## Pneumococcal Vaccines for Older Adults

Jenny Galbraith, Adult Immunization Manager

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## Pneumococcal Disease

- Pneumococcal disease is a name for any infection caused by bacteria called *Streptococcus pneumoniae*, or pneumococcus.
- People spread pneumococcal bacteria to others through direct contact with respiratory secretions, like saliva or mucus.
- Children younger than 5 years old and adults 65 years or older are at increased risk for pneumococcal disease.
- Experts don't know why, but people of certain racial and ethnic groups have increased rates of pneumococcal disease:
  - Alaska Native people
  - African American people
  - Certain American Indian people

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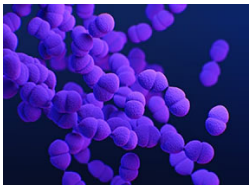
## Pneumococcal Disease



- Chronic conditions and other factors that increase someone's risk for pneumococcal disease include:
  - Alcoholism
  - Cerebrospinal (around the brain and spinal cord) fluid leak
  - Chronic heart, kidney, liver, or lung disease
  - Cigarette smoking
  - Cochlear implant (surgically implanted hearing device to help people with severe hearing loss)
  - Diabetes
  - Immunocompromising condition (having a weakened immune system)
  - Chronic lung disease includes chronic obstructive pulmonary disorder (COPD), emphysema, and asthma.

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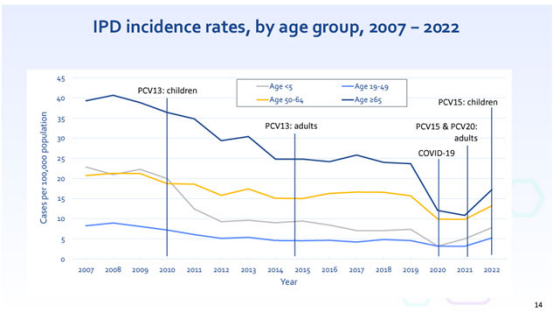


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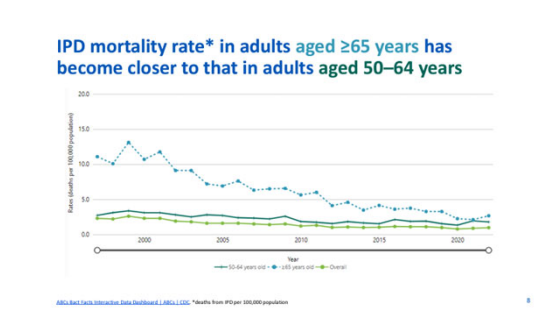


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## Pneumococcal Vaccines available for Adults

- Pneumococcal conjugate vaccines
  - PCV15 – Vaxneuvance®
  - PCV20 – Prevnar 20™
  - PCV21 – CAPVAXIVE™
- Pneumococcal polysaccharide vaccine
  - PPSV23 – Pneumovax® 23, 2 years and older

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## Recent Changes to Adult Pneumococcal Vaccine Recommendations

- Introduction of PCV21(CAPVAXIVE™)
- Lowered the age-based recommendation for all PCVs to over 50 years.

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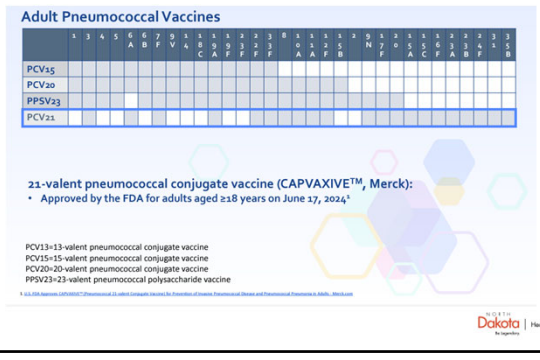


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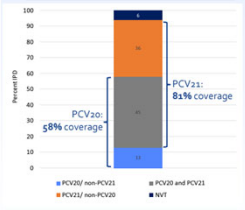
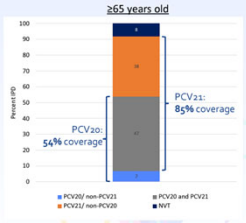
## Proportion of IPD by vaccine-type among adults with a pneumococcal vaccine indication, 2018–2022

