

Centers for Disease Control and Prevention

National Center for Immunization and Respiratory Diseases

COVID-19–Associated Hospitalizations among Infants, Children and Adults — COVID-NET, January– August 2023

ACIP, September 12, 2023

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Coronavirus and Other Respiratory Viruses Division

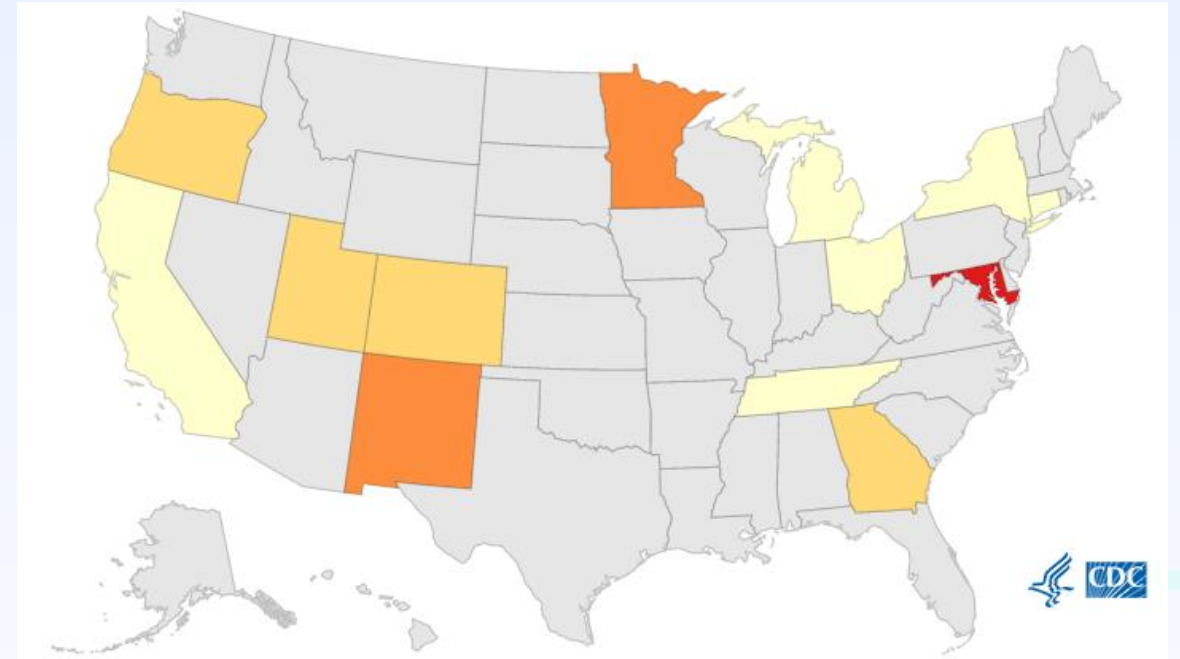
NCIRD



National Center for Immunization
and Respiratory Diseases

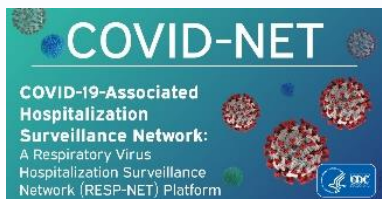
COVID-NET: A RESP-NET population-based hospitalization surveillance platform

- RESP-NET: COVID-NET, RSV-NET, FluSurv-NET
- >300 acute-care hospitals
- 98 counties in 13 states
- In 9 of 10 HHS regions
- ~10% of U.S. population
- Positive SARS-CoV-2 within 14 days of or during hospitalization
- Screening or clinician-driven testing
- Clinical data: representative sample of COVID-NET patients

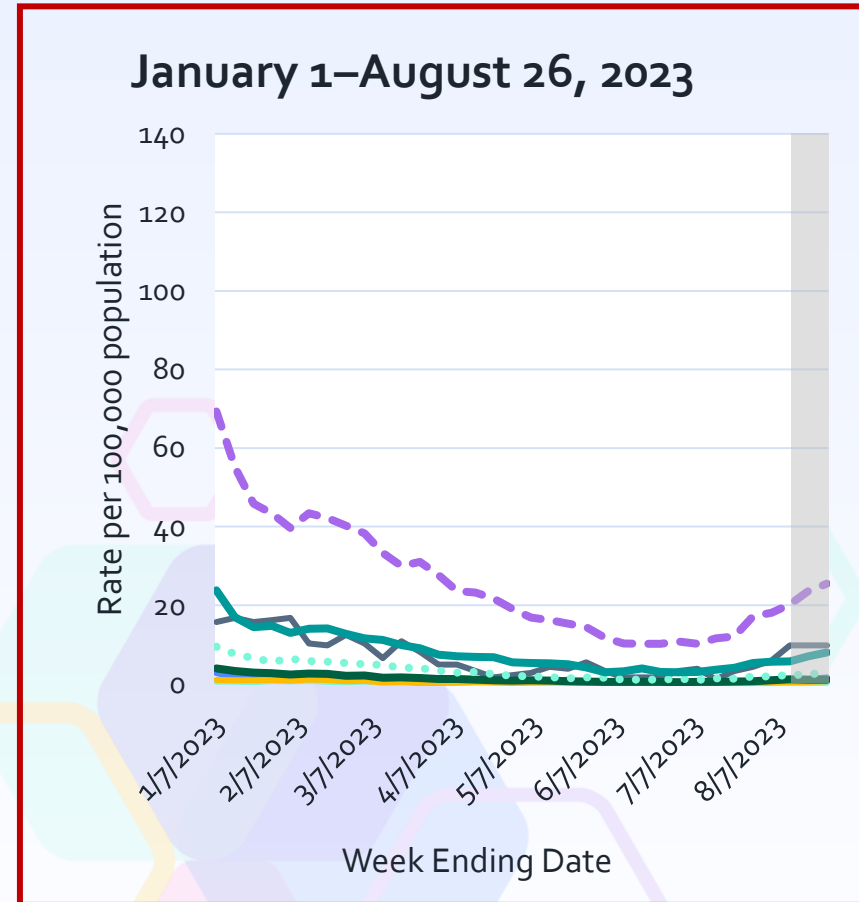
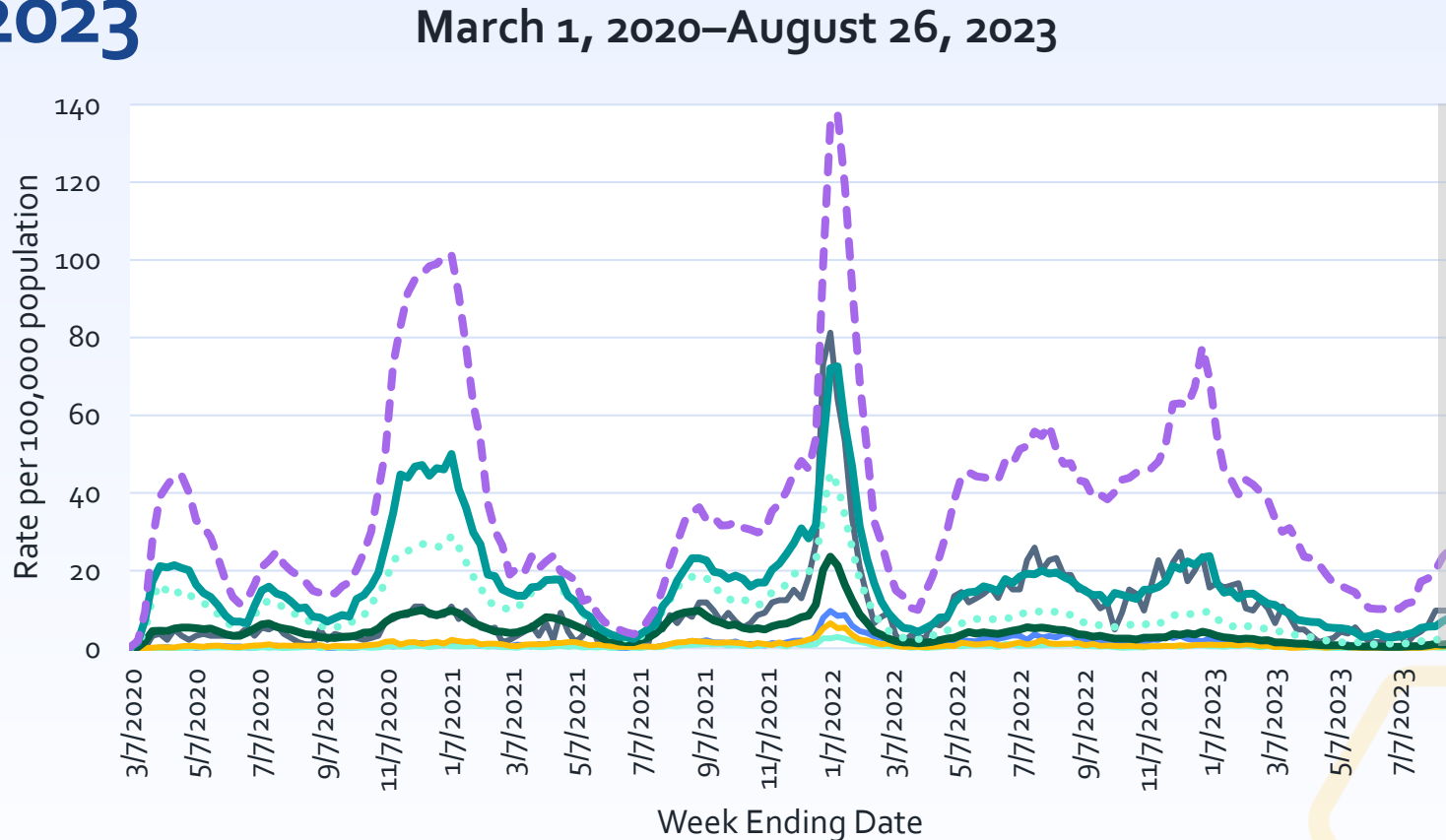


