Effectiveness and impact of RSV prevention products in infants during the 2024–2025 RSV season

Coronavirus and Other Respiratory Viruses Division

June 25, 2025

Agenda

Product Effectiveness (PE)

- Summary of CDC systems used to evaluate PE
- Effectiveness of nirsevimab and maternal RSV vaccine during the 2024–2025 RSV season in the U.S.

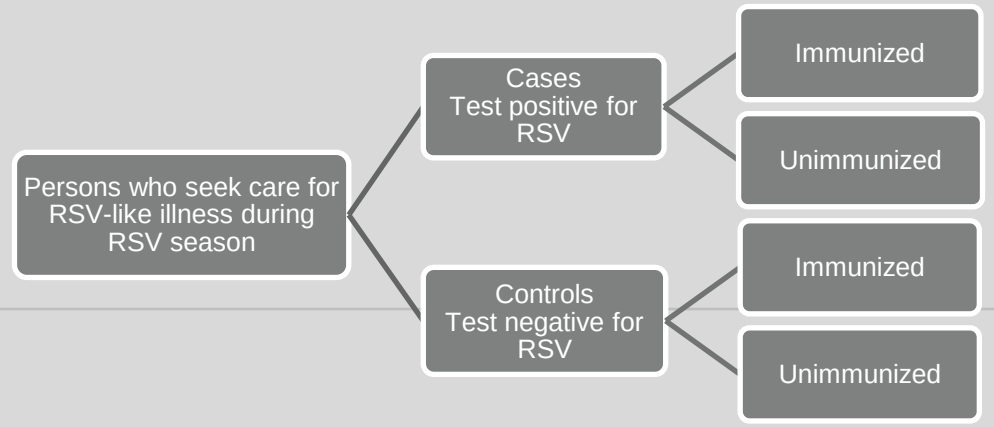
RSV Hospitalization Rates and Product Impact

- Summary of CDC systems used for monitoring RSV hospitalization rates
- Impact of nirsevimab and maternal RSV vaccine during the 2024–2025 RSV season in the U.S.

Product effectiveness methods and CDC systems used for evaluation

Study designs for observational PE studies

Observational VE studies	Methods[1]
Virtual SARS-CoV-2, Influenza, and Other respiratory viruses Network (VISION)	Test-negative design[2,3,4]
New Vaccine Surveillance Network (NVSN)	
Overcoming Network (Overcoming)	Matched Case-Control[5]



Effectiveness = 1 – (odds ratio) x 100% Odds ratio = $\frac{Odds\ of\ immunization_{cases}}{Odds\ of\ immunization_{controls}}$

References for study design methods with relevant examples

[1]Roper L, et. al. A framework for monitoring RSV prevention product effectiveness in the United States. *Vaccine* 2025;45:126633

[2] Chua H, et. al. The Use of Test-negative Controls to Monitor Vaccine Effectiveness: A Systematic Review of Methodology. *Epidemiology* 2020;31:43–64.

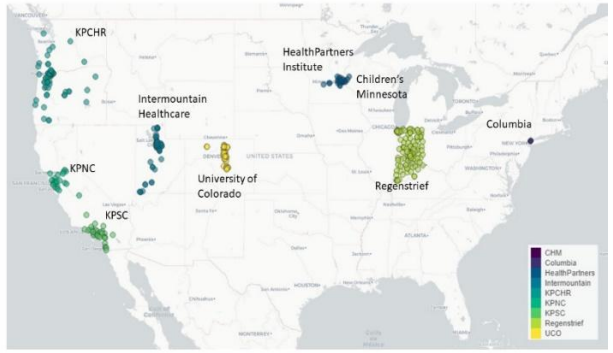
[3] Moline HL, et al. Respiratory Syncytial Virus Disease Burden and Nirsevimab Effectiveness in Young Children From 2023-2024.. *JAMA Pediatr* 2025;179:179-187.

[4] Payne AB, et. al. Respiratory syncytial virus (RSV) vaccine effectiveness against RSV-associated hospitalisations and emergency department encounters among adults aged 60 years and older in the USA, October, 2023, to March, 2024: a test-negative design analysis. *Lancet* 2024;404:1547-1559.

[5] Zambrano LD, et. al. Durability of Original Monovalent mRNA Vaccine Effectiveness Against COVID-19 Omicron-Associated Hospitalization in Children and Adolescents - United States, 2021-2023. *MMWR* 2024;73:330-338

CDC networks used to assess RSV product effectiveness in infants and children

VISION



Multi-site network of electronic health records (EHRs)

160 emergency department (ED) and 131 hospitals in 6 states

Children visiting a participating ED or hospital with RSV-like illness are eligible for inclusion

NVSN

Active surveillance for acute respiratory illness (ARI) in children

7 academic pediatric health systems in 7 states

Children hospitalized or visiting the ED for ARI are eligible for enrollment

Overcoming

Active surveillance for pediatric RSV with case-control design

26 pediatric intensive care units (ICUs) in 23 states

Children in a participating ICU with ARI are eligible for inclusion.

VISION: https://www.cdc.gov/flu-vaccines-work/php/vaccine-effectiveness/vision-network.html; NVSN: https://www.cdc.gov/nvsn/php/about/index.html; Overcoming: https://www.palisi.org/overcomecovid
;

Summary of CDC networks used to assess RSV product effectiveness in children

	VISION	NVSN	Overcoming
Infant and maternal immunization data	Electronic health records, state and city registries, and claims data (subset of sites)	Electronic health records, state registries, out-of-network provider records, parent report	Electronic health records, state registries, provider records, parent report
Analytic study period	October 2024–March 2025	October 2024–March 2025	December 2024–April 2025
Cases	RSV-like illness (RLI) with clinical positive RSV antigen or nucleic acid amplification test (NAAT)	Acute respiratory illness (ARI) with RSV detected on systematic NAAT testing	ARI with clinical positive RSV antigen or NAAT
Controls	RSV-like illness with negative RSV NAAT	Acute respiratory illness (ARI) with no RSV detected on systematic NAAT testing	ARI with negative NAAT; Case-matched on site, age, and date of hospitalization

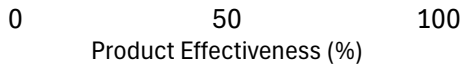
Summary of VISION, NVSN, and Overcoming analytic methods used to assess product effectiveness in children

	VISION	NVSN	Overcoming
Nirsevimab analytic population	Infants <8 months as of October 1, 2024, or born after October 1, 2024 with no maternal RSV vaccination receipt		
Maternal vaccine analytic population	Infants born on or after September 14, 2024 who did not receive nirsevimab	Infants <6 months of age during the study period who did not receive nirsevimab	Not assessed
Analysis	Multivariable logistic regression models, adjusting for site, age in months, calendar date, race and ethnicity, and sex. Models adjusting for underlying medical conditions did not meaningfully change estimates.	Multivariable logistic regression models, adjusting for site, age in months, and month of enrollment. Nirsevimab analysis adjusted for presence of ≥1 high-risk medical condition for severe RSV disease; maternal RSV analysis adjusted for race/ethnicity and insurance status.	Multivariable logistic regression models, adjusting for site, age in months, timing of enrollment, presence of ≥1 underlying medical condition, and social vulnerability index.
Outcomes assessed	Hospitalization, emergency department (ED) visit, intensive care unit (ICU) admission	Hospitalization, ED visit, ICU admission	ICU admission

Nirsevimab effectiveness during the 2024–2025 RSV season in the United States

Nirsevimab product effectiveness (PE) against RSV-associated emergency department (ED) visits among infants in their first RSV season, VISION & NVSN, 2024–2025

SYSTEM Nirsevimab Status	RSV-positive encounters N (Col %)	RSV-negative encounters N (Col %)	Median days since dose (IQR)	Adjusted PE (95% CI)
VISION	**1225**	**2833**		
No nirsevimab doses	966 (79)	1799 (64)	Not Applicable	Reference
Nirsevimab, ≥7 days prior*	259 (21)	1034 (36)	68 (37-102)	63 (56-69)†
NVSN	**107**	**381**		
No nirsevimab doses	92 (86)	214 (56)	Not Applicable	Reference
Nirsevimab, ≥7 days prior‡	15 (14)	167 (44)	68 (41-103)	76 (55-87)§

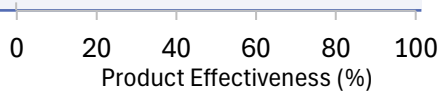


Nirsevimab was effective against RSV-associated ED visits.

*VISION analysis included children who received nirsevimab ≥7 days prior to encounter.
†Product effectiveness (PE) calculated as (1-adjusted odds ratio)*100, with adjusted odds ratio estimated using multivariable logistic regression model, adjusting for site, age in months, calendar date, race and ethnicity, and sex.
‡NVSN analysis included children who received nirsevimab ≥7 days prior to symptom onset.
§Product effectiveness (PE) calculated as (1-adjusted odds ratio)*100, with adjusted odds ratio estimated using multivariable logistic regression model, adjusting for site, age in months, month of enrollment, and presence of ≥1 high-risk medical condition for severe RSV disease.
IQR: Interquartile Range | CI: Confidence Interval

Nirsevimab product effectiveness (PE) against RSV-associated hospitalization among infants in their first RSV season, VISION & NVSN, 2024–2025

SYSTEM Nirsevimab Status	RSV-positive encounters N (Col %)	RSV-negative encounters N (Col %)	Median days since dose (IQR)	Adjusted PE (95% CI)
VISION	**286**	**318**		
No nirsevimab doses	233 (81)	174 (55)	Not Applicable	Reference
Nirsevimab, ≥7 days prior*	53 (19)	144 (45)	61 (27-102)	79 (67-87)†
NVSN	**294**	**378**		
No nirsevimab doses	263 (89)	229 (61)	Not Applicable	Reference
Nirsevimab, ≥7 days prior‡	31 (11)	149 (39)	52 (27-87)	82 (71-88)§

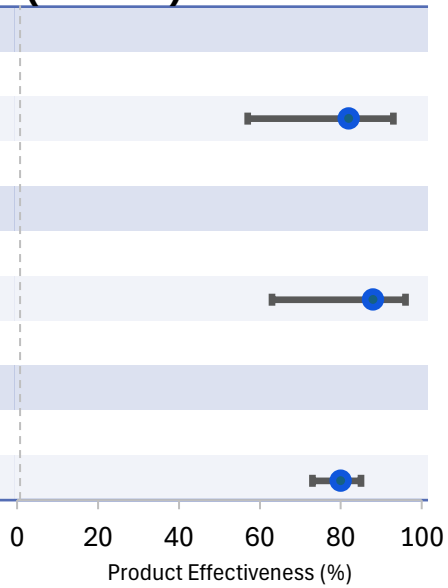


Nirsevimab was effective against RSV-associated hospitalization.

*VISION analysis included children who received nirsevimab ≥7 days prior to encounter.
†Product effectiveness (PE) calculated as (1-adjusted odds ratio)*100, with adjusted odds ratio estimated using multivariable logistic regression model, adjusting for site, age in months, calendar date, race and ethnicity, and sex.
‡NVSN analysis included children who received nirsevimab ≥7 days prior to symptom onset.
§Product effectiveness (PE) calculated as (1-adjusted odds ratio)*100, with adjusted odds ratio estimated using multivariable logistic regression model, adjusting for site, age in months, month of enrollment, and presence of ≥1 high-risk medical condition for severe RSV disease.

Nirsevimab product effectiveness (PE) against RSV-associated intensive care unit (ICU) admission among infants in their first RSV season, VISION, NVSN & Overcoming, 2024–2025

SYSTEM Nirsevimab Status	RSV-positive encounters N (Col %)	RSV-negative encounters N (Col %)	Median days since dose (IQR)	Adjusted PE (95% CI)
VISION	**56**	**318**		
No nirsevimab doses	48 (86)	174 (55)	Not Applicable	Reference
Nirsevimab, ≥7 days prior*	8 (14)	144 (45)	56 (25-97)	82 (57-93)†
NVSN	**73**	**71**		
No nirsevimab doses	67 (92)	40 (56)	Not Applicable	Reference
Nirsevimab, ≥7 days prior‡	6 (8)	31 (44)	52 (24-84)	88 (63-96)§
Overcoming	**409**	**263**		
No nirsevimab doses	354 (87)	146 (56)	Not Applicable	Reference
Nirsevimab, ≥7 days prior*	55 (13)	117 (44)	50 (32-86)	80 (73-85)¶



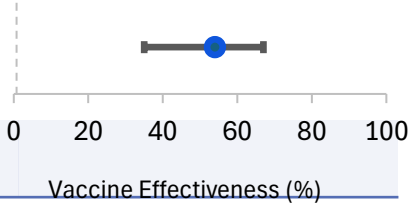
Nirsevimab was effective against RSV-associated ICU admission.

