IMMUNIZE
SOUTH DAKOTA

State of the State: The Current Landscape of Vaccination

Andrea Polkinghorn, BSN, RN

President, Immunize South Dakota

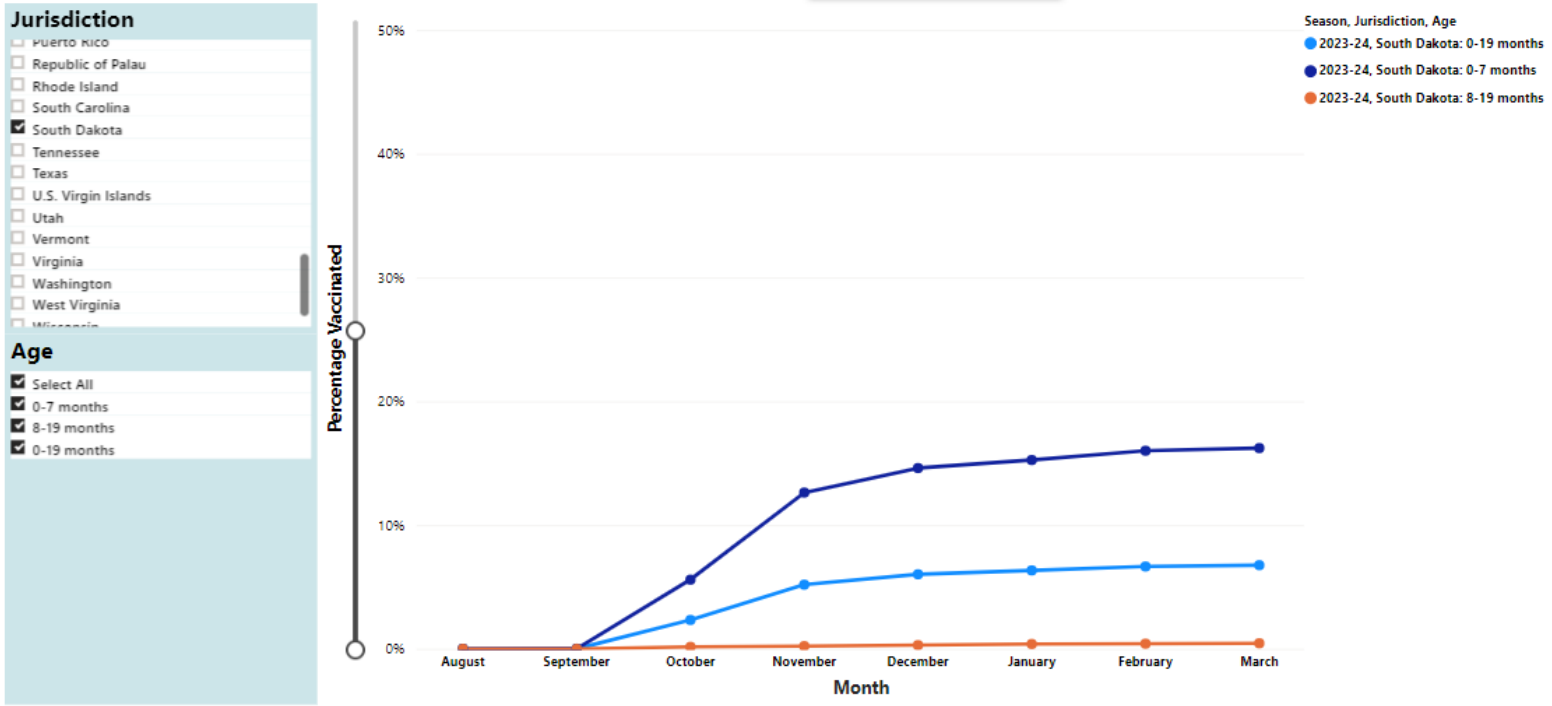
Objectives

- Compare immunization rates and vaccine preventable disease incidence for South Dakotans versus the nation.
- Examine strategies to improve immunization rates.
- Describe effective strategies to foster a culture of immunization within your practice and key community stakeholders.

Immunization Rates - Childhood

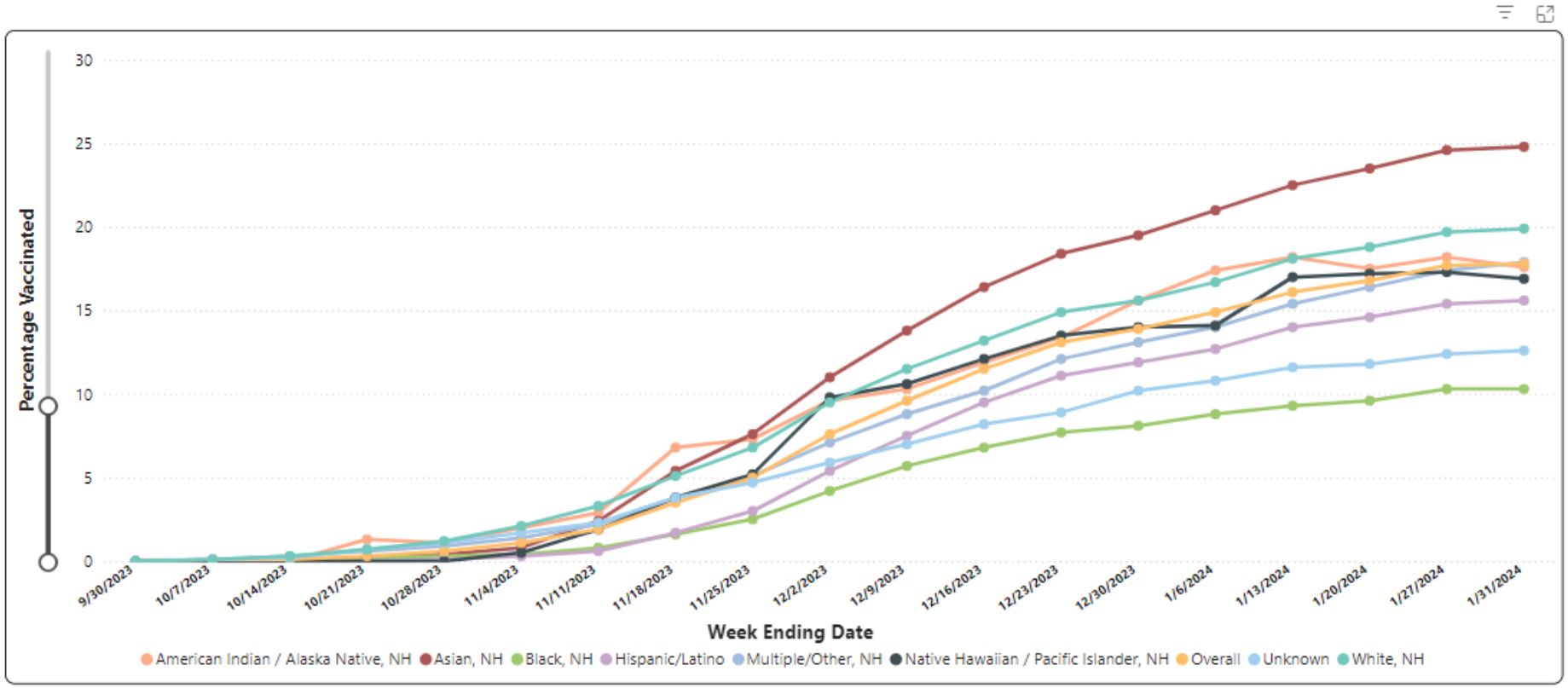
Nirsevimab Immunization Rates

Figure 7A. Monthly Cumulative Number and Percent of Children <20 Months Who Received Nirsevimab*,† by Age Group and Jurisdiction, United States
Data Source: U.S. Jurisdiction Immunization Information Systems (IIS)
Data are current through December 31, 2023

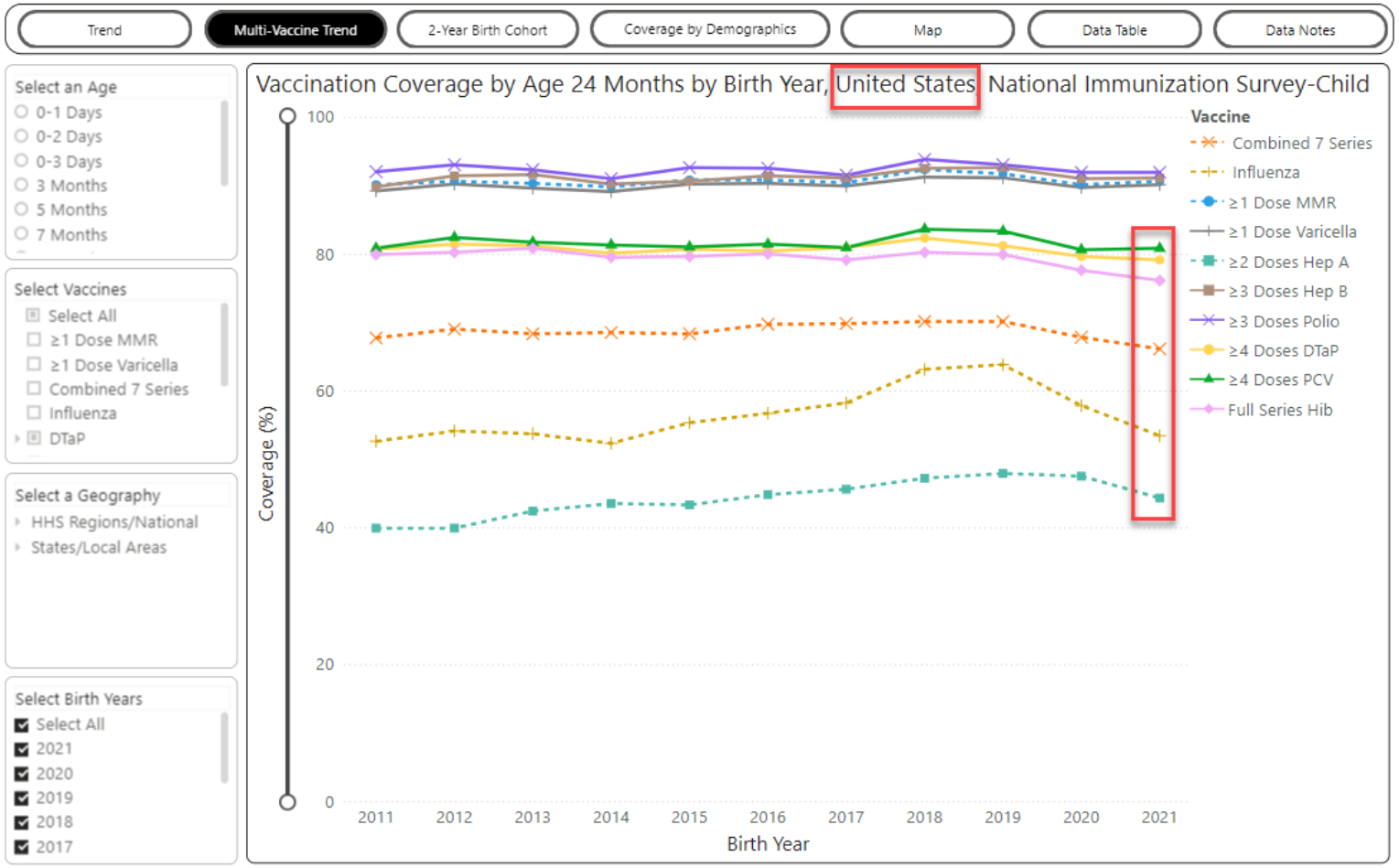


Maternal RSV Vaccination

Figure 5. Percent of pregnant persons ages 18–49 years vaccinated† with RSV vaccine overall and by race and ethnicity — Vaccine Safety Datalink



Vaccines Due at 15-18 months – U.S.



Vaccines Due at 15-18 months - SD

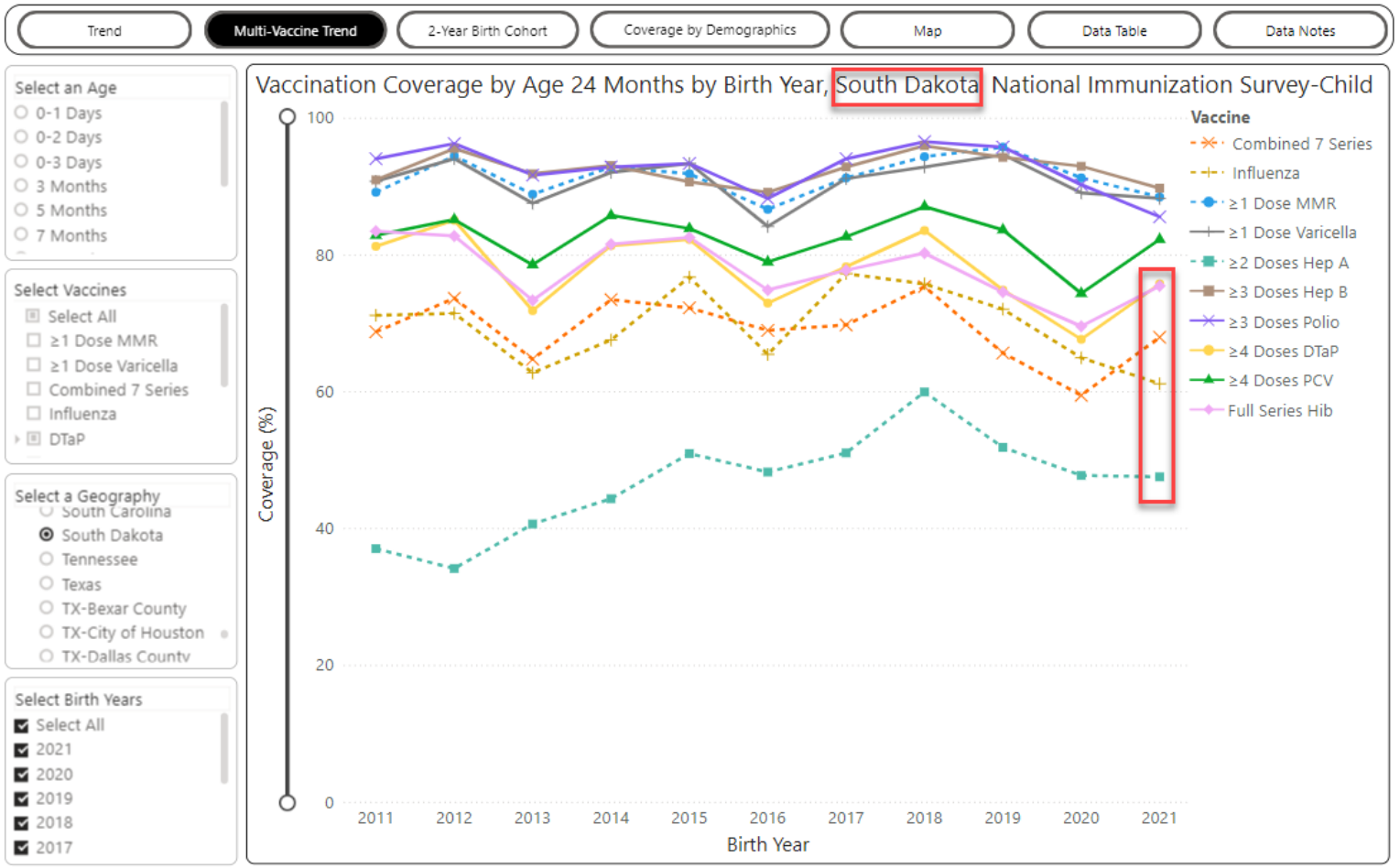
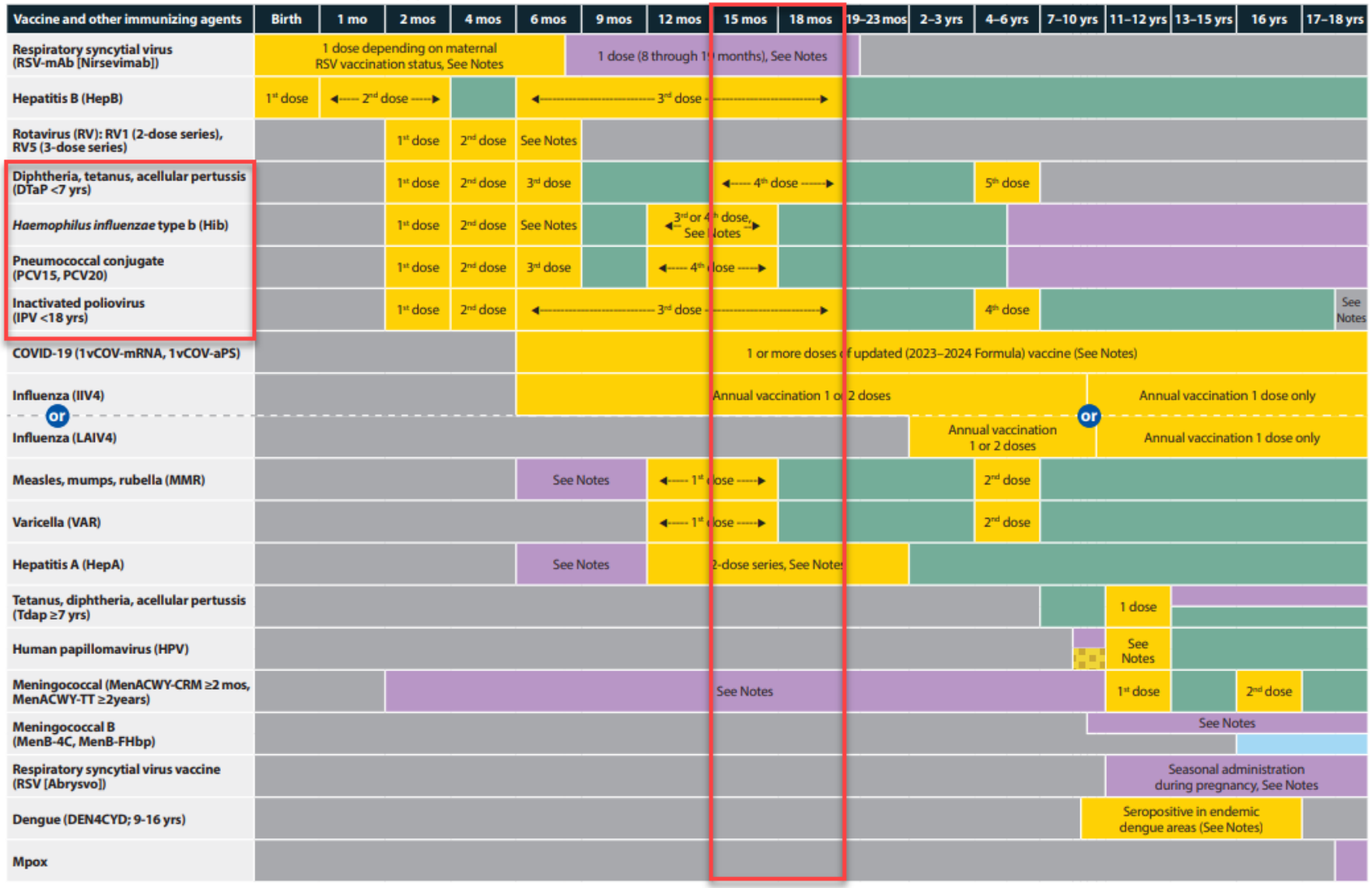


Table 1 Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

These recommendations must be read with the notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars.
To determine minimum intervals between doses, see the catch-up schedule (Table 2).



