



Government of Western Australia
WA Country Health Service

Effect of Nirsevimab on RSV-Associated Hospitalisations Among Children Aged <2 Years in the Midwest Region, A Comparative Analysis, 2023-2024.

Dr Karen Lim Kow Hian, Paediatric Advanced Trainee,
Department of Paediatrics,
Geraldton Regional Hospital

Dr Yolande Knight, Consultant Public Health Medicine,
Midwest Public Health Unit



RSV: A global burden

- Annually, 33 million of RSV LRTI in children < 5 years
- 3.6 million hospitalisations
- 118 200 deaths

Li et al. *Lancet* 2022

Respiratory syncytial virus cases close to 10 times higher in some states, as testing rates increase



By Sara Garcia

By Imogen Hayne

Influenza

Thu 6 Jul 2023



Respiratory syncytial virus can be particularly dangerous in young children. (Pexels: Andrea Piacquadio)

WA Regional Distribution

Statewide total 2024

9,246

5-Year YTD average 2021 - 2025 = 8767

Statewide Aboriginal to
Non-Aboriginal Rate Ratio (2024)

2.2 : 1

Rate per 100,000 population

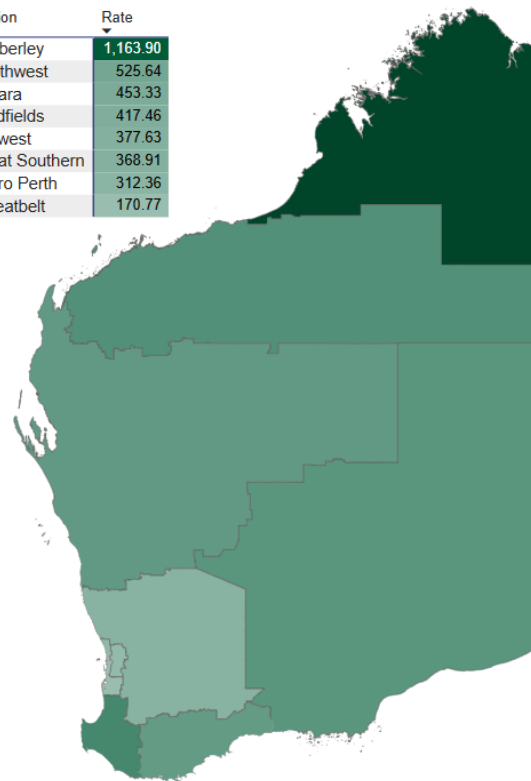
Statewide – RSV Notification by Aboriginality, 2020-2025

Year	Aboriginal		Non-Aboriginal	
	Number	Rate	Number	Rate
2020	0	0.00	1	0.04
2021	49	45.35	435	17.10
2022	739	674.05	9,171	358.07
2023	723	650.53	9,222	357.66
2024	785	696.85	8,208	316.19
2025*	666	699.81	11,042	507.00

Rate = rate per 100,000 population

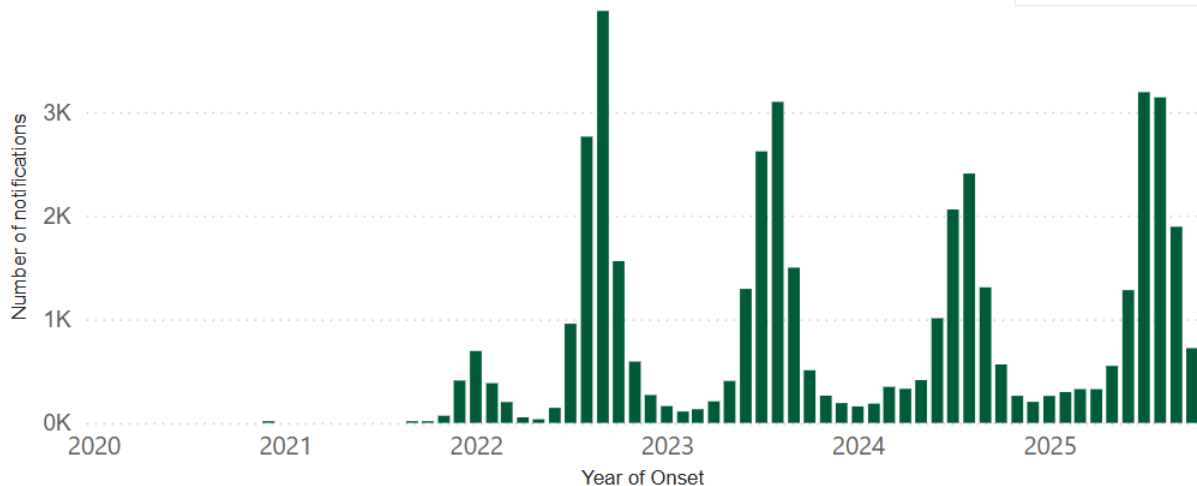
RSV Notifications rate (per 100,000 population) by region 2024