Percentage of state population represented by participating COVID-NET counties

- 9% - < 31.75%
- 31.75% - < 54.5%
- 54.5% - < 77.25%
- 77.25% - 100%



Weekly Population-Based Rates of COVID-19-Associated Hospitalizations — COVID-NET, March 2020–August 26, 2023



- <6 months
- 6 months–4 years
- 5–11 years
- 12–17 years
- 18–49 years
- ⋯ 50–64 years
- 65–74 years
- - - ≥75 years

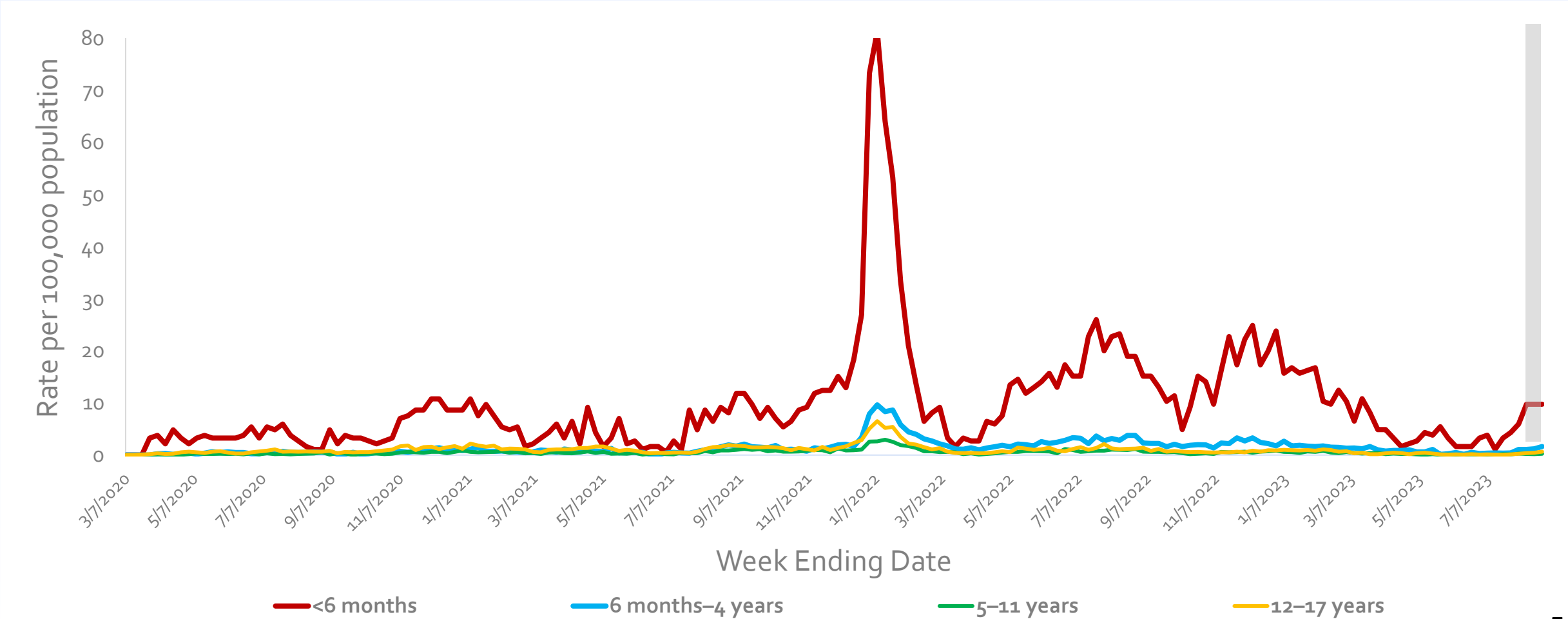
Rates highest in ≥75 years, followed by infants <6 months and adults 65–74 years

Gray boxes indicate potential reporting delays. Interpretation of trends should be excluded from these weeks.