*Analysis included children who received nirsevimab ≥7 days prior to encounter.
†Product effectiveness (PE) calculated as (1-adjusted odds ratio)*100, with adjusted odds ratio estimated using multivariable logistic regression model, adjusting for site, age in months, calendar date, race and ethnicity, and sex. RSV-negative encounters were those among children hospitalized for RSV-like illness and not limited to children admitted to the ICU.
‡NVSN analysis included children who received nirsevimab ≥7 days prior to symptom onset.
§Product effectiveness (PE) calculated as (1-adjusted odds ratio)*100, with adjusted odds ratio estimated using multivariable logistic regression model, adjusting for site, age in months, month of enrollment, and presence of ≥1 high-risk medical condition for severe RSV disease.
¶Product effectiveness (PE) calculated as (1-adjusted odds ratio)*100, with adjusted odds ratio estimated using multivariable logistic regression model, adjusting for age in months, timing of admission, census region, presence of ≥1 underlying medical condition, and social vulnerability index. Hospital site included as a repeated measure. The analysis was not limited to matched pairs.

Maternal vaccine effectiveness during the 2024–2025 RSV season in the United States

Maternal vaccine effectiveness (VE) against RSV-associated emergency department (ED) visits among infants in their first RSV season, VISION, 2024–2025

SYSTEM Nirsevimab Status	RSV-positive encounters N (Col %)	RSV-negative encounters N (Col %)	Median days since birth (IQR)	Median days since dose (IQR)	Adjusted VE (95% CI)
VISION	**333**	**660**			
No maternal vaccine	262 (79)	428 (65)	Not Applicable	Not Applicable	Reference
Maternal vaccine*	71 (21)	232 (35)	53 (31-90)	85 (65-110)	54 (35-67)†

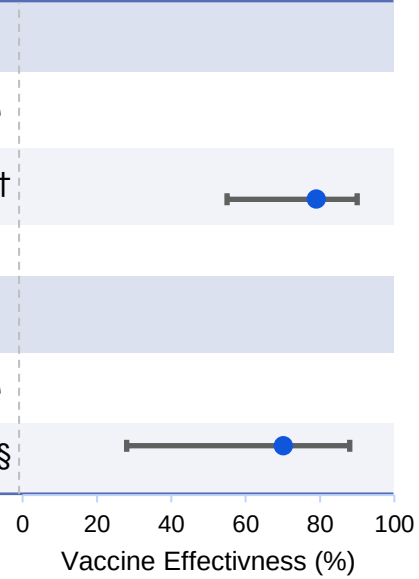


Maternal RSV vaccine was effective against RSV-associated ED visits in infants.

*VISION analysis included children who were born ≥14 days after maternal RSV vaccine dose.
†Vaccine effectiveness (VE) calculated as (1-adjusted odds ratio)*100, with adjusted odds ratio estimated using multivariable logistic regression model, adjusting for site, age in months, calendar date, race and ethnicity, and sex.
IQR: Interquartile Range | CI: Confidence Interval

Maternal vaccine effectiveness (VE) against RSV-associated hospitalization among infants in their first RSV season, VISION & NVSN, 2024–2025

SYSTEM Vaccination Status	RSV-positive encounters N (Col %)	RSV-negative encounters N (Col %)	Median days since birth (IQR)	Median days since dose (IQR)	Adjusted VE (95% CI)
VISION	**134**	**122**			
No maternal vaccine	109 (81)	77 (63)	Not Applicable	Not Applicable	Reference
Maternal vaccine*	25 (19)	45 (37)	35 (17-69)	73 (52-111)	79 (55-90)†
NVSN	**108**	**213**			
No maternal vaccine	89 (82)	142 (67)	Not Applicable	Not Applicable	Reference
Maternal vaccine‡	19 (18)	71 (33)	32 (17-58)	71 (50-103)	70 (28-88)§



Maternal RSV vaccine was effective against RSV-associated hospitalization in infants.

*VISION analysis included children who were born ≥14 days after maternal RSV vaccine dose.
†Vaccine effectiveness (VE) calculated as (1-adjusted odds ratio)*100, with adjusted odds ratio estimated using multivariable logistic regression model, adjusting for site, age in months, calendar date, race and ethnicity, and sex.
‡NVSN analysis included children who born ≥14 days after maternal RSV vaccine dose
§Vaccine effectiveness (VE) calculated as (1-adjusted odds ratio)*100, with adjusted odds ratio estimated using multivariable logistic regression model, adjusting for site, age in months, month of enrollment, race/ethnicity, and health insurance status.

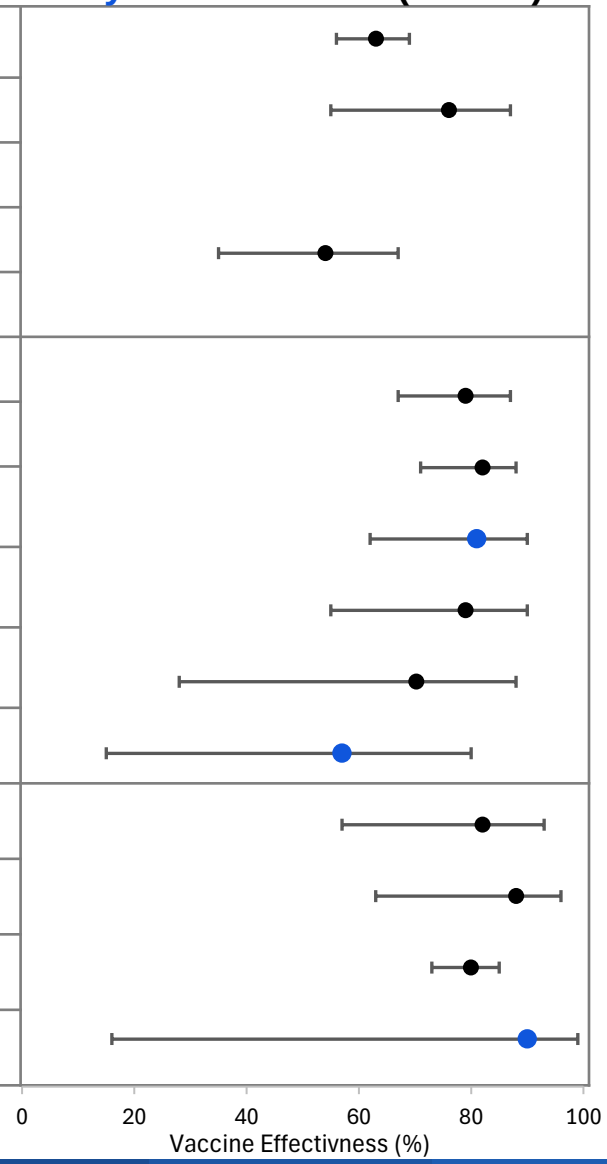
Limitations of product effectiveness analyses

- **These surveillance systems have different enrollment methodologies and source populations and may not be directly comparable.**
- **Residual confounding was possible**
- **Misclassification of RSV immunization status was possible, although all systems used multiple sources to verify immunization status**
- **VISION:**
  - Cases may have sought care for something other than RSV
  - All RSV testing was clinician-directed
  - EHR data may not fully capture all underlying medical conditions, which may be associated with likelihood of immunization and risk of severe RSV disease
- **NVSN:**
  - May not be nationally representative
  - Cases may have sought care for something other than RSV
- **Overcoming Network:**
  - Enrollment began after the RSV season started
  - All RSV testing was clinician-directed

Conclusions

Summary of RSV prevention product effectiveness (PE) among infants in their first RSV season, 2024–2025

Outcome	Product	CDC Network	Product Efficacy*/Effectiveness (95% CI)
RSV-associated ED visit	Nirsevimab	VISION	63 (56-69)
		NVSN	76 (55-87)
		Clinical Trial	Not Applicable
	Maternal Vaccine	VISION	54 (35-67)
		Clinical Trial	Not Applicable
RSV-associated hospitalization	Nirsevimab*	VISION	79 (67-87)
		NVSN	82 (71-88)
		Clinical Trial	81 (62-90)
	Maternal Vaccine†	VISION	79 (55-90)
		NVSN	70 (28-88)
		Clinical Trial	57 (15-80)
RSV-associated Intensive Care Unit (ICU) admission	Nirsevimab*	VISION	82 (57-93)
		NVSN	88 (63-96)
		Overcoming	80 (73-85)
		Clinical Trial	90 (16-99)



*Jones et al. *MMWR* 2023. Available: https://www.cdc.gov/mmwr/volumes/72/wr/mm7234a4.htm
†Kampmann et al. *NEJM* 2023. Available: https://www.nejm.org/doi/full/10.1056/NEJMoa2216480

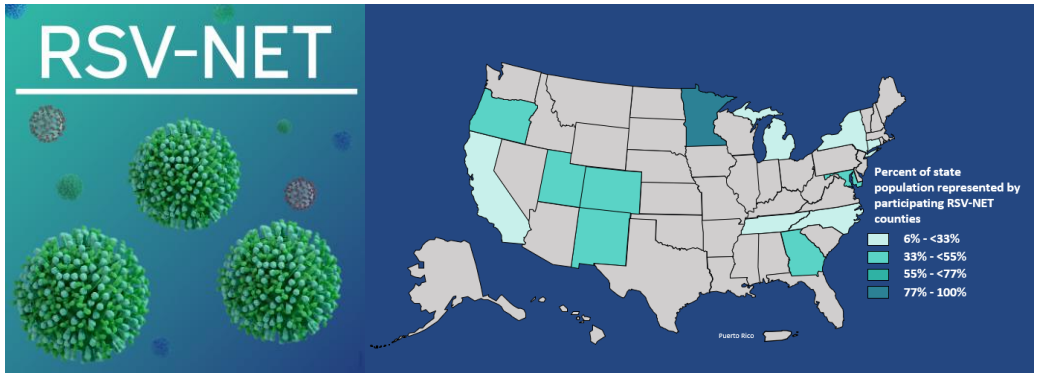
Product Effectiveness Conclusions

- Nirsevimab was effective against RSV-associated emergency department (ED) encounters, hospitalization, and critical illness among infants in their first RSV season during the 2024–2025 RSV season in the United States.
- Maternal vaccination was effective against RSV-associated ED encounters and hospitalization during the 2024–2025 RSV season in the United States.
- Ongoing monitoring of post-licensure nirsevimab and maternal RSV vaccine effectiveness will be necessary to assess additional outcomes.

