Proposed Changes to Existing Measure for HEDIS®[1] MY 2025: Adult Immunization Status (AIS-E)

NCQA seeks comments on proposed modifications to the *Adult Immunization Status* (AIS-E) measure.

AIS-E assesses the percentage of adults who are up to date on routine vaccinations recommended for adults by the Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP). The measure includes separate indicators for influenza; tetanus and diphtheria (Td) or tetanus, diphtheria and acellular pertussis (Tdap); zoster; and pneumococcal immunization. AIS-E is specified for commercial, Medicaid and Medicare product lines, and uses the HEDIS Electronic Clinical Data Systems (ECDS) reporting standard. This method captures receipt of vaccinations using data from electronic sources, including administrative claims, immunization registries and EHRs. The measure is stratified by age, race and ethnicity for each product line.

Proposed measure updates are described below.

New Hepatitis B Indicator

Hepatitis B, a liver infection caused by the hepatitis B virus, can lead to liver damage and cancer. Vaccines for children and adults are available to prevent the spread of the virus. ACIP initially recommended hepatitis B vaccination for adults 19 years and older with known risk factors beginning in 1982, followed by universal vaccination for children beginning in 1991. Since then, the incidence of hepatitis B has declined, but progress has stalled in recent years. Increasing hepatitis B incidence and suboptimal vaccination coverage among adults led ACIP to update adult hepatitis B vaccination guidelines in 2022. Currently, ACIP recommends universal hepatitis B vaccination for adults aged 19–59 years, and for adults 60 years and older with known risk factors.[2] Refer to the *Adult Immunization Status Workup* for details on evidence and guidelines.

The AIS-E measure assesses routine adult vaccination. NCQA proposes adding an indicator that assesses hepatitis B vaccination for adults 19–59, to drive improvement in vaccination rates. According to ACIP, persons who have completed a hepatitis B vaccine series at any point, or who have a history of hepatitis B infection, should not receive additional hepatitis B vaccinations, except in certain situations. To address this, the proposed numerator includes options for childhood hepatitis B vaccination or serologic blood test results indicating hepatitis B antibodies to count as vaccinated. Refer to *Adult Immunization Status Specifications* and Table 1 for details on the proposed numerator and denominator.

Table 1. Proposed Hepatitis B Immunization Indicator

Numerator	Any of the following: • Members who were administered an adult hepatitis B vaccine on or after their 19th birthday, before or during the measurement period including: – At least two doses of the recommended two-dose adult hepatitis B vaccine administered at least 28 days apart, ***or*** – At least three doses of any other recommended adult hepatitis B vaccine administered on different days of service. • Members who were administered three doses of a childhood hepatitis B vaccines before their 19th birthday. • Members who were administered a serological blood test and had a positive result for Hepatitis B surface antigen (HBsAg), Hepatitis B surface antibody (anti-HBs) or total antibody to Hepatitis B core antigen (anti-HBc) any time before or during the measurement period. • Members with anaphylaxis due to the hepatitis B vaccine any time before or during the measurement period.

[1] HEDIS® is a registered trademark of the National Committee for Quality Assurance (NCQA).

[2] Weng, M.K., M. Doshani, M.A. Khan, S. Frey, K. Ault, K.L. Moore, E.W. Hall, R.L. Morgan et al. 2022. "Universal Hepatitis B Vaccination in Adults Aged 19–59 Years: Updated Recommendations of the Advisory Committee on Immunization Practices—United States, 2022." *MMWR Morb Mortal Weekly Rep* 71:477–483. https://www.cdc.gov/mmwr/volumes/71/wr/mm7113a1.htm

Denominator	Members between the ages of 19 and 59 years of age at the start of the measurement period, minus exclusions for hospice or death.

NCQA's Immunization Measurement Advisory Panel supported the proposed specifications. Additionally, NCQA is conducting field-tests of the proposed new indicator, simultaneous to the public comment period, to assess performance and potential challenges related to obtaining data on historical vaccinations and blood testing results.

Pneumococcal Indicator

When the AIS-E measure was developed (2018), NCQA aligned the pneumococcal indicator with ACIP guidelines in place at the time, which recommended two doses of the pneumococcal vaccine at least 1 year apart, starting at age 65 for non-immunocompromised adults. NCQA specified the numerator to assess for two pneumococcal vaccine doses administered at least 1 year apart. The denominator was specified to start at age 66, as that would be the age for completion of the two-dose series.

In 2022, ACIP updated the pneumococcal vaccine recommendations to account for new vaccine types. Depending on previous vaccination history, special conditions and type of vaccine administered, older adults may receive one or more doses. Accordingly, NCQA updated the measurement year 2023 specifications to assess for receipt of at least one dose of any pneumococcal vaccine, removing the interval timing aspect from the measure. NCQA received feedback that the denominator's lower age band could change from age 66 to age 65, years since the measure now only looks for one vaccine dose. As such, we propose that the pneumococcal indicator's lower denominator age band be changed to 65 years.

This change will also impact the age stratifications for all indicators in AIS-E. Changes to the age stratifications can be found in the accompanying specification and in Table 2.

Table 2. AIS-E Indicators and Age Stratifications

Indicator	Current Age Stratifications	Proposed Age Stratifications
Influenza Immunization	19-65 years 66 years and older	19-64 years 65 years and older
Td/Tdap Immunization	19-65 years 66 years and older	19-64 years 65 years and older
Zoster Immunization	19-65 years 66 years and older	19-64 years 65 years and older
Pneumococcal Immunization	66 years and older	65 years and older

Zoster Indicator

ACIP recommends two doses of the recombinant zoster vaccine, 2–6 months apart (minimum interval, 4 weeks) for adults 50 years and older, regardless of previous herpes zoster or history of zoster vaccine live vaccination.[3] Because the herpes zoster live vaccine is no longer available for use in the United States,[4] NCQA proposes removing it as a numerator option in the herpes zoster indicator.

[3] Murthy, N., A.P. Wodi, V.V. McNally, M.F. Daley, and S. Cineas. 2024. "Advisory Committee on Immunization Practices Recommended Immunization Schedule for Adults Aged 19 Years or Older—United States, 2024." MMWR Morb Mortal Wkly Rep 2024;73:11–15. DOI: http://dx.doi.org/10.15585/mmwr.mm7301a3.

[4] CDC 2023a. "Hepatitis B Vaccine: What You Need to Know." Last updated May 12. https://www.cdc.gov/vaccines/hcp/vis/vis-statements/hep-b.pdf

NCQA seeks general feedback on proposed changes and specific feedback on the following questions.