Epidemiology of COVID-19–associated hospitalization among children

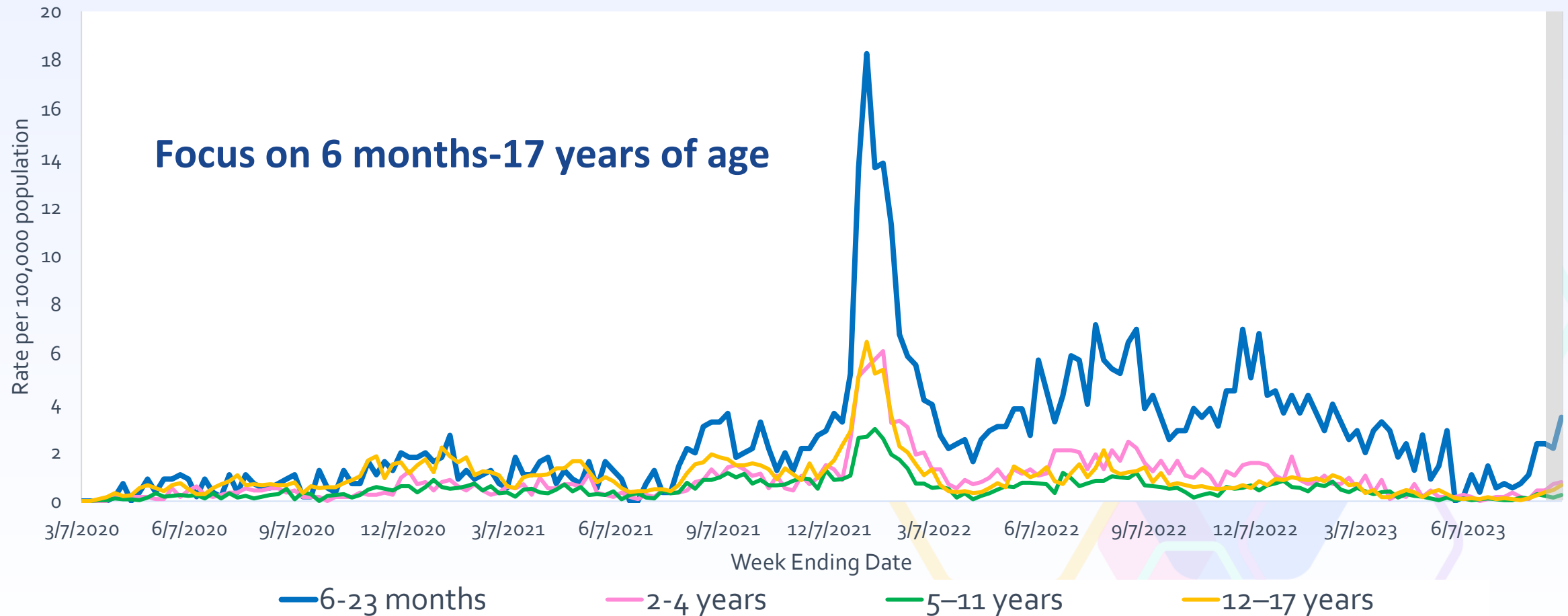


Weekly Population-Based Rates of COVID-19-Associated Hospitalizations among Infants, Children, and Adolescents ≤ 17 Years — COVID-NET, March 2020–August 26, 2023



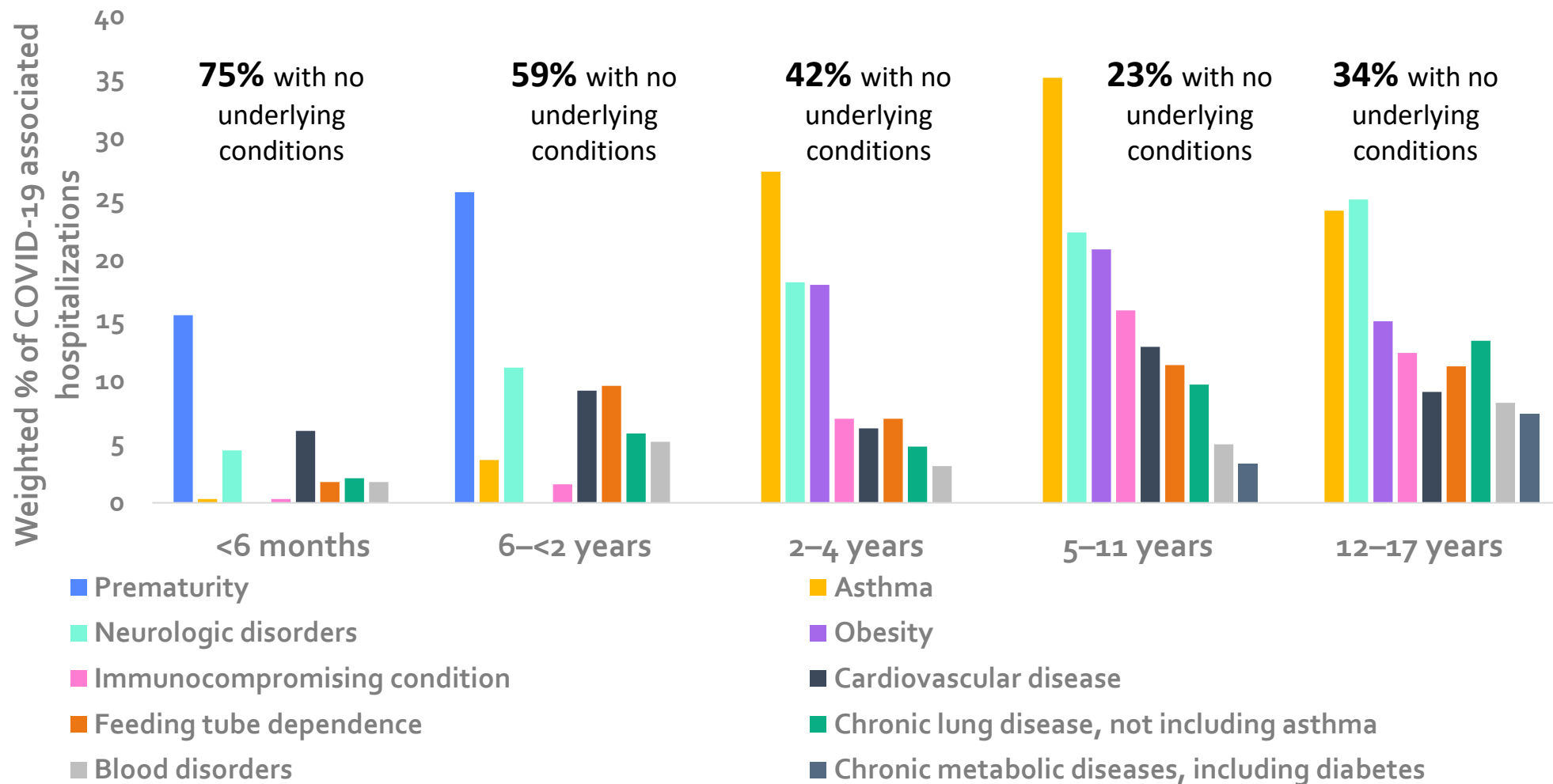
Gray boxes indicate potential reporting delays. Interpretation of trends should be excluded from these weeks.

Weekly COVID-19-Associated Hospitalization Rates among Infants, Children and Adolescents Ages 6 months – ≤17 Years — COVID-NET, March 2020–August 26, 2023



Gray boxes indicate potential reporting delays. Interpretation of trends should be excluded from these weeks.

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

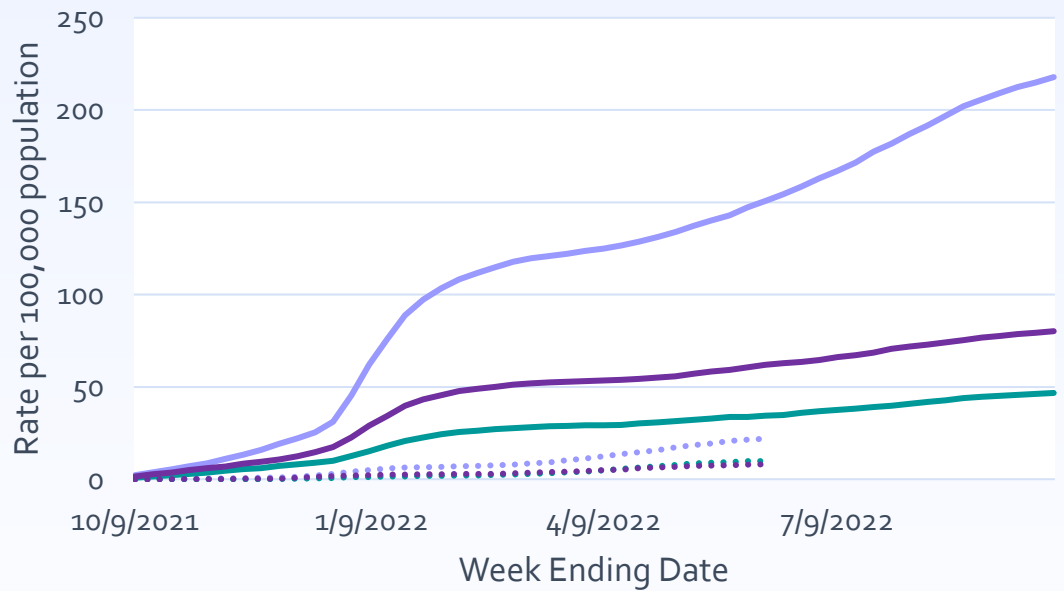


- **54%** of hospitalized infants, children, and adolescents ages ≤ 17 years have **no underlying medical conditions**.
- Hospitalizations children and adolescents **ages ≥ 5 years** are **more likely to have underlying medical conditions** relative to children and infants ages ≤ 4 years.