Region	Rate
Kimberley	1,163.90
Southwest	525.64
Pilbara	453.33
Goldfields	417.46
Midwest	377.63
Great Southern	368.91
Metro Perth	312.36
Wheatbelt	170.77



Seasonality

Statewide - RSV Notifications by month 2020 - 2025*



All

Statewide - RSV Notifications and rates by year 2020 - 2025*

Year	Number	Rate
2020	1	0.04
2021	486	18.33
2022	11,629	435.43
2023	10,488	389.98
2024	9,246	341.40
2025*	11,986	527.37

Respiratory syncytial virus (RSV) became a notifiable infectious disease in August 2021

Nirsevimab (Beyfortus®) – A game changer

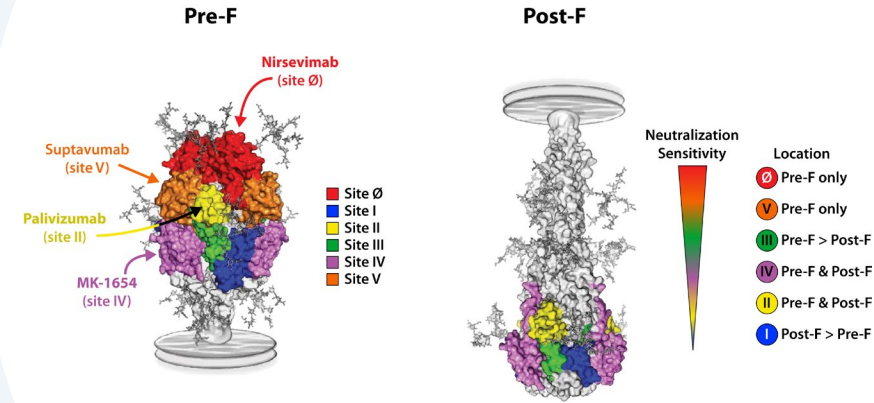
- Long-acting monoclonal antibody for RSV prevention



<https://www.campus.sanofi/ie/products/vaccines/beyfortus>

Nirsevimab

- Targets RSV prefusion F protein
- **Blocks viral entry** into host cells
- Provides **passive immunity** to infants during RSV season
- Single intramuscular dose offers **~5 months'** protection



WA's Nirsevimab Rollout: A National First

- **November 2023:** TGA approval



Australian Government
Department of Health, Disability and Ageing
Therapeutic Goods Administration

[Home](#) > [Guidance and resources](#) > [Prescription medicines registrations](#)

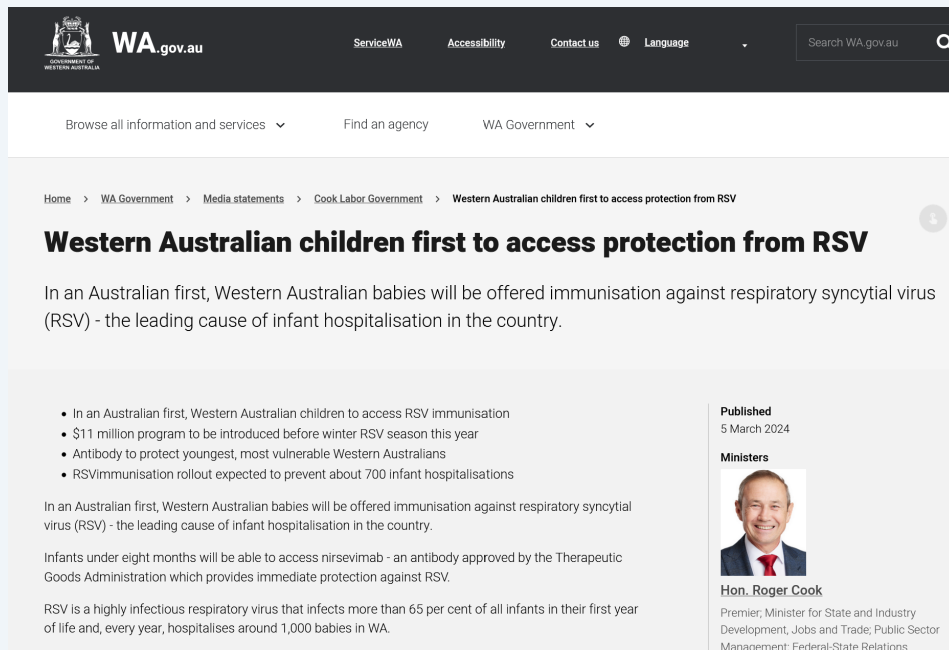
BEYFORTUS (Sanofi-Aventis Australia Pty Ltd)