19-64 years old (*with a risk-based indication*)




≥65 years old




PCV20 non-PCV21 serotype: 1, 4, 5, 6B, 9V, 14, 18C, 19F, 23F, 35B
PCV20 in-PCV21 serotypes: 3, 6A, 7F, 19A, 22F, 33F, 8, 10A, 11A, 12F, +6C
PCV21 non-PCV20 serotypes: 9N, 15F, 20, 10A, 15C, 16F, 23A, 23B, 24F, 11, 15B

Gierke February 2024 ACIP meeting presentation

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## Increase in serotype 4 (included in currently available vaccines, not in PCV21) IPD reported in certain subpopulations

- Adults experiencing homelessness (especially Western United States)
  - **100–300 times higher** serotype 4 IPD incidence reported in people experiencing homelessness (PEH) vs. non-PEH in the Western United States[1]
- Adults in Alaska (especially Alaska Native adults)
  - **88-fold increase** in serotype 4 IPD incidence reported in adults in Alaska, 2011–2018 vs. 2019–2020[2]

Kobayashi February 2024 ACIP meeting presentation

1. Upsurge of Conjugate Vaccine Serotype 4 Invasive Pneumococcal Disease Clusters Among Adults Experiencing Homelessness in California, Colorado, and New Mexico | The Journal of Infectious Diseases | Oxford Academic (oup.com)
2. Invasive Pneumococcal Disease and Potential Impact of Pneumococcal Conjugate Vaccines Among Adults, Including Persons Experiencing Homelessness—Alaska, 2011–2020 | Clinical Infectious Diseases | Oxford Academic (oup.com)

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## Populations at increased risk of serotype 4 disease

- In certain communities where there are high proportions (i.e., ≥30%) of disease due to serotypes unique to currently recommended vaccines (e.g., serotype 4), those vaccines may provide more protection against locally circulating strains compared to PCV21.
- Those who may be at increased risk of disease due to serotype 4 include adults aged <65 years in the Western United States with certain underlying conditions or risk factors* that increase the risk of pneumococcal disease.

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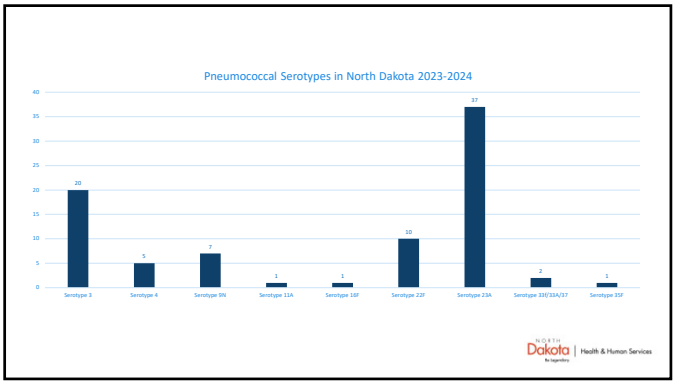


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## Recent Changes to Adult Pneumococcal Vaccine Recommendations

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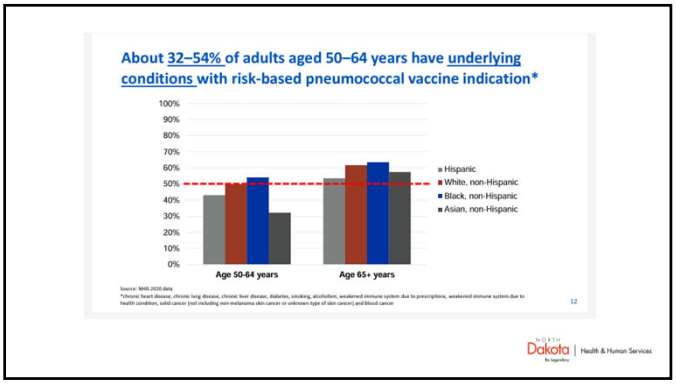