1. For the new hepatitis B indicator, should we add a timing requirement to the serologic blood testing numerator option (i.e., serological testing with a positive result within the last 7 years, rather than a positive result ever)?
2. For the new hepatitis B indicator, would age stratification for adults 19–30 and 31**–**59 (or another combination) be useful, given that younger adults may be more likely to have received childhood vaccination?
3. In 2021 ACIP released guidance recommending two doses of the recombinant zoster vaccine for adults 19 and older who are, or will be, immunodeficient or immunosuppressed because of disease or therapy.[5] Given this recommendation, should the zoster indicator assess whether adults who were 50 or older during the measurement period received zoster vaccination any time from age 19 through the end of the measurement period?

Supporting documents include the measure specification, evidence workup and performance data.

NCQA acknowledges the contributions of the Immunization Measurement Advisory Panel.

[5]CDC 2022. “Clinical Considerations for Use of Recombinant Zoster Vaccine (RZV, Shingrix) in Immunocompromised Adults Aged ≥19 Years.” Last updated January 20. https://www.cdc.gov/shingles/vaccination/immunocompromised-adults.html

*Adult Immunization Status (AIS-E)**

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SUMMARY OF CHANGES FOR HEDIS MY 2025

- Added a hepatitis B immunization indicator.
- Updated the denominator age range for the pneumococcal immunization indicator.
- Removed the herpes zoster live vaccine from the zoster immunization indicator.
- Updated age stratifications for the influenza, Td/Tdap and zoster immunization indicators.
- Updated data elements for reporting tables to account for added indicator and age stratification changes.
- Removed data criteria (element level).
- Removed programming guidance.

Description	The percentage of members 19 years of age and older who are up to date on recommended routine vaccines for influenza, tetanus and diphtheria (Td) or tetanus, diphtheria and acellular pertussis (Tdap), zoster, pneumococcal and hepatitis B.
Measurement period	January 1–December 31.
Clinical recommendation statement	The Advisory Committee on Immunization Practices recommends annual influenza vaccination; and tetanus, diphtheria and acellular pertussis (Tdap) and/or tetanus and diphtheria (Td) vaccine; herpes zoster, pneumococcal and hepatitis B vaccination for adults at various ages.
Citations	Murthy, N., A.P. Wodi, V.V. McNally, M.F. Daley, S. Cineas. 2024. "Advisory Committee on Immunization Practices Recommended Immunization Schedule for Adults Aged 19 Years or Older—United States, 2024." *MMWR Morb Mortal Wkly Rep* 73:11–15. DOI: http://dx.doi.org/10.15585/mmwr.mm7301a3
Characteristics	
Scoring	Proportion.
Type	Process.
Stratification	• Influenza. – Product line: ▪ Commercial. ▪ Medicaid. ▪ Medicare. – Age (as of the start of the measurement period, for each product line): ▪ 19–645 years. ▪ 656 years and older.

	– Race (for each product line): ▪ American Indian or Alaska Native. ▪ Asian. ▪ Black or African American. ▪ Native Hawaiian or Other Pacific Islander. ▪ White. ▪ Some Other Race. ▪ Two or More Races. ▪ Asked But No Answer. ▪ Unknown. – Ethnicity (for each product line): ▪ Hispanic or Latino. ▪ Not Hispanic or Latino. ▪ Asked But No Answer. ▪ Unknown. • Td/Tdap. – Product line: ▪ Commercial. ▪ Medicaid. ▪ Medicare. – Age (as of the start of the measurement period, for each product line): ▪ 19–6~~4~~5 years. ▪ 6~~5~~6 years and older. – Race (for each product line): ▪ American Indian or Alaska Native. ▪ Asian. ▪ Black or African American. ▪ Native Hawaiian or Other Pacific Islander. ▪ White. ▪ Some Other Race. ▪ Two or More Races. ▪ Asked But No Answer. ▪ Unknown. – Ethnicity (for each product line): ▪ Hispanic or Latino. ▪ Not Hispanic or Latino. ▪ Asked but No Answer. ▪ Unknown. • Zoster. – Product line: ▪ Commercial. ▪ Medicaid. ▪ Medicare.

- Age (as of the start of the measurement period, for each product line):
  - 50–64~~5~~ years.
  - 65~~6~~ years and older.
- Race (for each product line):
  - American Indian or Alaska Native.
  - Asian.
  - Black or African American.
  - Native Hawaiian or Other Pacific Islander.
  - White.
  - Some Other Race.
  - Two or More Races.
  - Asked But No Answer.
  - Unknown.
- Ethnicity (for each product line):
  - Hispanic or Latino.
  - Not Hispanic or Latino.
  - Asked But No Answer.
  - Unknown.

- Pneumococcal.
  - Product line:
    - Commercial.
    - Medicaid.
    - Medicare.
  - Age (as of the start of the measurement period, for each product line):
    - 65~~6~~ years and older.
  - Race (for each product line):
    - American Indian or Alaska Native.
    - Asian.
    - Black or African American.
    - Native Hawaiian or Other Pacific Islander.
    - White.
    - Some Other Race.
    - Two or More Races.
    - Asked But No Answer.
    - Unknown.
  - Ethnicity (for each product line):
    - Hispanic or Latino.
    - Not Hispanic or Latino.
    - Asked But No Answer.
    - Unknown.

- Hepatitis B.
  - Product line:
    - Commercial.
    - Medicaid.
    - Medicare.

	– Age (as of the start of the measurement period, for each product line): ▪ 19–59 years. – Race (for each product line): ▪ American Indian or Alaska Native. ▪ Asian. ▪ Black or African American. ▪ Native Hawaiian or Other Pacific Islander. ▪ White. ▪ Some Other Race. ▪ Two or More Races. ▪ Asked But No Answer. ▪ Unknown. – Ethnicity (for each product line): ▪ Hispanic or Latino. ▪ Not Hispanic or Latino. ▪ Asked but No Answer. ▪ Unknown.
Risk adjustment	None.
Improvement notation	A higher rate indicates better performance.
Guidance	**General Rules:** All measure rates are specified based on clinical guideline recommendations for the age group included in the rate. **Allocation:** The member was enrolled with a medical benefit throughout the measurement period. No more than one gap in enrollment of up to 45 days during the measurement period. The member must be enrolled on the last day of the measurement period. **Reporting:** For all plans, the race and ethnicity stratifications are mutually exclusive, and the sum of all categories in each stratification is the total population. The race and ethnicity stratifications are reported by data source—direct, indirect or unknown. Race and ethnicity values of “Asked But No Answer” are only reported for Source=“Direct.” Race and ethnicity values of “Unknown” are only reported for Source=“Unknown” and Source=“Unknown” is only reported for race and ethnicity values of “Unknown.”~~**Programming Guidance:**~~ ~~The requirements for identifying members in hospice using the monthly membership detail data files are not included in the measure calculation logic, and must be programmed manually.~~ ~~Product line stratifications are not included in the measure calculation logic, and must be programmed manually.~~