Impact of RSV prevention products on U.S. pediatric RSV-associated hospitalizations

Analyzed data from two active, population-based U.S. surveillance systems that monitor laboratory-confirmed RSV-associated hospitalizations

RSV-NET



RESP-NET: Respiratory Virus Hospitalization Surveillance Network

- RSV-NET, FluSurv-NET, COVID-NET
- Patients of any age from >300 hospitals, 161 counties in 13 states
- https://www.cdc.gov/rsv/php/surveillance/rsv-net.html

NVSN

NVSN: New Vaccine Surveillance Network

- Children <18 years old hospitalized with acute respiratory illness at 7 academic pediatric health systems in 7 states
- https://www.cdc.gov/nvsn/php/about/index.html

Methods

- **Ecological analysis that compared RSV-associated hospitalizations and rates between RSV seasons before and after RSV prevention product introduction**
  - Pre-pandemic, before product introduction
    - RSV-NET: 2018–19, 2019–20
    - NVSN: 2017–19, 2018–19, 2019–20
  - After product introduction
    - 2024–25, 2nd year of product availability
- **Excluded RSV seasons**
  - 2020–21, 2021–22, and 2022–23 seasons impacted by COVID-19 pandemic
  - 2023–24, 1st year of product availability
    - Low product availability and uptake

Methods

- **Compared adjusted RSV-associated hospitalization and ICU admission rates* before and after RSV prevention product introduction**
  - **Weekly** (RSV-NET) and **monthly** (NVSN) hospitalization rates during 2024–25 versus same periods in prior seasons
  - **Cumulative** 2024–25 hospitalization rates compared to pooled rates from prior seasons
    - Hospitalization rates (RSV-NET and NVSN)
    - ICU admission rates (RSV-NET)
  - Estimated rate ratios (RR) comparing cumulative rates
  - Estimated relative rate reductions (RRR): (1-RR) x 100

*RSV-NET rates adjusted for undertesting and test sensitivity; NVSN rates adjusted for enrollment rates, weeks with <7 surveillance days, test sensitivity, and hospital market share

Methods

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  - Infants aged 0–7 months
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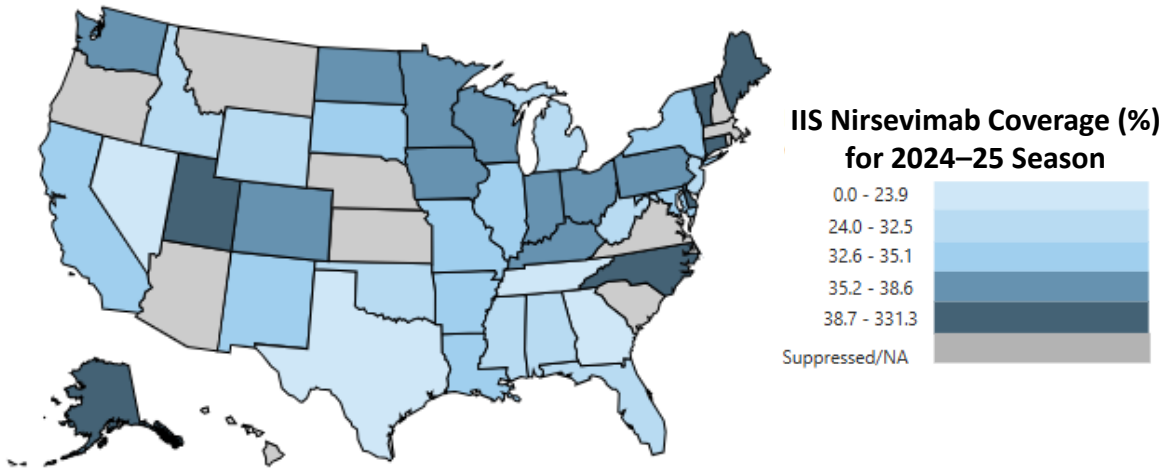
Comparison populations mostly ineligible for RSV prevention products. Included to detect hospitalization rate changes unrelated to RSV product uptake.

During 2024–25, RSV prevention products were available before RSV season onset in most states, with product coverage that increased over time.

Nirsevimab

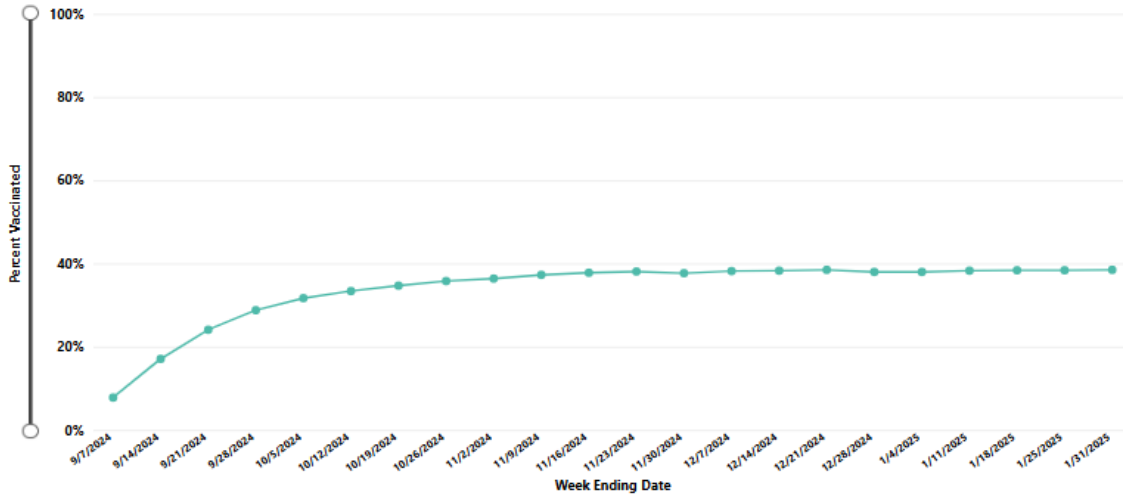
- 21% to 48% coverage among infants aged 0–7 months across 36 reporting jurisdictions as of March 2025



https://www.cdc.gov/rsvvaxview/dashboard/nirsevimab-coverage-infants.html

Maternal RSV Vaccine

- 39% of eligible* pregnant women aged 18–49 years received RSV vaccine as of January 2025



*includes pregnant women who reached at least 32 weeks' gestation as of September 1, 2024
https://www.cdc.gov/rsvvaxview/dashboard/pregnant-women-coverage.html

For an ecological analysis, RSV-associated hospitalization rates can be assessed in three age groups across different RSV seasons

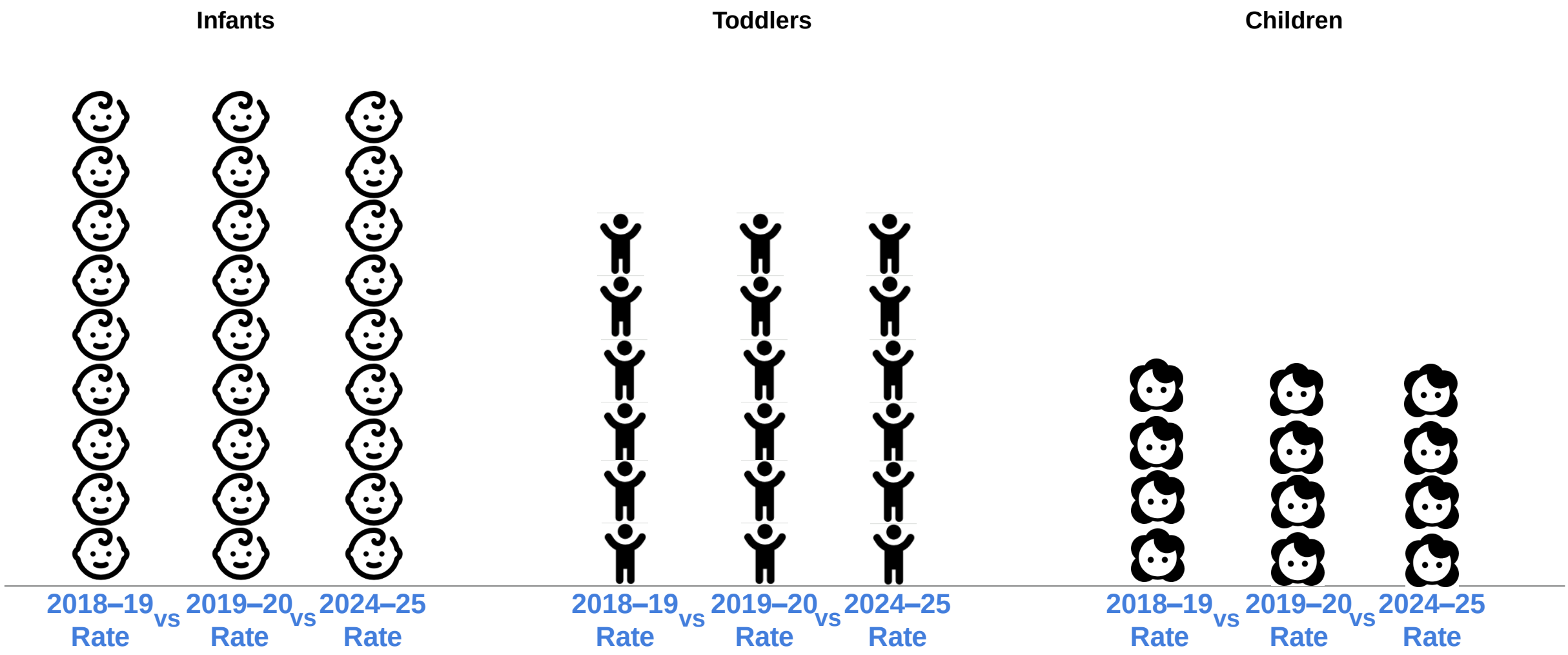
Infants 

Toddlers 

Children 

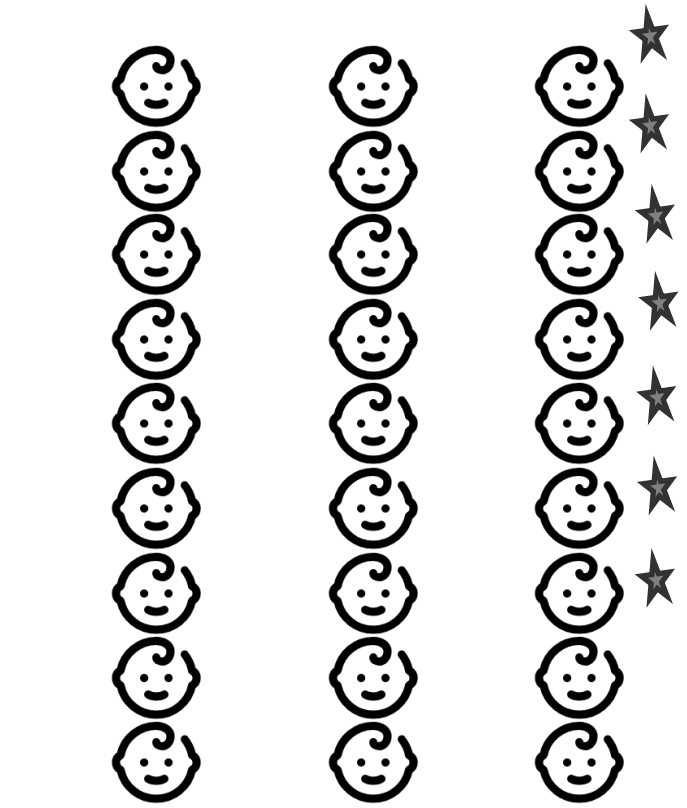
2018–19 Rate	vs	2019–20 Rate	vs	2024–25 Rate	2018–19 Rate	vs	2019–20 Rate	vs	2024–25 Rate	2018–19 Rate	vs	2019–20 Rate	vs	2024–25 Rate

In the absence of new RSV prevention products, RSV-associated hospitalization rates would be expected to vary by age group, but remain consistent within each age group across seasons.



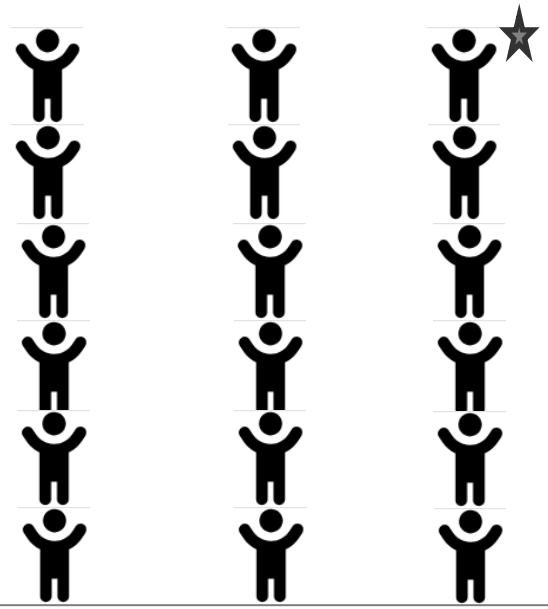
Because new RSV prevention products are only recommended for some children, RSV-associated hospitalization rates from seasons before product introduction can be compared to 2024–25 (after product introduction), by age group

Infants aged 0–7 months, eligible for nirsevimab or potentially protected by maternal RSV vaccine



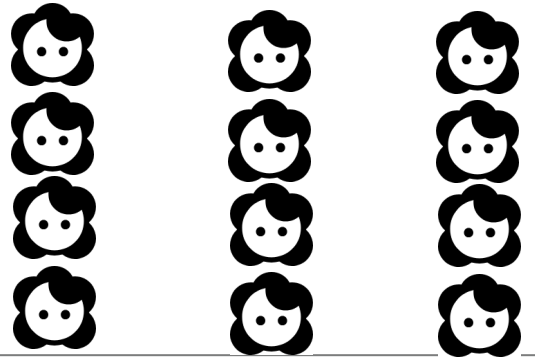
2018–19 Rate vs 2019–20 Rate vs 2024–25 Rate

Children aged 8–19 months, some of whom may have been eligible for nirsevimab based on risk conditions



