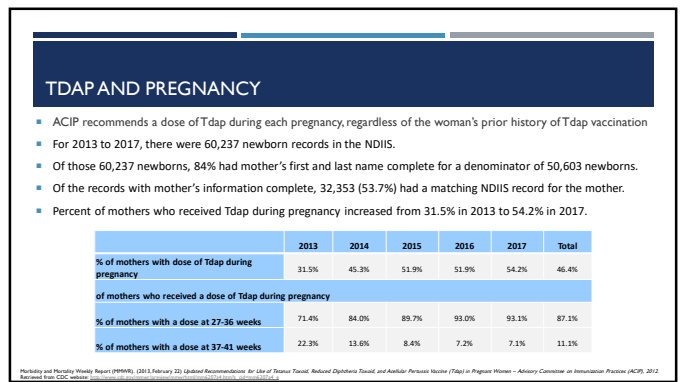
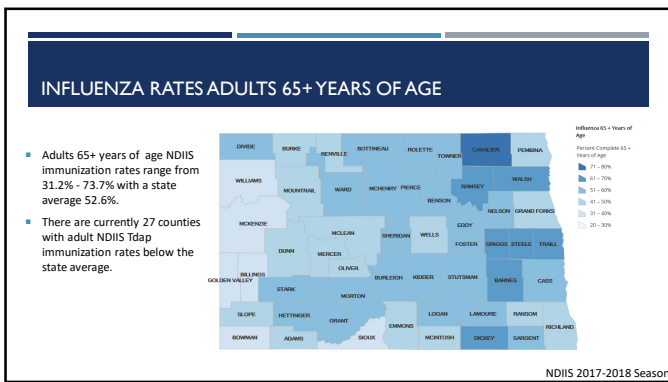
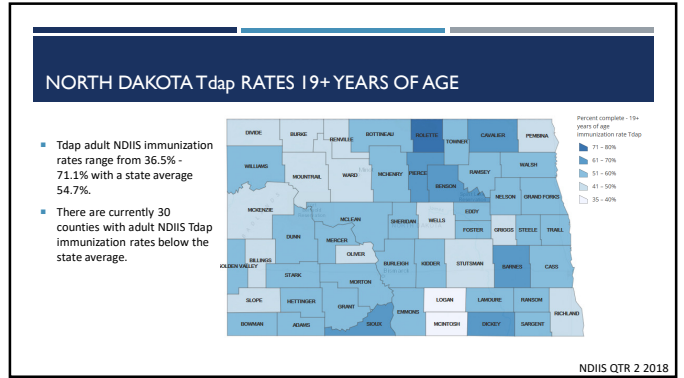
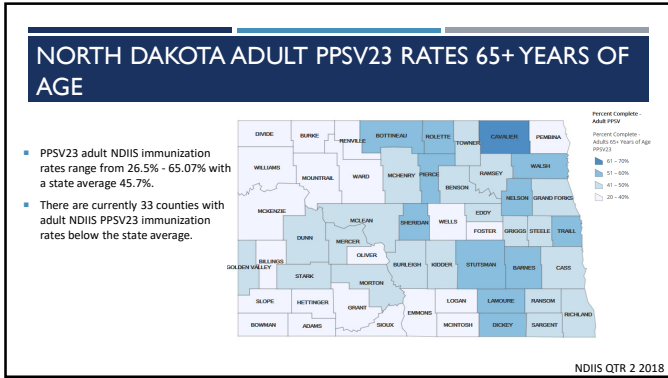


### NORTH DAKOTA ADULT PCV13 RATES 65+ YEARS OF AGE

- PCV13 adult NDIIS immunization rates range from 25.9% - 73.1% with a state average 53.2%.
- There are currently 33 counties with adult NDIIS PCV13 immunization rates below the state average.



NDIIS QTR 2 2018



- ### STRATEGIES TO INCREASE IMMUNIZATION RATES
- NDIIS
    - Document historical immunization in the NDIIS.
    - Utilize the NDIIS forecaster to ensure patients have received ACIP recommended vaccines.
    - Implement an immunization reminder/recall process.
    - Train staff on general immunization recommendations
  - EHR
    - Allow general adult immunization prompts in the practice EHR.
    - Develop prompt based on diagnosis.
  - Implement Immunization Standing Orders
    - General ACIP recommendations
    - High risk immunizations based on diagnosis and behavior

## UPCOMING NDIIS USER TRAININGS



Regional NDIIS trainings will provide in-depth instruction and demonstration of the NDIIS tools and functionality. The trainings are open to all healthcare providers and NDIIS users.

- Grand Forks - November
- Fargo - December
- Bismarck - December
- Devils Lake - January
- Dickinson - February
- Minot - March
- Jamestown - April
- Williston - May
- Watford City - May

## NORTH DAKOTA IMMUNIZATION PROGRAM

### North Dakota Immunization Program Staff

Molly Howell, MPH Program Manager	Phone: 701.328.4556 Email: mahowell@nd.gov	Mary Woinarowicz, MA NDIIS Sentinel Site Coordinator	Phone: 701.328.2404 Email: mary.woinarowicz@nd.gov
Abbi Berg, MPH VFC Manager	Phone: 701.328.3324 Email: alberg@nd.gov	Dominick Fitzsimmons NDIIS Coordinator	Phone: 701.328.4169 Email: dffitzsimmons@nd.gov
Miranda Baumgartner VFC/AFIX Coordinator, Bismarck	Phone: 701.328.2035 Email: mlbaumgartner@nd.gov	Andy Noble CDC Public Health Advisor	Phone: 701.328.4557 Email: anoble@nd.gov
Sherrie Meixner VFC/AFIX Coordinator, Fargo	Phone: 701.541.7226 Email: smeixner@nd.gov		