[Listen](#) [Print](#) [Share](#)

Product name	BEYFORTUS
Sponsor	Sanofi-Aventis Australia Pty Ltd
Date registered	24 November 2023
Evaluation commenced	30 November 2022
Decision date	22 November 2023

WA's Nirsevimab Rollout: A National First

- **November 2023:** TGA approval
- **April to September 2024:** WA state-wide program



The screenshot shows the WA.gov.au website. The header includes the WA Government logo, the text 'WA.gov.au', and navigation links for ServiceWA, Accessibility, Contact us, and Language. A search bar is on the right. Below the header, there are links to 'Browse all information and services', 'Find an agency', and 'WA Government'. The main content area features a breadcrumb trail: Home > WA Government > Media statements > Cook Labor Government > Western Australian children first to access protection from RSV. The article title is 'Western Australian children first to access protection from RSV'. The text states: 'In an Australian first, Western Australian babies will be offered immunisation against respiratory syncytial virus (RSV) - the leading cause of infant hospitalisation in the country.' A bulleted list highlights key points: 'In an Australian first, Western Australian children to access RSV immunisation', '\$11 million program to be introduced before winter RSV season this year', 'Antibody to protect youngest, most vulnerable Western Australians', and 'RSV immunisation rollout expected to prevent about 700 infant hospitalisations'. Further text mentions that infants under eight months will be able to access nirsevimab, an antibody approved by the Therapeutic Goods Administration. A quote from Hon. Roger Cook, Premier, Minister for State and Industry Development, Jobs and Trade; Public Sector Management; Federal-State Relations, is also present. The article was published on 5 March 2024.

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Home > WA Government > Media statements > Cook Labor Government > Western Australian children first to access protection from RSV

Western Australian children first to access protection from RSV

In an Australian first, Western Australian babies will be offered immunisation against respiratory syncytial virus (RSV) - the leading cause of infant hospitalisation in the country.

- In an Australian first, Western Australian children to access RSV immunisation
- \$11 million program to be introduced before winter RSV season this year
- Antibody to protect youngest, most vulnerable Western Australians
- RSV immunisation rollout expected to prevent about 700 infant hospitalisations


In an Australian first, Western Australian babies will be offered immunisation against respiratory syncytial virus (RSV) - the leading cause of infant hospitalisation in the country.

Infants under eight months will be able to access nirsevimab - an antibody approved by the Therapeutic Goods Administration which provides immediate protection against RSV.

RSV is a highly infectious respiratory virus that infects more than 65 per cent of all infants in their first year of life and, every year, hospitalises around 1,000 babies in WA.

Published
5 March 2024







Ministers



Hon. Roger Cook
Premier, Minister for State and Industry Development, Jobs and Trade; Public Sector Management, Federal-State Relations

WA's Nirsevimab Rollout: A National First

- **November 2023:** TGA approval
- **April to September 2024:** WA state-wide program
- **2025:** National rollout (National Immunisation Program)