2018–19 Rate vs 2019–20 Rate vs 2024–25 Rate

Children aged 20–59 months, age group ineligible for RSV prevention products



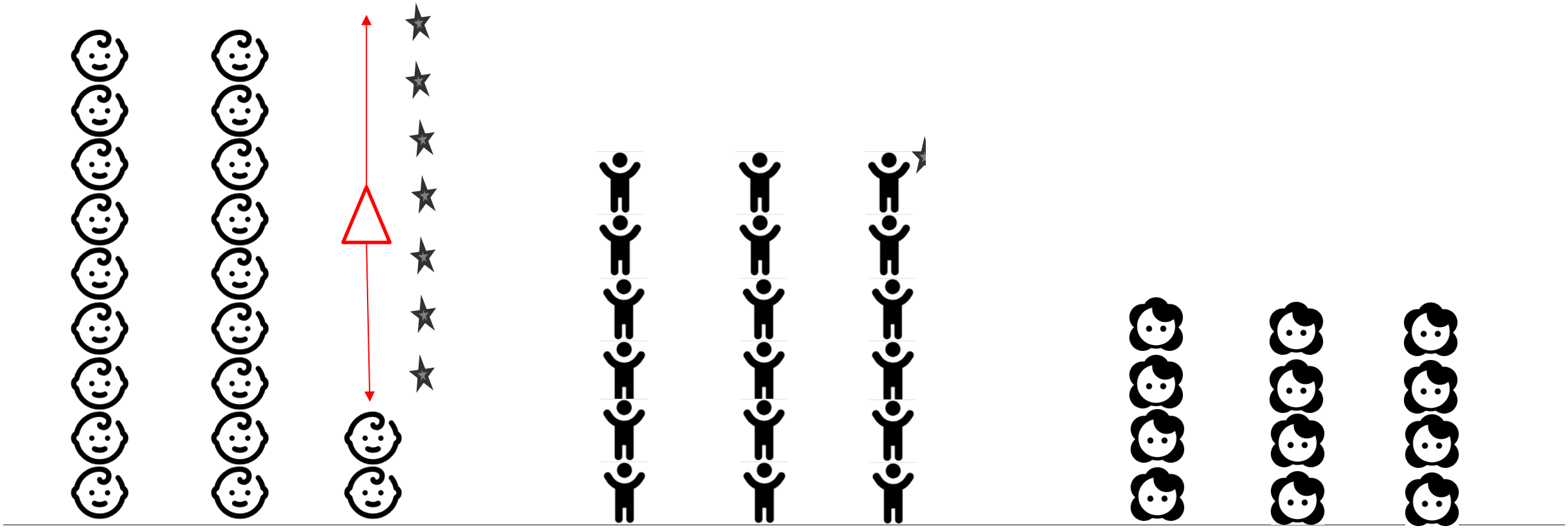
2018–19 Rate vs 2019–20 Rate vs 2024–25 Rate

The analysis can assess whether RSV-associated hospitalization rates in 2024–25 compared to prior seasons changed more for infants aged 0–7 months than for children aged 8–19 and 20–59 months

Infants aged 0–7 months, eligible for nirsevimab or potentially protected by maternal RSV vaccine

Children aged 8–19 months, some of whom may have been eligible for nirsevimab based on risk conditions

Children aged 20–59 months, age group ineligible for RSV prevention products



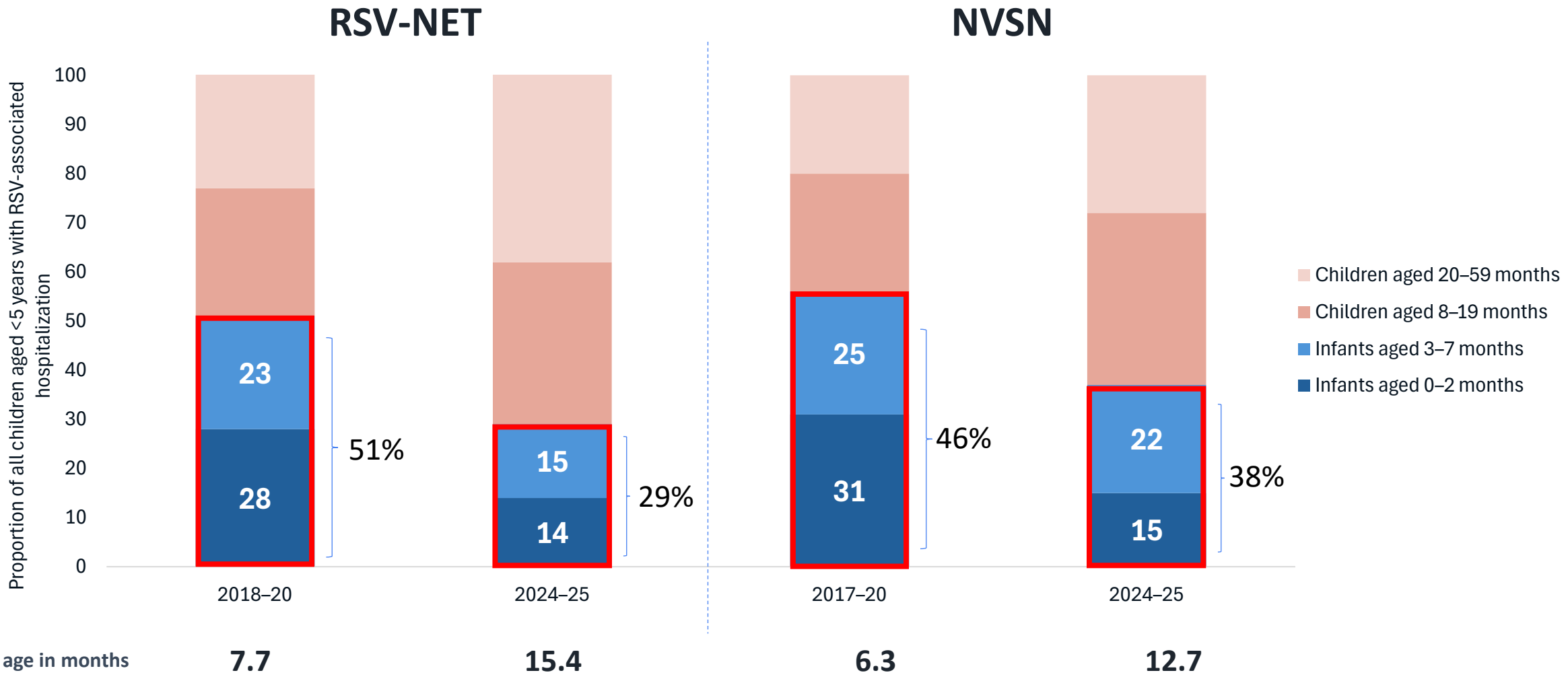
Results

Combined, RSV-NET and NVSN identified >20,000 children aged <5 years with RSV-associated hospitalizations

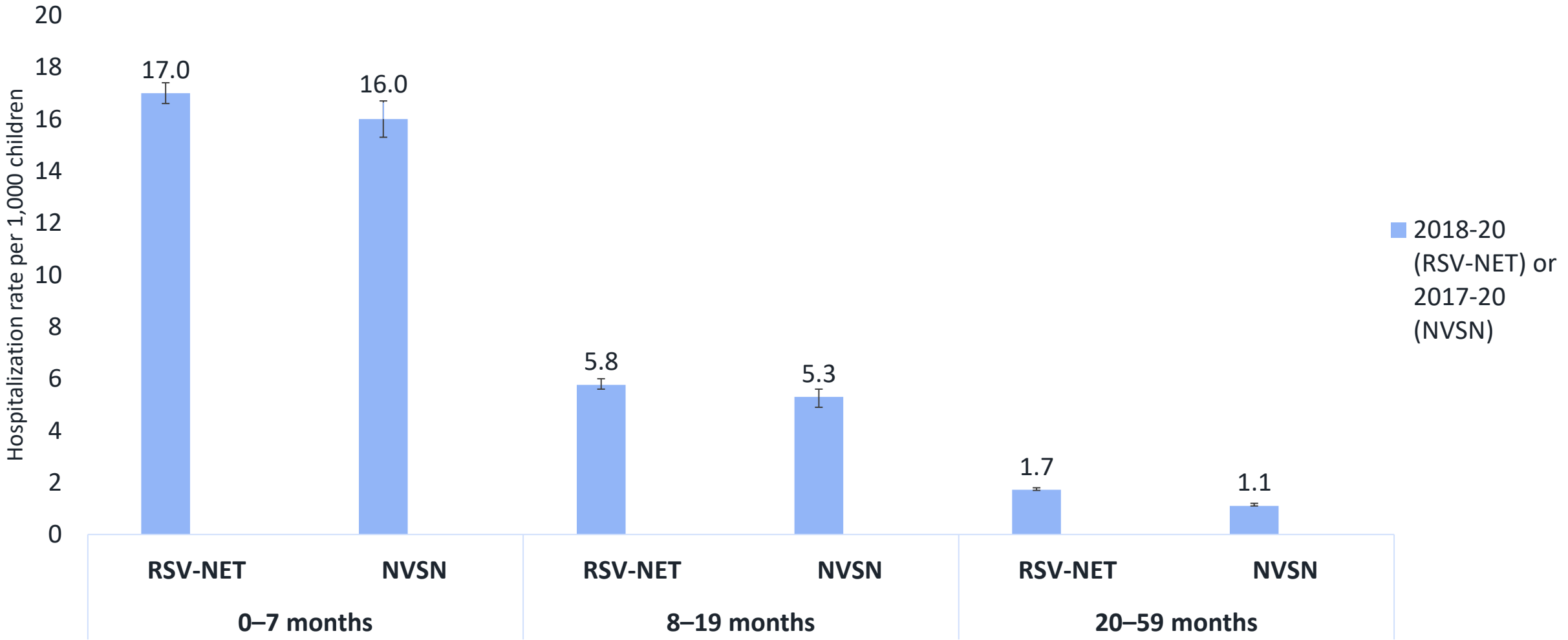
	RSV-NET		NVSN		
	2018–20	2024–25	2017–20	2024–25	Total*
Hospitalizations	9,717	7,003	3,119	1,001	20,840
Intensive Care Unit (ICU) Admissions	2,332	251	671	200	3,454

*Children at two surveillance sites for NVSN and RSV-NET could be documented in both systems. In 2018–20, 252 hospitalized children were enrolled in both systems, with 54 also having an ICU admission. During 2024–25, 76 children were enrolled in both systems with 25 having an ICU admission.

Proportions of children aged <5 years with an RSV-associated hospitalization who were aged 0–7 months decreased, and median age increased, in 2024–25 compared to seasons before product introduction



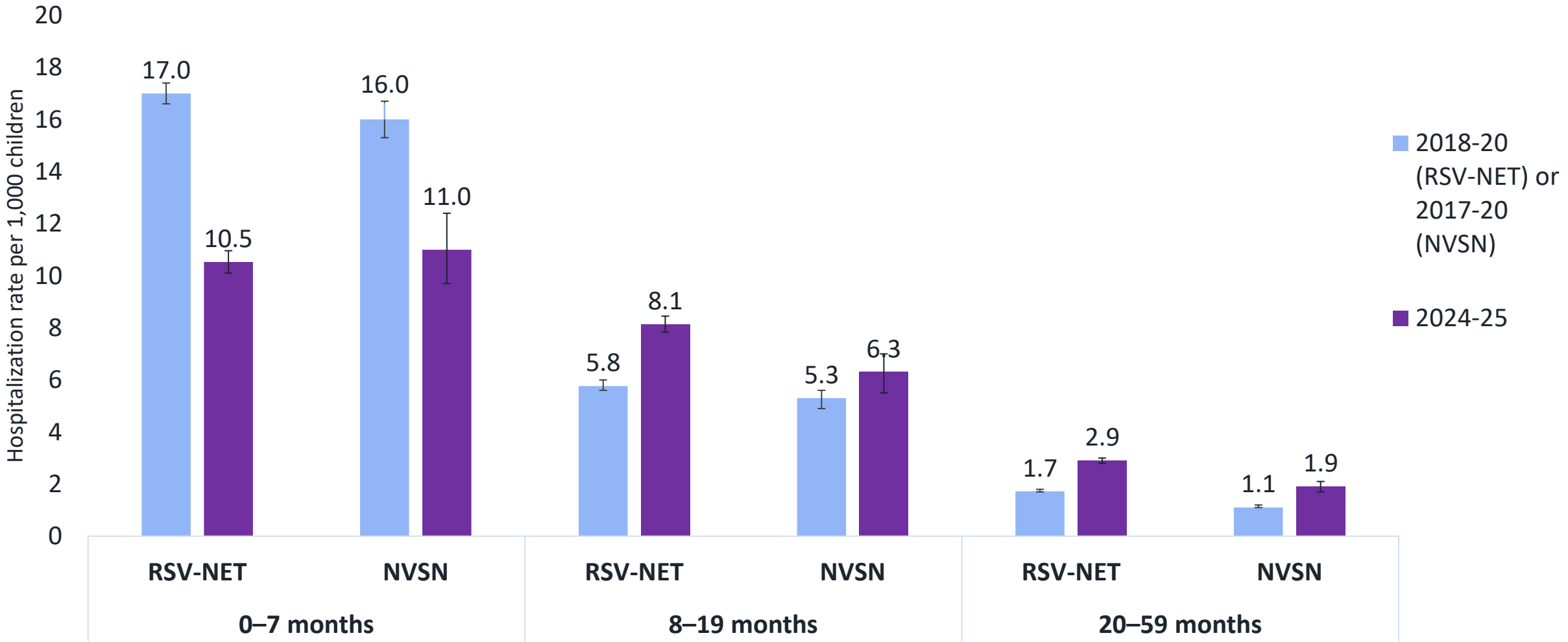
Cumulative adjusted RSV-associated hospitalization rates in 2024–25 were compared to seasons before product introduction by age group