	~~The race and ethnicity stratifications data source logic is not included in the measure calculation logic, and must be programmed manually.~~ ~~Refer to the HEDIS Implementation Guide in the digital measure package for additional programming guidance.~~

Definitions	
Participation	The identifiers and descriptors for each organization's coverage used to define members' eligibility for measure reporting. Allocation for reporting is based on eligibility during the participation period.
Participation period	The measurement period.
Initial population	**Initial population 1** Members 19 years and older at the start of the measurement period who also meet the criteria for participation. **Initial population 2** Same as the initial population 1. **Initial population 3** Members 50 years and older at the start of the measurement period who also meet the criteria for participation. **Initial population 4** Members 65~~6~~ years and older at the start of the measurement period who also meet the criteria for participation. **Initial population 5** Members 19-59 years at the start of the measurement period who also meet the criteria for participation.
Exclusions	**Exclusions 1** • Members who use hospice services (Hospice Encounter Value Set; Hospice Intervention Value Set) or elect to use a hospice benefit any time during the measurement period. Organizations that use the Monthly Membership Detail Data File to identify these members must use only the run date of the file to determine if the member elected to use a hospice benefit during the measurement period. • Members who die any time during the measurement period. **Exclusions 2** Same as exclusions 1. **Exclusions 3** Same as exclusions 1. **Exclusions 4** Same as exclusions 1. **Exclusions 5** Same as exclusions 1.

Denominator	**Denominator 1** The initial population 1, minus exclusions. **Denominator 2** Same as denominator 1. **Denominator 3** The initial population 3, minus exclusions. **Denominator 4** The initial population 4, minus exclusions. **Denominator 5** The initial population 5, minus exclusions.
Numerator	**Numerator 1—Immunization Status: Influenza** • Members who received an influenza vaccine (Adult Influenza Immunization Value Set; Adult Influenza Vaccine Procedure Value Set; Influenza Virus LAIV Immunization Value Set; Influenza Virus LAIV Vaccine Procedure Value Set) on or between July 1 of the year prior to the measurement period and June 30 of the measurement period, ***or*** • Members with anaphylaxis due to the influenza vaccine (SNOMEDCT code 471361000124100) any time before or during the measurement period. **Numerator 2—Immunization Status: Td/Tdap** • Members who received at least one Td vaccine (Td Immunization Value Set; Td Vaccine Procedure Value Set) or one Tdap vaccine (CVX code 115; Tdap Vaccine Procedure Value Set) between 9 years prior to the start of the measurement period and the end of the measurement period, ***or*** • Members with a history of at least one of the following contraindications any time before or during the measurement period: • Anaphylaxis due to the diphtheria, tetanus or pertussis vaccine (Anaphylaxis Due to Diphtheria, Tetanus or Pertussis Vaccine Value Set). • Encephalitis due to the diphtheria, tetanus or pertussis vaccine (Encephalitis Due to Diphtheria, Tetanus or Pertussis Vaccine Value Set). **Numerator 3—Immunization Status: Zoster** • Members who received ~~at least one dose of the herpes zoster live vaccine (CVX code 121; Herpes Zoster Live Vaccine Procedure Value Set) or~~ two doses of the herpes zoster recombinant vaccine (CVX code 187; Herpes Zoster Recombinant Vaccine Procedure Value Set) at least 28 days apart, any time on or after the member's 50th birthday, before or during the measurement period, ***or*** • Members with anaphylaxis due to the herpes zoster vaccine (Anaphylaxis Due to Herpes Zoster Vaccine Value Set) any time before or during the measurement period. **Numerator 4—Immunization Status: Pneumococcal** • Members who were administered at least one dose of an adult pneumococcal vaccine (Adult Pneumococcal Immunization Value Set; Adult

	Pneumococcal Vaccine Procedure Value Set) on or after their 19th birthday, before or during the measurement period, ***or*** • Members with anaphylaxis due to the pneumococcal vaccine (SNOMEDCT code 471141000124102) any time before or during the measurement period. **Numerator 5—Immunization Status: Hepatitis B** • Members who were administered a Hepatitis B vaccine series on or after their 19th birthday, before or during the measurement period, including either of the following: – At least two doses of the recommended two-dose adult Hepatitis B vaccine (CVX code 189; Adult Hepatitis B Vaccine Procedure (2 dose) Value Set) administered at least 28 days apart; ***or*** – At least three doses of any other recommended adult Hepatitis B vaccine (Adult Hepatitis B Immunization (3 dose) Value Set; Adult Hepatitis B Vaccine Procedure (3 dose) Value Set) administered on different days of service. • Members who were administered at least three doses of the childhood Hepatitis B vaccine (Hepatitis B Immunization Value Set; Hepatitis B Vaccine Procedure Value Set) with different dates of service on or before their 19th birthday. – One of the three vaccinations can be a newborn hepatitis B vaccination (Newborn Hepatitis B Vaccine Administered Value Set) during the 8-day period that begins on the date of birth and ends 7 days after the date of birth. For example, if the member's date of birth is December 1, the newborn hepatitis B vaccination must be on or between December 1 and December 8. • Members who were administered a serologic blood test (Hepatitis B Prevaccination Testing) and had a positive result for Hepatitis B surface antigen (HBsAg), Hepatitis B surface antibody (anti-HBs) or total antibody to Hh~~h~~epatitis B core antigen (anti-HBc) (Hepatitis B Prevaccination Positive Result) any time before or during the measurement period. —Members with anaphylaxis due to the hepatitis B vaccine (SNOMED CT code 428321000124101) any time before or during the measurement period. •

Data Elements for Reporting

Organizations that submit data to NCQA must provide the following data elements in a specified file.

Table AIS-E-A:-1/2/3 Data Elements for Adult Immunization Status

Metric	Age	Data Element	Reporting Instructions
Influenza	19-645	InitialPopulation	For each Metric and Stratification
TdTdap	656+	ExclusionsByEHR	For each Metric and Stratification
	Total	ExclusionsByCaseManagement	For each Metric and Stratification
		ExclusionsByHIERegistry	For each Metric and Stratification
Zoster	50-645	ExclusionsByAdmin	For each Metric and Stratification
	656+	Exclusions	(Sum over SSoRs)
	Total	Denominator	For each Metric and Stratification
		NumeratorByEHR	For each Metric and Stratification
Pneumococcal	656+	NumeratorByCaseManagement	For each Metric and Stratification
		NumeratorByHIERegistry	For each Metric and Stratification
HepatitisB	19-59	NumeratorByAdmin	For each Metric and Stratification
		Numerator	(Sum over SSoRs)
		Rate	(Percent)

Table AIS-E-B-1/2/3: Data Elements for Adult Immunization Status: Stratifications by Race