Data are limited to hospitalizations where COVID-19 is a likely primary reason for admission. Figure displays underlying medical conditions present in $\geq 5\%$ in ≥ 1 age group.

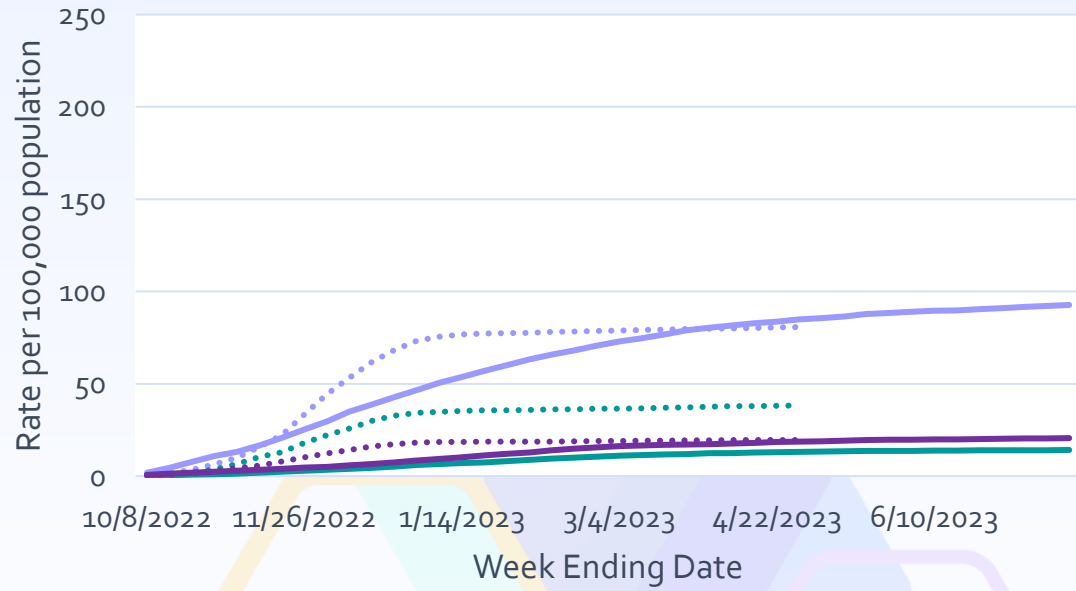
Cumulative Weekly Rates of COVID-19- and Influenza-Associated Hospitalizations among Infants, Children, and Adolescents Ages ≤ 17 Years — COVID-NET and FluSurv-NET*, October 2021—July 2023

October 2021–September 2022



- ≤ 4 years (COVID-19)
- 5–11 years (COVID-19)
- 12–17 years (COVID-19)
- ≤ 4 years (Influenza)
- 5–11 years (Influenza)
- 12–17 years (Influenza)

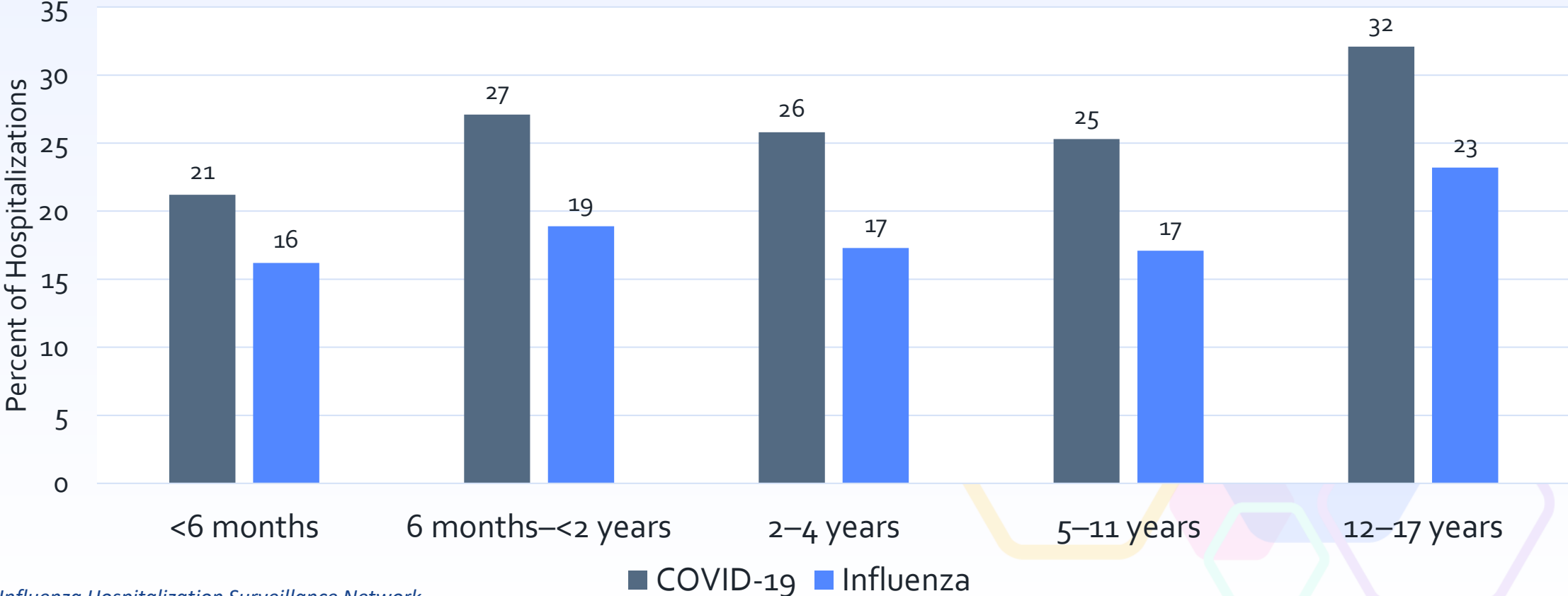
October 2022–July 2023



- ≤ 4 years (COVID-19)
- 5–11 years (COVID-19)
- 12–17 years (COVID-19)
- ≤ 4 years (Influenza)
- 5–11 years (Influenza)
- 12–17 years (Influenza)