NORTH Dakota Be Legendary.
Health & Human Services

Infant Immunization Data Dashboard

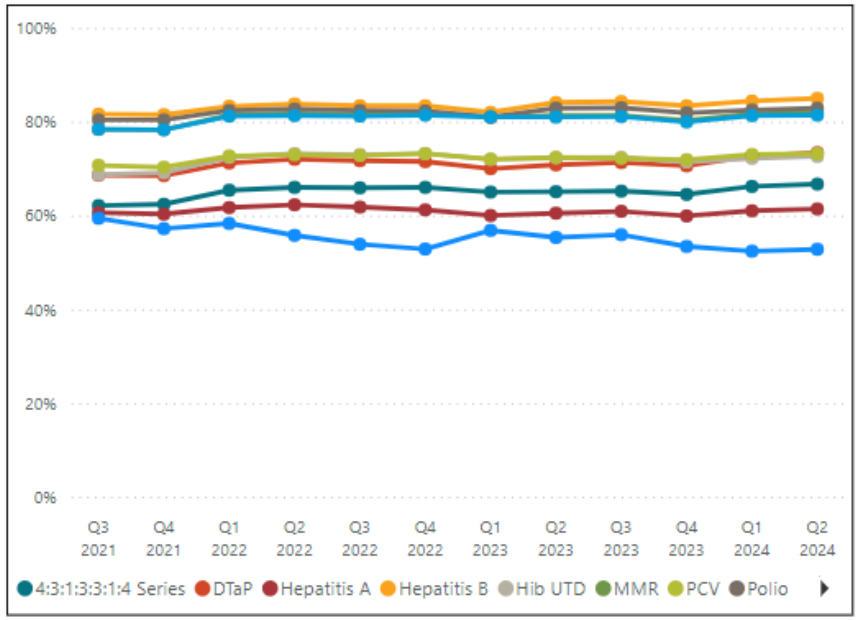
NDIIS NORTH DAKOTA IMMUNIZATION INFORMATION SYSTEM

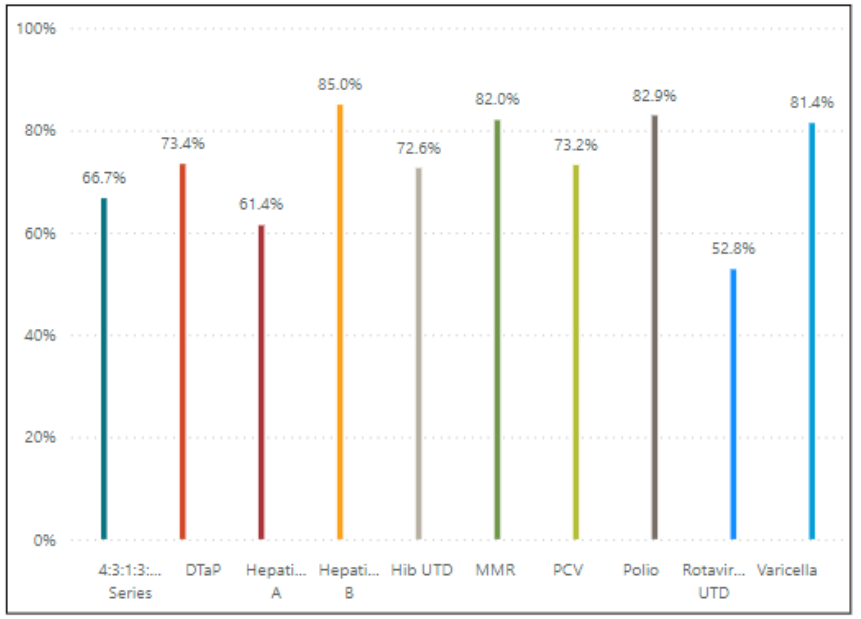
Methodology | State-wide Coverage | County Coverage | Demographics | Doses Administered | Hepatitis B | Rotavirus | RSV | Exemptions | Vaccine Information

State-wide Infant Immunization Coverage Rates

Vaccine: All

Quarter Year: Q2 2024





Percent of North Dakota children 19 - 35 months of age by the last day of the quarter who are up-to-date with the selected vaccine by the end of the quarter*

*Infant vaccine series includes >=4 doses of diphtheria, tetanus and acellular pertussis (DTaP) vaccine, >=3 doses of polio vaccine, >=1 dose of measles, mumps and rubella (MMR) vaccine, >=3 doses of hepatitis B vaccine, up-to-date with 3 or 4 doses of haemophilus influenzae type B (Hib) vaccine, >=1 dose of varicella (chickenpox) vaccine and >=4 doses of pneumococcal conjugate vaccine.

Trend | Multi-Vaccine Trend | 2-Year Birth Cohort | Coverage by Demographics | **Map** | Data Table | Data Notes

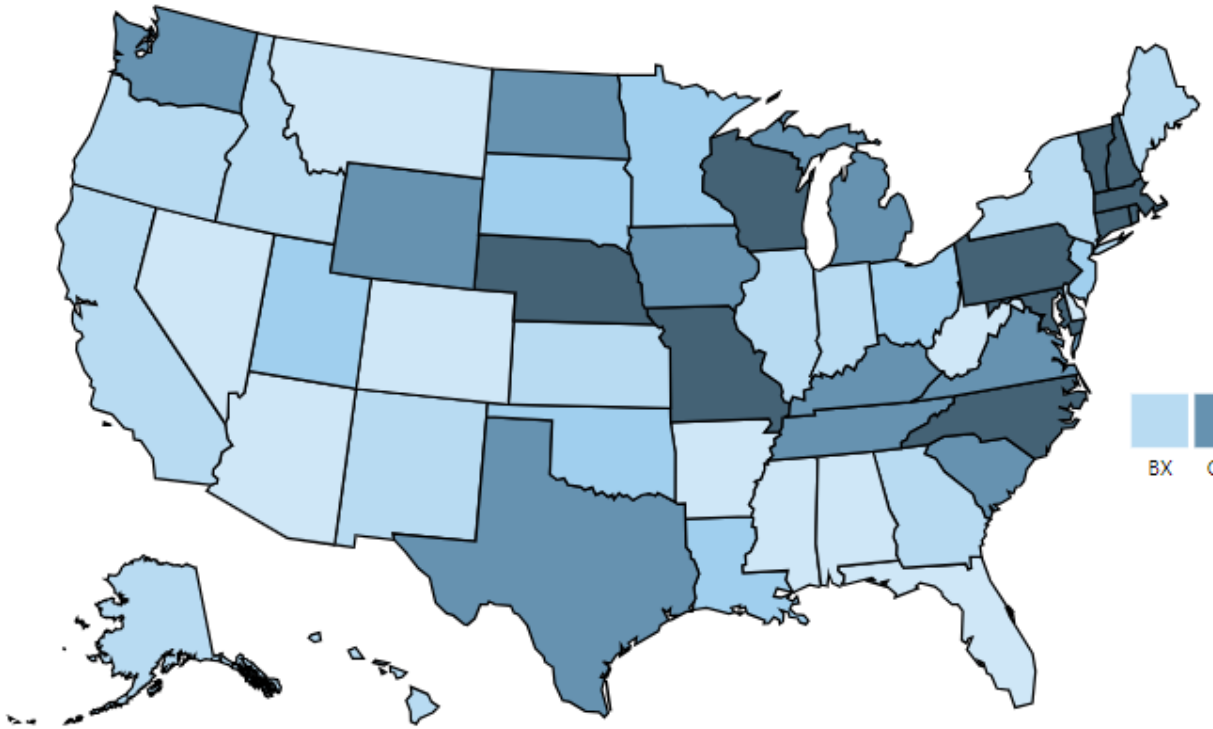
Select a Vaccine
- ≥1 Dose MMR
- ≥1 Dose Varicella
- Combined 7 Series
- Influenza
- Rotavirus
- DTaP
  - ≥1 Dose

Select Geographies
- Select All
- HHS Regions/National
- States/Local Areas

Select a Birth Year/Cohort
- 2021
- 2020-2021
- 2020
- 2019-2020
- 2019
- 2018-2019
- 2018
- 2017
- 2016-2017
- 2016

Select an Age
- 8 Months

Rotavirus Vaccination Coverage by Age 8 Months among Children Born in 2021, National Immunization Survey-Child



Cities/Counties

BX CHI DC HOU NYC PHI

Territories

GU PR USVI

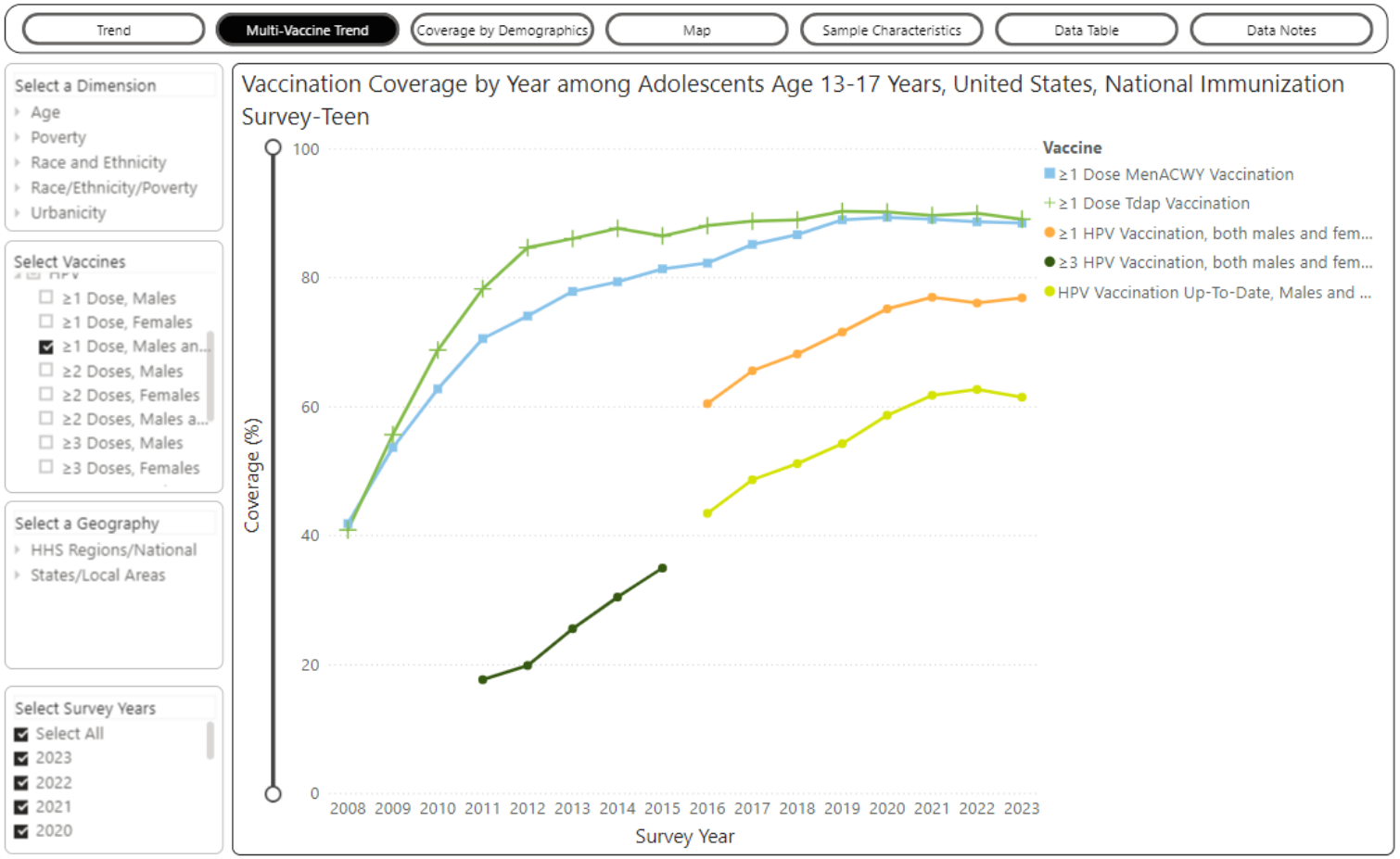
Legend – Coverage (%)

49.7 - 70.8
70.9 - 73.2
73.3 - 76.7
76.8 - 78.9
79.0 - 94.0
Not Available

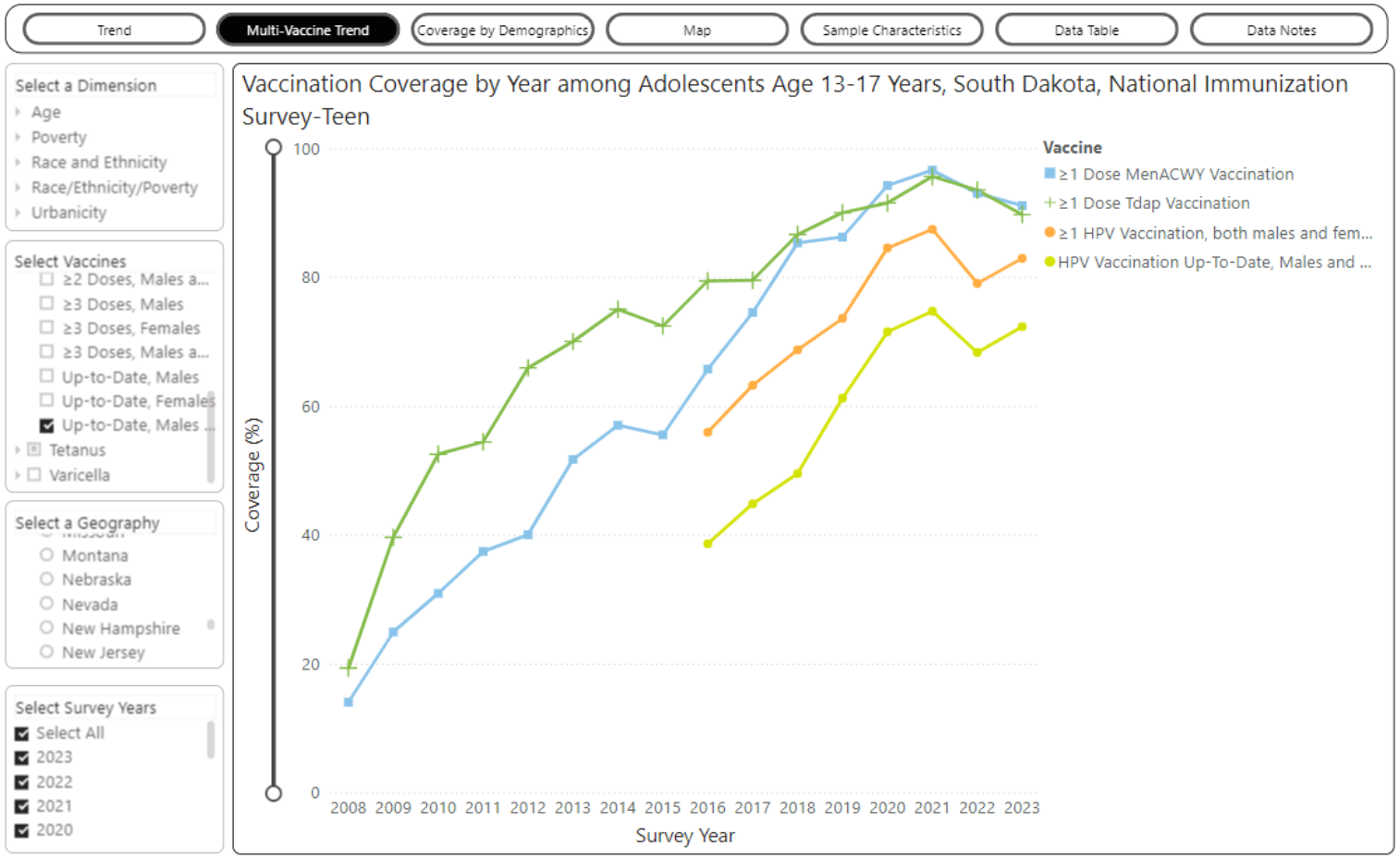
City & Territory Abbreviations

Immunization Rates - Teens

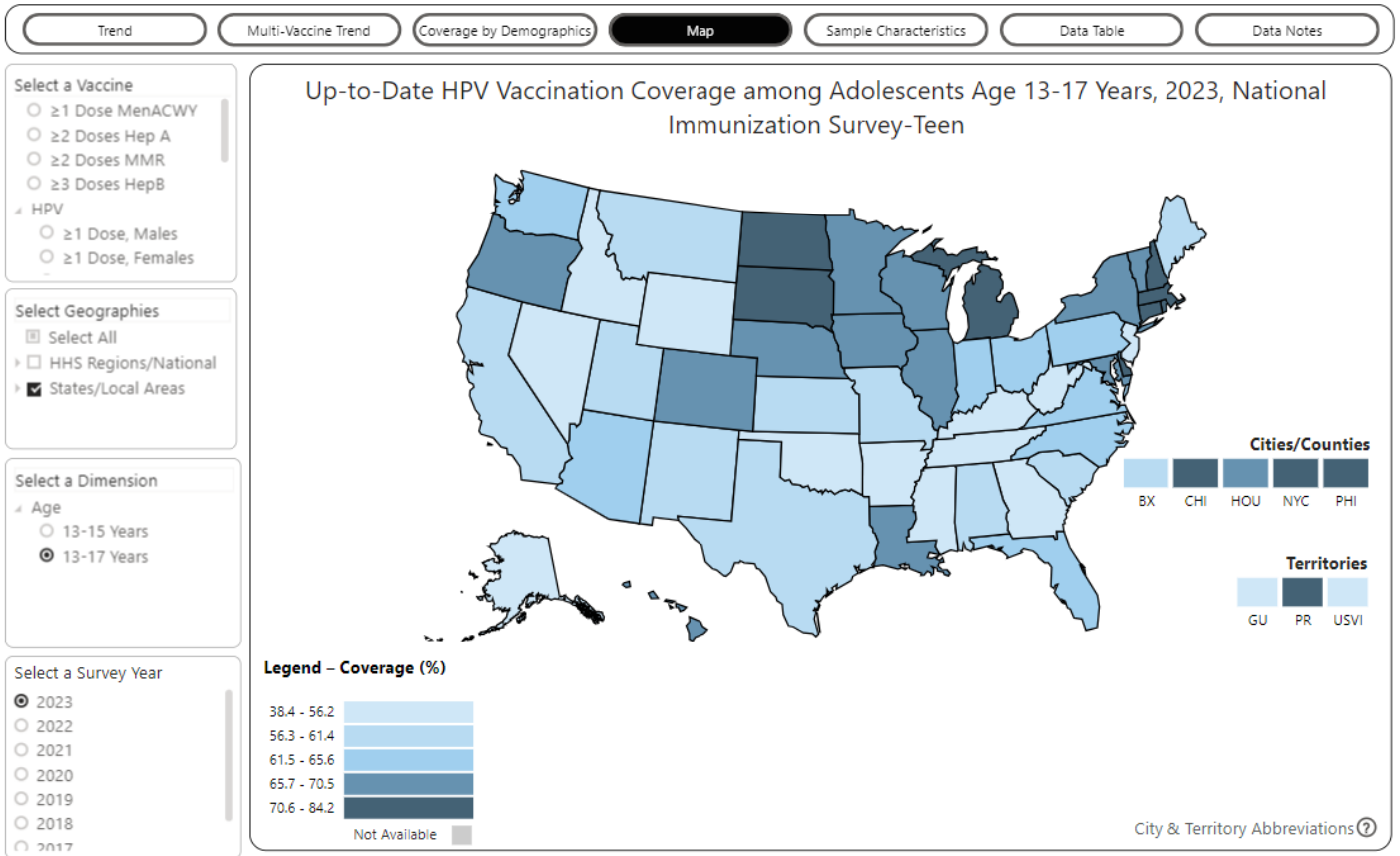
Adolescent Immunization Rates – U.S.