Bar labels indicate cumulative laboratory-confirmed RSV-associated hospitalizations per 1,000 children as of April 30 (RSV-NET) or March 31 (NVSN) each season. Rates use U.S. population denominators. RSV-NET rates are adjusted to account for RSV underdetection because of testing practices and test sensitivity. NVSN rates are adjusted to account for weeks with <7 days of surveillance, the proportion of eligible children not enrolled, sensitivity of respiratory syncytial virus reverse-transcription polymerase chain reaction testing compared to serology, and each site's estimated market share of acute respiratory illness hospitalizations by age. Error bars denote 95% confidence intervals (95% CI).

Patton & Moline et al, MMWR 2025; Curns et al. Pediatrics 2024

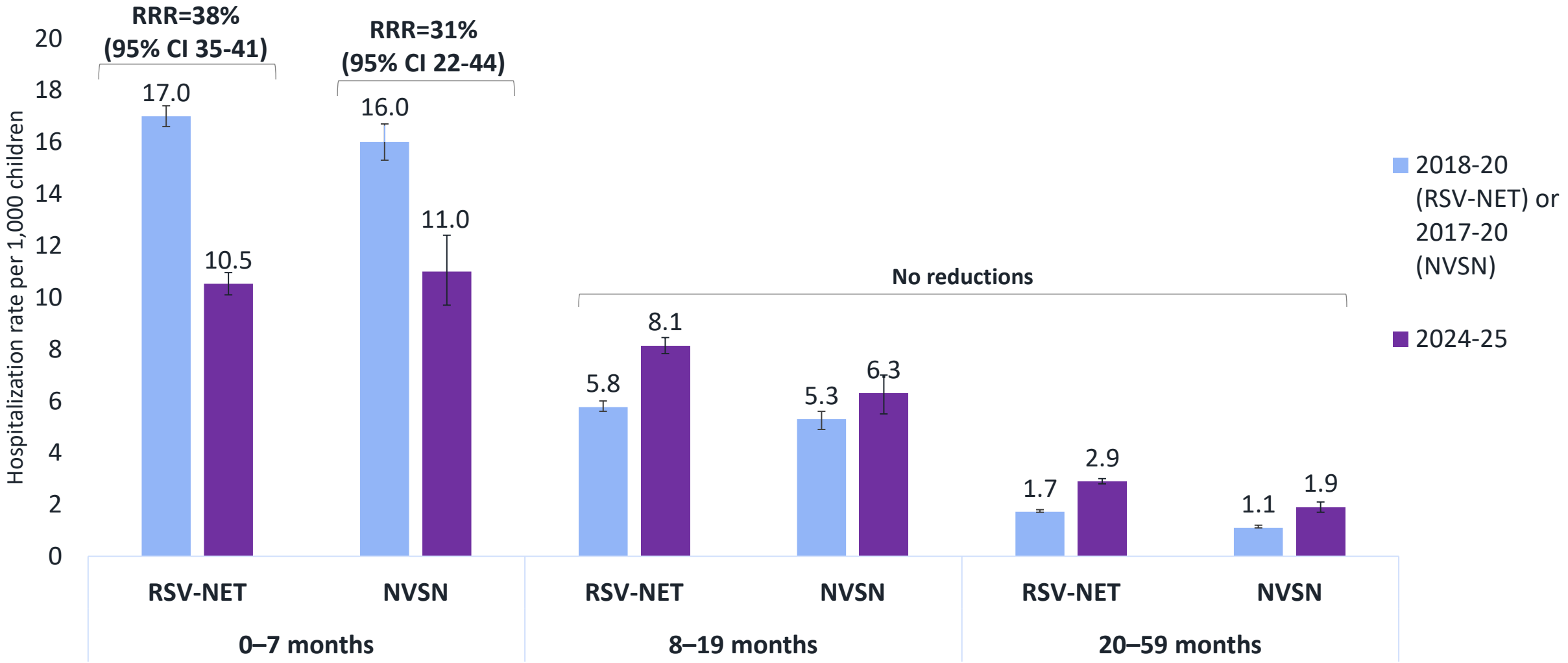
Cumulative adjusted RSV-associated hospitalization rates in 2024–25 were compared to seasons before product introduction by age group



Bar labels indicate cumulative laboratory-confirmed RSV-associated hospitalizations per 1,000 children as of April 30 (RSV-NET) or March 31 (NVSN) each season. Rates use U.S. population denominators. RSV-NET rates are adjusted to account for RSV underdetection because of testing practices and test sensitivity. NVSN rates are adjusted to account for weeks with <7 days of surveillance, the proportion of eligible children not enrolled, sensitivity of respiratory syncytial virus reverse-transcription polymerase chain reaction testing compared to serology, and each site's estimated market share of acute respiratory illness hospitalizations by age. Error bars denote 95% confidence intervals (95% CI).

Patton & Moline et al, MMWR 2025; Curns et al. Pediatrics 2024

Among infants aged 0–7 months (eligible for protection by nirsevimab or maternal vaccine) RSV-associated hospitalization rates were reduced by 38% and 31% in 2024–25 compared to seasons before product introduction

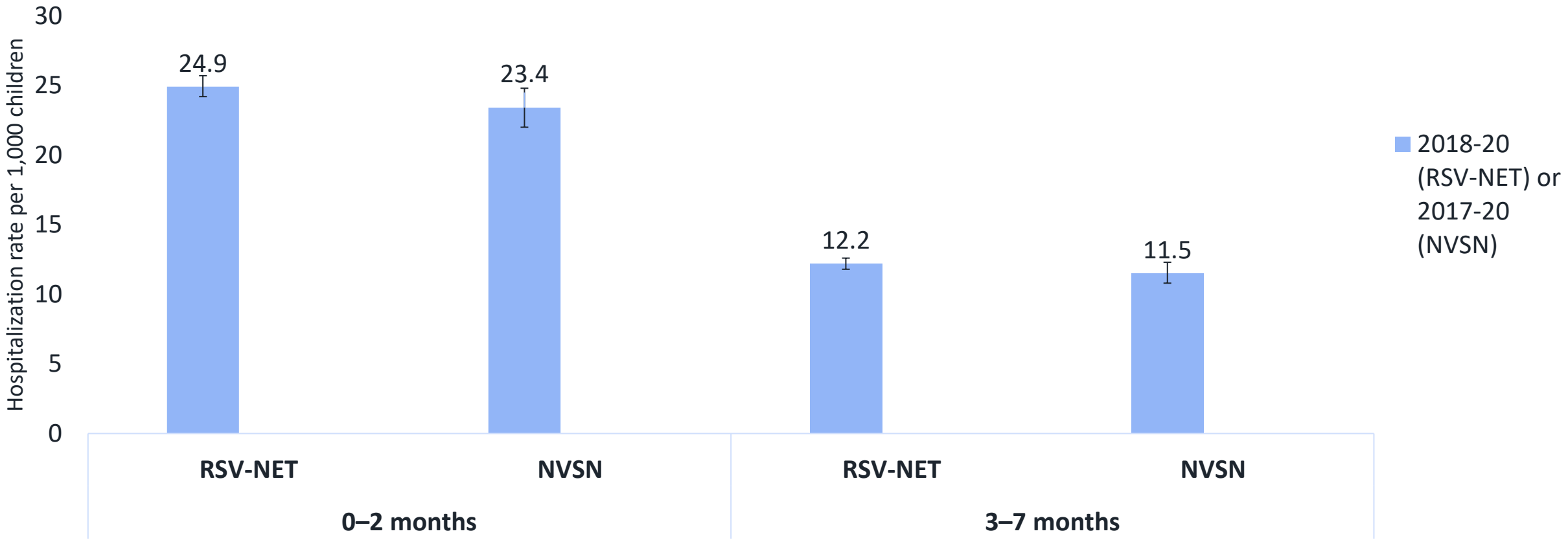


RRR=relative rate reduction, 95%CI = 95% confidence interval

Bar labels indicate cumulative laboratory-confirmed RSV-associated hospitalizations per 1,000 children as of April 30 (RSV-NET) or March 31 (NVSN) each season. Rates use U.S. population denominators. RSV-NET rates are adjusted to account for RSV underdetection because of testing practices and test sensitivity. NVSN rates are adjusted to account for weeks with <7 days of surveillance, the proportion of eligible children not enrolled, sensitivity of respiratory syncytial virus reverse-transcription polymerase chain reaction testing compared to serology, and each site's estimated market share of acute respiratory illness hospitalizations by age. Error bars denote 95% confidence intervals.

Patton & Moline et al, MMWR 2025; Curns et al. Pediatrics 2024

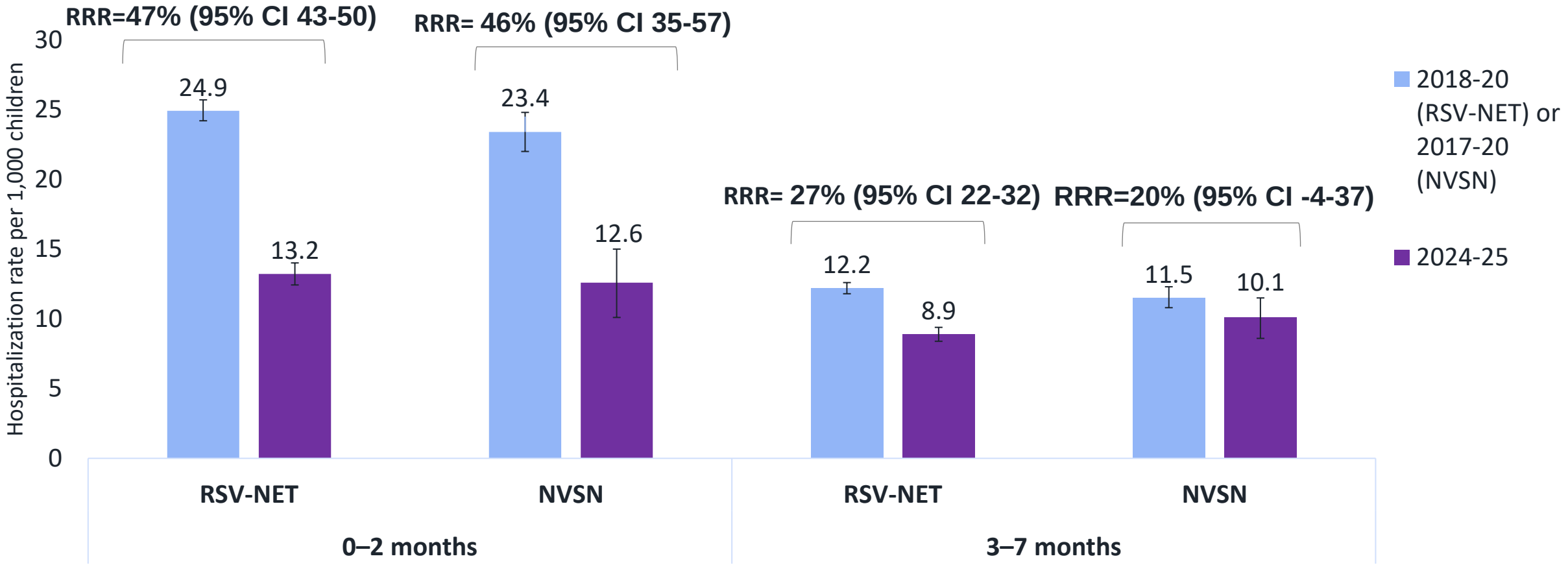
Cumulative adjusted RSV-associated hospitalization rates in 2024–25 were compared to prior seasons among subgroups of infants aged 0–2 and 3–7 months



Bar labels indicate cumulative laboratory-confirmed RSV-associated hospitalizations per 1,000 children as of April 30 (RSV-NET) or March 31 (NVSN) each season. Rates use U.S. population denominators. RSV-NET rates are adjusted to account for RSV underdetection because of testing practices and test sensitivity. NVSN rates are adjusted to account for weeks with <7 days of surveillance, the proportion of eligible children not enrolled, sensitivity of respiratory syncytial virus reverse-transcription polymerase chain reaction testing compared to serology, and each site's estimated market share of acute respiratory illness hospitalizations by age. Error bars denote 95% confidence intervals.