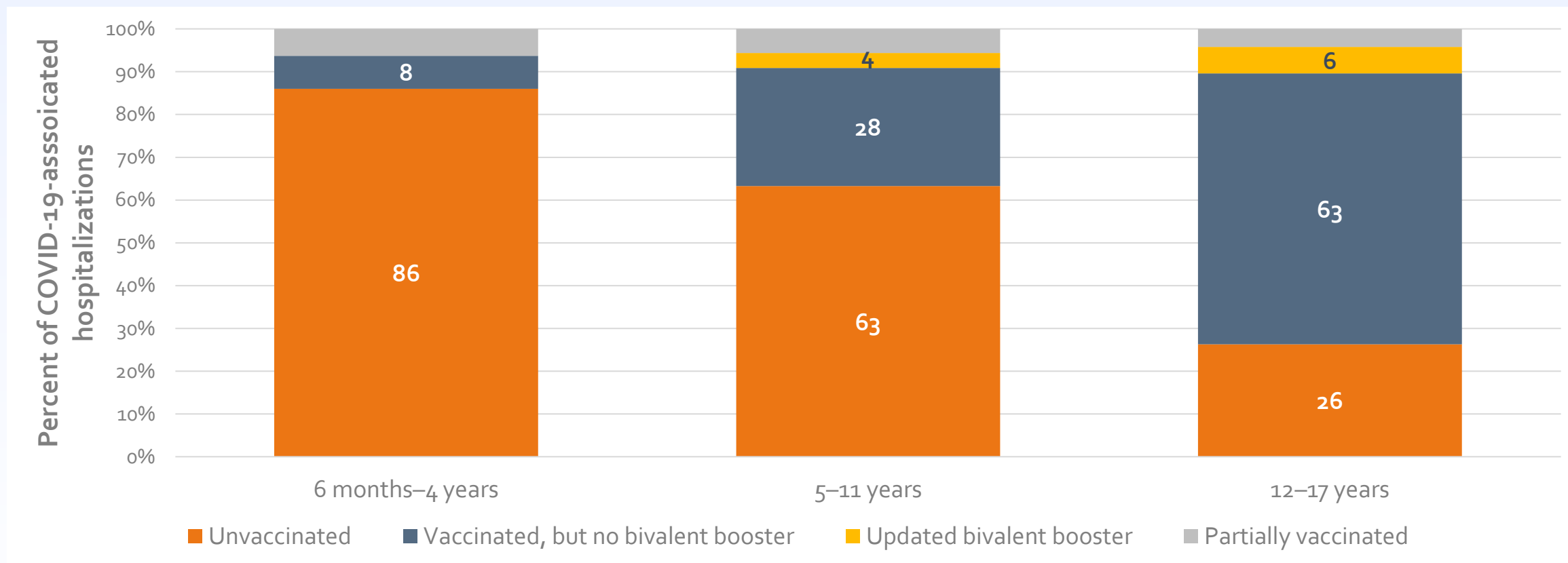
* Influenza Hospitalization Surveillance Network. Seasonal FluSurv-NET surveillance was extended into June for the 2021–2022 season. Surveillance ended on April 30, 2023, for the 2022–2023 season. Hospitalization rates are among those with laboratory-confirmed influenza and SARS-CoV-2 and are not adjusted for likely reason for admission.

Percent of COVID-19- and Influenza-Associated Hospitalizations with ICU Admission among Infants, Children, and Adolescents by Age Group — COVID-NET and FluSurv-NET*, October 2022–April 2023



• Influenza Hospitalization Surveillance Network
Limited to COVID-NET hospitalizations with COVID-19-related illness as likely reason for admission

Vaccination Status by Age Group among Infants, Children and Adolescents Ages ≤17 Years Hospitalized for COVID-19 — COVID-NET, January–June 2023

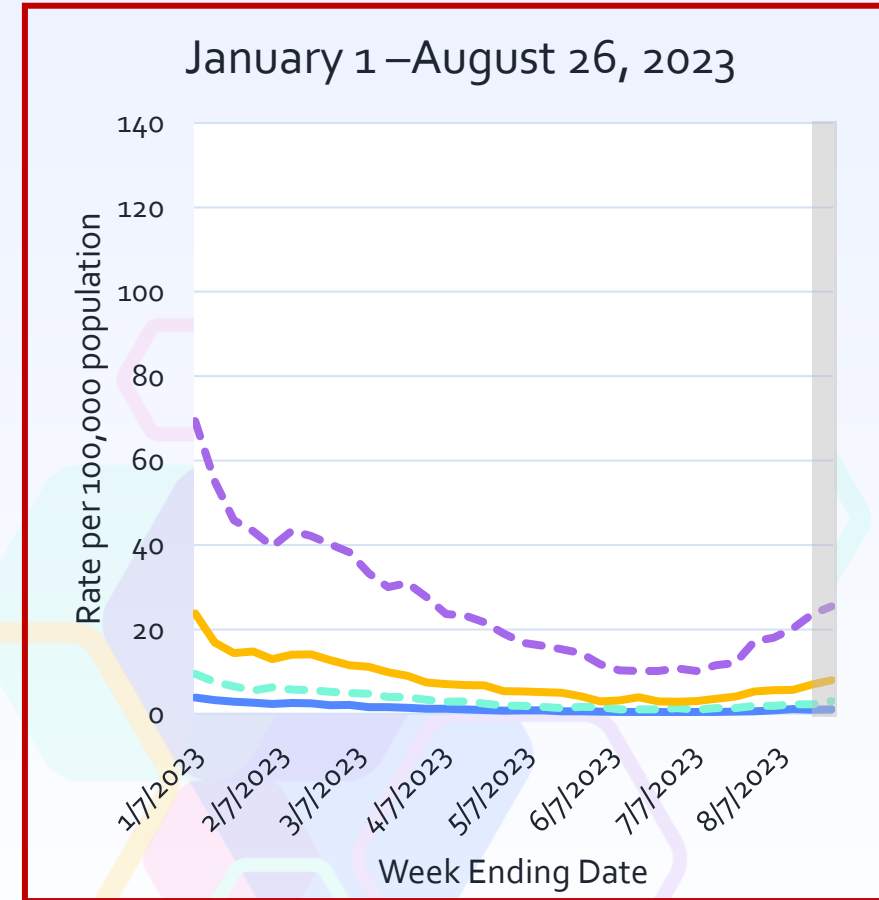
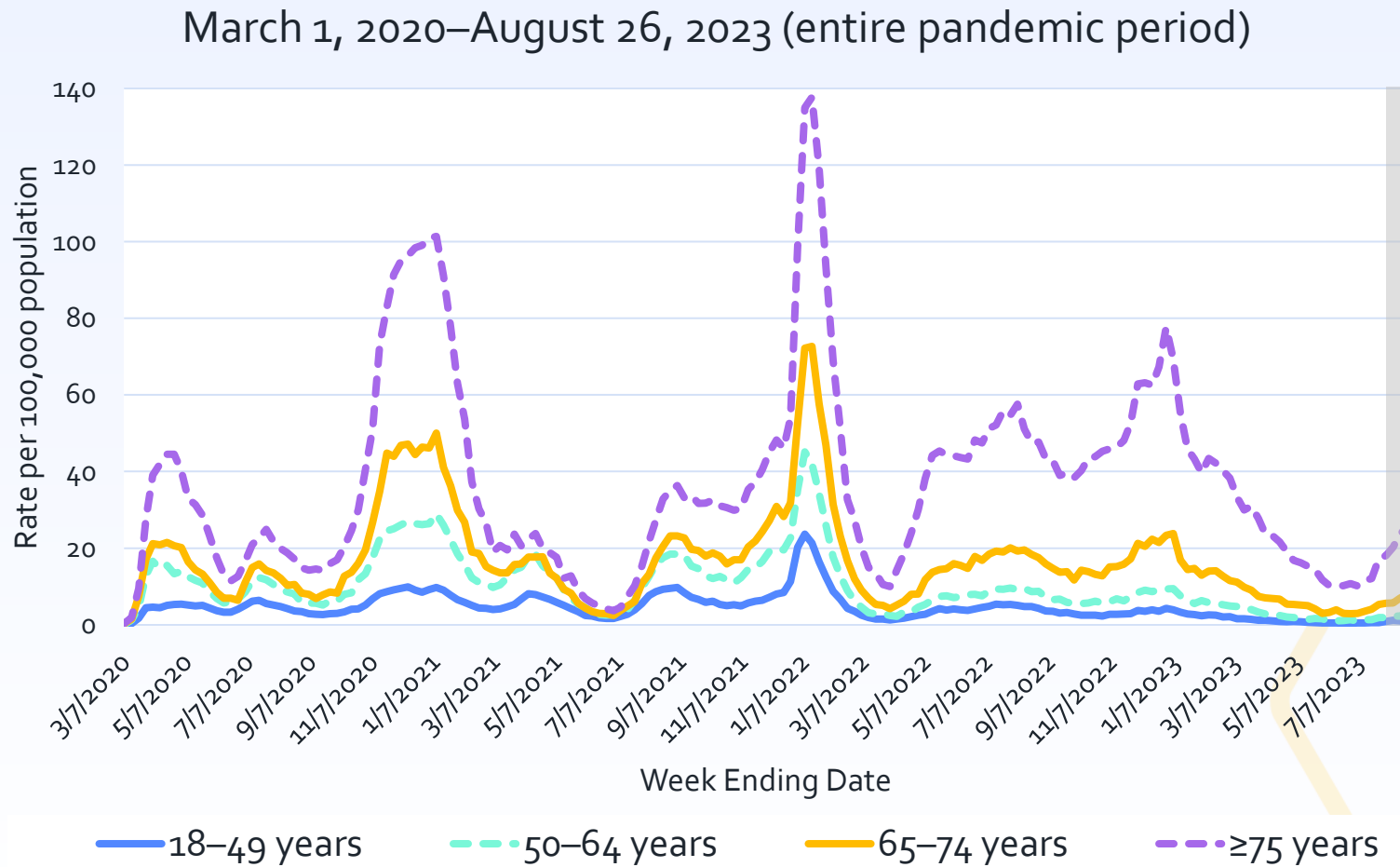