<div>  <div> Australian Government Department of Health, Disability and Ageing </div> </div> <div>  <div> National Immunisation Program <small>A joint Australian, State and Territory Government Initiative</small> </div> </div>				
Administration of RSV vaccines and RSV monoclonal antibodies by age group or cohort				
Age group or cohort	RSV vaccines for adults		RSV monoclonal antibodies for Infants	
	Abrysvo® 0.5mL (Pfizer)	Axxyv® 0.5 mL (GSK)	Beyfortus™ (Nirsevimab) 0.5 mL (Purple) (Sanofi)	Beyfortus™ (Nirsevimab) 1 mL (Blue) (Sanofi)
Pregnant women at 28 to 36 weeks				
	NIP FUNDED	DO NOT USE	DO NOT USE	DO NOT USE
Infants & children <24 months	DO NOT USE	DO NOT USE	STATE & TERRITORY FUNDED	STATE & TERRITORY FUNDED
People aged ≥50 years with medical risk factors	DO NOT USE	AVAILABLE PRIVATELY BASED ON CLINICAL DECISION*	DO NOT USE	DO NOT USE
All people aged ≥60 years (including Aboriginal and Torres Strait Islander people)	AVAILABLE PRIVATELY BASED ON CLINICAL DECISION	AVAILABLE PRIVATELY BASED ON CLINICAL DECISION*	DO NOT USE	DO NOT USE

Nirsevimab Eligibility Criteria

- WA 2024 RSV Infant Immunisation Program

Categories	1 Oct '22	1 Oct '23	Nov '23	Dec '23	Jan '24	Feb '24	Mar '24	Apr '24	May '24	Jun '24	Jul '24	Aug '24	Sep '24
1: Born 1 Oct 2023 - 30 Apr 2024		Infants entering their first RSV season											
2: Born 1 May 2024 - 30 Sep 2024									Infants born during RSV season				
3: Aboriginal Children born 1 Oct 2022 - 30 Sep 2024	All Aboriginal children entering second RSV season												
4: Born after 1 Oct 2022 with high risk medical conditions	Infants with specific medical risk conditions entering second RSV season												

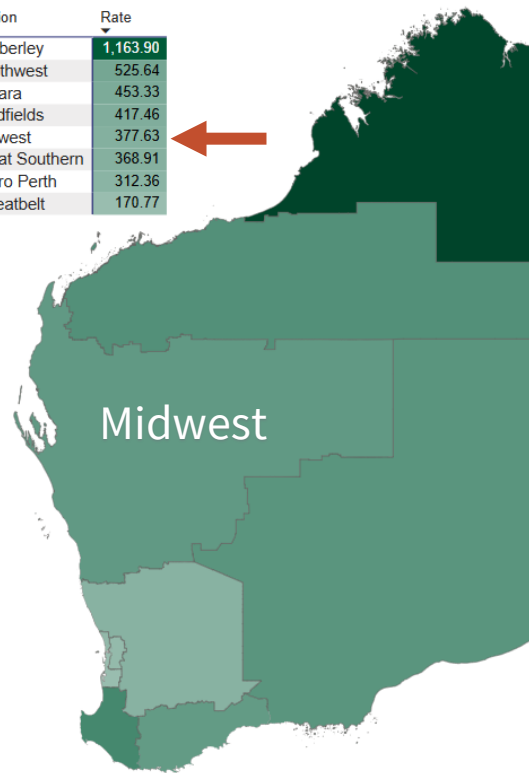
Study Setting

Midwest Region

- 600,000 square kilometres
- ~41,914 residents
 - 9.5 % Aboriginal people
 - 6 % children aged 0 - 4 years
 - 16% of 0-4 y.o. are Aboriginal children)
- Geraldton Regional Hospital
(425 km from PCH)