Patton & Moline et al, MMWR 2025; Curns et al. Pediatrics 2024

RSV-associated hospitalization rates were reduced by 47% in RSV-NET and 46% in NVSN among infants aged 0–2 months in 2024–25 compared to seasons before product introduction



RRR=relative rate reduction, 95%CI = 95% confidence interval

Bar labels indicate cumulative laboratory-confirmed RSV-associated hospitalizations per 1,000 children as of April 30 (RSV-NET) or March 31 (NVSN) each season. Rates use U.S. population denominators. RSV-NET rates are adjusted to account for RSV underdetection because of testing practices and test sensitivity. NVSN rates are adjusted to account for weeks with <7 days of surveillance, the proportion of eligible children not enrolled, sensitivity of respiratory syncytial virus reverse-transcription polymerase chain reaction testing compared to serology, and each site's estimated market share of acute respiratory illness hospitalizations by age. Error bars denote 95% confidence intervals.

Conclusions

RSV Prevention Product Impact Conclusions

- **Two U.S. population-based surveillance networks demonstrated reductions in RSV-associated hospitalization rates during 2024–25 among infants eligible for RSV prevention product protection**
  - 38% (RSV-NET) and 31% (NVSN) reductions in 2024–25 compared to RSV seasons before product introduction among infants aged 0–7 months

Conclusions

- **Reductions in RSV-associated hospitalization were greatest among infants aged 0–2 months born just before or during the RSV season**
  - 47% (RSV-NET) and 46% (NVSN) reductions in 2024–25
  - Group at highest risk of hospitalization
  - Underscores importance of protection through maternal vaccination during pregnancy or nirsevimab in first week of life

- **Ongoing monitoring of RSV disease trends—including severity and age distribution—is critical to assess sustained impact of RSV prevention products**

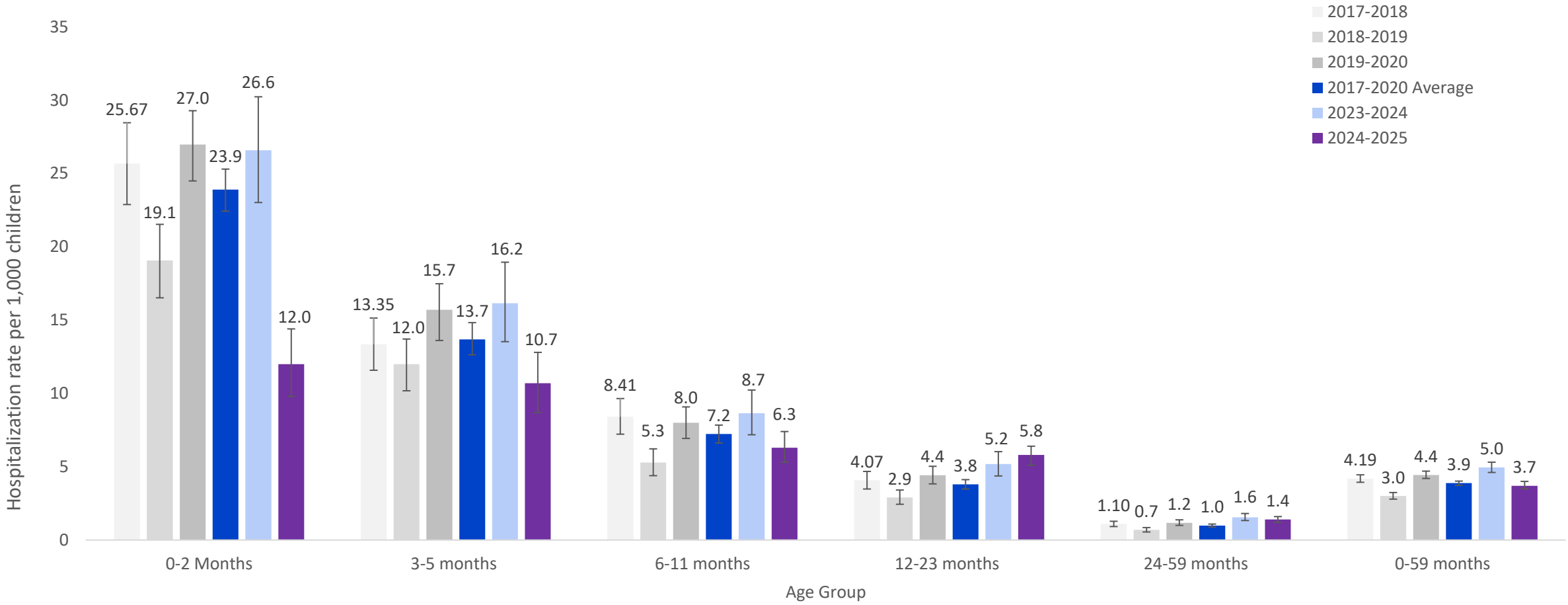
Acknowledgements

- CDC National Center for Immunizations and Respiratory Diseases (NCIRD)
- CDC-funded partners
  - VISION
  - New Vaccine Surveillance Network (NVSN)
  - Overcoming Network
  - RSV-NET

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

RSV-associated hospitalization rates among children <5 years of age, by season, New Vaccine Surveillance Network, 2017-2025

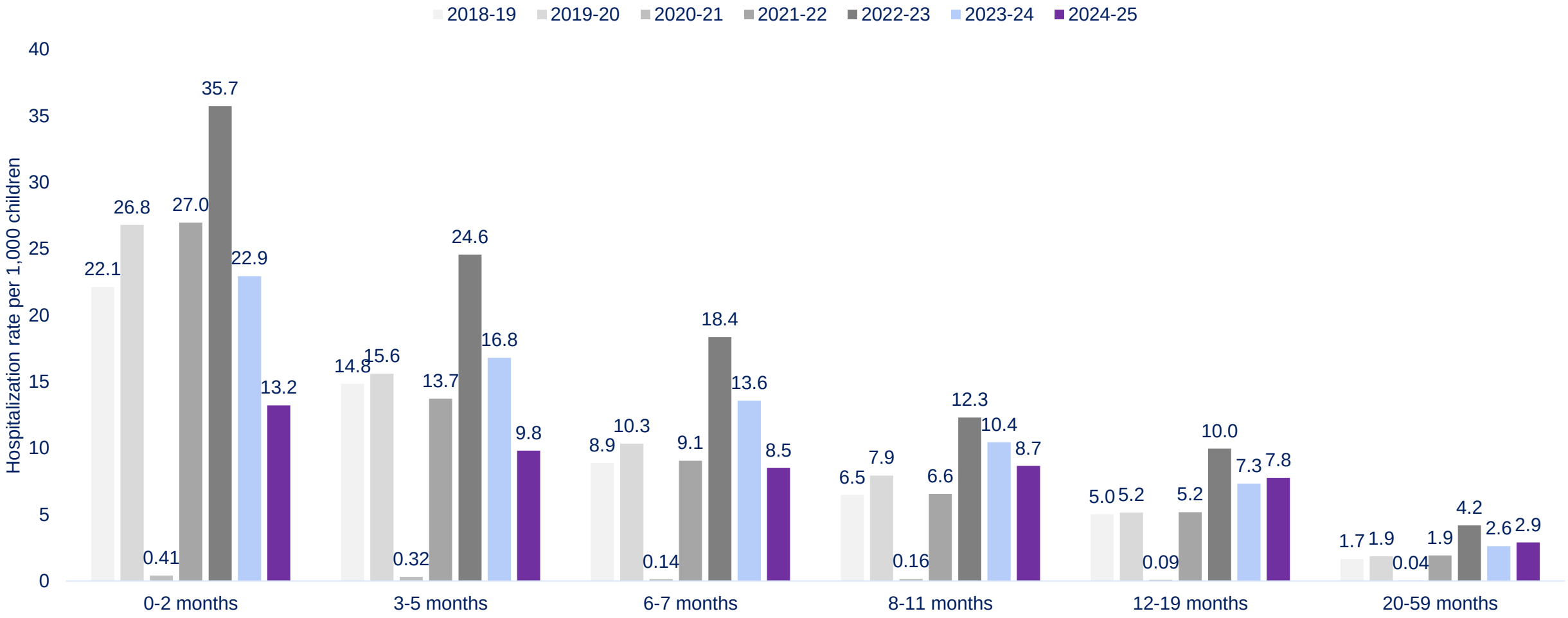


Bar labels indicate the incidence rate per 1,000 children. Rates were calculated using county-specific denominators from the 2020 US bridged-race population estimates, and population-based numerators based on the observed number of hospitalizations at each site adjusted to account for weeks with <7 days of surveillance, the proportion of eligible children not enrolled, sensitivity of respiratory syncytial virus reverse-transcription polymerase chain reaction testing compared to serology, and each site's estimated market share of ARI hospitalizations by age.

Error bars denote 95% confidence intervals determined based on 1000 bootstrap samples for each rate.

Curns et al. Pediatrics 2024; Patton & Moline et al, MMWR 2025.

RSV-associated hospitalization rates among children <5 years of age, by season, RSV-NET, 2018–2025



Bar labels indicate the incidence rate per 1,000 children. Rates were calculated using county-specific denominators from the 2020 US bridged-race population estimates, and population-based numerators based on the observed number of hospitalizations at each site adjusted to account for weeks with <7 days of surveillance, the proportion of eligible children not enrolled, sensitivity of respiratory syncytial virus reverse-transcription polymerase chain reaction testing compared to serology, and each site's estimated market share of ARI hospitalizations by age.

Error bars denote 95% confidence intervals determined based on 1000 bootstrap samples for each rate.