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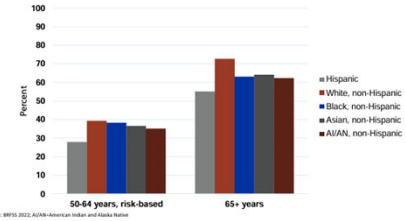
## Disparities in pneumococcal vaccine coverage by race/ethnicity exist for both age-based and risk-based indications




Source: BRFSS 2022; AI/AN=American Indian and Alaska Native

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## Key factors in the WG recommendations

1. Health equity: Higher pneumococcal disease rates in Black/African American adults, with earlier peak
2. Risk prevalence: 33–54% of adults aged 50–64 years already with indication for risk-based pneumococcal vaccination*
3. Vaccine coverage: Age-based recommendation likely to improve uptake vs. risk-based recommendation
4. Simplicity: Easier to implement uniform recommendation across all PCVs
5. Economic consideration: PCV21 at age 50 (and 65 years) had lower cost/QALY gained than PCV20, while both PCV21 and PCV20 improved health outcomes
6. Serotype coverage: the serotype compositions of PCV20 and PCV21 are quite different

*Data is for adults with any of the following condition and is not an exhaustive list of conditions: chronic heart disease, chronic lung disease, chronic liver disease, diabetes, smoking, alcoholism, weakened immune system due to prescriptions, weakened immune system due to health condition, solid cancer (not including non-melanoma skin cancer or unknown type of skin cancer) and blood cancer. Source NHIS 2020.

†Except for in certain adult populations in the western United States where high percentages (i.e., ≥30%) of IPD caused by serotype 4 have occurred

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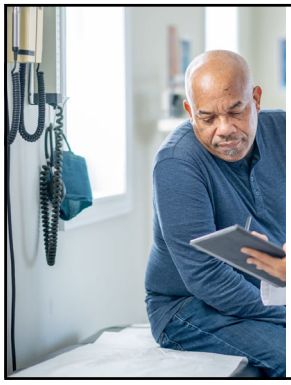

## Pneumococcal Vaccination

- CDC recommends PCV15, PCV20, or PCV21 for adults who never received a PCV and are
  - Ages 50 years or older
  - Ages 19 through 49 years with certain risk conditions

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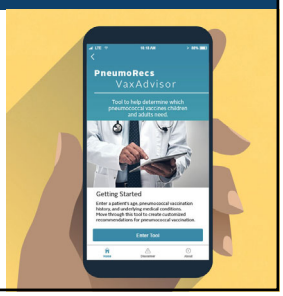
## PneumoRecs VaxAdvisor Mobile App

The **PneumoRecs VaxAdvisor mobile app** helps vaccination providers quickly and easily determine which pneumococcal vaccines a patient needs and when. The app incorporates recommendations for all ages so internists, family physicians, pediatricians, and pharmacists alike will find the tool beneficial.

- Users simply:
  - Enter a patient's age.
  - Note if the patient has specific underlying medical conditions.
  - Answer questions about the patient's pneumococcal vaccination history.
- Then the app provides patient-specific guidance consistent with the immunization schedule recommended by the U.S. Advisory Committee on Immunization Practices (ACIP).

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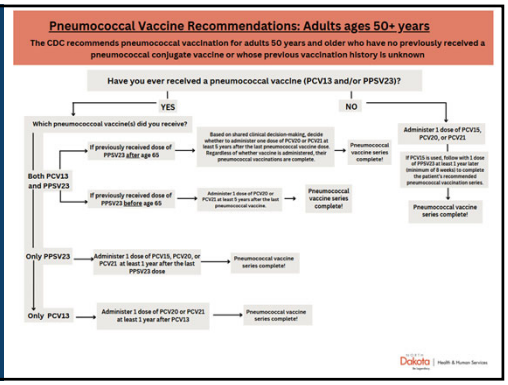
**NDHHS Pneumococcal Vaccination Flowchart**

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## Pneumococcal (PCV15, PCV20, PCV21 &/or PPSV23)

For patients 50 years or older who have not previously received a pneumococcal vaccine or whose previous vaccination history is unknown:

- 1 dose PCV15, PCV20 or PCV21.
  - If PCV15 is used, this should be followed by a dose of PPSV23 given at least 1 year (minimum of 8 weeks) after the PCV15 dose.