Data are limited to hospitalizations where COVID-19 is a likely primary reason for admission. **Unvaccinated:** No recorded doses of COVID-19 vaccine. **Vaccinated, but no bivalent booster:** Completed a primary series with or without ≥ 1 booster dose but did not receive an updated bivalent booster dose. **Updated bivalent booster:** Received updated bivalent booster dose. **Partially vaccinated:** Received at least one dose of COVID-19 but was not considered fully vaccinated at the time of a positive SARS-CoV-2 test. Persons with unknown vaccination status are excluded.

Epidemiology of COVID-19–associated hospitalizations among adults

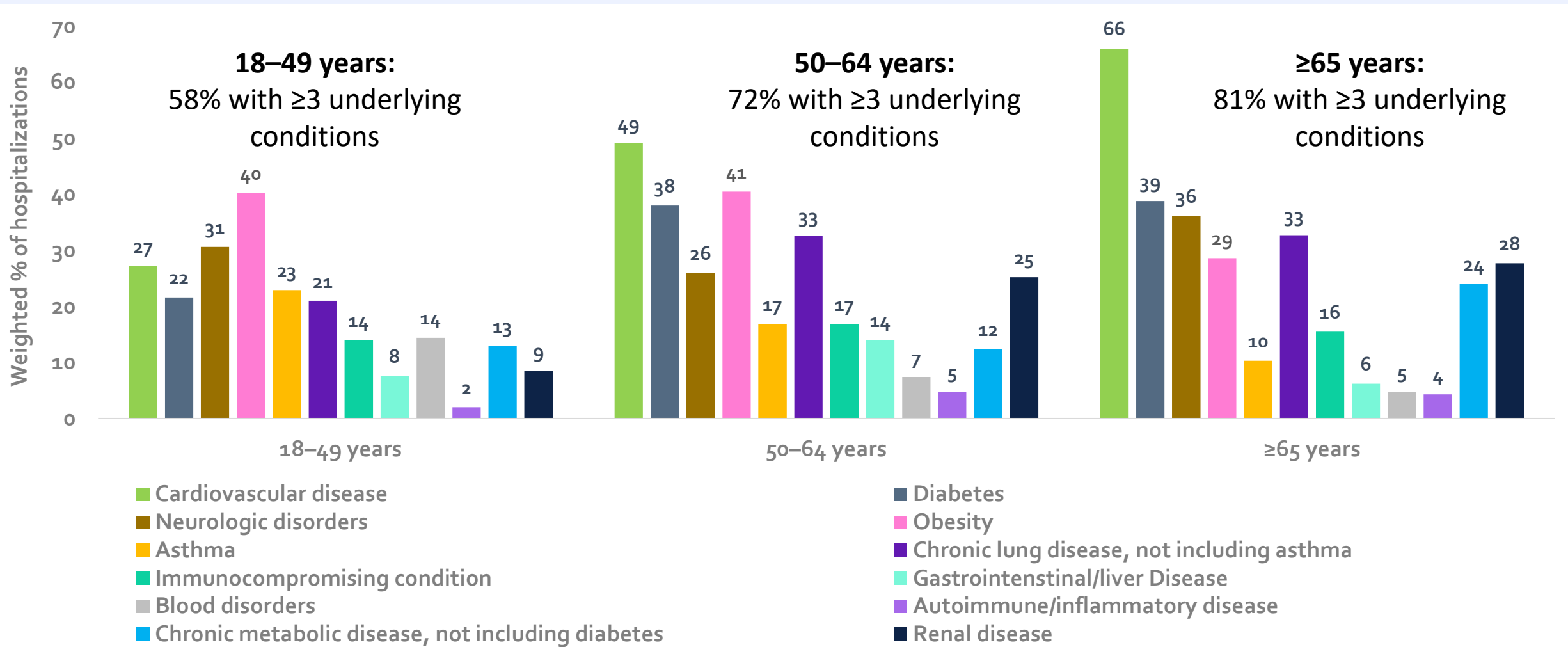


Weekly Population-Based Rates of COVID-19-Associated Hospitalizations among Adults Ages ≥ 18 Years — COVID-NET, March 2020–August 2023