Adolescent Immunization Rates - SD



Higher Rates Among 13-17 Year Olds



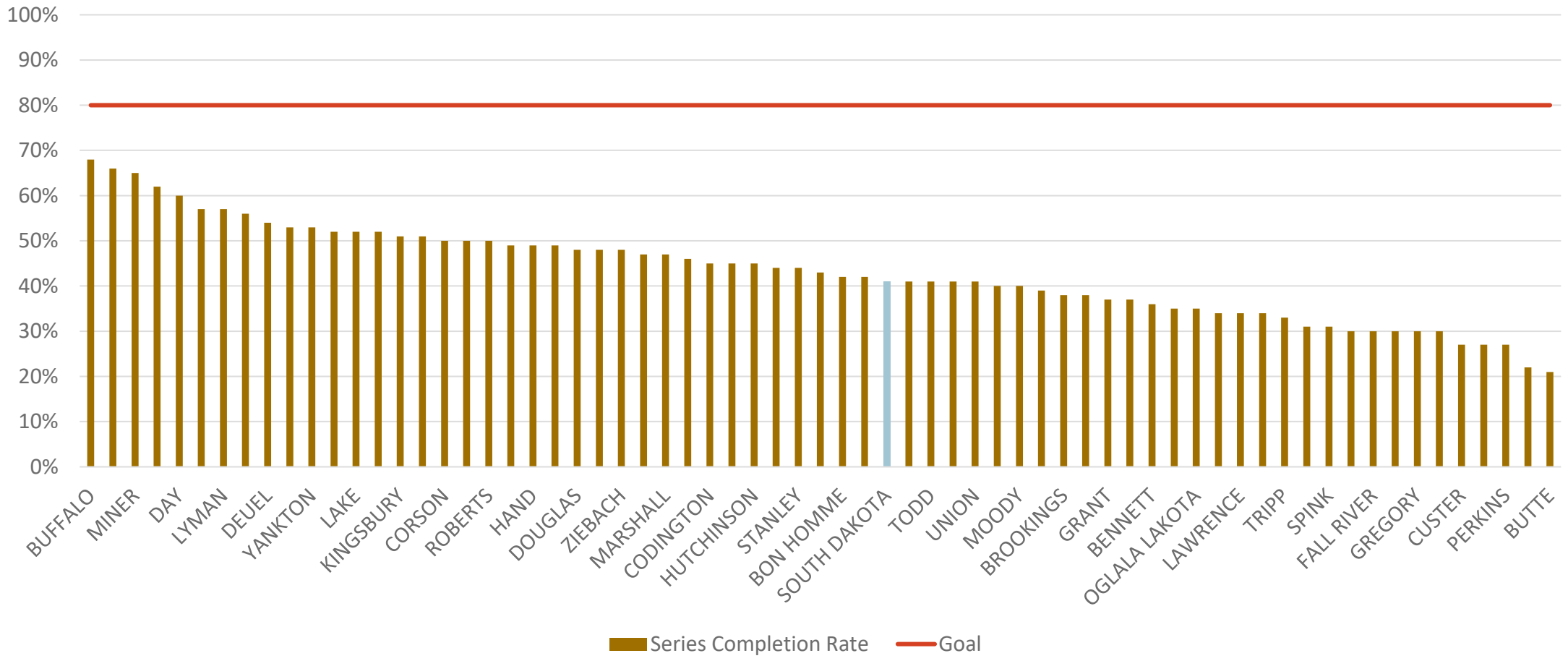
Other Area of Concern:

- 2nd MCV4

ACIP has formed a working group to re-evaluate the Meningococcal Recommendation. Updates expected February 2024.

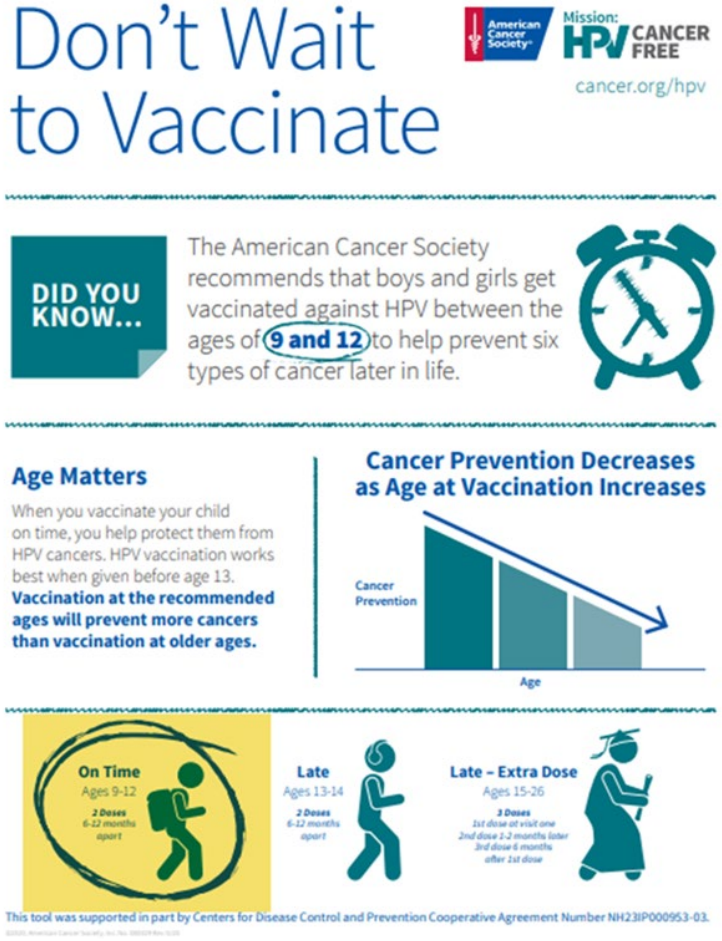
ACIP has recently formed an HPV working group.

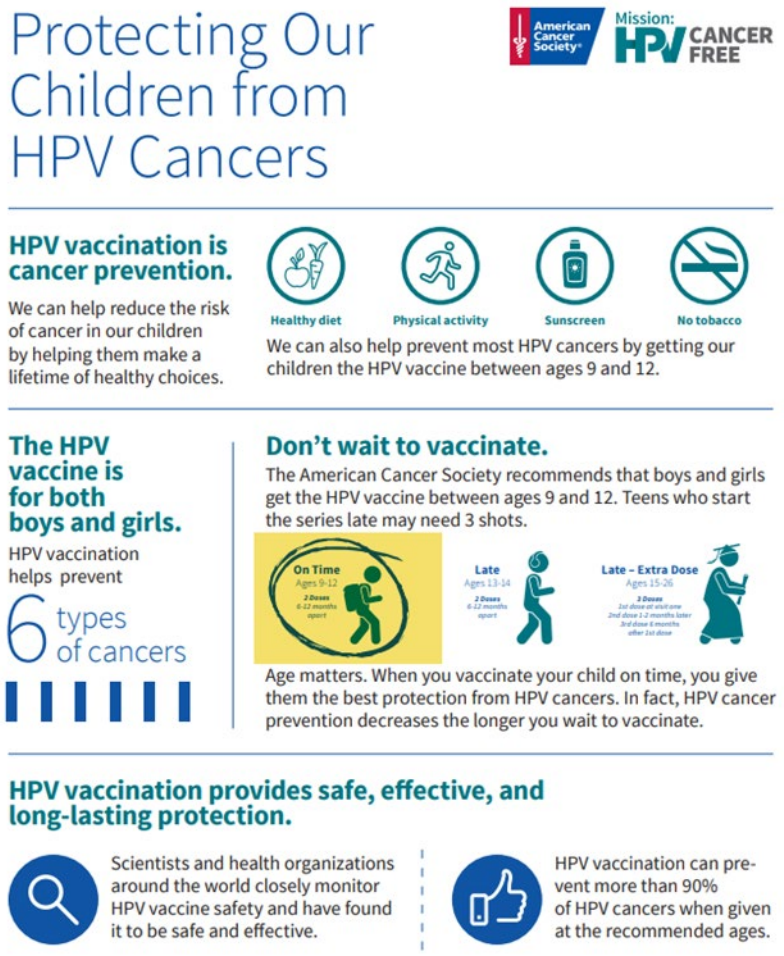
HPV Series Completion Rates for 13–14-Year-Olds in SD



SDIIS June 2024

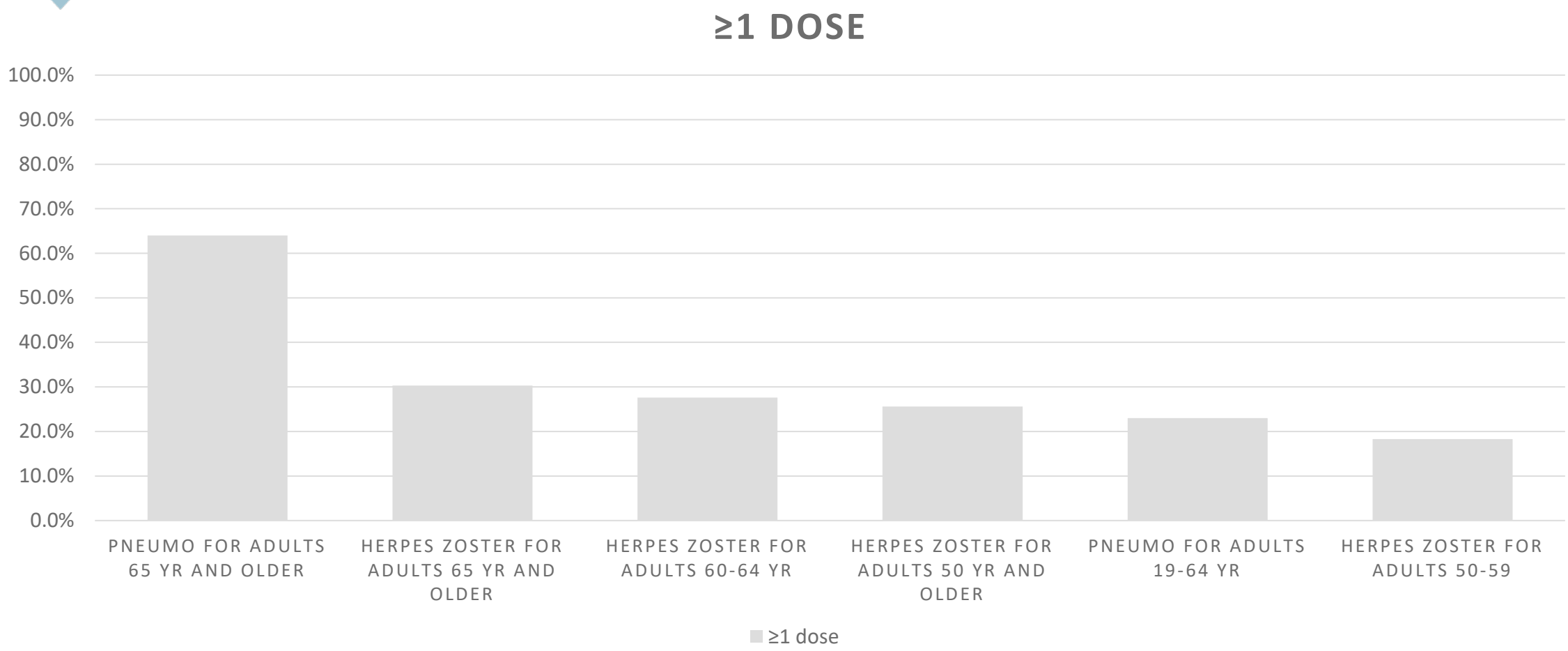
Vaccination at Ages ≥ 13 = Late/Catch-up





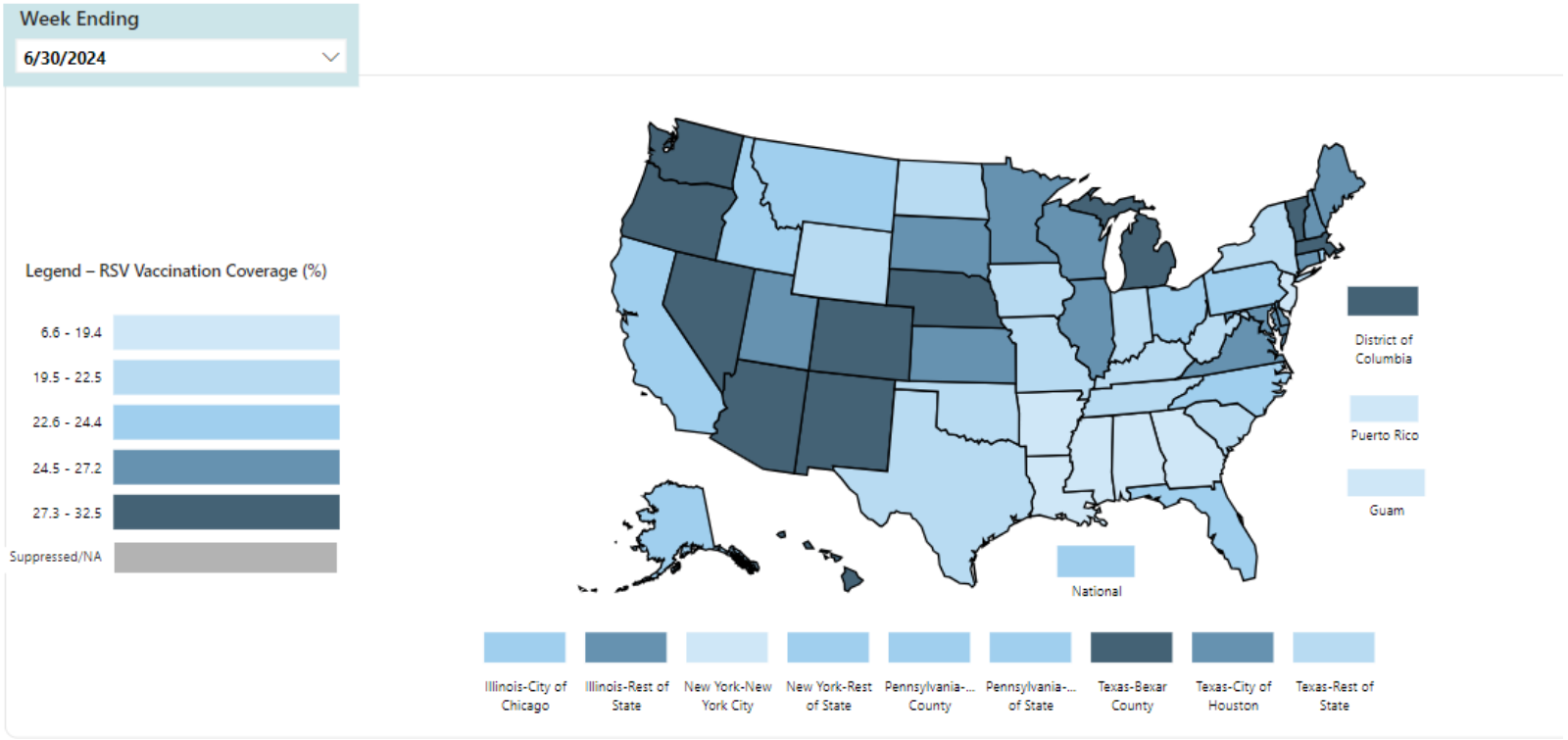
Immunization Rates - Adults

MMWR: Vaccination Coverage among Adults in the United States, National Health Interview Survey, 2022