Metric	Race	Source	Data Element	Reporting Instructions
Influenza	AmericanIndianOrAlaskaNative	Direct	InitialPopulation	For each Metric and Stratification
TdTdap	Asian	Indirect	Exclusions	For each Metric and Stratification
Zoster	BlackOrAfricanAmerican	Unknown**	Denominator	For each Metric and Stratification
Pneumococcal	NativeHawaiianOrOtherPacificIslander	Total	Numerator	For each Metric and Stratification
HepatitisB	White		Rate	(Percent)
	SomeOtherRace			
	TwoOrMoreRaces			
	AskedButNoAnswer*			
	Unknown**			

Table AIS-E-C-1/2/3: Data Elements for Adult Immunization Status: Stratifications by Ethnicity

Metric	Ethnicity	Source	Data Element	Reporting Instructions
Influenza	HispanicOrLatino	Direct	InitialPopulation	For each Metric and Stratification
TdTdap	NotHispanicOrLatino	Indirect	Exclusions	For each Metric and Stratification
Zoster	AskedButNoAnswer*	Unknown**	Denominator	For each Metric and Stratification
Pneumococcal	Unknown**	Total	Numerator	For each Metric and Stratification
HepatitisB			Rate	(Percent)

*AskedButNoAnswer is only reported for Source= "Direct."

**Race/Ethnicity = "Unknown" is only reported for Source = "Unknown"; and Source = "Unknown" is only reported for Race/Ethnicity = "Unknown."

Adult Immunization Status
Measure Workup

Topic Overview

Importance

Routine vaccination against influenza, tetanus, diphtheria and pertussis, hepatitis B, herpes zoster and pneumococcal disease are recommended for adults to prevent serious disease. The Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices (ACIP) publishes vaccination recommendations for adults, including ages for receiving vaccines, number of doses, timing between doses and contraindications.

Health Importance and Prevalence

Influenza vaccine

The influenza vaccine protects against influenza, a serious disease that can lead to hospitalization and death (CDC, 2023a). It is characterized by a variety of symptoms related to the nose, throat and lungs that can range in severity (CDC, 2022a). Flu viruses spread mainly by droplets made when people with flu cough, sneeze or talk (CDC, 2022b). Flu season in the United States can start as early as October and last as late as May; peak influenza activity occurs most frequently in January and February (CDC, 2022c). Although anyone can get the flu, people 65 and older, pregnant women, young children and those with chronic conditions are at higher risk of developing serious complications (CDC, 2023a).

The impact of influenza is variable because influenza seasons can vary in severity. The CDC estimates that since 2010, yearly influenza cases have ranged from 9.0–41 million; influenza-related hospitalizations, from 140,000–710,000; and influenza-related deaths, from 12,000–52,000 (CDC, 2022d). Estimates from October 2022–April 2023 ranged from 26–50 million influenza cases, 290,000–670,000 influenza-related hospitalizations; and 17,000–98,000 influenza-related deaths (CDC, 2023b). Deaths associated with influenza are typically higher in older adults. In an analysis based on the 2022/2023 flu seasons, 72% of deaths from influenza were among adults 65 and older (CDC, 2023c).

Td/Tdap vaccine

Twelve combination vaccines licensed in the U.S. protect against tetanus and diphtheria; 9 also protect against pertussis (CDC, 2022e). Tetanus results in painful muscle spasms that can cause fractures, difficulty breathing, arrhythmia and death (CDC, 2022f).

Diphtheria can present as a respiratory or cutaneous disease (CDC, 2022g). Complications include myocarditis, which can lead to heart failure, and neuritis, which may temporarily paralyze motor nerves. Death occurs in 5%–10% of cases (CDC, 2022g).

Pertussis, also known as whooping cough, is a respiratory infection characterized by a prolonged cough; it is highly communicable, transmitted via respiratory droplets from coughing or sneezing (CDC, 2022h).

There were 264 tetanus cases and 19 deaths reported from 2009–2017; only 18 of cases were among adults who had been fully vaccinated (CDC, 2020).

Adults 20 or older make up 87% of reported cases (CDC, 2020). Disease is more prevalent in other countries: From 2019–2020, over 33,123 cases of diphtheria were reported to the World Health Organization. In 2022, 5,856 cases were reported. Though the number of cases has decreased, there are likely many more unreported cases (WHO, n.d.).

Pertussis is much more prevalent today than tetanus and diphtheria, even though vaccines offer protection against the disease. Before the vaccine was introduced in the 1940s, there were about 200,000 cases of pertussis annually (CDC, 2022i). Since widespread use of the vaccine, pertussis cases decreased by 75% (CDC, 2022i), but have been increasing since the 1980s, with 307 deaths between 2000 and 2017 (CDC, 2022i). Pertussis is usually milder in children, adolescents and adults than in infants and young children who may not be fully immunized. Older adults are often the source of infection for infants and children (CDC, 2022i).

Herpes zoster vaccine

The herpes zoster vaccine protects against herpes zoster, commonly known as shingles. Herpes zoster is a painful skin rash caused by reactivation of the varicella zoster virus (CDC, 2023d). After a person recovers from primary infection of varicella (chickenpox), the virus stays inactive in the body and can reactivate years later. Most people typically only have one episode of herpes zoster, but second or third episodes are possible. People with compromised immune systems are at higher risk of developing herpes zoster (CDC, 2023d).

The most common complication of herpes zoster is post-herpetic neuralgia (PHN) (CDC, 2023c), severe, debilitating pain at the site of the rash that has no treatment or cure. Herpes zoster can also lead to serious complications of the eye, pneumonia, hearing problems, encephalitis or death (CDC, 2023e). In the U.S., there are 1 million new cases of herpes zoster each year; 1 of every 3 people will be diagnosed with herpes zoster in their lifetime (CDC, 2023d). A person's risk for developing herpes zoster increases sharply after age 50 (CDC, 2023d). As people age, they are more likely to develop PHN; it rarely occurs in people under 40. (CDC, 2023d).

Between 1% and 4% of adults with herpes zoster are hospitalized for complications, and an estimated 96 deaths each year are directly caused by the virus (CDC, 2023d). The vaccine can reduce the risk of developing herpes zoster and PHN.

Pneumococcal vaccine

Vaccines protect against pneumococcal disease, which is a common cause of illness and death in older adults and in persons with certain underlying conditions. The major clinical syndromes of pneumococcal disease include pneumonia, bacteremia and meningitis, with pneumonia being the most common (CDC, 2022j). Pneumonia symptoms generally include fever, chills, pleuritic chest pain, cough with sputum, dyspnea, tachypnea, hypoxia tachycardia, malaise and weakness (CDC, 2022j).

There are an estimated 150,000 pneumonia-related hospitalizations in the U.S. each year, and a 5%–7% mortality rate, although it may be higher among older adults (CDC, 2022j). Bacteremia, a blood infection, is another complication of pneumococcal disease (CDC, 2022j). Bacteremia has a 20% mortality rate among all adults, and up to a 60% mortality rate among older adults (CDC, 2022j).