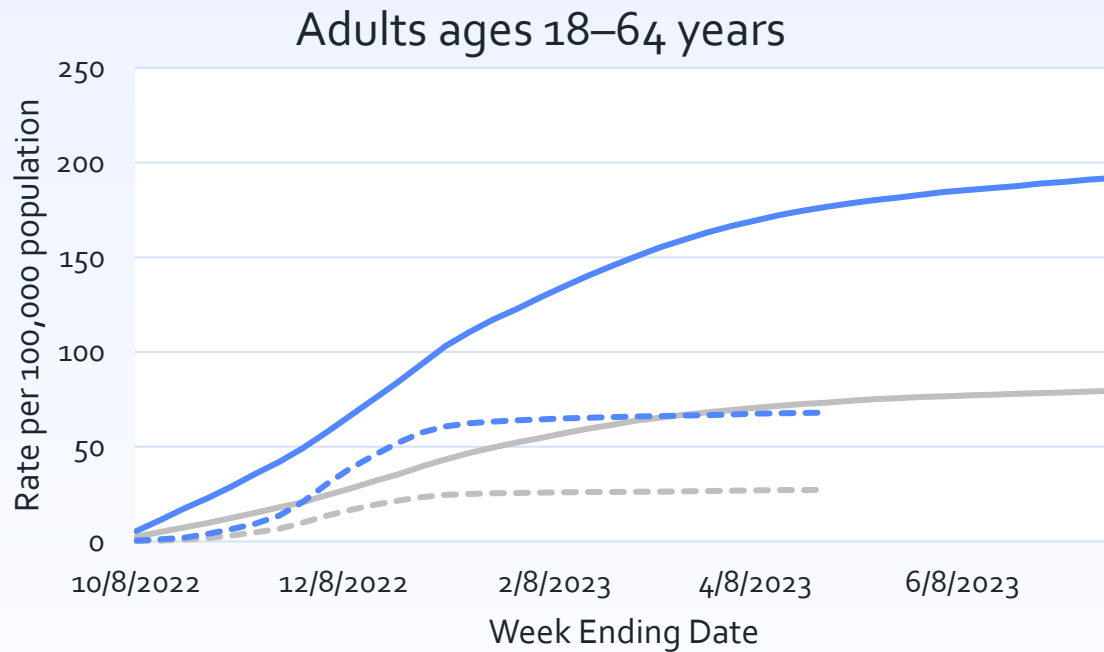
Gray boxes indicate potential reporting delays. Interpretation of trends should be excluded from these weeks.

Underlying Medical Conditions among Adults Ages ≥18 Years Hospitalized for COVID-19, by Age Group — COVID-NET, January–June 2023

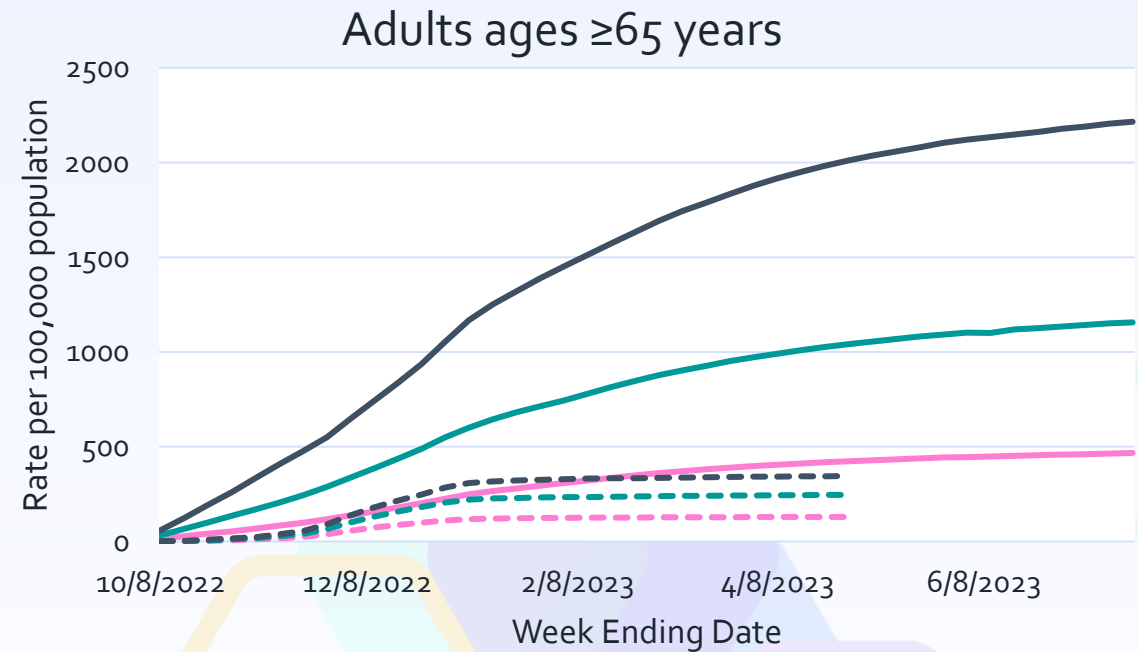


Data are limited to hospitalizations where COVID-19 is a likely primary reason for admission.

Cumulative Weekly Rates of COVID-19- and Influenza-Associated Hospitalizations among Adults Ages ≥ 18 Years — COVID-NET and FluSurv-NET*, October 2022–July 2023



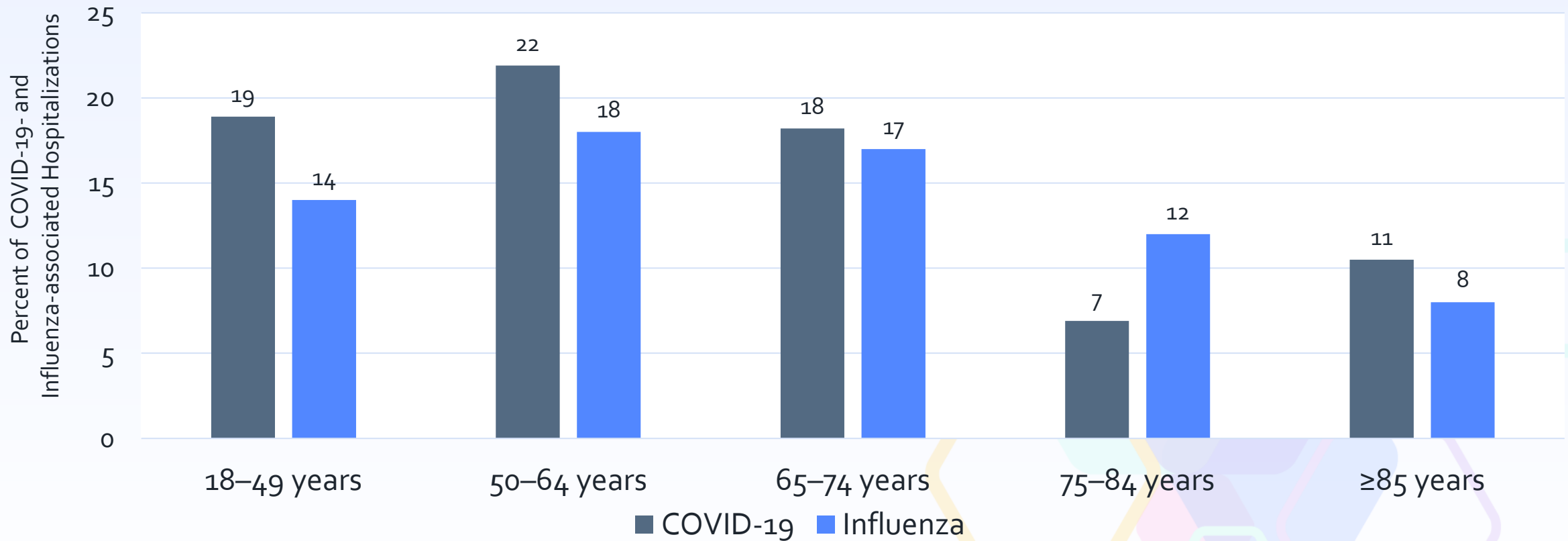
— 18–49 years (COVID-19) - - - 18–49 years (Influenza)
 — 50–64 years (COVID-19) - - - 50–64 years (Influenza)



— 65–74 years (COVID-19) - - - 65–74 years (Influenza)
 — 75–84 years (COVID-19) - - - 75–84 years (Influenza)
 — ≥ 85 years (COVID-19) - - - ≥ 85 years (Influenza)