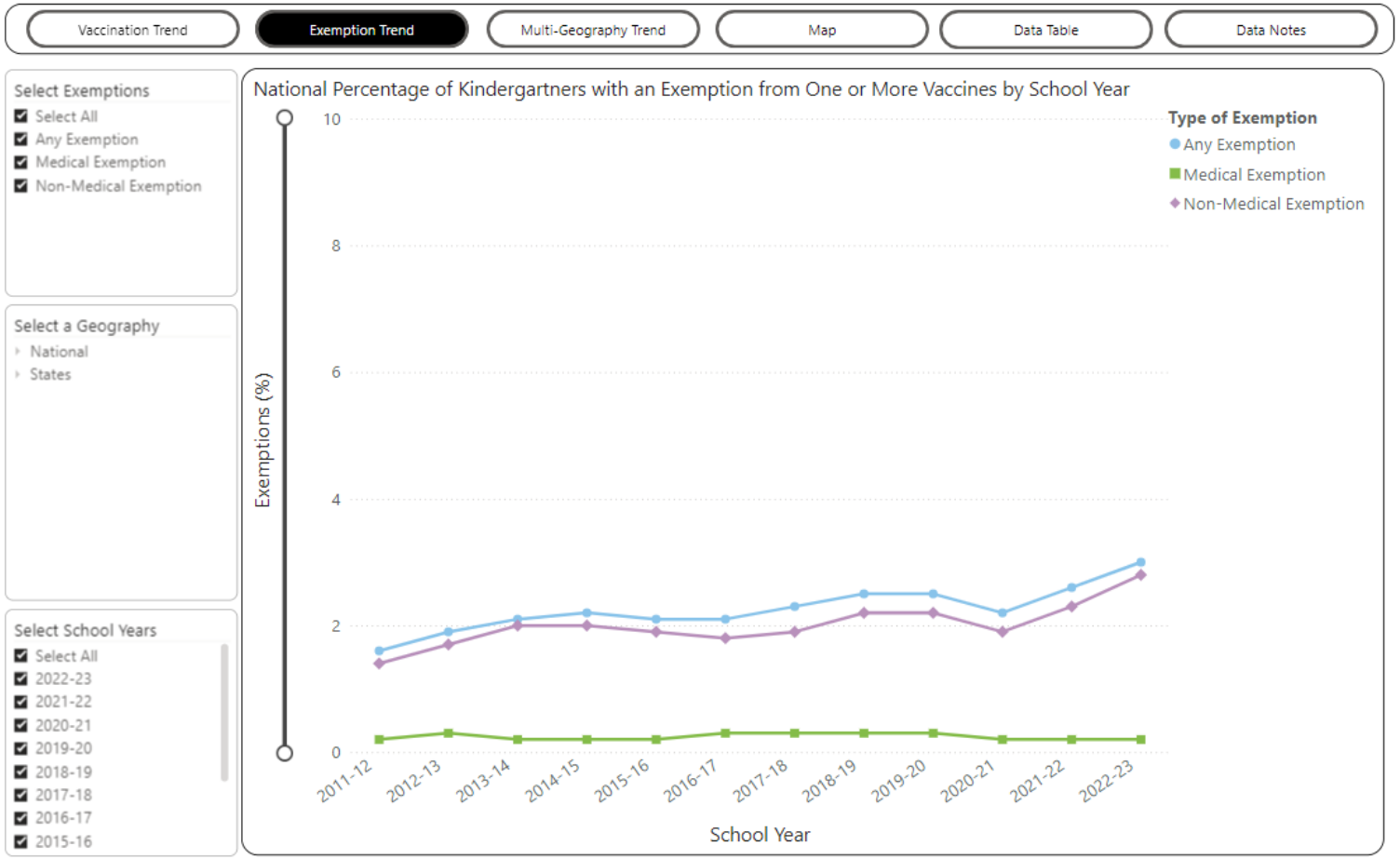
RSV Vaccination in Adults

Figure 1C: Weekly Cumulative RSV Vaccination Coverage†,‡ by Jurisdiction, Adults 60 years and older, United States
Data Source: National Immunization Survey–Adult COVID Module

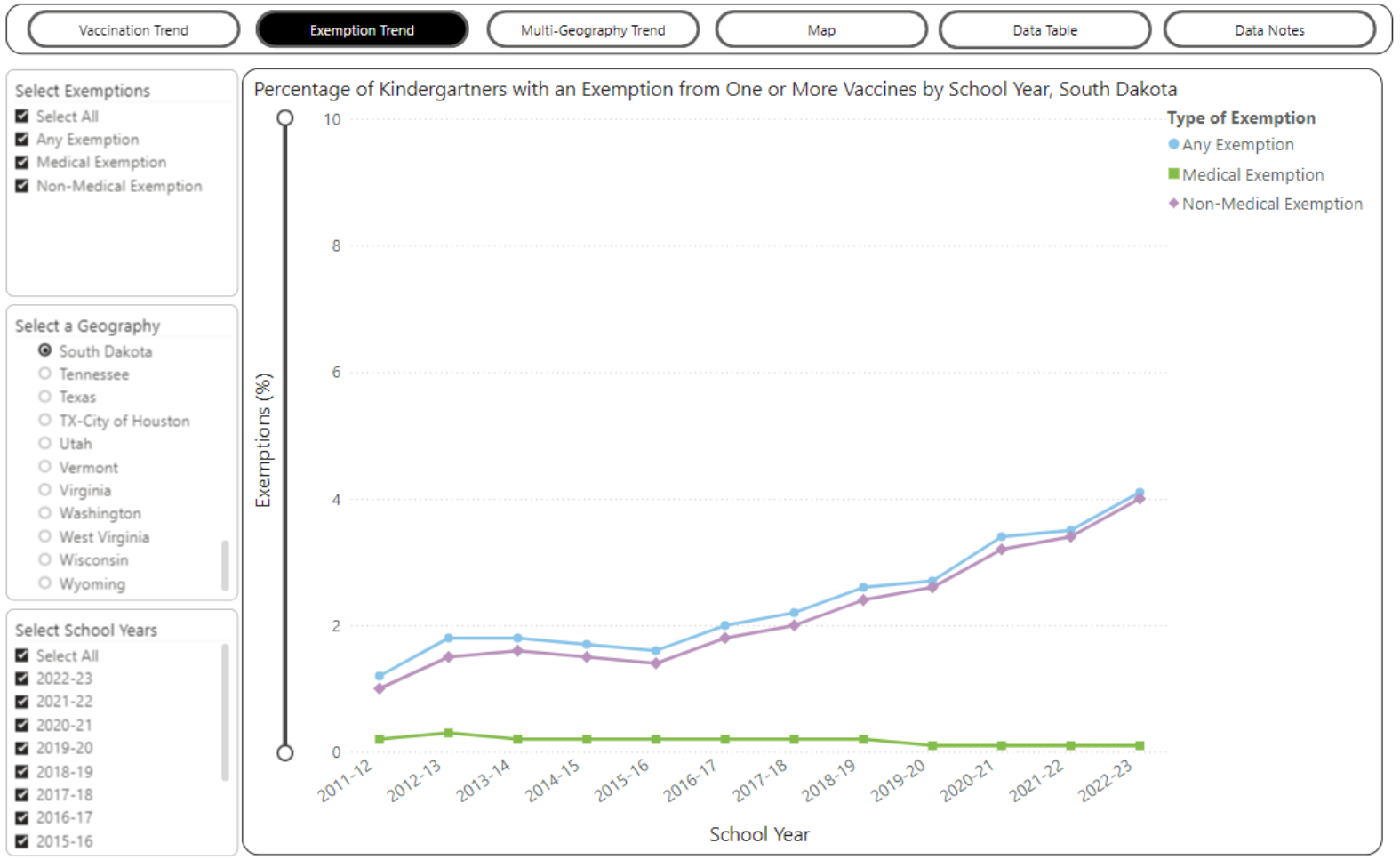


Decline in Immunization Rates and Rise in Exemptions

Rise in Exemptions – U.S.



Rise in Exemptions - SD



MMWR: Coverage with Selected Vaccines and Exemption from School Vaccine Requirements Among Children in Kindergarten — United States, 2022–23 School Year

Summary

What is already known about this topic?

From the 2019–20 to the 2021–22 school year, national coverage with state-required vaccines among kindergartners declined from 95% to approximately 93%, ranging from 92.7% for diphtheria, tetanus, and acellular pertussis vaccine (DTaP) to 93.1% for polio.

What is added by this report?

During the 2022–23 school year, coverage remained near 93% for all reported vaccines, ranging from 92.7% for DTaP to 93.1% for measles, mumps, and rubella and polio. The exemption rate increased 0.4 percentage points to 3.0%. Exemptions increased in 41 states, exceeding 5% in 10 states.

What are the implications for public health practice?

Exemptions >5% limit the level of achievable vaccination coverage, which increases the risk for outbreaks of vaccine-preventable diseases. Vaccination before school entry or during provisional enrollment periods could reduce exemptions resulting from barriers to vaccination during the COVID-19 pandemic.

College football game canceled over whooping cough: Portland State and South Dakota is called off

An outbreak of whooping cough has forced Portland State and South Dakota to call off their college football game today.

James Parks | Sep 14, 2024

Whooping cough forces college football game cancellation /

Harrisburg School District alerts parents of whooping cough exposure

Whooping cough cases are on the rise across the country and possibly at a South Dakota school.

Vaccine Preventable Disease Case Count - SD

- COVID-19 – 11,564
- Hib – 21 (non-serotype specific)
- Influenza – 17, 649
- Measles – 1
- Meningococcal – 1
- Pertussis – 63
- Varicella - 17

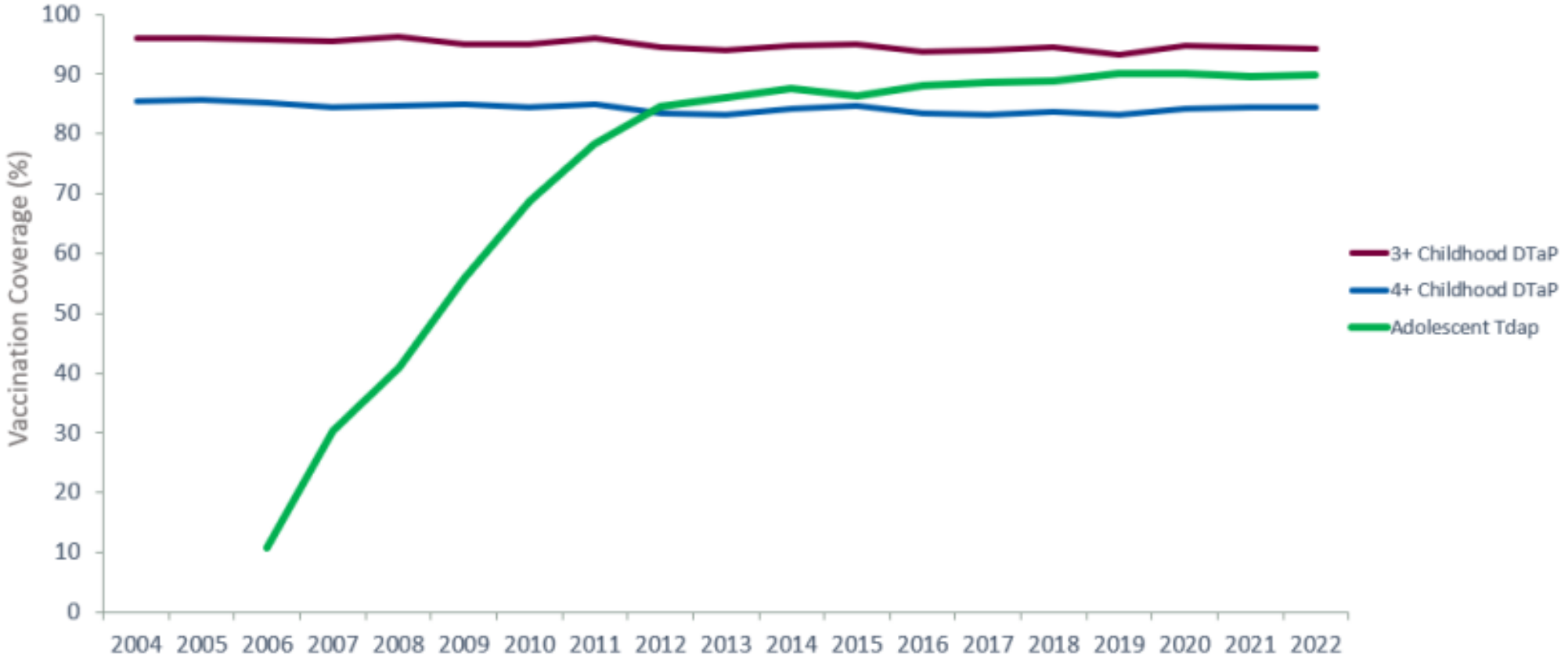
VRBPAC Meeting - Pertussis

Recent VRBPAC Meeting - Pertussis

Pertussis Vaccines

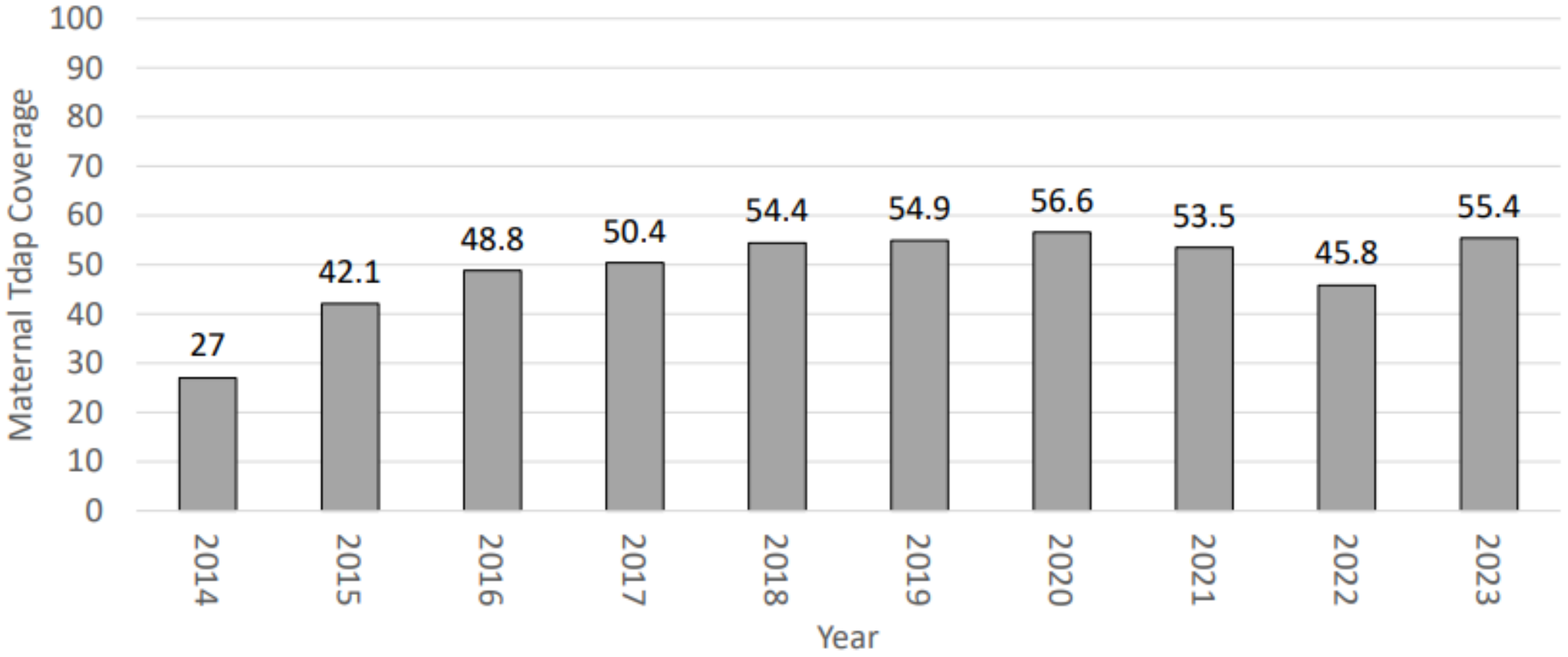
- **Whole cell vaccines (1940s)**
  - Safe and effective but reactogenic
  - Injection site reactions, fever, febrile seizures
  - Increased public concern and declines in vaccination
  - Led to global effort to develop vaccines with less adverse effects
- **Acellular vaccines (1990s)**
  - Recombinant vaccines containing 1-5 pertussis antigens
  - Safe, less reactogenic
  - High efficacy similar to whole cell vaccines
  - Replaced whole cell vaccines in most developed countries
  - Two formulations licensed in the U.S. (pediatric DTaP and adolescent/adult Tdap)
    - Combined with tetanus and diphtheria toxoids

Childhood and Adolescent Pertussis Vaccination Coverage, United States, 2004-2022



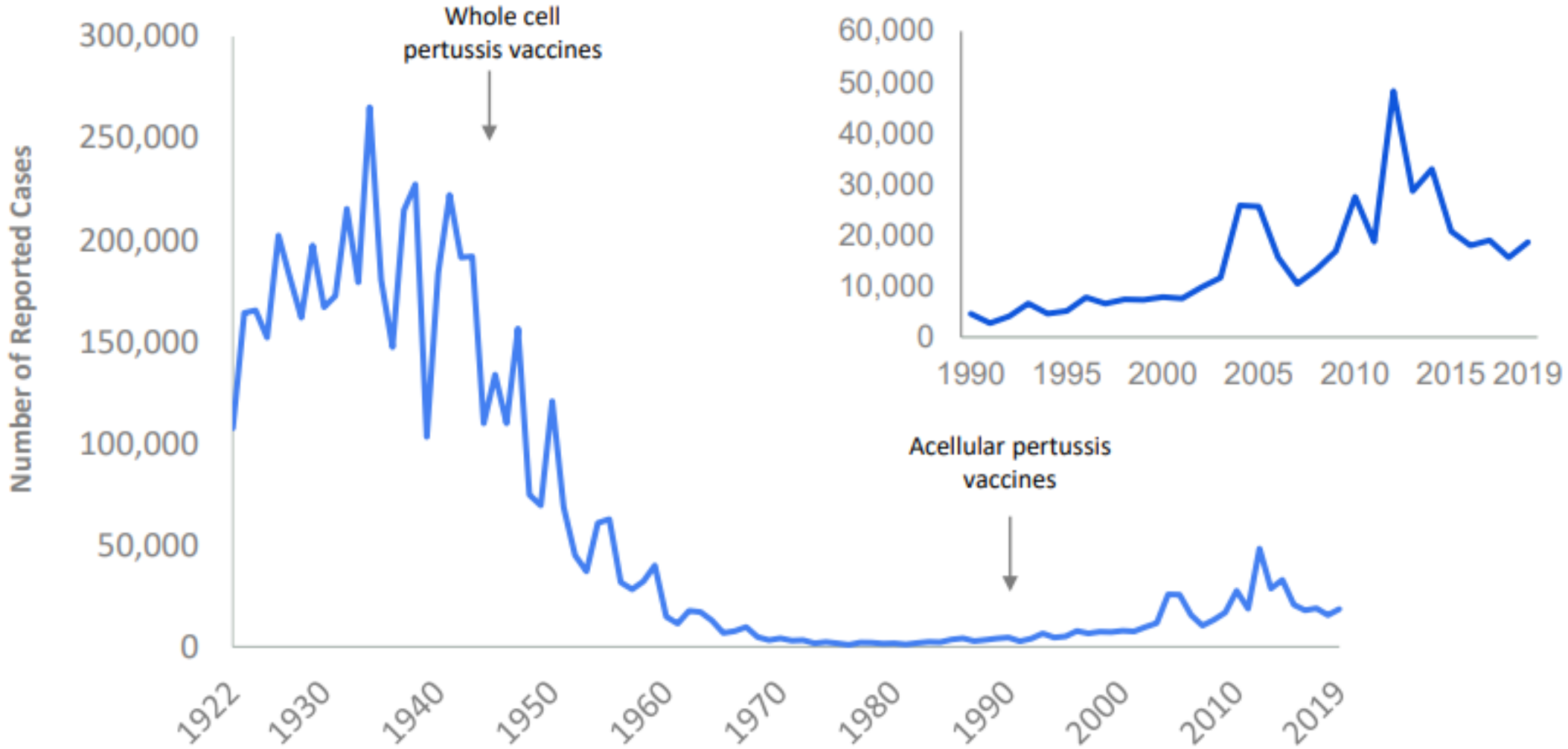
CDC National Immunization Survey: DTaP among children aged 19 through 35 months, Tdap coverage among adolescents aged 13 through 17