Pneumococcal disease causes about 2,000 cases of meningitis each year (CDC, 2021). Meningitis symptoms may include headache, lethargy, vomiting, irritability, fever, nuchal rigidity, cranial nerve signs, seizures and coma. Meningitis has a 22% mortality rate among adults (CDC, 2022j).

Hepatitis B vaccine

The hepatitis B vaccine protects against hepatitis B, a liver disease that causes illness in varying degrees of severity (CDC, 2023f). Acute hepatitis B is characterized by fever, fatigue, loss of appetite, jaundice and diffuse body pains (CDC, 2023f). Those with chronic hepatitis B are often asymptomatic, with threats of cirrhosis, liver cancer and death (CDC, 2023f).

In 2020, there were 2,157 reported cases of acute hepatitis B, but since many people may be asymptomatic, this number was estimated to be about 20,000 acute cases and 880,000 chronic cases (CDC, 2023g). Also in 2020, 1,753 hepatitis-B related deaths were reported, but this number is believed to be underestimated due to underreporting (CDC, 2023g). There were about 13,300 acute cases in 2021. There has been a decrease in reported cases, which is thought to be due to the decrease in patients seeking health care post-COVID-19 pandemic (CDC, 2023h). Adults 30–59 years made up 73% of acute cases, and adults 30 and older made up 89% of chronic cases in 2021 (CDC, 2023h).

Financial Importance and Cost-Effectiveness

Administration of the influenza, Tdap/Td, herpes zoster, pneumococcal and hepatitis B vaccines can decrease overall health care costs by preventing severe disease and hospitalization.

Influenza vaccine

Influenza is an important cause of outpatient medical visits and worker absenteeism among adults. The average annual burden of seasonal influenza is estimated to include approximately 9.4–41 million illnesses, 100,000–710,000 hospitalizations and 4,900–52,000 deaths (CDC, 2023i). A 2023 study estimated that the incremental cost-effectiveness ratio of the influenza vaccine was less than $95,000 per quality-adjusted life year (QALY) for all age and risk groups except for non-high risk adults 18–49 (Kim DeLuca, 2023).

Tdap/Td vaccine

Administering the Tdap vaccine to adults helps prevent the spread of pertussis to infants and prevents such hospitalizations. Because of a rise in pertussis over decades in the U.S., studies have evaluated the cost-effectiveness of providing Tdap immunizations to adults.

One study found that that incremental cost-effectiveness ratio of vaccinating adults 19–85 with one Tdap dose ranged from $248,000 to $900,000 per QALY (Cho et al., 2020). A systematic review found that of 11 studies evaluating cost-effectiveness of adult Tdap vaccination programs across several countries, 6 were considered cost-effective and 2 were considered cost-saving (Fernandes et al., 2019).

Herpes zoster vaccine

In 2015, a systematic literature review estimated that total medical costs in the U.S. from zoster were $2.4B (Harvey et al., 2020). A CDC study estimated that vaccination with the recombinant zoster vaccine, compared with no vaccination, cost $31,000 per QALY, on average, for immunocompetent adults 50 and older. The number of people needed to be vaccinated with the recombinant zoster vaccine to prevent one case of zoster ranged from 11–17, and to prevent one case of PHN, ranged from 70–187 (Dooling et al., 2018). A study of the cost-effectiveness of the live herpes zoster vaccine among people

50 and older found that vaccination at age 60 would prevent the most cases (103,603 cases per 1 million people) (Curran et al., 2018).

Pneumococcal vaccine

Pneumococcal infections result in significant health care costs each year. Adult patients with pneumonia require hospitalization in nearly 10% of cases. (Isturiz et al., 2021). The annual aggregate burden for the fee-for-service Medicare population is approximately $13 billion (Brown et al., 2018).

Pneumococcal vaccines have been shown to be highly effective in preventing invasive pneumococcal disease. When comparing costs, outcomes and QALY, immunization with recommended pneumococcal vaccines was found to be economically efficient. In one study comparing all adults 65 and older, cost-effectiveness estimates ranged from $209,000–$544,000 per QALY gained for use of PCV20 alone, and from $531,000–$676,000 per QALY gained for use of PCV15 in series with PPSV23 (Smith et al., 2021).

Hepatitis B vaccine

With over 800,000 cases of chronic hepatitis B, vaccination against this disease will reduce burden and preserve medical resources. A National Center for HIV, Hepatitis, STD, and TB Prevention Epidemiologic and Economic Modeling Agreements study showed that universal vaccination against hepatitis B with the 3-dose series in adults reduces acute cases by about 25% and about 23% of hepatitis-B related deaths. This is approximately $152,722 per QALY gained (CDC, 2023j). Results were similar with the 2-dose strategy. The study also showed cost-effectiveness of $262,857 and 135 QALYs per 100,000 adults screened with a 1-dose strategy (CDC, 2023j).

Supporting Evidence

Influenza vaccine

ACIP recommends routine annual influenza vaccination for all people 6 months of age and older (Grohskopf et al., 2023). For people 19 years and older, any age-appropriate inactivated influenza vaccine (IIV) formulation or recombinant influenza vaccine (RIV) formulation are acceptable options. Vaccination should occur before the onset of influenza activity in the community, ideally by the end of October; however, vaccination efforts should continue throughout flu season into February and March (Grohskopf et al., 2023). People who have a history of severe allergic reaction (e.g., anaphylaxis) to any component of the vaccine should not receive the influenza vaccine (CDC, 2023a).

Tdap/Td vaccine

ACIP recommends that regardless of the interval since their last tetanus or diphtheria toxoid–containing vaccine, persons aged 19 and older who have never received a dose of Tdap should receive one dose. To ensure continued protection against tetanus and diphtheria, booster doses of either Td or Tdap should be administered every 10 years throughout life (Havers et al., 2020). Pregnant women should receive a dose of Tdap during each pregnancy, irrespective of a history of receiving Tdap. Tdap should be administered at 27–36 weeks' gestation, preferably during the earlier part of this period, although it may be administered at any time during pregnancy.

For women not previously vaccinated with Tdap, if not administered during pregnancy, it should be administered immediately postpartum (Havers et al., 2020). People who have a history of severe allergic reaction (e.g., anaphylaxis) to any component of the Tdap or Td vaccine should not receive it. Tdap is contraindicated for adults with a history of encephalopathy (e.g., coma

or prolonged seizures) not attributable to an identifiable cause within 7 days of administration of a vaccine with pertussis components (CDC, 2023f).