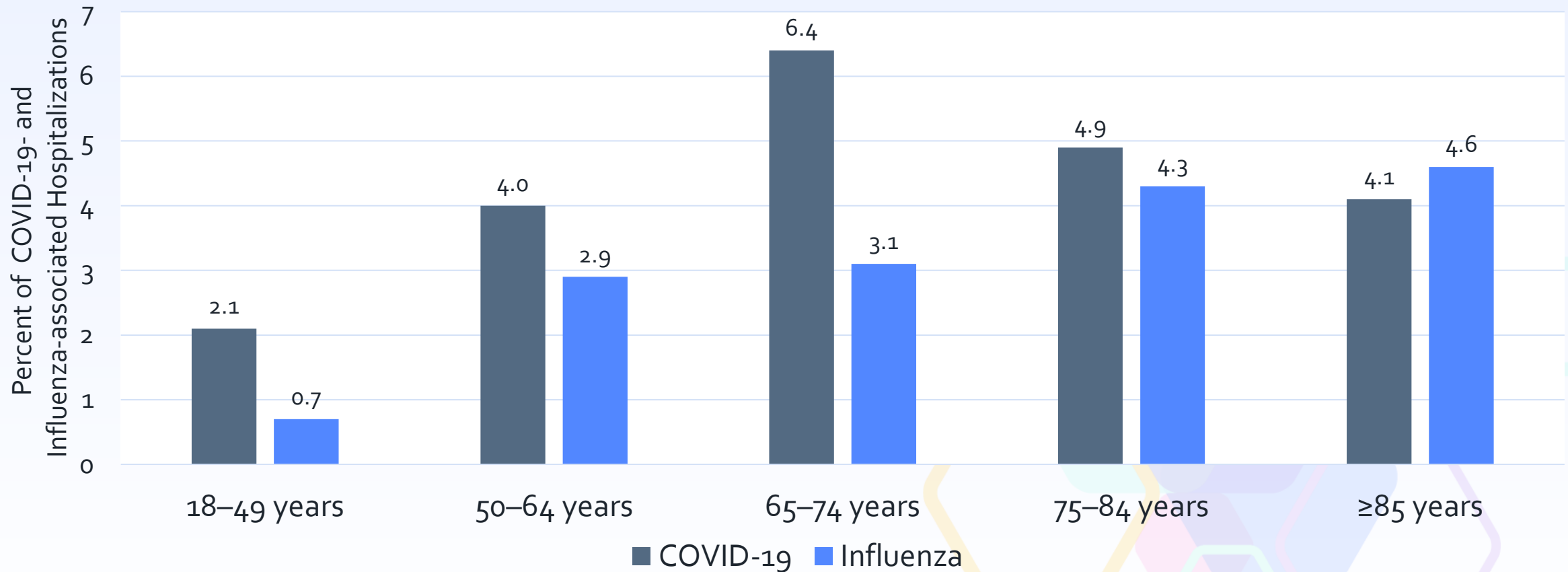
* Influenza Hospitalization Surveillance Network. Seasonal FluSurv-NET surveillance ended on April 30, 2023, for the 2022–2023 season.

Percent of COVID-19- and Influenza-Associated Hospitalizations with ICU admission among Adults by Age Group — COVID-NET and FluSurv-NET*, 13 States, October 2022–April 2023



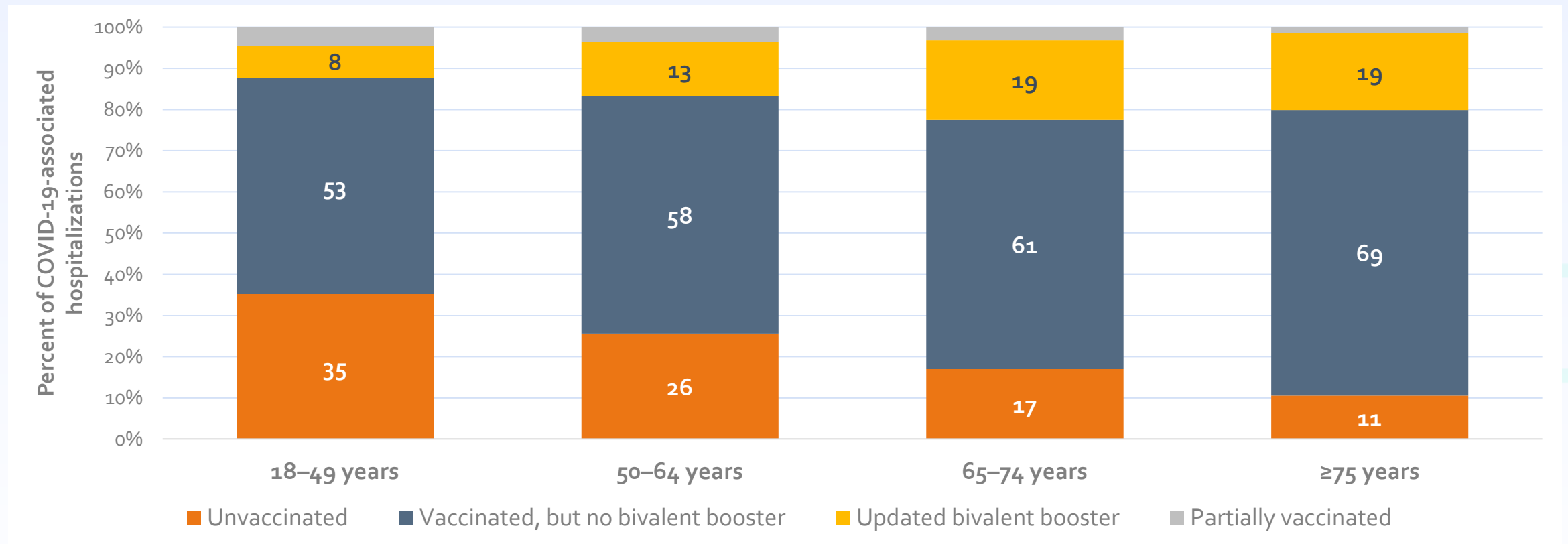
• *Influenza Hospitalization Surveillance Network*
Limited to COVID-NET hospitalizations with COVID-19-related illness as likely reason for admission

Percent of COVID-19- and Influenza-Associated Hospitalizations with in-hospital death among Adults by Age Group — COVID-NET and FluSurv-NET*, 13 States, October 2022–April 2023



• *Influenza Hospitalization Surveillance Network*
Limited to COVID-NET hospitalizations with COVID-19-related illness as likely reason for admission

Vaccination Status by Age Group among Non-Pregnant Adults Ages ≥ 18 Years Hospitalized for COVID-19 — COVID-NET, January–June 2023



Data are limited to hospitalizations where COVID-19 is a likely primary reason for admission. **Unvaccinated:** No recorded doses of COVID-19 vaccine. **Vaccinated, but no bivalent booster:** Completed a primary series with or without ≥ 1 booster dose but did not receive an updated bivalent booster dose. **Updated bivalent booster:** Received updated bivalent booster dose. **Partially vaccinated:** Received at least one dose of COVID-19 but was not considered fully vaccinated at the time of a positive SARS-CoV-2 test. Persons with unknown vaccination status are excluded.

COVID-19-associated hospitalizations

- Hospitalization rates increased in all age groups since mid-July
- Hospitalization rates highest in older adults and infants <6 months
- Most children <5 years hospitalized with COVID-19 illness have no underlying medical conditions
 - A higher proportion of hospitalized children and adolescents 5-17 years have underlying medical conditions
 - Most hospitalized adults have multiple underlying medical conditions
- COVID-19 continues to cause severe illness; clinical outcomes generally comparable to influenza-associated hospitalizations
- Most children and adults hospitalized for COVID-19 since January 2023 had not received an updated bivalent booster

Acknowledgements

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RESP-NET Site investigators and staff



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