RSV-NET unpublished data

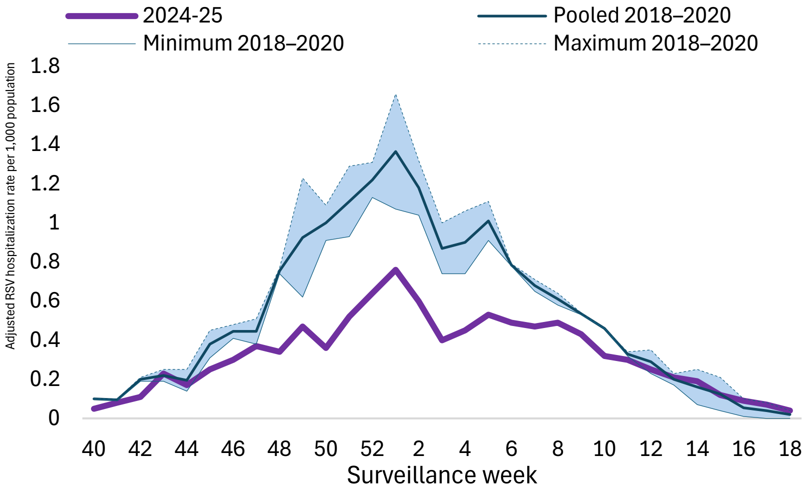
Weekly (RSV-NET) and monthly* (NVSN) adjusted RSV-associated hospitalization rates in 2024–25 were lower compared to prior seasons among infants aged 0–7 months and were the same or higher than prior seasons among children aged 20–59 months

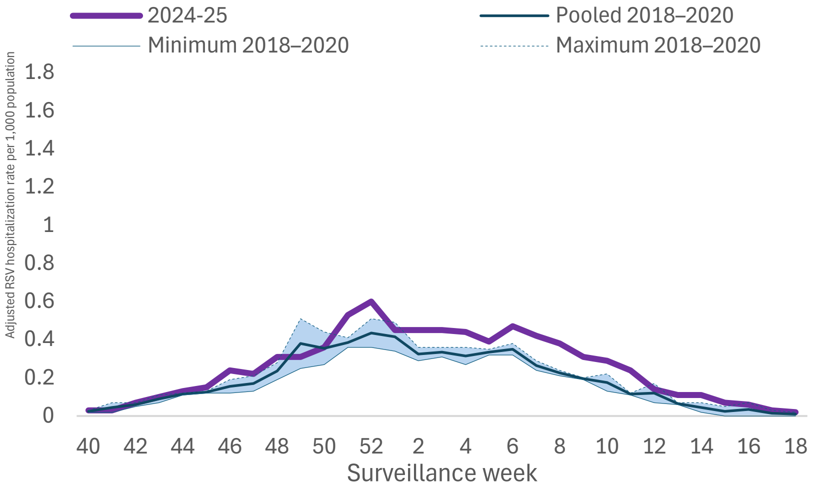
Infants aged 0–7 months
Eligible for protection by nirsevimab or maternal vaccine

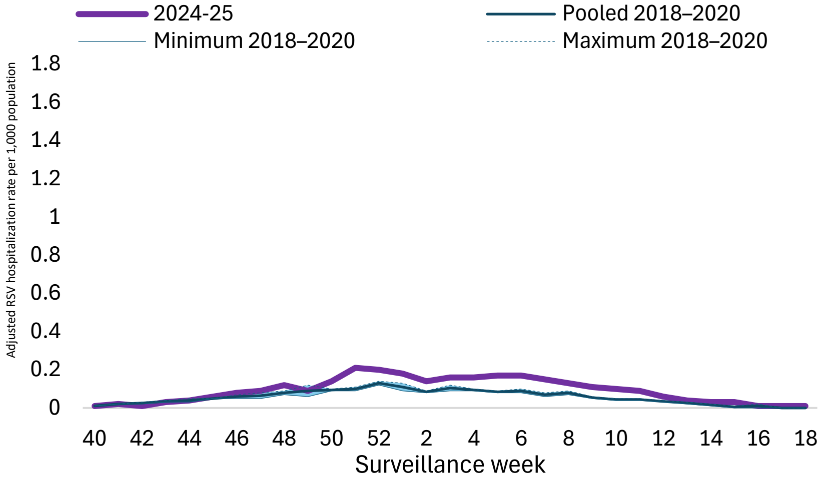
Children aged 8–19 months
Small number eligible for nirsevimab

Children aged 20–59 months
Ineligible for either product

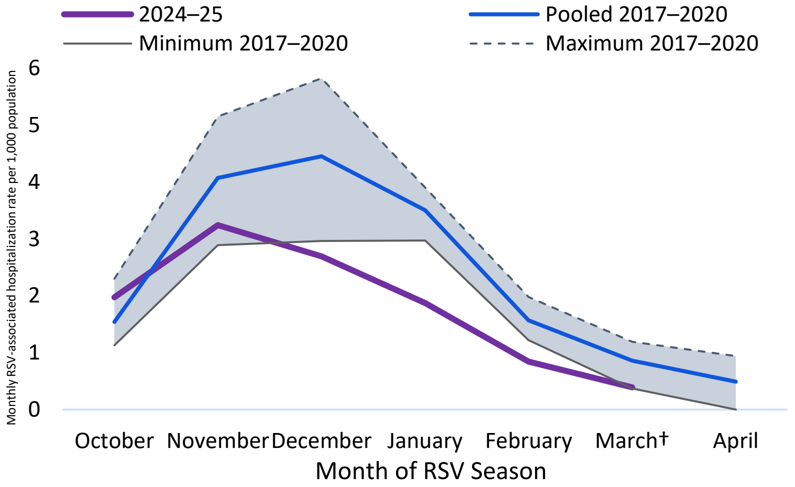
RSV-NET

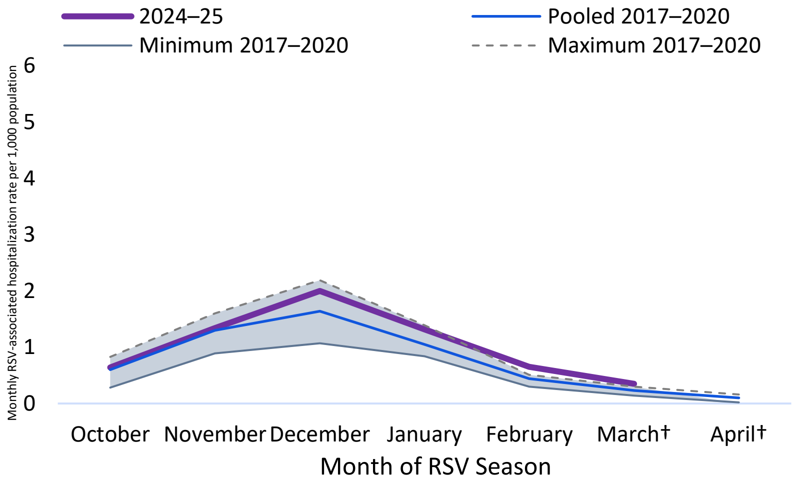


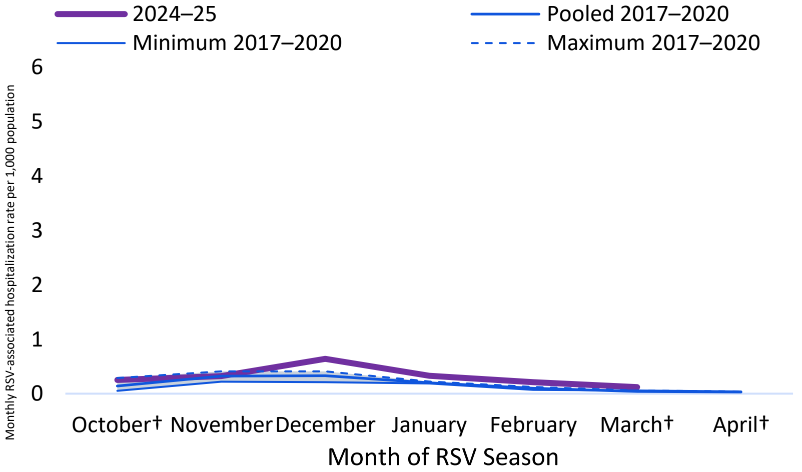




NVSN



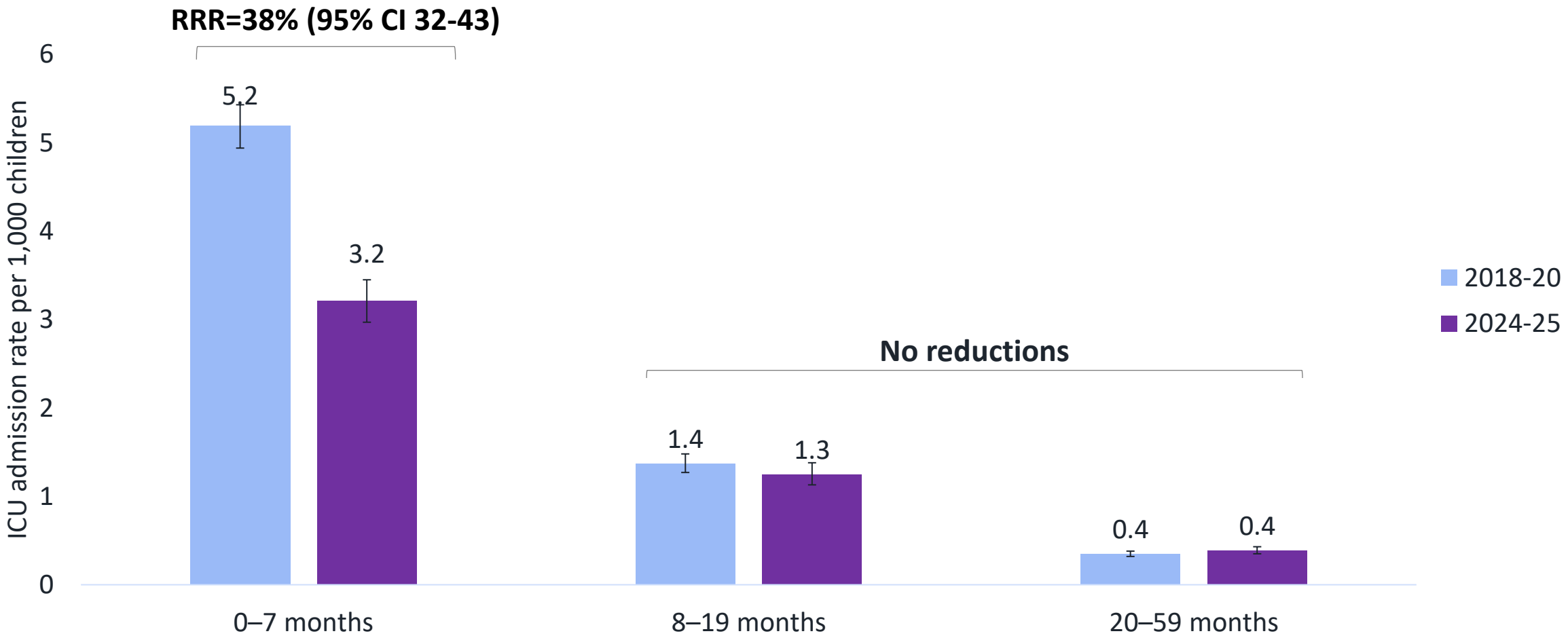




*2024-25 NVSN rates through March 31, 2025. †NVSN rates should be interpreted with caution as relative standard error ≥30 or n <5: 0–7 months March 2024-25, 8–19 months March 2017–20 max, 20–59 months October, March and April 2017–20 min and April 2017–20 pooled

RSV-NET rates are adjusted to account for RSV underdetection because of testing practices and test sensitivity. NVSN rates are adjusted to account for weeks with <7 days of surveillance, the proportion of eligible children not enrolled, sensitivity of respiratory syncytial virus reverse-transcription polymerase chain reaction testing compared to serology, and each site's estimated market share of acute respiratory illness hospitalizations by age.

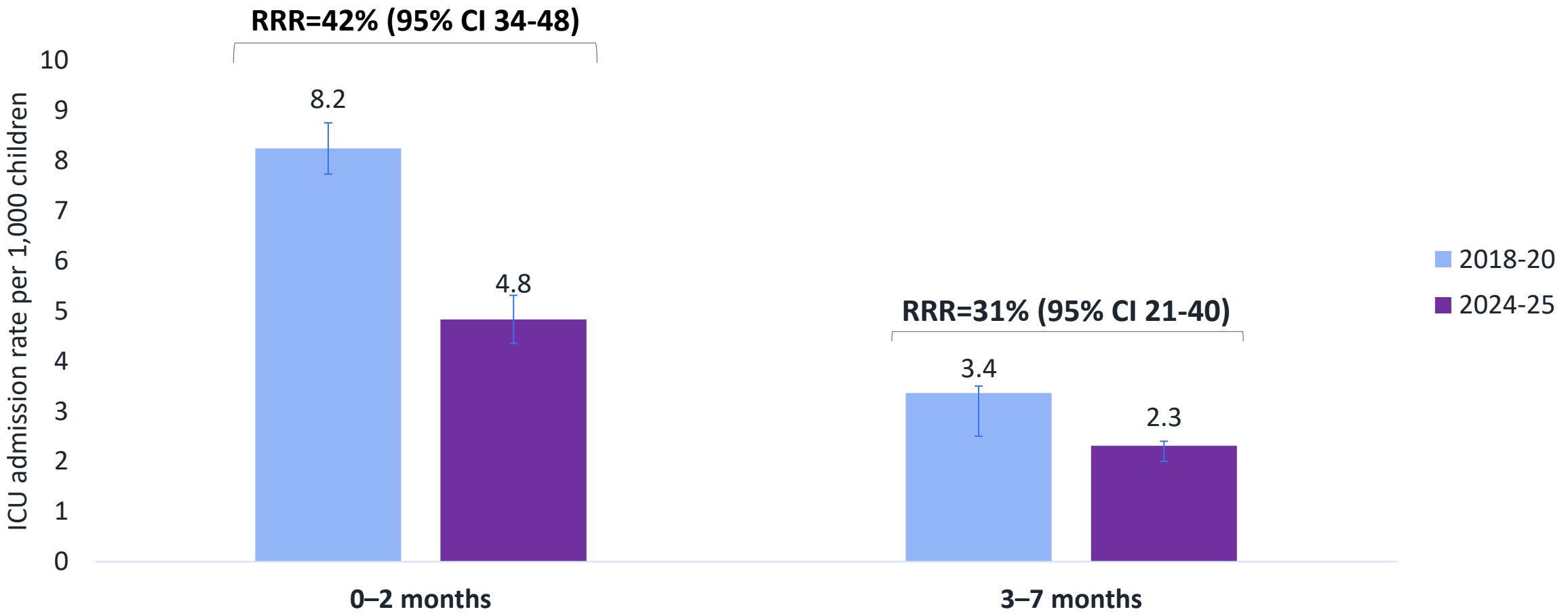
RSV-associated ICU admission rates in RSV-NET were reduced by 38% among infants aged 0–7 months; no reductions occurred among children aged 8–19 and 20–59 months



RRR=relative rate reduction, 95%CI = 95% confidence interval

Bar labels indicate cumulative laboratory-confirmed RSV-associated hospitalizations per 1,000 children as of April 30 (RSV-NET) or March 31 (NVSN) each season. Rates use U.S. population denominators. RSV-NET rates are adjusted to account for RSV underdetection because of testing practices and test sensitivity. NVSN rates are adjusted to account for weeks with <7 days of surveillance, the proportion of eligible children not enrolled, sensitivity of respiratory syncytial virus reverse-transcription polymerase chain reaction testing compared to serology, and each site's estimated market share of acute respiratory illness hospitalizations by age. Error bars denote 95% confidence intervals.