Herpes zoster vaccine

One type of zoster vaccine is currently recommended for older adults: the recombinant zoster vaccine (RZV). In October 2017, the FDA approved the RZV for adults 50 and older. In January 2018, ACIP published a guideline recommending RZV for immunocompetent adults 50 and older, irrespective of prior receipt of varicella vaccine or ZVL (Dooling et al., 2018). In July 2021, the FDA expanded the indication to include immunodeficient or immunosuppressed adults. In October 2021, ACIP published a guideline recommending two RZV doses for prevention of herpes zoster and related complications in immunodeficient or immunosuppressed adults ≥19 years (Anderson et al., 2022).

Pneumococcal vaccine

In 2021, two new pneumococcal vaccines were licensed for use in the U.S.: the 15-valent pneumococcal conjugate vaccine (PCV15) and the 20-valent pneumococcal conjugate vaccine (PCV20). Both include additional serotypes and therefore provide better coverage against pneumococcal disease than the 13-valent pneumococcal conjugate vaccine (PCV13) or 23-valent pneumococcal polysaccharide vaccine (PPSV23). In October 2021, ACIP approved new recommendations for pneumococcal disease, stating that a dose of the newer pneumococcal conjugate vaccine (either PCV20 or PCV15) is beneficial for immunocompetent adults 65 and older, and for adults 19–64 with certain underlying medical conditions or risk factors, given that both populations account for over 90% of invasive pneumococcal disease cases in the U.S.[1] (Kobayashi et al., 2022).[2] The rationale for this change is the increasing burden of pneumococcal disease in U.S. adults.

Hepatitis B vaccine

ACIP recommends universal HepB vaccination for adults 19–59 years and adults aged 60 years and older with risk factors for HepB. Adults 60 years and older without known risk factors for HepB may also receive HepB vaccines (Weng et al. 2022). ACIP also states that persons who have completed a HepB vaccination series at any point, or who have a history of HBV infection, should not receive additional HepB vaccination, although there is no evidence that receiving additional vaccine doses is harmful (Weng et al., 2022), stating that providers should only accept dated records as evidence of HepB vaccination.

Additionally, in settings where the patient population has a high rate of previous HBV infection, prevaccination testing, which may be performed concomitantly with administration of the first dose of vaccine, might reduce costs by avoiding complete vaccination of persons who are already immune. Prevaccination testing consists of testing for HBsAg, antibody to HBsAg (anti-HBs), and antibody to hepatitis B core antigen (anti-HBc). The presence of HBsAg indicates current HBV infection. The presence of anti-HBs is generally interpreted as indicating immunity, either from HepB vaccination after a complete series or after recovery from HBV infection. The presence of total anti-HBc indicates previous or ongoing infection with HBV (Weng et al. 2022).

[1] Includes alcoholism, chronic heart/liver/lung disease, cigarette smoking, diabetes mellitus, chronic renal failure, nephrotic syndrome, immunodeficiency, iatrogenic immunosuppression, generalized malignancy, human immunodeficiency virus, Hodgkin disease, leukemia, lymphoma, multiple myeloma, solid organ transplants, congenital or acquired asplenia, sickle cell disease or other hemoglobinopathies, CSF leak or cochlear implant.

[2] ACIP includes additional guidance on dosing and timing based on receipt of previous vaccinations at: https://www.cdc.gov/vaccines/schedules/hcp/imz/adult.html#note-pneumo

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There are five approved HepB vaccines for adults 19–59; the recommended dosage and schedule varies (Murthy et al., 2024):

- Two-dose series only applies when 2 doses of Heplisav-B are used at least 4 weeks apart.
- Three-dose series of Engerix-B, PreHevbrio or RecombivaxHB at 0, 1 and 6 months (minimum intervals: dose 1 to dose 2, 4 weeks; dose 2 to dose 3, 8 weeks; dose 1 to dose 3, 16 weeks).
- Three-dose series of HepA–HepB (Twinrix) standard schedule at 0, 1 and 6 months (minimum intervals: dose 1 to dose 2, 4 weeks; dose 2 to dose 3, 5 months).
- Four-dose series HepA–HepB (Twinrix) accelerated schedule of 3 doses at 0, 7 and 21–30 days, followed by a booster dose at 12 months.

Special situations: Patients on dialysis should complete a 3- or 4-dose series:

- Three-dose series of RecombivaxHB at 0, 1 and 6 months.
- Four-dose series of Engerix-B at 0, 1, 2 and 6 months.

Gaps in Care

Healthy People 2030, which provides science-based, 10-year national objectives for improving the health of all Americans, has established goals for routinely recommended adult vaccinations (U.S. Department of Health and Human Services 2022):

- Reduce the rate of deaths with hepatitis B as a cause.
- Reduce the rate of acute hepatitis B.
- Reduce the rate of hepatitis A.
- Increase the proportion of adults age 19 years or older who get recommended vaccines.
- Increase the proportion of people who get the flu vaccine every year.

Estimates of national vaccination coverage are available through the National Health Interview Survey (NHIS), in which a sample of adults self-report receipt of vaccines. Data from 2021 indicate that:

- 50.3% of adults 19 and older reported receiving the influenza vaccine during the 2020–2021 flu season.
- 34% of adults 19 and older reported receiving the hepatitis B vaccination (Hung et al., 2023).
- 41.1% of adults 60 and older and 32.6% of adults 50 and older reported receiving the herpes zoster vaccine.
- 65.8% of adults 65 and older reported receiving one or more doses of any type of pneumococcal vaccine (Hung et al., 2023).

Additionally, NHIS data from 2019 found that 62.9% of adults reported having received any tetanus toxoid-containing vaccination during the past 10 years, and 30.1% reported receiving the Tdap vaccine in the past 10 years (Jatlaoui et al., 2022).

Barriers to adult vaccination in general include provider and patient lack of knowledge and awareness of the importance of vaccines, missed opportunities for vaccination and operational and systemic barriers (e.g., cost, lack of access to immunization records) (Chadi et al., 2023; Eiden et al., 2022; Kilich et al., 2020; Kolobova et al., 2022; Wang et al., 2023). Having health insurance coverage is also associated with higher vaccination coverage (Chadi et al., 2023; Kolobova et al., 2022).

There are evidence-based practices for improving adult vaccination coverage. Health care providers should routinely assess patients' vaccination history, offer needed vaccines to adults or refer patients to a provider who can administer the vaccine and document vaccinations received by their patients in an immunization information system (Lu et al., 2021). In addition, providing easy access and convenience for adult vaccination in and outside the health care setting is important for increasing equitable adult vaccine uptake (Kaiser Family Foundation 2020). Influenza vaccines are commonly offered at retail pharmacies; offering other types of adult vaccines at retail pharmacies could potentially increase uptake (Murray et al., 2021). Sharing immunization related information between providers, health systems, public health agencies and patients is required to increase vaccination coverage and ensure high-quality data to inform clinical and public health interventions (Scharf et al., 2021). Leveraging health information technology, such as immunization information systems, is important for targeting and monitoring immunization program activities and providing clinical decision support at the point of care (Scharf et al., 2021).