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## Pneumococcal (PCV15, PCV20, PCV21 &/or PPSV23)

- **For adults 50 years or older who have only received PPSV23:**
  - Give 1 dose of PCV15, PCV20, or PCV21 (at least one year after the most recent PPSV23 vaccination).
- **For adults 50 years or older who have received PCV13 only:**
  - Give 1 dose of PCV20 or PCV21 at least 1 year after PCV13.

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## Pneumococcal (PCV15, PCV20 &/or PPSV23)

- **For adults 50 years or older who have received PCV13 and PPSV23:**
  - If PPSV23 was received **after age 65:**
    - Based on shared clinical decision-making, 1 dose of PCV20 or PCV21 at least 5 years after the last pneumococcal vaccine.
  - IF PPSV23 was received **before age 65**:
    - Give 1 dose of PCV20 or PCV21 at least 5 years after the last pneumococcal vaccine dose.

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## Will people vaccinated at age 50 need additional doses of pneumococcal vaccine in the future?

- It is likely. Effectiveness of pneumococcal polysaccharide vaccine (PPSV23) begins waning significantly after about 5 years. While current pneumococcal conjugate vaccines (PCVs) are expected to remain effective longer than that, for at least several years, a future PCV dose may be needed by those vaccinated at younger ages to boost protection later in life.
- When ACIP voted to lower the routine PCV vaccination age to 50, the committee took into consideration that an additional dose, perhaps 10 or 15 (or more) years later, may be needed.
- In coming years, ACIP will periodically review any evidence of waning protection, evaluate future pneumococcal vaccine products, and make recommendations for revaccination of older adults when needed.

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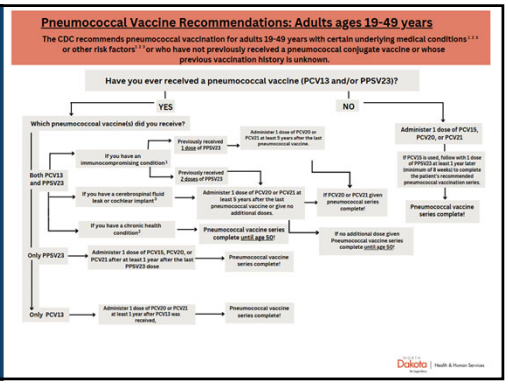
**NDHHS Pneumococcal Vaccination Flowchart:**

**Adults 19-49 years** with certain underlying medical conditions or other risk factors or who have not previously received a pneumococcal vaccine or whose previous vaccination status is unknown.

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## Pneumococcal (PCV15, PCV20, PCV21 &/or PPSV23)

- **Immunocompromising Conditions:**
  - Chronic renal failure
  - Congenital or acquired asplenia
  - Congenital or acquired immunodeficiencies (Includes B- [humoral] or T-lymphocyte deficiency, complement deficiencies [particularly C1, C2, C3, and C4 deficiencies], and phagocytic disorders [excluding chronic granulomatous disease])
  - Generalized malignancy
  - HIV infection
  - Hodgkin disease
  - Iatrogenic immunosuppression (Diseases requiring treatment with immunosuppressive drugs, including long-term systemic corticosteroids and radiation therapy)
  - Leukemia
  - Lymphoma
  - Multiple myeloma
  - Nephrotic syndrome
  - Sickle cell disease or other hemoglobinopathies
  - Solid organ transplant

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## Pneumococcal (PCV15, PCV20, PCV21 &/or PPSV23)

- **Chronic Health Conditions:**
  - Alcoholism
  - Chronic heart disease (Including congestive heart failure and cardiomyopathies, excluding hypertension)
  - Chronic liver disease
  - Chronic lung disease (Including chronic obstructive pulmonary disease (COPD), emphysema, and asthma)
  - Cigarette smoking
  - Diabetes mellitus

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## Pneumococcal (PCV15, PCV20, PCV21 &/or PPSV23)

- **If patient is ages 19–49 years with certain underlying medical conditions or other risk factors who have not previously received any pneumococcal vaccine:**
  - 1 dose PCV15, PCV20, or PCV21.
    - If PCV15 is used, this should be followed by a dose of PPSV23 given at least 1 year after the PCV15 dose.
      - A minimum interval of 8 weeks between PCV15 and PPSV23 can be considered for adults with an immunocompromising condition, cochlear implant, or cerebrospinal fluid leak.
- **For those who have only received PPSV23:**
  - Give 1 dose of PCV15, PCV20, or PCV21 at least one year after the most recent PPSV23 vaccination.