Maternal Tdap Coverage, United States, 2014-2023



CDC, Internet Panel Surveys

Reported Pertussis Cases, United States, 1922-2019

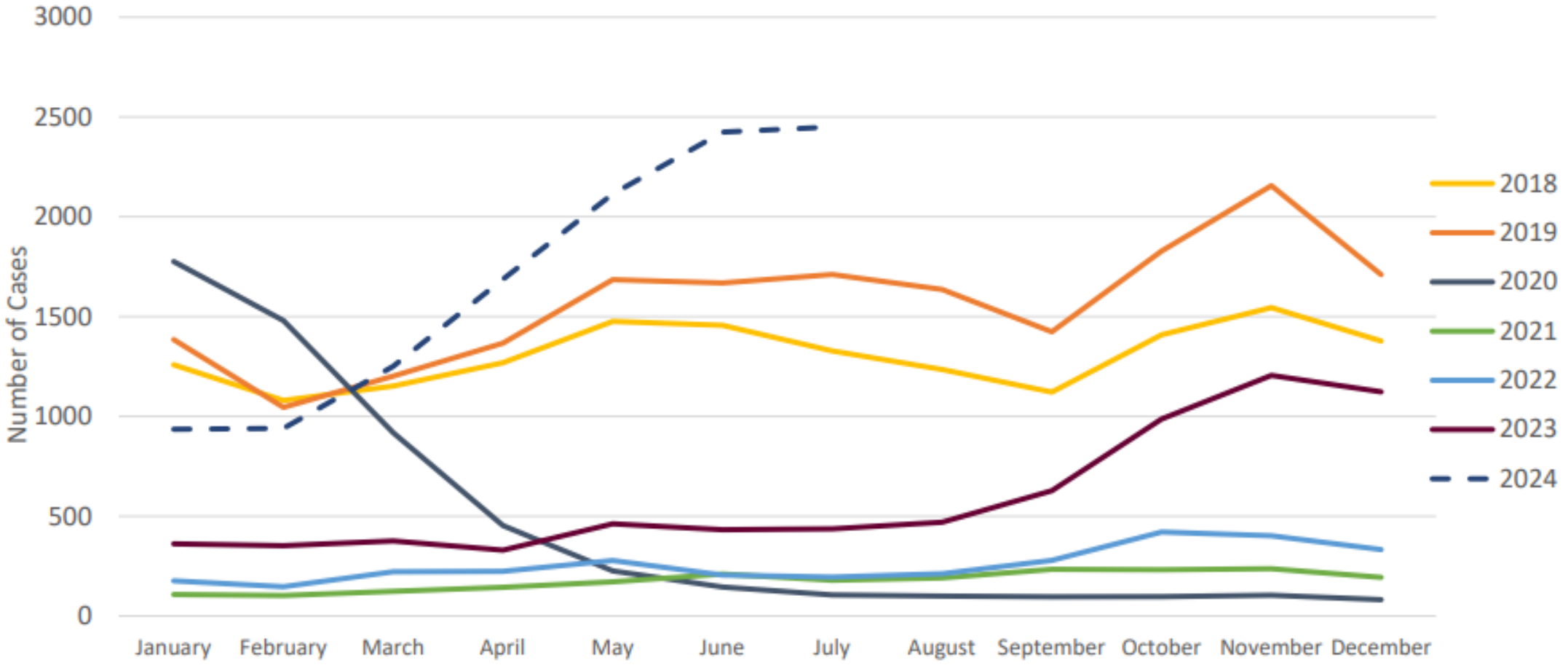


CDC, National Notifiable Diseases Surveillance System

Possible Reasons for Pertussis Resurgence

- Improved, more sensitive diagnostic tests
- Strain adaptation to vaccine pressure
- Increased awareness and testing
- **Flawed acellular vaccines**
  - Less protection against transmission
  - Faster waning of immunity

Reported Pertussis Cases, United States, January 2018-July 2024*



*2023 and 2024 data are provisional

SOURCE: CDC, National Notifiable Diseases Surveillance System, Updated September 6th 2024

Outbreaks Reported Across the Country

HEALTH

Whooping cough

New York health officials sound alarm on whooping cough outbreak in schools

Kaitlee Cobbinitz
USA TODAY

Wausau Rhinelander WSAW-TV

Marathon Co. health officials caution everyone amid p... in Athens

...gh outbreak reported in North Carolina

... (WSPA) – A whooping cough outbreak has been reported ... said 27 cases of whooping cough, known as ...

The Mirror US on MSN · 3d

Schools across US seeing outbreaks of whooping cough as cases soar

San Francisco ... https://www.sfchronicle...

Bay Area whooping cough ou...

WEB Mar 27, 2024 · Whooping cough, also known as ... ...ooping cough impacting Wisconsin

The highly contagious illness has spread to at least 13 p... the start of April. By Hope Kirwan. May 21, 2024.

The Register-Guard

Whooping cough o... ...ed in Lane County as Oregon case counts continue to spike

Lane County Public Health has declared a 'community-wide outbreak' of pertussis, commonly called whooping cough. On ...

mlive
https://www.mlive.com/public-interest/2023...

Whooping cough outbreak reported ...

WEB Oct 18, 2023 · Six cases of pertussis illness, also known as whooping cough, w...

The Courier-Journal

Whooping cough outbreak in Kentucky

A highly contagious respiratory illness known as pertussis has been decl... outbreak by the Lexington-Fayette County Health Department.

...rthern Michigan -

First Alert Safety Desk: Pertussis cases in South Dakota skyrock...

The South Dakota Department of Health tracks infectious disease dashboard shows ...

Whooping cough cases on the rise, nearly 3 times as high as last year: CDC

There have been at least 4,864 whooping cough cases reported this year so far.

By Mary Kekatos and Dr. Michelle March
May 31, 2024, 2:22 PM

Other Vaccine Updates

RSV Vaccine Updates

- Infants:
  - Doses have been slow to come in, but no supply shortage anticipated
  - ISD Beyfortus FAQ
- Pregnant women:
  - Not indicated to get a subsequent dose of Abrysvo in future pregnancies
  - No safety data
- Adults:
  - Not an annual vaccine
  - May only receive 1 dose
  - Recommendation Change:
    - Routinely recommended for all adults 75 years and older
    - Recommended for adults 60 through 74 years with qualifying high-risk conditions

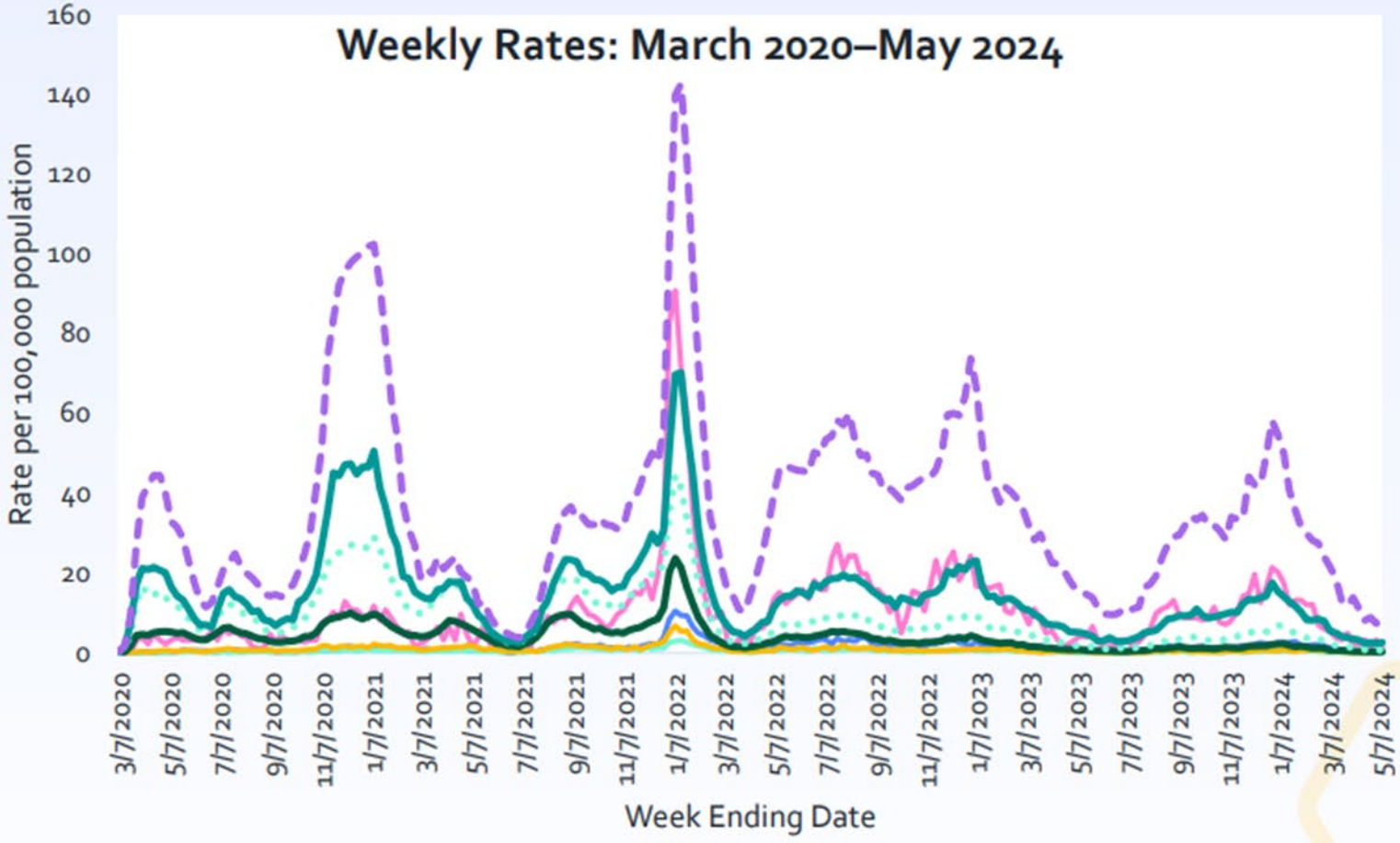
Qualifying High-Risk Conditions for Adults

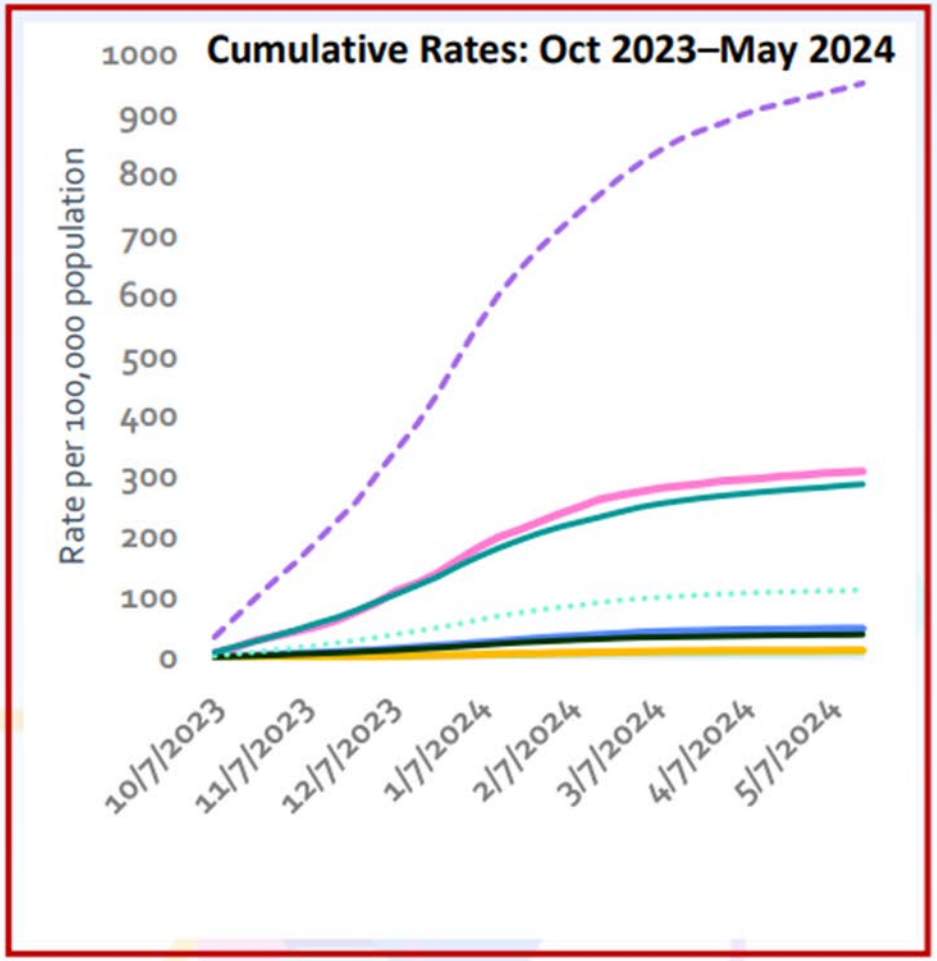
- Chronic cardiovascular disease (e.g., heart failure, coronary artery disease, or congenital heart disease [excluding isolated hypertension])
- Chronic lung or respiratory disease (e.g., chronic obstructive pulmonary disease, emphysema, asthma, interstitial lung disease, or cystic fibrosis)
- End-stage renal disease or dependence on hemodialysis or other renal replacement therapy
- Diabetes mellitus complicated by chronic kidney disease, neuropathy, retinopathy, or other end-organ damage, or requiring treatment with insulin or sodium-glucose cotransporter-2 inhibitor
- Neurologic or neuromuscular conditions causing impaired airway clearance or respiratory muscle weakness (e.g., poststroke dysphagia, amyotrophic lateral sclerosis, or muscular dystrophy [excluding history of stroke without impaired airway clearance])
- Chronic liver disease (e.g., cirrhosis)
- Chronic hematologic conditions (e.g., sickle cell disease or thalassemia)
- Severe obesity (body mass index ≥40 kg/m2)
- Moderate or severe immune compromise
- Residence in a nursing home
- Other chronic medical conditions or risk factors that a health care provider determines would increase the risk for severe disease due to viral respiratory infection

COVID-19 Vaccine Recommendations

- Everyone 6 months and older is recommended to receive the 24-25 formulation.
- Children and immunocompromised individuals need additional doses. The number of doses is dependent on prior vaccination history.
- 12 year and older formulations = fully approved = VIS
  - Younger presentations are still under EUA = EUA Fact Sheet

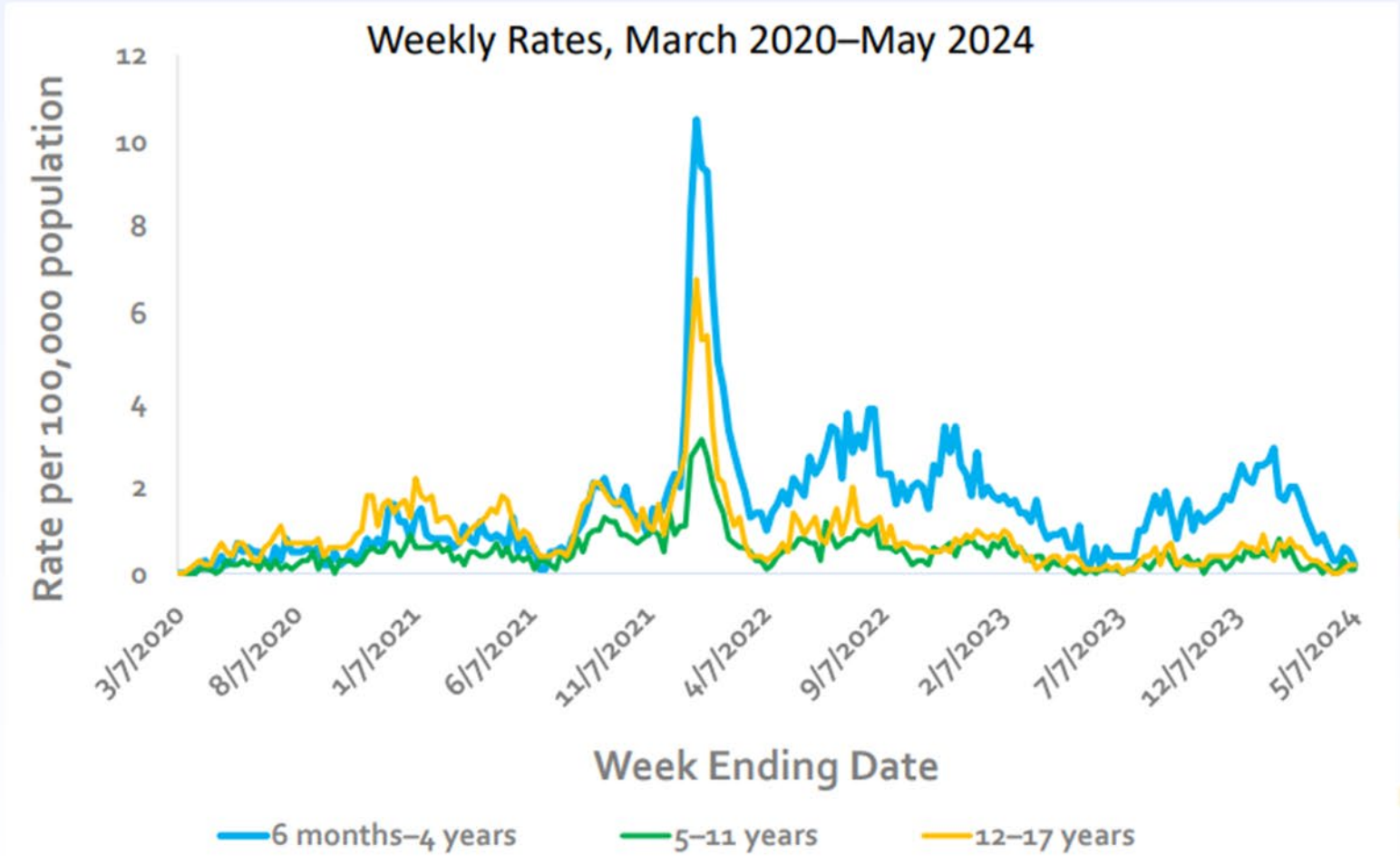
Population-Based Rates of COVID-19-Associated Hospitalizations — COVID-NET, March 2020–May 2024