Health Care Disparities

There are racial and ethnic disparities in adult vaccination coverage. The 2021 NHIS survey found that White adults 65 and older had higher pneumococcal vaccination coverage rates (70.1%) than Black (54.8%), Hispanic (46.2%) and Asian (55.8%) adults 65 and older (Hung et al., 2023). Further, White adults 50 and older reported higher herpes zoster vaccination coverage rates (36.6%) than Black (18.9%), Hispanic (20.7%) and Asian (33%) adults 50 and over. Similar trends were seen for adults 60 and older who reported receiving a herpes zoster vaccine (Hung et al., 2023). The 2021 NHIS survey also found that White 19–49-year-olds were more likely to have received the HepB vaccine (48%) than Black (34%) and Hispanic (38%) adults, but less likely than Asian adults (54%) (Hung et al., 2023). White 30–59-year-olds were more likely to have received the HepB vaccine (38%) than Black (31%) and Hispanic (32%) adults, but less likely than Asian adults (47%) (Hung et al., 2023). The 2018 NHIS survey found that White adults for both any tetanus vaccination and Tdap-specific vaccination reported higher rates of coverage (67.3% and 33.5%, respectively) compared to Black (51.2% and 21.3%), Hispanic (55.9% and 23.1%) and Asian (55.5% and 29.1%) adults (Jatlaoui et al., 2022).

Vaccination coverage also varies by age for influenza. In the 2022–2023 influenza season the overall vaccination rate among adults was 47%; 35% of adults 18–49 reported receiving the flu vaccine, compared with 50% of adults 50–64 and 70% of adults 65 and older (CDC, 2023k); however, compared to the 2021–2022 influenza season, adult influenza vaccination coverage was lower for adults 65 and older than for adults 19–64 in the 2022–2023 season (CDC, 2023k).

There are also geographical and racial-ethnic disparities in adult HepB infection rates. In 2021, states in the Appalachian region had higher rates of acute hepatitis B than the nationwide average (CDC, 2023h). Non-Hispanic Black adults had the highest rates of acute hepatitis B in 2021. The rate of newly reported chronic hepatitis B cases was 14 times higher among non-Hispanic Asian/Pacific Islanders in 2021 (CDC, 2023h).

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Guidelines and Recommendations

Table 1: Routine Adult Immunizations: Recommendations from the CDC ACIP*

Vaccine Recommendation Date & Title	ACIP Recommendation	Contraindications (CDC 2020)
Influenza (Grohskopf et al. 2023)	ACIP recommends routine annual influenza vaccination for all people ages six months and older. Vaccination should occur before the onset of influenza activity in the community, ideally by the end of October; however, vaccination efforts should continue throughout flu season into February and March.	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component
Td/Tdap (Havers et al. 2020)	ACIP recommends that regardless of the interval since their last tetanus or diphtheria toxoid–containing vaccine, persons aged 19 and older who have never received a dose of Tdap should receive one dose of Tdap. To ensure continued protection against tetanus and diphtheria, booster doses of either Td or Tdap should be administered every 10 years throughout life. Pregnant women should receive a dose of Tdap during each pregnancy irrespective of the patient's prior history of receiving Tdap. Tdap should be administered at 27–36 weeks' gestation, preferably during the earlier part of this period, although it may be administered at any time during pregnancy.	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component Tdap: Encephalopathy (e.g., coma, decreased level of consciousness, or prolonged seizures) not attributable to another identifiable cause within seven days of administration of a previous dose of a vaccine with pertussis components
Zoster (Dooling et al., 2018; Anderson et al. 2022)	ACIP recommends the two-dose recombinant zoster vaccine (RZV) for use in immunocompetent adults aged 50 and older, irrespective of prior receipt of varicella vaccine or zoster vaccine live (ZVL). This recommendation was expanded in 2022 to include adults aged 19 and older who are or will be immunodeficient or immunosuppressed for prevention of herpes zoster.	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component
Pneumococcal (Kobayashi et al. 2023)	ACIP recommends that adults aged 19-64 with certain chronic or immunocompromising conditions[2] and adults 65 and older who have not previously received a pneumococcal conjugate vaccine, or whose previous vaccination history is unknown, should receive a pneumococcal conjugate vaccine (either PCV20 or PCV15). If PCV15 is used, this should be followed by a dose of pneumococcal polysaccharide vaccine (PPSV23) at least 1 year later. A minimum interval of 8 weeks can be considered for adults with underlying conditions. ACIP includes additional guidance on dosing and timing based on receipt of previous vaccinations at: https://www.cdc.gov/vaccines/schedules/hcp/imz/adult.html#note-pneumo	PCV13, PCV15, PCV20: Severe allergic reaction (e.g., anaphylaxis) after a previous dose to any vaccine containing diphtheria toxoid or to any component of these vaccines. PPSV23: Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component
Hepatitis B (Weng et al. 2022)	ACIP recommends that adults aged 19–59 years and adults aged 60 years and older with risk factors for hepatitis B should receive HepB vaccines, and that adults aged 60 years and older without known risk factors for hepatitis B may receive HepB vaccines.	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. Hypersensitivity to yeast

**ACIP is chartered as a federal advisory committee to provide expert external advice and guidance to the director of CDC on use of vaccines and related agents for the control of vaccine-preventable diseases in the civilian population of the United States. Recommendations for routine use of vaccines in children and adolescents are harmonized, to the greatest extent possible, with recommendations made by the American Academy of Pediatrics, the American Academy of Family Physicians (AAFP) and the American College of Obstetricians and Gynecologists. Recommendations for routine use of vaccines in adults are reviewed and approved by the American College of Physicians, AAFP, the American College of Obstetricians and Gynecologists and the American College of Nurse-Midwives. ACIP recommendations adopted by the CDC director become agency guidelines on the date published in the Morbidity and Mortality Weekly Report (MMWR).*

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HEDIS Health Plan Performance Rates: Adult Immunization Status (AIS-E)

The data included below for Measurement Years 2020–2022 are based on rates reported by the following product lines and age ranges.

Indicator	Commercial, Medicaid	Medicare
Influenza	19-65	66 and older
Td/Tdap	19-65	66 and older
Zoster	50-64	66 and older
Pneumonia	NA	66 and older

Starting in Measurement Year 2023, all product lines will report each indicator and stratify by age.