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## Pneumococcal (PCV15, PCV20 &/or PPSV23)

- **For those who have received only PCV13:**
  - Give one dose of PCV20 or PCV21 at least 1 year after PCV13. Regardless of which vaccine is used their pneumococcal vaccinations are complete.
- **For those who have only received PPSV23:**
  - Give 1 dose of PCV15, PCV20, or PCV21 at least one year after the most recent PPSV23 vaccination.

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## Pneumococcal (PCV15, PCV20 &/or PPSV23)

- **For those who have received PCV13 and PPSV23:**
  - Chronic Health Conditions – No additional doses of any type of pneumococcal vaccine are recommended at this time.
  - CSF leak or cochlear implant - Give one dose of PCV20 or PCV21 at least 5 years after the last pneumococcal vaccine dose **or** give no additional pneumococcal vaccines.
    - If PCV20 or PCV21 is administered, their pneumococcal vaccinations are complete.
    - If no additional dose given Pneumococcal vaccine series complete until age 50.
  - Immunocompromising Condition
    - If your patient has only received 1 dose of PPSV23, administer 1 dose of PCV20 or PCV21 at least 5 years after the last pneumococcal vaccine.
    - If your patient has received 2 doses of PPSV23, give one dose of PCV20 or PCV21 at least 5 years after the last pneumococcal vaccine dose **or** give no additional pneumococcal vaccines.
      - If PCV20 or PCV21 is administered, their pneumococcal vaccinations are complete.
      - If no additional dose given Pneumococcal vaccine series complete until age 50.

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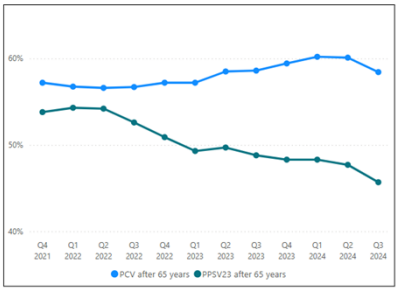
## Pneumococcal Vaccine Rates in North Dakota

PCV after 65 years – 58.4%

PPSV23 after 65 years – 45.7%

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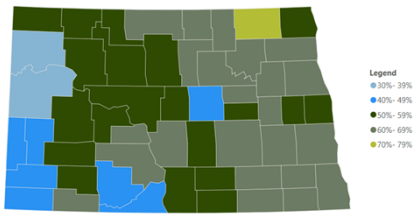
## Pneumococcal Vaccine Rates in North Dakota

Range: 36.6% - 72.6%

Immunization Coverage Rates by County for North Dakota Adults 19 Years of Age and Older

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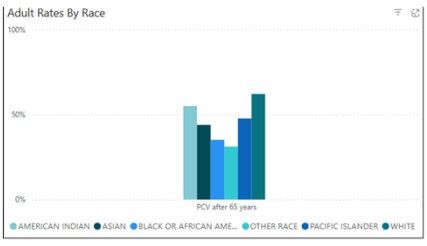
## Pneumococcal Vaccine Rates in North Dakota

American Indian – 55.0%
Asian – 43.9%
Black or African American – 35.1%
Other – 31.2%
Pacific Islander – 47.7%
White – 62.1%

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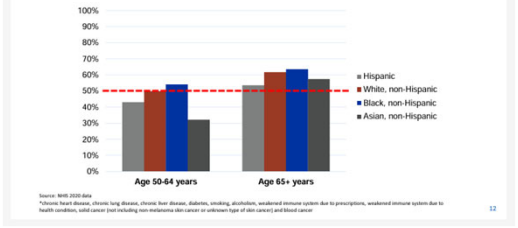
## About 32–54% of adults aged 50–64 years have underlying conditions with risk-based pneumococcal vaccine indication*