RSV Notifications rate (per 100,000 population) by region 2024

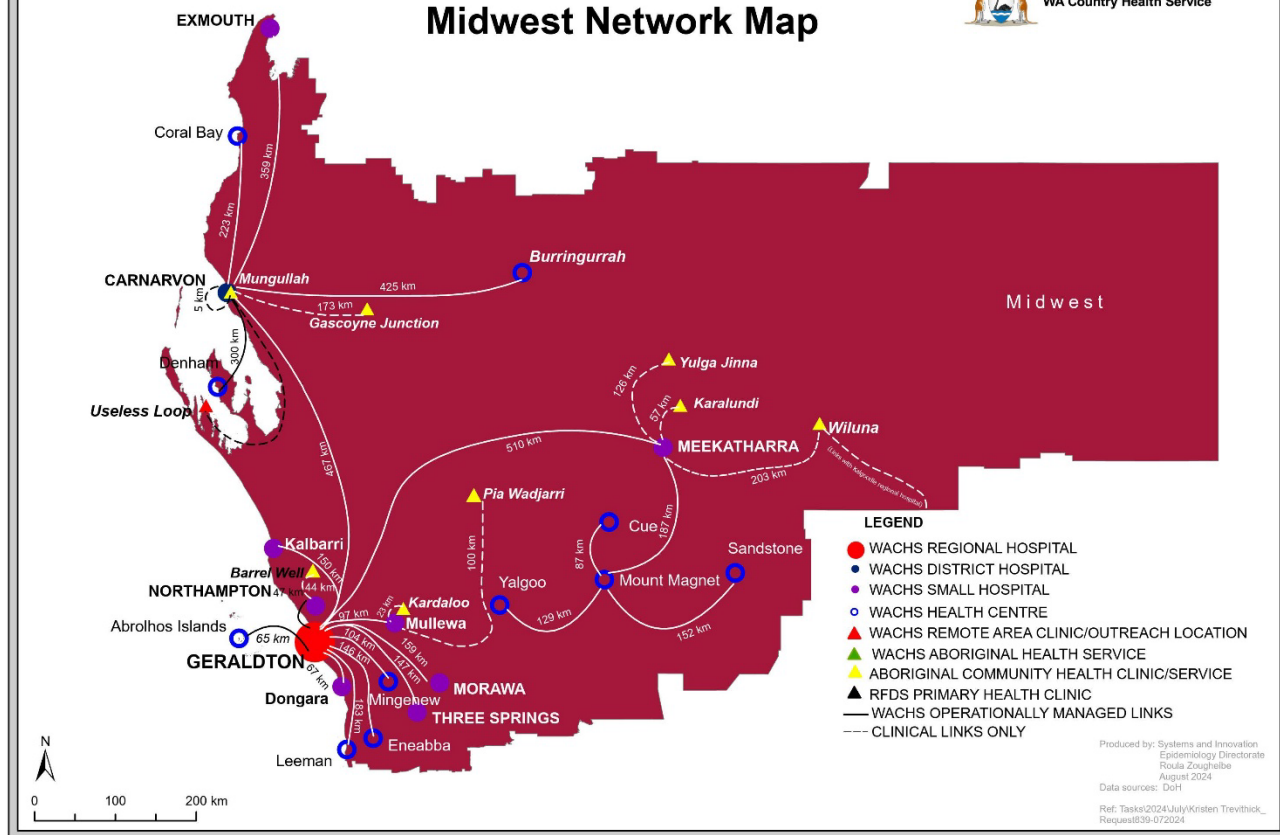
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Midwest Network Map

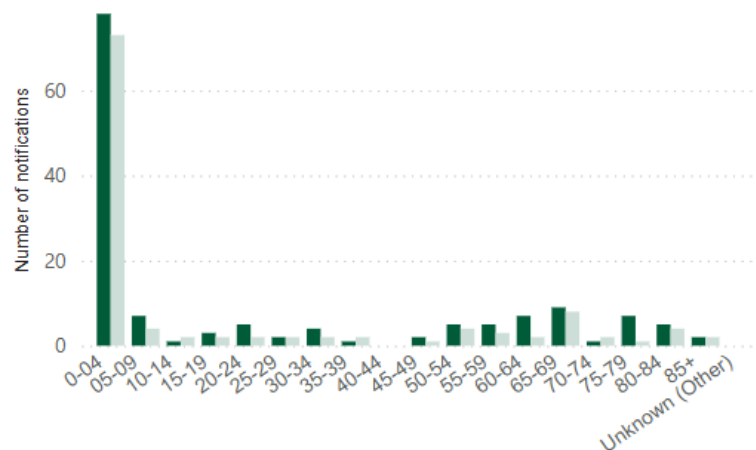


Midwest – RSV burden in children

Age Group	2020	2021	2022	2023	2024	2025*
0-04	0	10	169	151	110	134
05-09	0	1	19	11	21	27
10-14	0	0	11	3	8	8
15-19	0	0	9	5	6	7
20-24	0	1	14	7	3	6
25-29	0	0	9	4	3	8
30-34	0	0	12	6	6	2
35-39	0	0	8	3	3	6
40-44	0	1	2	0	3	3
45-49	0	0	8	3	1	1
50-54	0	2	3	9	4	6
55-59	0	1	11	8	6	6
60-64	0	2	9	9	10	14
65-69	0	0	8	17	5	12
70-74	0	1	7	3	10	12
75-79	0	1	7	8	9	6
80-84	0	0	2	9	8	9
85+	0	0	8	4	1	5

Midwest - RSV Notifications by 5 year age group and sex, 2023

● Female ● Male



Study Aims

- Assess the impact of Nirsevimab on RSV-related hospitalisations in children < 2 years in the Midwest Region.