Indicator	Commercial, Medicaid, Medicare
Influenza	19-65 66 and older
Td/Tdap	19-65 66 and older
Zoster	50-64 66 and older
Pneumonia	66 and older

Influenza Immunization Indicator

Table 1. HEDIS AIS-E Influenza Indicator Performance—Commercial Plans, Ages 19–65

Measurement Year	Total Number of Plans (N)	Number of Plans Reporting (N (%))	Performance Rates (%)						
			Mean	Standard Deviation	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
2022*	417	388 (93.1%)	22.7	9.3	11.5	15.8	21.6	28.9	34.6
2021	419	312 (74.5%)	23.1	9.6	12.4	15.8	21.5	28.9	36.4
2020	416	258 (62.0%)	20.9	7.4	13.3	16.4	19.2	23.9	29.5

*For 2022 the average denominator across plans was 155,969.2 individuals, with a standard deviation of 272,104.2.

Table 2. HEDIS AIS-E Influenza Indicator Performance—Medicaid Plans, Ages 19–65

Measurement Year	Total Number of Plans (N)	Number of Plans Reporting (N (%))	Performance Rates (%)						
			Mean	Standard Deviation	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
2022*	272	162 (59.6%)	14.2	6.5	6.5	9.5	13.6	17.8	21.1
2021	270	122 (45.2%)	16.4	7.1	8.0	11.5	15.8	21.2	24.4
2020	272	103 (37.9%)	18.3	7.0	10.6	13.6	18.0	22.7	27.3

*For 2022 the average denominator across plans was 113,409.1 individuals, with a standard deviation of 150,774.8.

Table 3. HEDIS AIS-E Influenza Indicator Performance—Medicare Plans, Ages 66+

Measurement Year	Total Number of Plans (N)	Number of Plans Reporting (N (%))	Performance Rates (%)						
			Mean	Standard Deviation	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
2022*	750	477 (63.6%)	34.4	19.7	8.7	19.7	31.0	51.0	62.1
2021	714	317 (44.4%)	33.0	20.1	6.1	19.7	30.4	43.7	64.7
2020	649	203 (31.3%)	32.6	19.1	6.9	19.7	30.3	45.7	62.0

*For 2022 the average denominator across plans was 23,614.7 individuals, with a standard deviation of 90,980.1.

Td/Tdap Immunization Indicator

Table 4. HEDIS AIS-E Td/Tdap Indicator Performance—Commercial Plans, Ages 19-65

Measurement Year	Total Number of Plans (N)	Number of Plans Reporting (N (%))	Performance Rates (%)						
			Mean	Standard Deviation	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
2022*	417	388 (93.1%)	36.3	13.8	19.9	26.4	34.2	45.9	54.7
2021	419	312 (74.5%)	32.5	13.7	18.0	23.2	29.2	39.3	52.9
2020	416	258 (62.0%)	30.2	12.3	17.4	22.4	28.2	35.3	46.9

*For 2022 the average denominator across plans was 155,969.2 individuals, with a standard deviation of 272,104.2.

Table 5. HEDIS AIS-E Td/Tdap Indicator Performance—Medicaid Plans, Ages 19–65

Measurement Year	Total Number of Plans (N)	Number of Plans Reporting (N (%))	Performance Rates (%)						
			Mean	Standard Deviation	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
2022*	272	162 (59.6%)	36.7	14.3	18.7	27.6	34.4	47.1	56.5
2021	270	122 (45.2%)	34.6	15.0	17.8	22.4	32.4	41.7	54.8
2020	272	103 (37.9%)	33.8	15.0	16.0	22.5	31.8	44.7	53.1

*For 2022 the average denominator across plans was 113,409.1 individuals, with a standard deviation of 150,774.8.

Table 6. HEDIS AIS-E Td/Tdap Indicator Performance—Medicare Plans, Ages 66+

Measurement Year	Total Number of Plans (N)	Number of Plans Reporting (N (%))	Performance Rates (%)						
			Mean	Standard Deviation	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
2022*	750	477 (63.6%)	23.2	17.1	4.3	9.8	19.8	32.4	48.9
2021	714	317 (44.4%)	21.4	17.5	3.3	8.3	16.6	28.4	46.8
2020	649	203 (31.3%)	19.7	16.5	2.9	7.5	15.3	26.8	41.9

*For 2022 the average denominator across plans was 23,614.7 individuals, with a standard deviation of 90,980.1.

Herpes Zoster Immunization Indicator

Table 7. HEDIS AIS-E Herpes Zoster Indicator Performance—Commercial Plans, Ages 50–65

Measurement Year	Total Number of Plans (N)	Number of Plans Reporting (N (%))	Performance Rates (%)						
			Mean	Standard Deviation	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
2022*	417	388 (93.0%)	16.0	8.2	6.3	10.0	14.7	21.1	26.9
2021	419	312 (74.5%)	11.3	6.9	4.0	6.5	9.7	14.5	21.1
2020	416	258 (62.0%)	8.4	5.1	3.1	4.9	7.3	10.6	14.8

*For 2022 the average denominator across plans was 52,460.1 individuals, with a standard deviation of 91,126.8.

Table 8. HEDIS AIS-E Herpes Zoster Indicator Performance—Medicaid Plans, Ages 50–65

Measurement Year	Total Number of Plans (N)	Number of Plans Reporting (N (%))	Performance Rates (%)						
			Mean	Standard Deviation	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
2022*	272	159 (58.5%)	7.8	5.1	1.7	3.4	7.1	11.2	14.5
2021	270	121 (44.8%)	6.0	4.4	1.0	2.3	5.7	8.9	11.4
2020	272	102 (37.5%)	3.9	3.6	0.4	0.8	2.5	6.4	8.8

*For 2022 the average denominator across plans was 24,670.6 individuals, with a standard deviation of 35,071.

Table 9. HEDIS AIS-E Herpes Zoster Indicator Performance—Medicare Plans, Ages 66+

Measurement Year	Total Number of Plans (N)	Number of Plans Reporting (N (%))	Performance Rates (%)						
			Mean	Standard Deviation	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
2022*	750	477 (63.6%)	14.6	17.8	0.1	0.9	5.6	24.7	42.6
2021	714	317 (44.4%)	12.9	16.2	0.0	0.9	4.1	19.9	37.9
2020	649	203 (31.3%)	9.5	14.4	0.0	0.3	2.8	12.2	31.5

*For 2022 the average denominator across plans was 23,614.7 individuals, with a standard deviation of 90,980.1.

Pneumococcal Immunization Indicator

Table 10. HEDIS AIS-E Pneumococcal Indicator Performance—Medicare Plans, Ages 66+

Measurement Year	Total Number of Plans (N)	Number of Plans Reporting (N (%))	Performance Rates (%)						
			Mean	Standard Deviation	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
2022*	750	477 (63.6%)	30.2	20.7	5.4	13.1	26.4	43.9	60.7
2021	714	317 (44.4%)	29.7	20.2	5.8	13.0	26.5	42.1	58.3
2020	649	203 (31.3%)	26.2	18,0	4.3	13.1	22.4	36.3	50.9

*For 2022 the average denominator across plans was 23,614.7 individuals, with a standard deviation of 90.980.1.