Source: NHIS 2020 data
*chronic heart disease, chronic lung disease, chronic liver disease, diabetes, smoking, alcoholism, weakened immune system due to prescriptions, weakened immune system due to health condition, solid cancer (not including non-melanoma skin cancer or unknown type of skin cancer) and blood cancer

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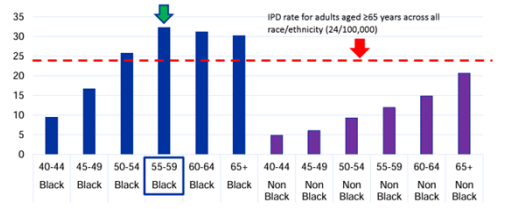
## IPD rates (any pneumococcal serotype) in Black adults peak at a younger age compared with Non-Black adults




ABCs 2018 –2019 unpublished data

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## North Dakota Vaccines for Children(VFC) and Vaccines for Adults (VFA) Programs

| VFA Program | PCV15, PCV20, PCV21, or PPSV23 |
|---|---|
| • Provides select vaccines at no cost to adults 19 years and older<br>  • Uninsured<br>  • Underinsured<br>• Does **not** include all routinely recommended vaccines | • Available to eligible adults 19-64 years who meet one of the following criteria:<br>• Chronic renal failure<br>• Nephrotic syndrome<br>• Congenital or acquired immunodeficiency<br>• Iatrogenic immunosuppression<br>• Generalized malignancy<br>• HIV<br>• Hodgkin disease<br>• Leukemia<br>• Lymphoma<br>• Multiple myeloma<br>• Solid organ transplant<br>• Congenital or acquired asplenia<br>• Sickle cell disease<br>• Other hemoglobinopathies<br>• Alcoholism<br>• Chronic health disease (including congestive heart failure and cardiomyopathies) o Chronic liver disease<br>• Chronic lung disease (including chronic obstructive pulmonary disease (COPD), emphysema and asthma)<br>• Cigarette smoking<br>• Diabetes mellitus<br>• Cochlear implant<br>• CSF Leak |

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## Standards for Adult Immunization Practice

- Incorporate immunization needs assessment into every clinical encounter.
- Strongly recommend needed vaccine(s) and either administer vaccine(s) or refer patient to a provider who can immunize
- Stay up-to-date on, and educate patients about, vaccine recommendations.
- Implement systems to incorporate vaccine assessment into routine clinical care.
- Understand how to access immunization information systems (i.e., NDIIS)
- For immunizations you are unable to administer: establish referral relationships with other immunizing providers.
  - Follow up to confirm patient receipt of recommended vaccines.

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## Additional Strategies to Increase Adult Immunization Rates

- Provide information about future doses and reinforce the importance of staying on schedule by providing the parent with a personalized list of future vaccines with clear "on or after" dates.
- Implement a scheduling process before patients leave the office.
- Implementing/improving reminder/recall using a combination of methods.
- Partner with community partners to offer off-site clinics.
- Offer immunizations at specialty provider visits.

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## Post-Test

- Post-test
  - Nurses interested in continuing education credit, visit Successfully complete the five-question post-test to receive your certificate: https://ndhealth.co1.qualtrics.com/jfe/form/SV_5gVX9H5aocbhHO6
  - Credit for this session will be available until February 12, 2025.
- This presentation will be posted to our website: www.hhs.nd.gov/immunizations

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## Staff Members

### Immunization Unit

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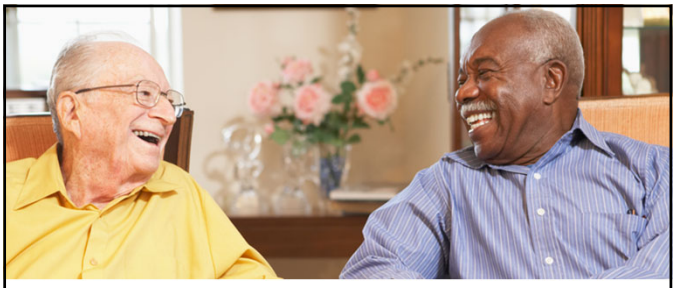

## Questions?

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