RSV-associated ICU admission rates in RSV-NET were reduced by 42% among infants aged 0–2 months and by 31% among infants aged 3–7 months

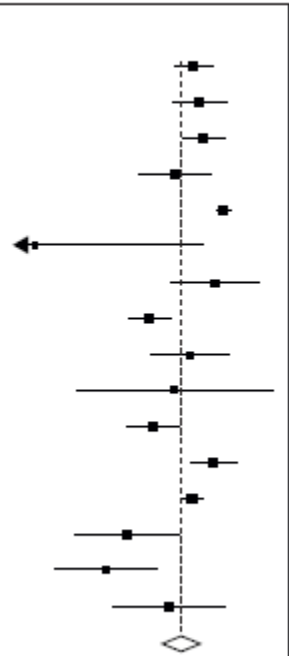


RRR=relative rate reduction, 95%CI = 95% confidence interval

Bar labels indicate cumulative laboratory-confirmed RSV-associated hospitalizations per 1,000 children as of April 30 (RSV-NET) or March 31 (NVSN) each season. Rates use U.S. population denominators. RSV-NET rates are adjusted to account for RSV underdetection because of testing practices and test sensitivity. NVSN rates are adjusted to account for weeks with <7 days of surveillance, the proportion of eligible children not enrolled, sensitivity of respiratory syncytial virus reverse-transcription polymerase chain reaction testing compared to serology, and each site's estimated market share of acute respiratory illness hospitalizations by age. Error bars denote 95% confidence intervals.

Meta-analysis of nirsevimab effectiveness against RSV-associated hospitalization, 2023-2024 season

	Country	Nirsevimab, n (N)	Control, n (N)	OR (95% CI)	p value	PE (95% CI)
RSV-related hospitalisation						
Jeziorski et al (2025)[41]	France	102 (230)	609 (766)	0·21 (0·15–0·28)		79 (72-85)
Carbajal et al (2024)[40]	France	22 (723)	170 (1391)	0·23 (0·14–0·35)		77 (65-86)
Assad et al (2024)[39]	France	60 (690)	97 (345)	0·24 (0·17–0·35)		76 (65-83)
Lenglart et al (2025)[43]	France	26 (62)	199 (241)	0·15 (0·08–0·28)		85 (72-92)
Jabagi et al (2025)[42]	France	342 (41237)	992 (41237)	0·34 (0·30–0·38)		66 (62-70)
Consolati et al (2024)[33]	Italy	0 (369)	14 (168)	0·01 (0·00–0·24)		99 (76-100)
López-Lacort et al (2024)[32]	Spain	56 (115)	39 (51)	0·29 (0·14–0·61)		71 (39-86)
Coma et al (2024)[28]	Spain	52 (23127)	76 (3398)	0·10 (0·07–0·14)		90 (86-93)
Agüera et al (2024)[20]	Spain	40 (109)	54 (72)	0·19 (0·10–0·37)		81 (63-90)
Rodríguez-Fernández et al (2024)[38]	Spain	6 (14)	15 (18)	0·15 (0·03–0·77)		85 (23-97)
Andina Martínez et al (2024)[34]	Spain	150 (331)	246 (277)	0·10 (0·07–0·16)		90 (84-93)
Perramon-Malavez et al (2025)[36]	Spain	109 (14055)	34 (1286)	0·29 (0·19–0·42)		71 (58-81)
Núñez et al (2025)[35]	Spain	603 (3973)	346 (733)	0·20 (0·17–0·24)		80 (76-83)
Moline et al (2025)[46]	USA	6 (59)	401 (640)	0·07 (0·03–0·16)		93 (84-97)
Moline et al (2024)[47]	USA	6 (73)	525 (802)	0·05 (0·02–0·11)		95 (89-98)
Xu et al (2024)[48*]	USA	5 (75)	161 (468)	0·14 (0·05–0·34)		86 (66-95)
Overall, MP+HKSJ		**1585 (85242)**	**3978 (51893)**	**0·17 (0·12–0·23)**	**<0·0001**	***83 (77-88)***
(tau²=0·246, I²=85·8%, p<0·001)						

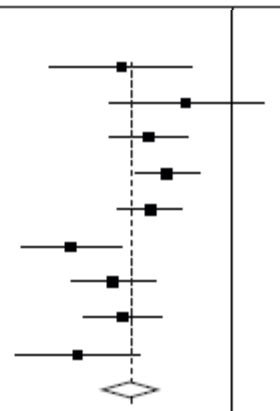


VISION	79 (67-87)
NVSN	82 (71-88)

Sumsuzzman DM et al. Real-world effectiveness of nirsevimab against respiratory syncytial virus disease in infants: a systematic review and meta-analysis. *Lancet Child Adolesc Health* 2025
PE: Product Effectiveness; CI: Confidence Interval

Meta-analysis of nirsevimab effectiveness against RSV-associated ICU admission, 2023-2024 season

	Country	Nirsevimab, n (N)	Control, n (N)	OR (95% CI)	p value	PE (95% CI)
ICU admission						
Jeziorski et al (2025)[41]	France	15 (24)	63 (69)	0·16 (0·05–0·51)		84 (49-95)
Carbajal et al (2024)[40]	France	3 (704)	11 (1232)	0·48 (0·13–1·17)		52 (-17-87)
Paireau et al (2024)[44]	France	37 (58)	201 (230)	0·25 (0·13–0·49)		75 (51-87)
Assad et al (2024)[39]	France	27 (193)	47 (146)	0·34 (0·20–0·58)		66 (42-80)
Jabagi et al (2025)[42]	France	17 (41237)	66 (41237)	0·26 (0·15–0·44)		74 (56-85)
Coma et al (2024)[28]	Spain	8 (23083)	17 (3398)	0·07 (0·03–0·16)		93 (84-97)
Agüera et al (2024)[20]	Spain	40 (109)	58 (72)	0·14 (0·07–0·28)		86 (72-93)
Perramon-Malavez et al (2025)[35]	Spain	25 (14055)	14 (1286)	0·16 (0·08–0·31)		84 (69-92)
Xu et al (2024)[48*]	USA	4 (82)	141 (353)	0·08 (0·03–0·22)		92 (78-97)
Overall, MP+HKSJ		**176 (79545)**	**618 (48023)**	**0·19 (0·12–0·29)**	**<0·0001**	81 (71-88)
(tau²=0·200, I²=55·6%, p=0·021)						



VISION	82 (57-93)
NVSN	88 (63-96)
OC	79 (62-89)

Sumsuzzman DM et al. Real-world effectiveness of nirsevimab against respiratory syncytial virus disease in infants: a systematic review and meta-analysis. *Lancet Child Adolesc Health* 2025
PE: Product Effectiveness; CI: Confidence Interval

Maternal RSV vaccine effectiveness estimates from Argentina and UK

- **Argentina**
  - Razzini et al.[1]: VE against RSV-associated hospitalization was 81% (95% CI 63–91) among infants under age 3 months
  - Perez Marc et al.[2]: VE against RSV-associated hospitalization was 79% (95% CI 62–88) among infants under age 3 months
  - Gentile et al.[3]: VE against RSV-associated hospitalization was 79% (95% CI: 51–91) among infants under age 6 months
- **UK**
  - Williams et al.[4]: VE against RSV-associated hospitalization was 72% (95% CI: 48–85) among infants under age 3 months

[1]Razzini JL et al. Impact and Effectiveness of Universal Respiratory Syncytial Virus Vaccination During Pregnancy on Infant Hospitalizations in Buenos Aires: A Retrospective Cohort Study. *VeriXiv.* 2025
[2]Pérez Marc G et al. Real-world effectiveness of RSVpreF vaccination during pregnancy against RSV-associated lower respiratory tract disease leading to hospitalisation in infants during the 2024 RSV season in Argentina (BERNI study): a multicentre, retrospective, test-negative, case–control study. *The Lancet Infectious Diseases.* 2025
[3]Gentile A et al. Maternal Immunization With RSVpreF Vaccine: Effectiveness in Preventing Respiratory Syncytial Virus–associated Hospitalizations in Infants Under 6 Months in Argentina: Multicenter Case–control Study. *The Pediatric Infectious Disease Journal*. 2025
[4]Williams TC et al. Bivalent Prefusion F Vaccination in Pregnancy and Respiratory Syncytial Virus Hospitalisation in Infants: Results of a Prospective, Multi-Centre, Test-Negative Study. Available at SSRN: https://ssrn.com/abstract=5184994 or http://dx.doi.org/10.2139/ssrn.5184994

RSV Prevention Products: Clinical Trail Efficacy

- **Nirsevimab**
  - Razzini et al.[1]: Effectiveness against RSV-associated hospitalization was 81% (95% CI 63–91) among infants under age 3 months
  - Perez Marc et al.[2]: VE against RSV-associated hospitalization was 79% (95% CI 62–88) among infants under age 3 months
  - Gentile et al.[3]: VE against RSV-associated hospitalization was 79% (95% CI: 51–91) among infants under age 6 months
- **Maternal RSV Vaccine**
  - Williams et al.[4]: VE against RSV-associated hospitalization was 72% (95% CI: 48–85) among infants under age 3 months

[1]Razzini JL et al. Impact and Effectiveness of Universal Respiratory Syncytial Virus Vaccination During Pregnancy on Infant Hospitalizations in Buenos Aires: A Retrospective Cohort Study. *VeriXiv.* 2025
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[3]Gentile A et al. Maternal Immunization With RSVpreF Vaccine: Effectiveness in Preventing Respiratory Syncytial Virus–associated Hospitalizations in Infants Under 6 Months in Argentina: Multicenter Case–control Study. *The Pediatric Infectious Disease Journal*. 2025
[4]Williams TC et al. Bivalent Prefusion F Vaccination in Pregnancy and Respiratory Syncytial Virus Hospitalisation in Infants: Results of a Prospective, Multi-Centre, Test-Negative Study. Available at SSRN: https://ssrn.com/abstract=5184994 or http://dx.doi.org/10.2139/ssrn.5184994

Product Effectiveness Analyses – Controlling for Confounding

	VISION	NVSN	Overcoming
Analysis	Multivariable logistic regression models, adjusting for site, age in months, calendar date, race and ethnicity, and sex. Models adjusting for underlying medical conditions did not meaningfully change estimates.	Multivariable logistic regression models, adjusting for site, age in months, and month of enrollment. Nirsevimab analysis adjusted for presence of ≥1 high-risk medical condition for severe RSV disease; maternal RSV analysis adjusted for race/ethnicity and insurance status.	Multivariable logistic regression models, adjusting for site, age in months, timing of enrollment, presence of ≥1 underlying medical condition, and social vulnerability index.

- Models did not adjust for healthcare utilization behavior or specific underlying characteristics between vaccinated and unvaccinated patients