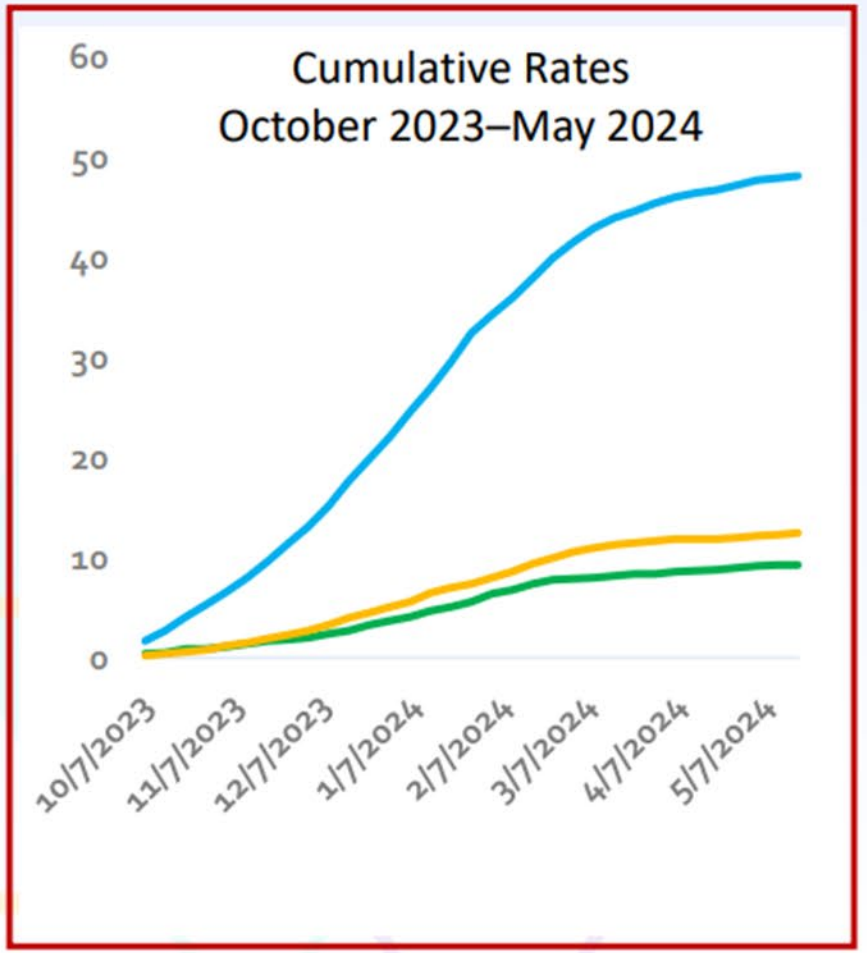




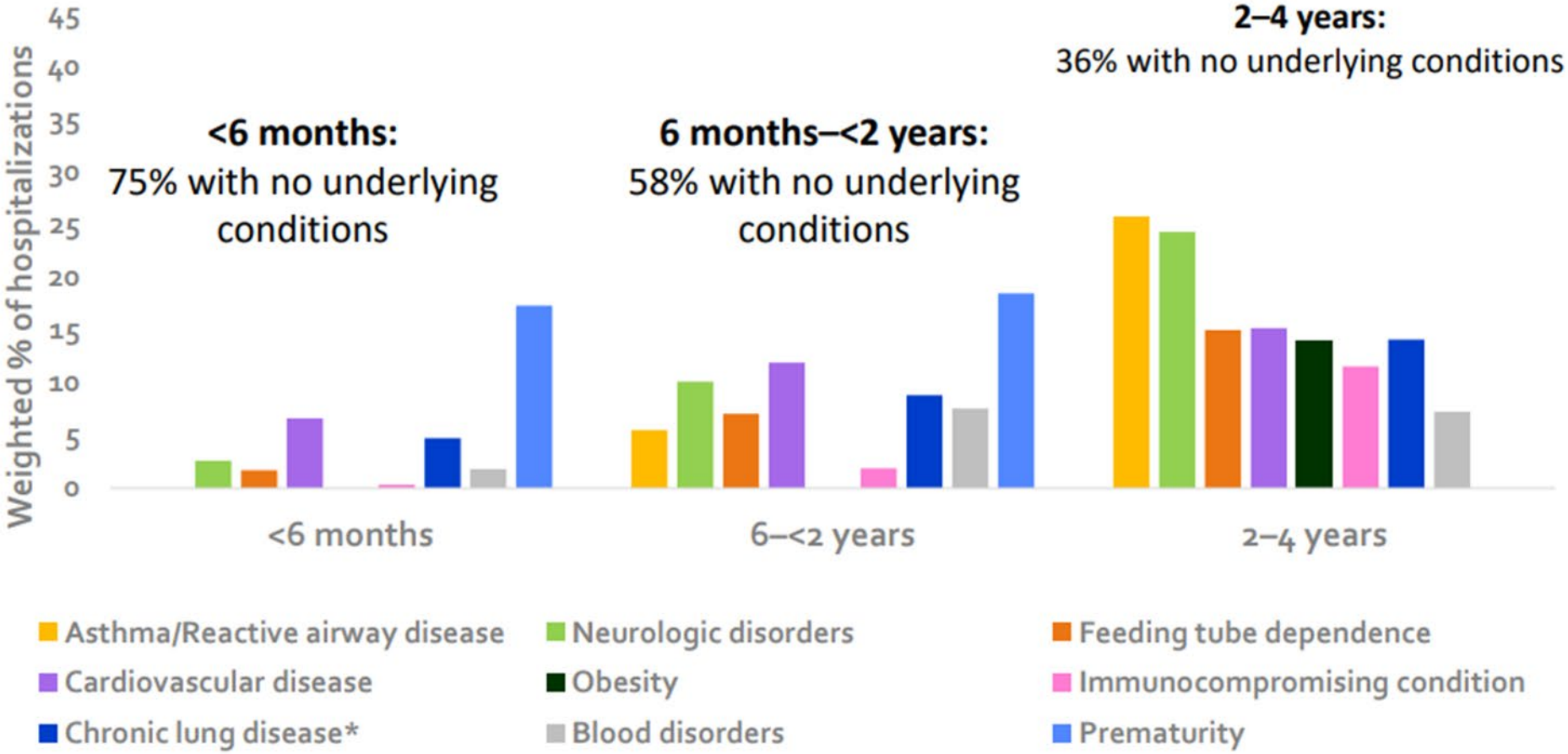
Rates highest in ≥75 years, followed by infants <6 months and adults 65–74 years

Population-Based Rates of COVID-19-Associated Hospitalizations among Children and Adolescents Ages 6 months–17 Years — COVID-NET, March 2020–May 2024





Underlying Medical Conditions among Infants and Children Ages ≤4 Years with COVID-19-associated Hospitalization, by Age Group — COVID-NET, July 2023–March 2024

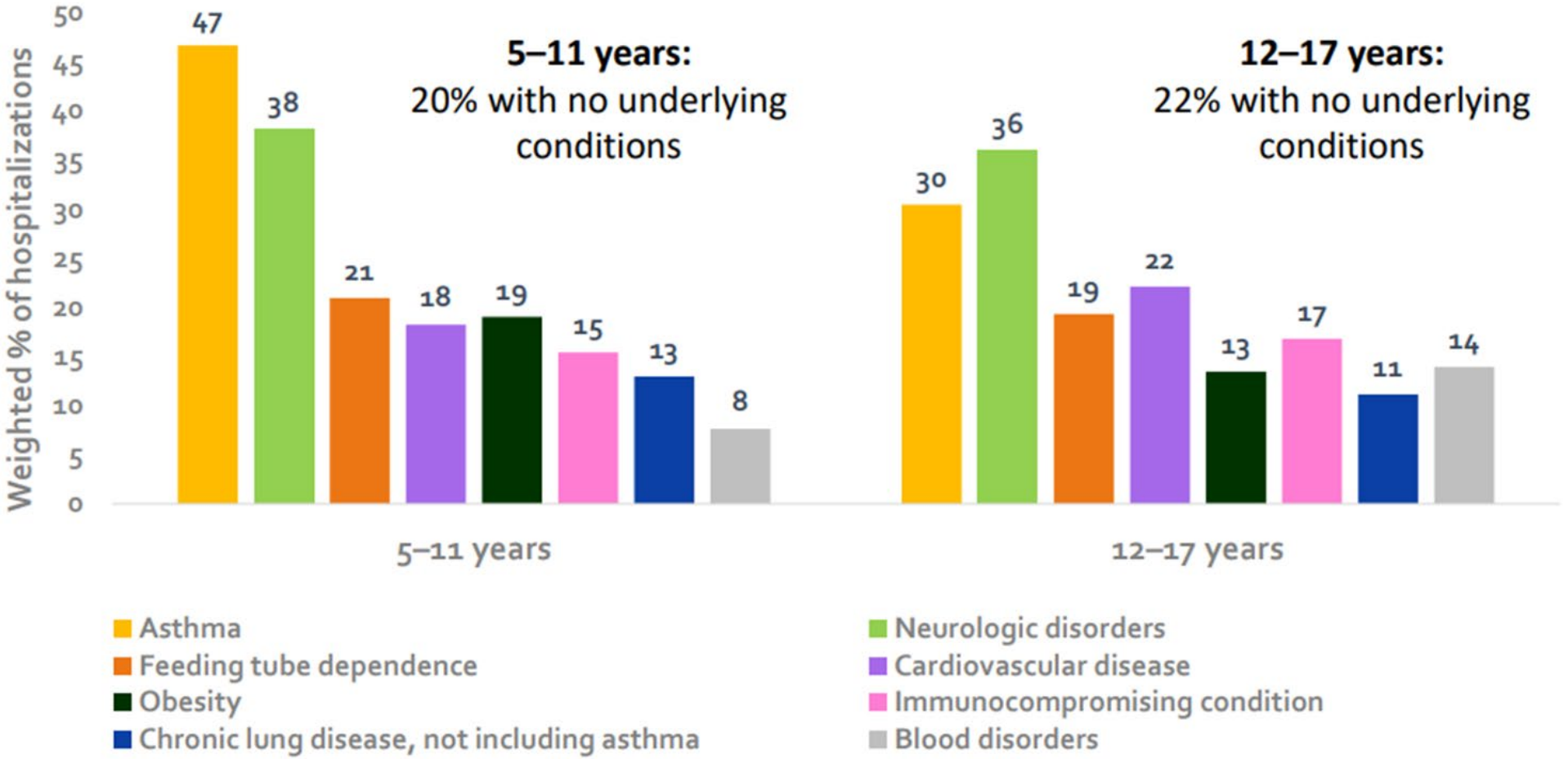


- **50%** of infants, children, and adolescents ages ≤17 years with COVID-19-associated hospitalization have **no underlying medical conditions**.

Data are limited to hospitalizations where COVID-19 is a likely primary reason for admission.

** Not including not asthma or reactive airway disease. Among children <2 years old, chronic lung disease includes bronchopulmonary dysplasia and chronic lung disease of prematurity.*

Percent of COVID-19-Associated Hospitalizations with Underlying Medical Conditions among Children and Adolescents Ages 5–17 Years with COVID-19-associated Hospitalizations, by Age Group — COVID-NET, July 2023–March 2024

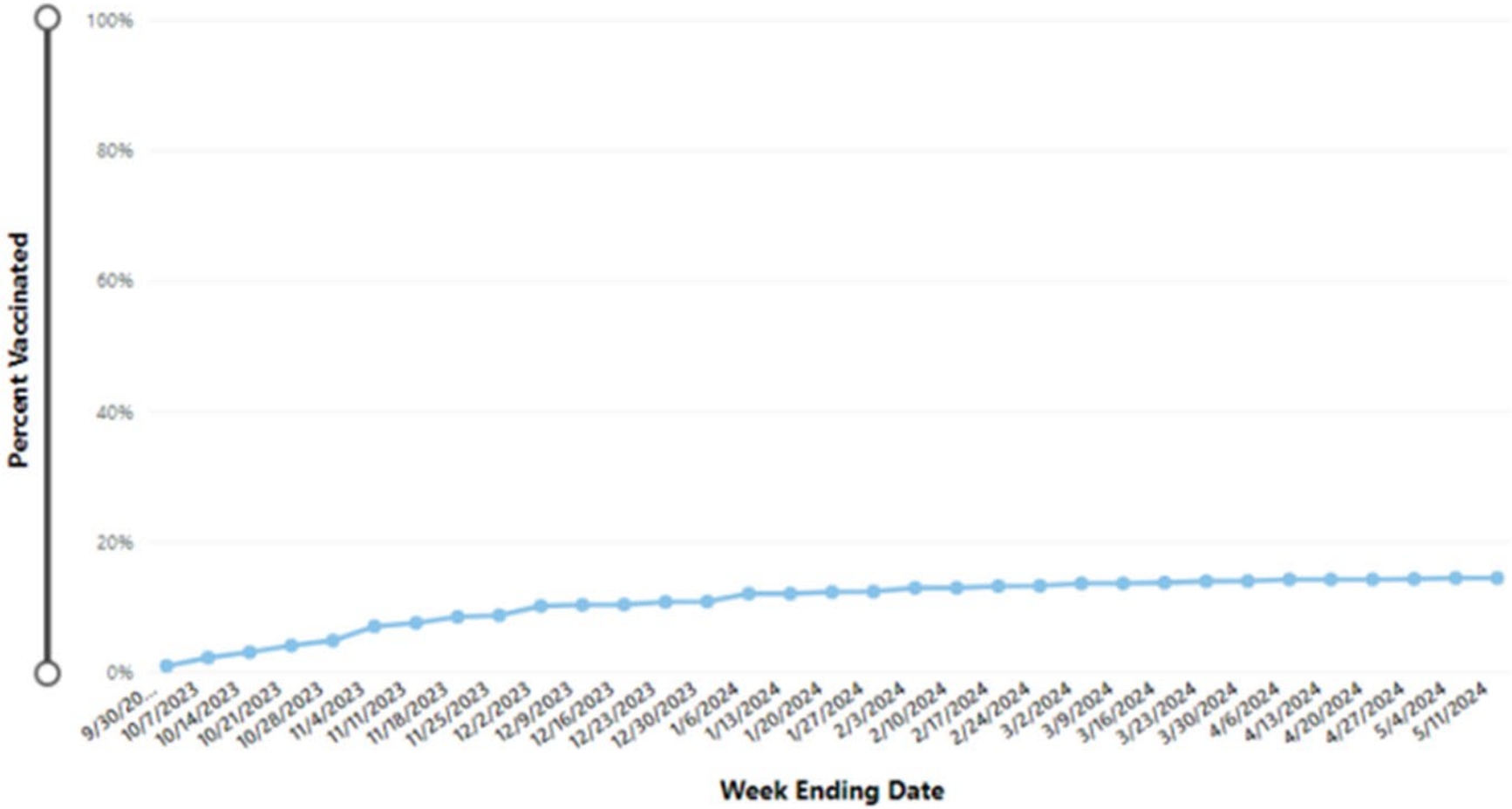


- **50%** of infants, children, and adolescents ages ≤17 years with COVID-19-associated hospitalization have **no underlying medical conditions**.
- Among COVID-19-associated hospitalizations, children and adolescents **ages ≥5 years** are **more likely to have underlying medical conditions** relative to infants and children ages ≤4 years.

Data are limited to hospitalizations where COVID-19 is a likely primary reason for admission.

Only the most common underlying conditions are presented.

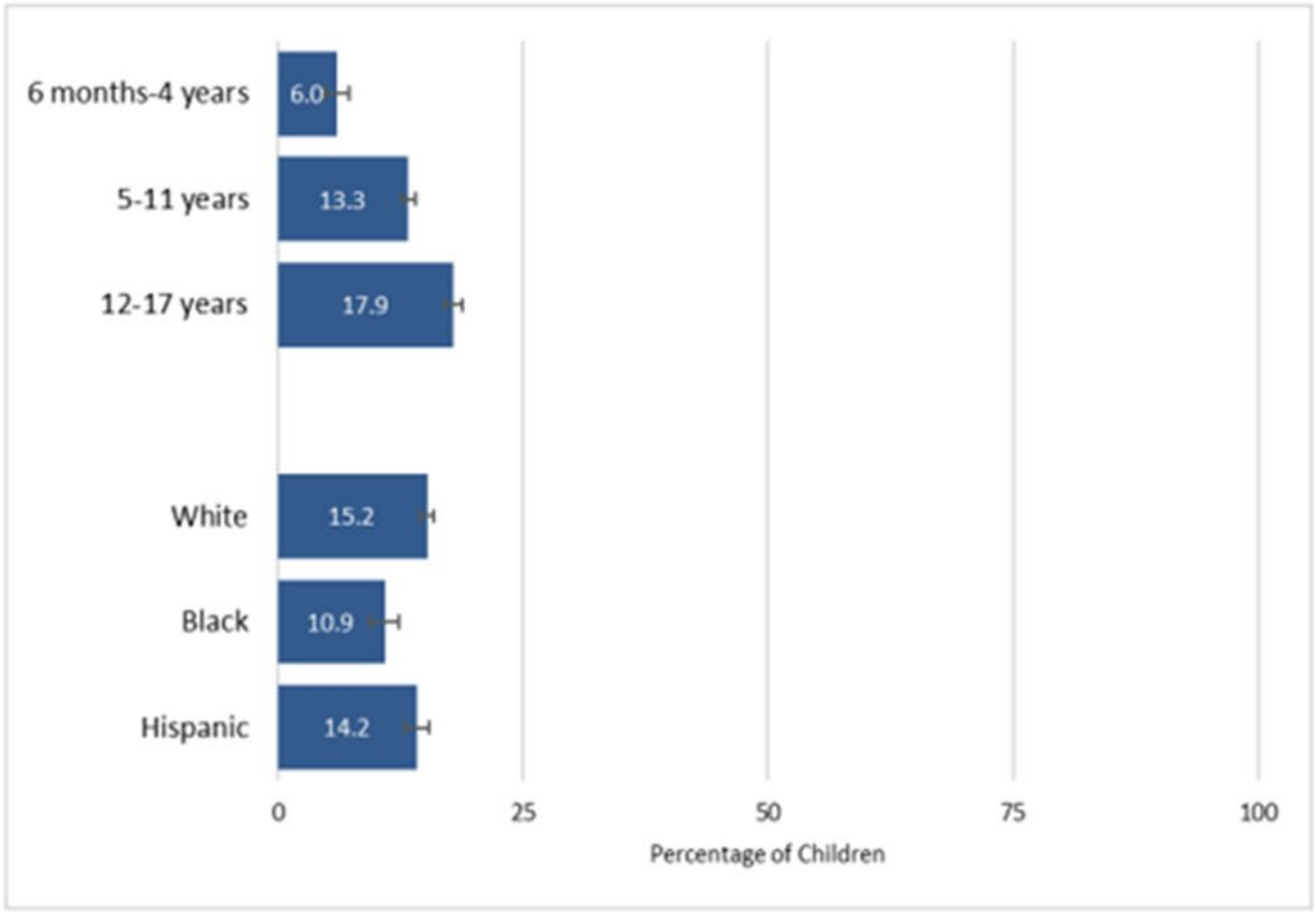
Percentage of Children Ages 6 Months–17 Years Who Are Up to Date with the 2023-2024 COVID-19 Vaccine, NIS-CCM and NIS-FLU



As of May 11, 2024, vaccination coverage among children was **14.4%.**

Data source, National Immunization Survey—COVID Child Module (NIS-CCM) and National Immunization Survey—Flu (NIS-Flu): https://www.cdc.gov/vaccines/imz-managers/coverage/covidvaxview/interactive/children-coverage-vaccination.html

COVID-19 Vaccination Status Among Children Ages 6 Months –17 Years by Demographics, NIS-FLU, May 5–May 11, 2024 (n=2,950)



By age group:

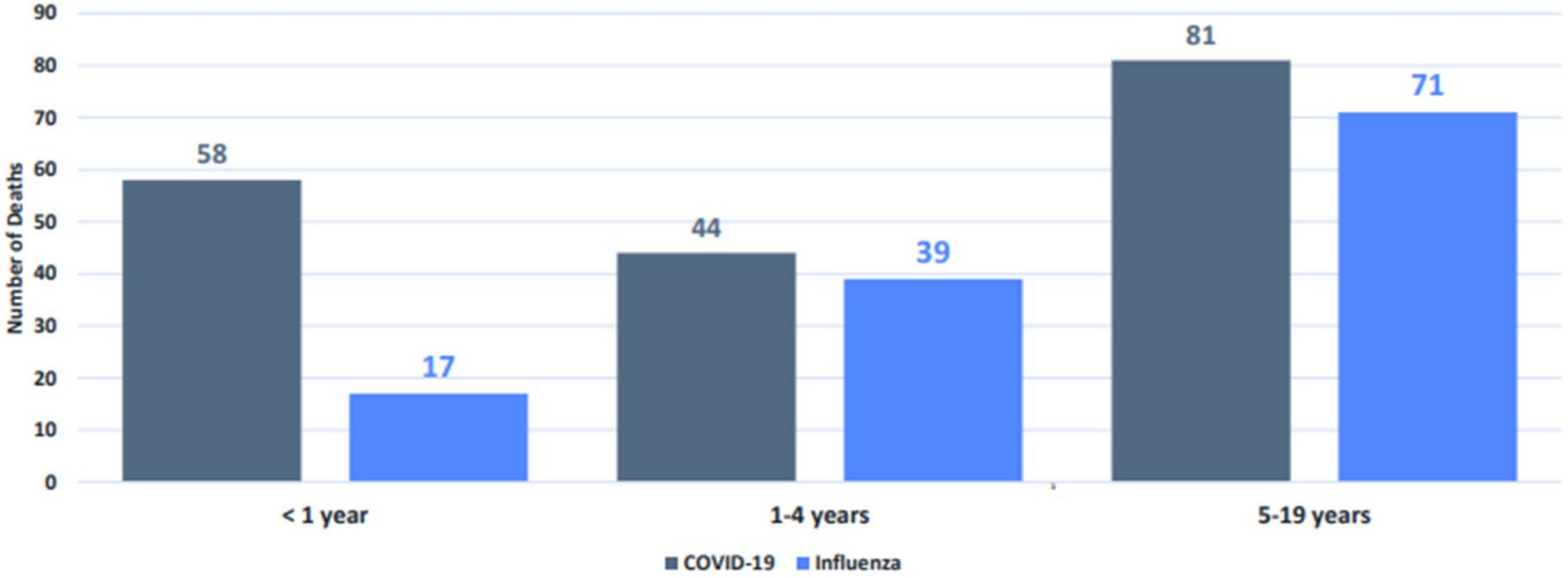
- Vaccination coverage increased with increasing age.

By race and ethnicity:

- Vaccination coverage was highest among white, non-Hispanic children (15.2%) and lowest among Black, non-Hispanic children (10.9%).

Data source: National Immunization Survey – Flu Module About the National Immunization Surveys | CDC

Total number of COVID-19 and Influenza-associated deaths[1,2] in 2023, by age group, United States



[1] Provisional data
[2] Underlying cause of death
Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Vital Statistics System, Provisional Mortality on CDC WONDER Online Database. Data are from the final Multiple Cause of Death Files, 2018-2022, and from provisional data for years 2023-2024, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Number of deaths includes influenza codes (J09-J11) or COVID-19 code (U07.1) as the underlying cause of death. Accessed at http://wonder.cdc.gov/mcd-icd10-provisional.html on June 5, 2024
Note: Estimates of pediatric influenza deaths reported to CDC can be found here: https://www.cdc.gov/flu/weekly/index.htm . Estimates will vary due to differences in reporting methods and timeframes used.

Other pediatric vaccine preventable diseases: Annual hospitalizations per 100,000 population prior to vaccine recommendation compared to COVID-19

	Hepatitis A[1]	Varicella[2] (Chickenpox)	Vaccine-type Invasive Pneumococcal Disease[3]	COVID-19[4]	
Age	**5–14 years**	**0–4 years**	**0–4 years**	**6 months–<18 years**	
Time period	**2005**	**1993–1995**	**1998–1999**	**2022–2023**	**2023–2024**
Hospitalization Burden (Annual rate per 100,000 population)	**<1**	**29-42**	**40[5]**	**6 months–4 years: 74 5–11 years: 17 12–17 years: 24**	**6 months–4 years: 50 5–11 years: 10 12–17 years: 13**

[1] https://www.cdc.gov/mmwr/preview/mmwrhtml/ss5603a1.htm

[2] Davis MM, Patel MS, Gebremariam A. Decline in varicella-related hospitalizations and expenditures for children and adults after introduction of varicella vaccine in the United States. Pediatrics. 2004;114(3):786-792. doi:10.1542/peds.2004-0012

[3] Centers for Disease Control and Prevention (CDC). Direct and indirect effects of routine vaccination of children with 7-valent pneumococcal conjugate vaccine on incidence of invasive pneumococcal disease--United States, 1998-2003. MMWR Morb Mortal Wkly Rep. 2005 Sep 16;54(36):893-7. PMID: 16163262.

[4] COVID-NET data October 2022 – September 2023 and October 2023 – May 2024. COVID-19 rates have not been adjusted for reason for admission. COVID vaccine first introduced in 12-17 years in May 2021; in 5-11 years in November 2021 and in 6 months – 4 years in June 2022

[5] Vaccine-type invasive pneumococcal disease annual rate for children <5 years in 1998-1999 was 80 per 100,000, of which about 50% were hospitalized.

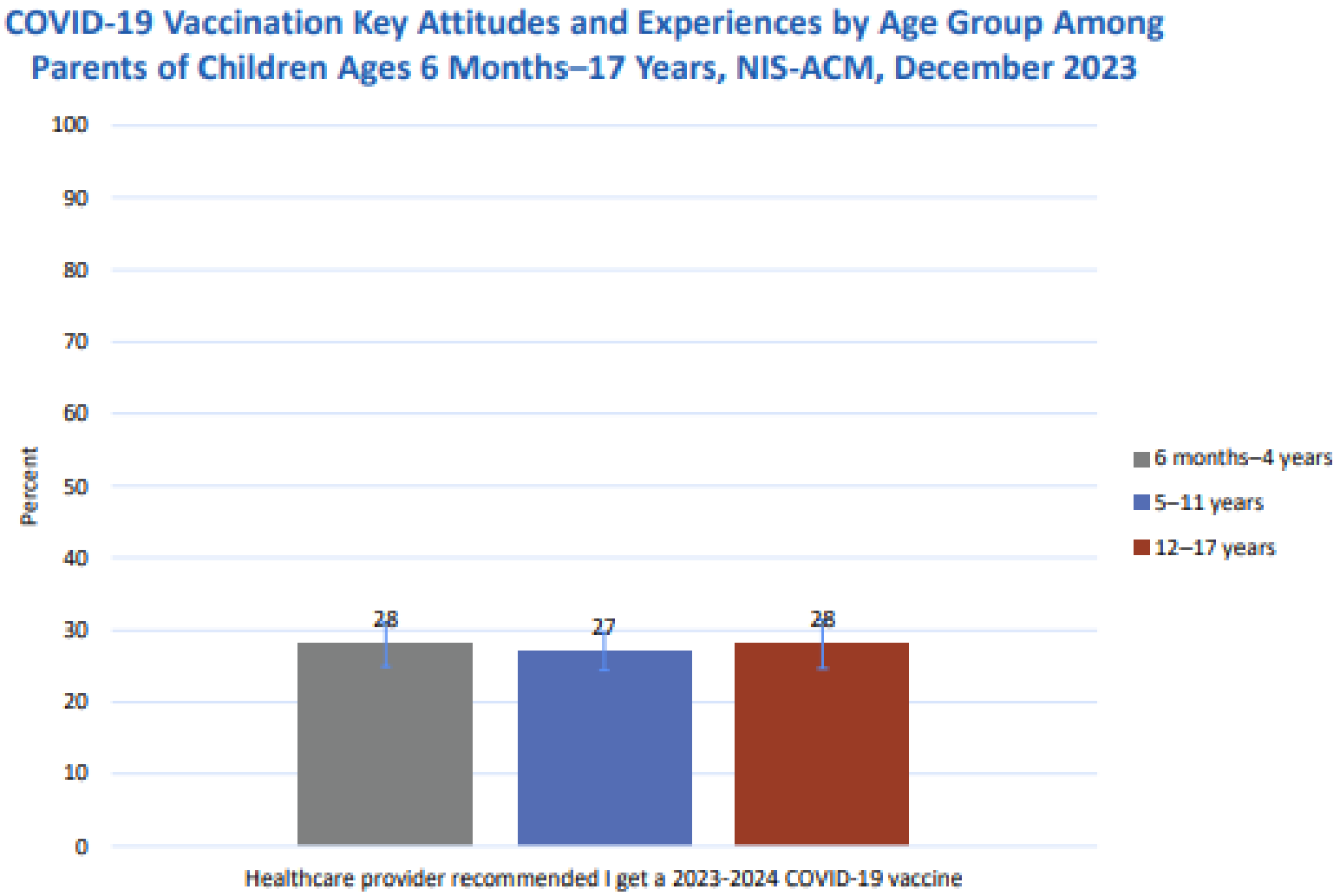
Pediatric vaccine preventable diseases: Deaths per year in the United States prior to vaccine recommendation compared to COVID-19

	Hepatitis A[1]	Meningococcal (ACWY)[2]	Varicella[3]	Rubella[4]	Rotavirus[5]	COVID-19[6]
Age	<20 years	11–18 years	5–9 years	All ages	<5 years	6 months–19 years
Time period	1990–1995	2000–2004	1990–1994	1966–1968	1985–1991	2023
Average deaths per year	3	8	16	17	20	1–4 years: 44 5–19 years: 81

[1]Vogt TM , Wise ME, Bell BP, Finelli L. Declining hepatitis A mortality in the United States during the era of hepatitis A vaccination. J Infect Dis2008; 197:1282–8.
[2]National Notifiable Diseases Surveillance System with additional serogroup and outcome data from Enhanced Meningococcal Disease Surveillance for 2015-2019.
[3]Meyer PA, Seward JF, Jumaan AO, Wharton M. Varicella mortality: trends before vaccine licensure in the United States, 1970-1994. J Infect Dis. 2000;182(2):383-390. doi:10.1086/315714
[4]Roush SW , Murphy TV; Historical comparisons of morbidity and mortality for vaccine-preventable diseases in the United States. JAMA 2007; 298:2155–63.
[5]Glass RI, Kilgore PE, Holman RC, et al. The epidemiology of rotavirus diarrhea in the United States: surveillance and estimates of disease burden. J Infect Dis. 1996 Sep;174 Suppl 1:S5-11
[6]http://wonder.cdc.gov/mcd-icd10-provisional.html on May 14 2024 . COVID vaccine first introduced in 12-17 years in May 2021; in 5-11 years in November 2021 and in 6 months – 4 years in June 2022

Unintentional Bias

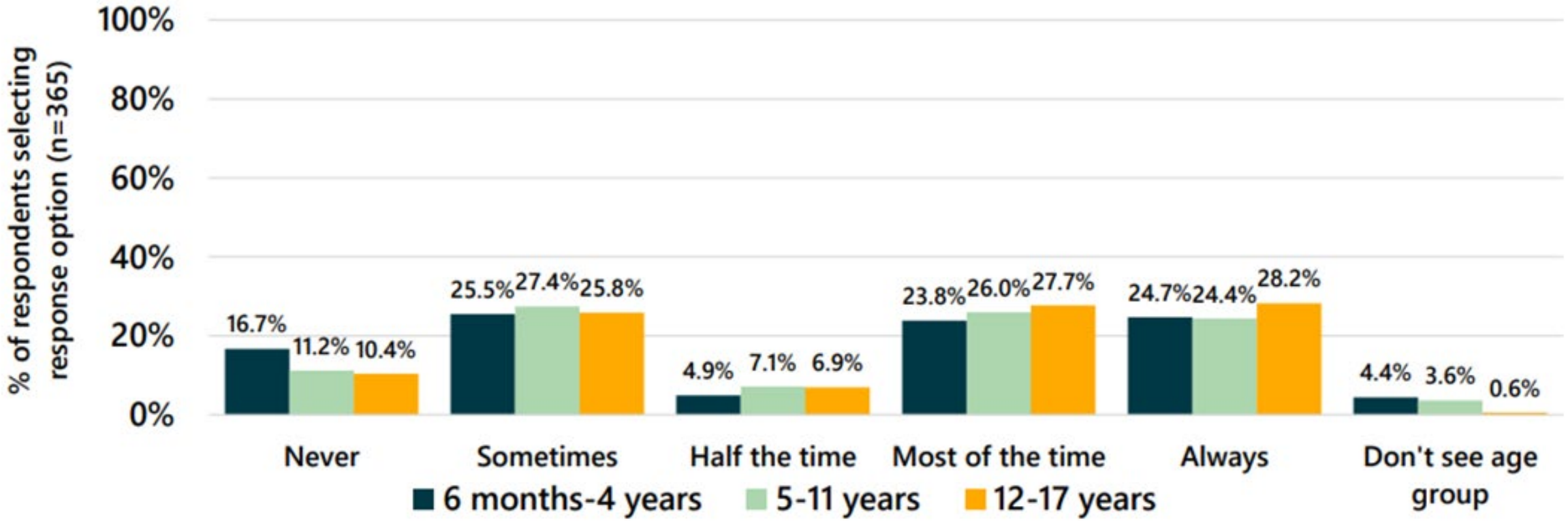
Key attitudes and experiences among parents of children ages 6 months through 17 years, December 2023 - *National Immunization Survey-Child COVID Module (NIS-CCM)*



The December estimates are based on data collected November 26 through December 30 2023.
CDC. COVID-19 Vaccination Coverage and Vaccine Confidence Among Children. https://www.cdc.gov/vaccines/imz-managers/coverage/covidvaxview/interactive/children.html Accessed May 30, 2024

Frequency of recommending on-site COVID-19 vaccination to eligible pediatric patients

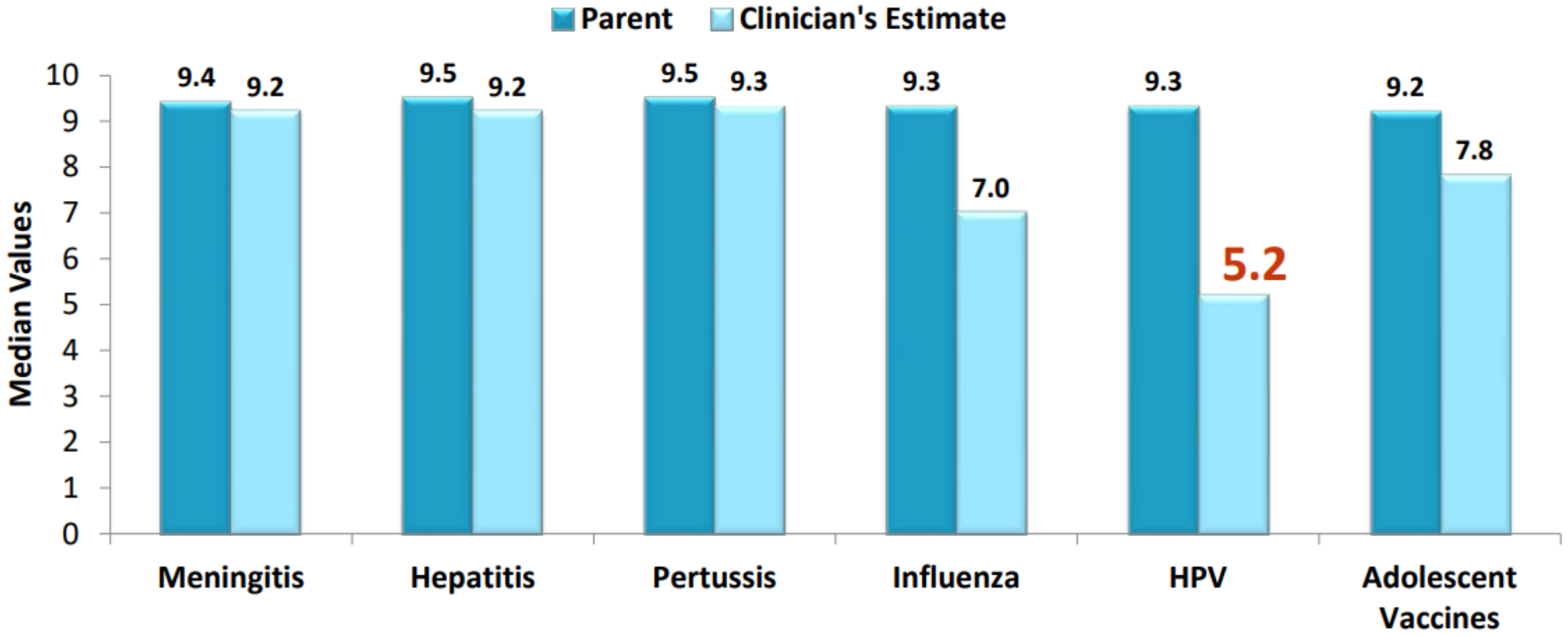
Approximately the same proportion of providers reported recommending the vaccine sometimes, most of the time, and always.



Data source: HaPPI Survey Collaborative, University of Iowa; RAND Corporation; CDC

Clinicians Underestimate the Value Parents Place on HPV Vaccine

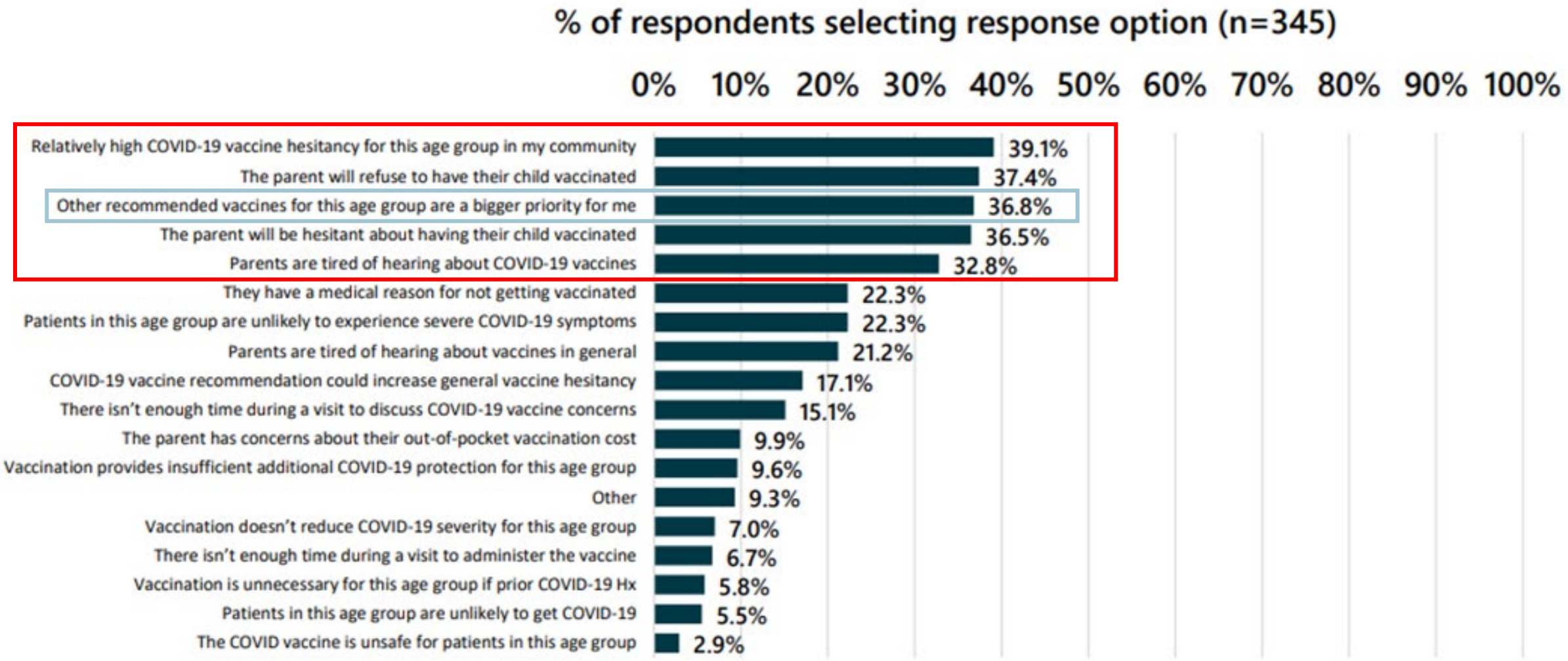
Unintentional Bias



Adapted from Healy, et al. *Vaccine*. 2014

YOU ARE THE KEY TO CANCER PREVENTION

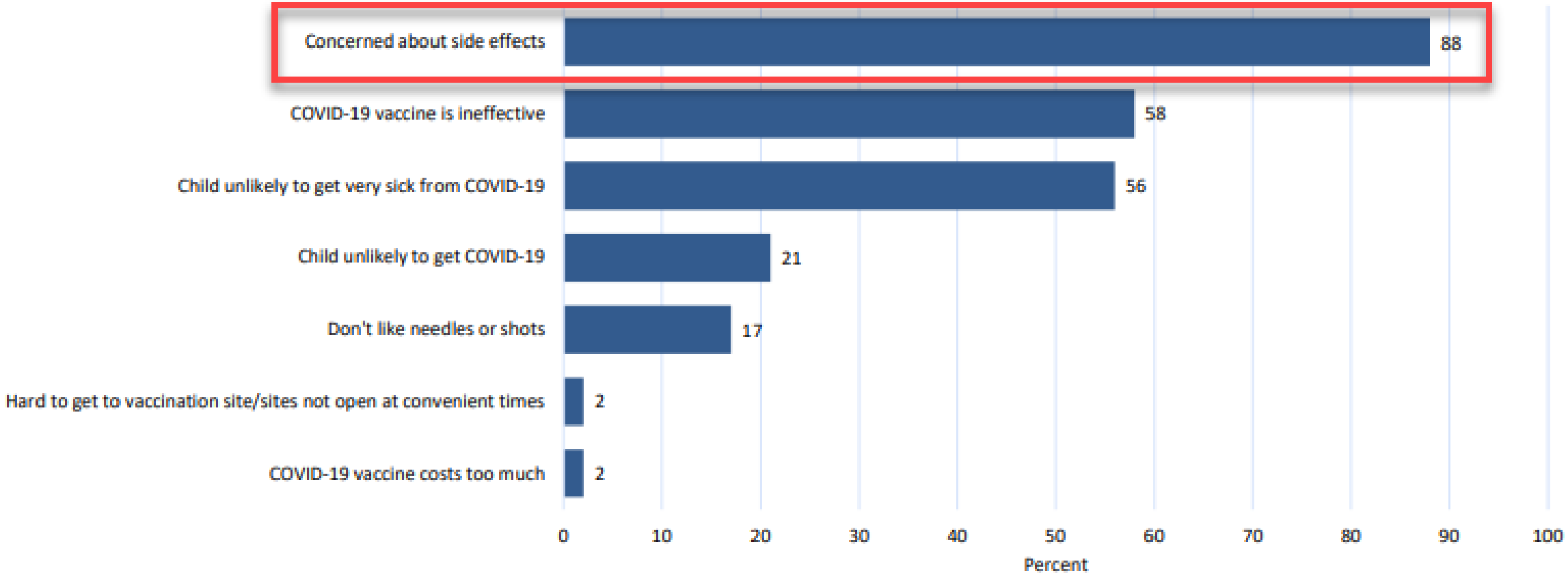
Reasons reported for NOT recommending COVID-19 vaccine to eligible pediatric patients



Data source: HaPPI Survey Collaborative, University of Iowa; RAND Corporation; CDC

Key attitudes and experiences among parents of children 6 months-17 years, December 2023 - *National Immunization Survey-Child COVID Module (NIS-CCM)*

Reason for Not Getting the COVID-19 Vaccine Among Respondents with Unvaccinated Children Ages 6 Months-17 Years, NIS-CCM, December 2023

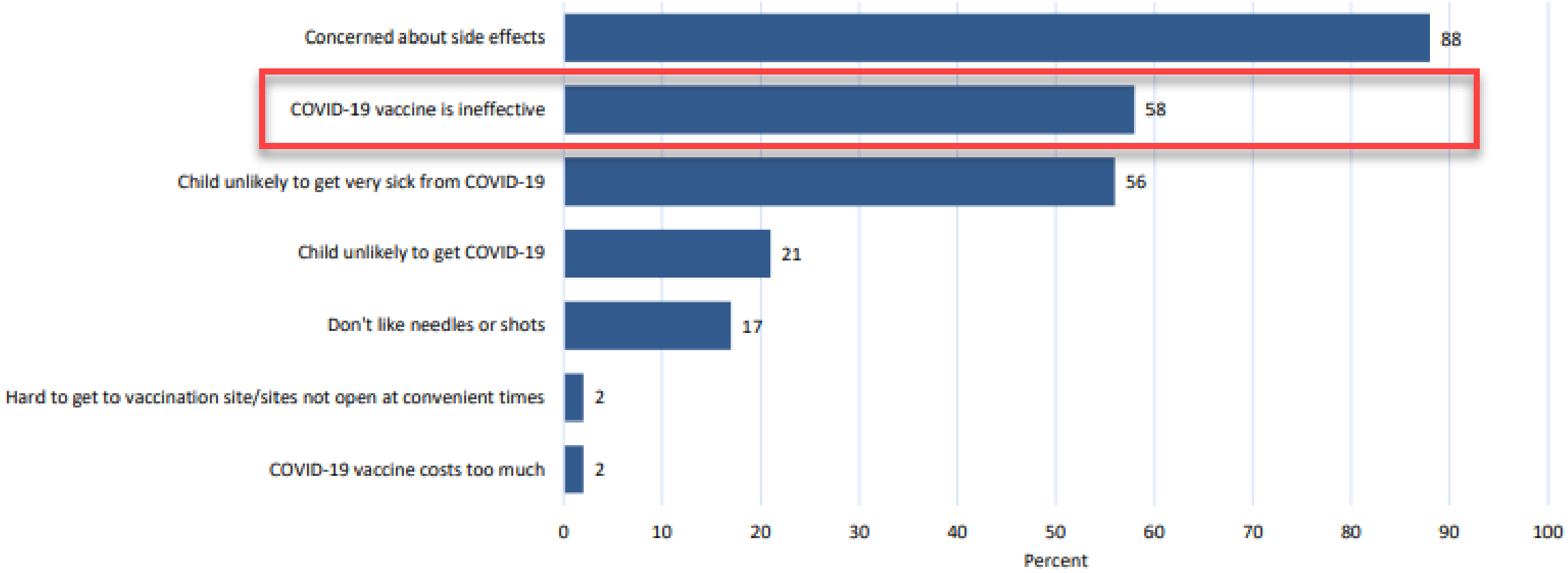


The December estimates are based on data collected November 26 through December 30.

CDC. COVID-19 Vaccination Coverage and Vaccine Confidence Among Children. https://www.cdc.gov/vaccines/imz-managers/coverage/covidvaxview/interactive/children.html Accessed April 30, 2024

Key attitudes and experiences among parents of children 6 months-17 years, December 2023 - *National Immunization Survey-Child COVID Module (NIS-CCM)*

Reason for Not Getting the COVID-19 Vaccine Among Respondents with Unvaccinated Children Ages 6 Months-17 Years, NIS-CCM, December 2023



The December estimates are based on data collected November 26 through December 30.

CDC. COVID-19 Vaccination Coverage and Vaccine Confidence Among Children. https://www.cdc.gov/vaccines/imz-managers/coverage/covidvaxview/interactive/children.html Accessed April 30, 2024

We aren't Always Vaccinating to Prevent 100% of Cases

"COVID-19 vaccines save lives and help keep you out of the hospital. Vaccines are not always effective at preventing infection, but there is extensive data showing that these vaccines prevent severe illness and protect the public's health." - CDC

Reality - The Vaccine Works!

- Multiple years of data showing the effectiveness of the vaccines.
- Prevalent virus strains change and immunity wanes over time.
  - Formulation changes are small, but they help make the vaccine better at targeting the virus strains currently circulating and give your immune system a boost.

Fostering a Culture of Immunization

Strategies to Improve Rates

- Patient reminders
- Education (for healthcare professionals and the public)
- No missed opportunities
- Give Strong Presumptive Recommendation
- Bundled recommendation: same way, same day
- Sandwich the HPV vaccine
- Secure 2nd dose visit during 1st dose appointment
- Review immunization rates
- Create opportunities to educate parents/guardians
- Increase access to vaccination: school-based vaccine clinic, acute/urgent care access, etc.

Teamwork

Provider

- Your recommendation is the number one reason parents/patients decide to vaccinate.
- Recommend all vaccines presumptively
- Answer questions via an evidenced based communication technique (MI, CASE method, etc.)
- Update vaccines at all visit types (Prevent missed opportunities)
  - If the individual won't complete that day, ensure an appointment is made for patient to return for vaccination.
- Empower nursing staff to utilize standing orders to administer vaccines
- Secure next wellness visit before the patient leaves
- Send reminder notification to attributed patients who are overdue for vaccination.
- Know the immunization rates for your patient population.
- Work to increase vaccine access
  - Complete Herpes Zoster series prior to age 65.
  - Not stocking a particular vaccine type?

Nurses & Medial Assistants

- Conduct pre-visit planning to identify who is overdue for vaccines
- Use your influence to encourage vaccination
- Exemplify a pro-immunization attitude
- Use standing orders to administer vaccines
- Answer parents' questions if within scope of practice
- Avoid missed opportunities – vaccinate at all visit types
  - Secure vaccine appointments before patient leaves
- Collaborate to contact patients overdue for vaccines
- Collaborate on vaccine events to catch up patients.
- Know your provider/clinics immunization rates

Registration Staff

- Collaborate with clinical staff to identify ways to avoid patients leaving who are overdue for vaccines.
- Schedule vaccine/follow-up appointments appointments.
- Represent a pro-immunization culture
- Support clinical staff with pre-visit planning
- Display educational materials in waiting room and on website and social media.
- Collaborate on vaccine events to catch up patients.

References

- National HPV Roundtable. HPV Cancer Prevention Action Guide: Physicians, Physician Assistants and Nurse Practitioners, Nurses and Medical Assistant, and Office Administrative Staff.
- CDC. “Child and Adolescent Immunization Schedule by Age.” Www.cdc.gov, 27 June 2024, www.cdc.gov/vaccines/hcp/imz-schedules/child-adolescent-age.html?CDC_AAref_Val=www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html?ACSTrackingID=USCDC_11_50-DM134535&ACSTrackingLabel=Final%2520notice%253A%2520Action%2520needed%2520to%2520receive%2520future%2520ACIP%2520immunization%2520schedules%2520-%25208%252F20%252F2024&deliveryName=USCDC_11_50-DM134535. Accessed 1 Oct. 2024.
- North Dakota HHS. “Infant Immunization Dashboard.” Powerbigov.us, 2024, app.powerbigov.us/view?r=eyJrIjoiYmJiMzBmMzktZTVkZi00NzgzLTg0ZmQtNWI3YzA1NmY1ZTlkIiwidCI6IjJkZWEwNDY0LWRhNTEtNGE4OC1iYWUyLWIzZGI5NGJjMGM1NCJ9. Accessed 1 Oct. 2024.
- CDC. “Weekly RSV Vaccination Dashboard.” RSVVaxView, 2024, www.cdc.gov/rsvvaxview/dashboard/index.html#cdc_data_surveillance_section_2-data-charts. Accessed 1 Oct. 2024.
- FDA. Pertussis Epidemiology in the Acellular Vaccine Era. 20 Sept. 2024, www.fda.gov/media/182040/download. Accessed 1 Oct. 2024.
- CDC. “Vaccination Coverage among Adults in the United States, National Health Interview Survey, 2022.” Centers for Disease Control and Prevention, 2024, www.cdc.gov/vaccines/imz-managers/coverage/adultvaxview/pubs-resources/vaccination-coverage-adults-2022.html. Accessed 1 Oct. 2024.
- South Dakota Department of Health. “Infectious Disease Dashboard | South Dakota Department of Health.” Doh.sd.gov, doh.sd.gov/health-data-reports/data-dashboards/infectious-disease-dashboard/.
- Dakota News. “Harrisburg School District Alerts Parents of Whooping Cough Exposure.” Https://Www.dakotanewsnow.com, Dakota News Now, 28 Sept. 2024, www.dakotanewsnow.com/2024/09/28/harrisburg-school-district-alerts-parents-whooping-cough-exposure/. Accessed 1 Oct. 2024.

References cont'd.

- Seither R, Yusuf OB, Dramann D, Calhoun K, Mugerwa-Kasujja A, Knighton CL. Coverage with Selected Vaccines and Exemption from School Vaccine Requirements Among Children in Kindergarten — United States, 2022–23 School Year. MMWR Morb Mortal Wkly Rep 2023;72:1217–1224. DOI: http://dx.doi.org/10.15585/mmwr.mm7245a2.
- Panagiotakopoulos, Lakshmi. "Evidence to Recommendations Framework: 2024-2025 COVID-19 Vaccines in Persons ≥6 Months of Age National Center for Immunization and Respiratory Diseases." 2024.
- Stokley, Shannon, and Centers for Disease Control and Prevention. "COVID-19 Vaccine Implementation." June 2024.
- Havers, Fiona. Centers for Disease Control and Prevention National Center for Immunization and Respiratory Diseases COVID-19-Associated Hospitalizations among Children and Adults -COVID-NET ACIP Meeting RESP-NET Hospitalization Surveillance Team Surveillance and Prevention Branch Coronavirus and Other Respiratory Viruses Division.
- American Cancer Society. DID YOU KNOW… Age Matters.
- Learn More at Cancer.org/Hpv, and Talk to Your Child's Doctor about the HPV Vaccine. Healthy Diet Sunscreen Physical Activity No Tobacco HPV Vaccination Provides Safe, Effective, and Long-Lasting Protection.
- CDC. "Vaccination Coverage among Adolescents (13 – 17 Years)." TeenVaxView, 2024, www.cdc.gov/teenvaxview/interactive/index.html.
- CDC. "ChildVaxView Interactive Child Vaccination Coverage | CDC." Www.cdc.gov, 20 May 2021, www.cdc.gov/vaccines/imz-managers/coverage/childvaxview/interactive-reports/index.html.

Questions?

Andrea Polkinghorn, BSN, RN
President, Immunize SD

info@immunizesd.org
www.immunizesd.org

IMMUNIZE
SOUTH DAKOTA