Objectives

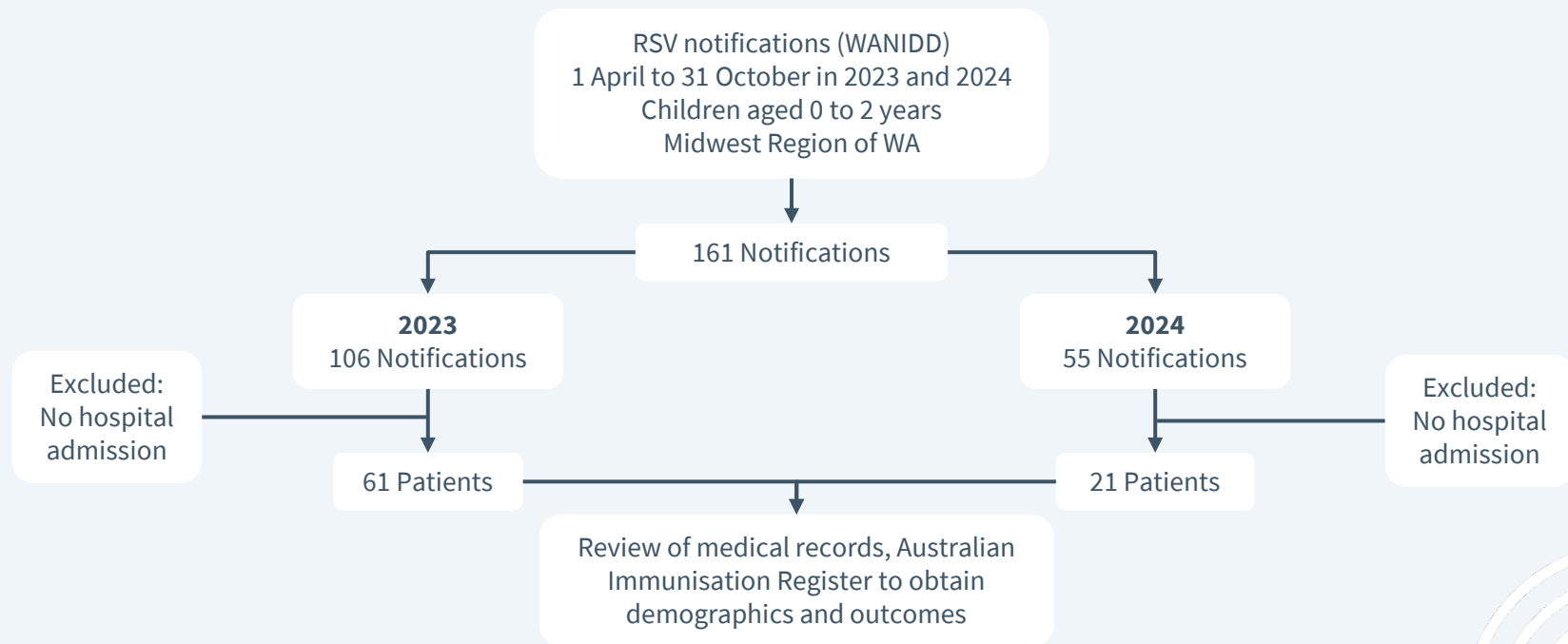
- Compared hospital admission rates during RSV seasons
 - Pre-immunisation: 1 April to 31 October 2023
 - Post-immunisation : 1 April to 31 October 2024
- Analyse demographics of hospitalised patients
- Evaluate disease severity among admitted cases
- Identify immunisation coverage

Methods

- WA Notifiable Infectious Disease Database (WANIDD)
- RSV notifications for children aged < 2 years in Midwest
 - 1/4/23 – 31/10/23
 - 1/4/24 – 31/10/24
- Hospitalised cases only
 - RSV-related hospitalization defined as:
Positive RSV test 10 days before to 7 days after hospital admission.
- Medical record review
 - Demographics
 - Clinical outcomes: LOS, respiratory support, fluid support, complications, transfers to tertiary centre/PICU.
- Australian Immunisation Record review

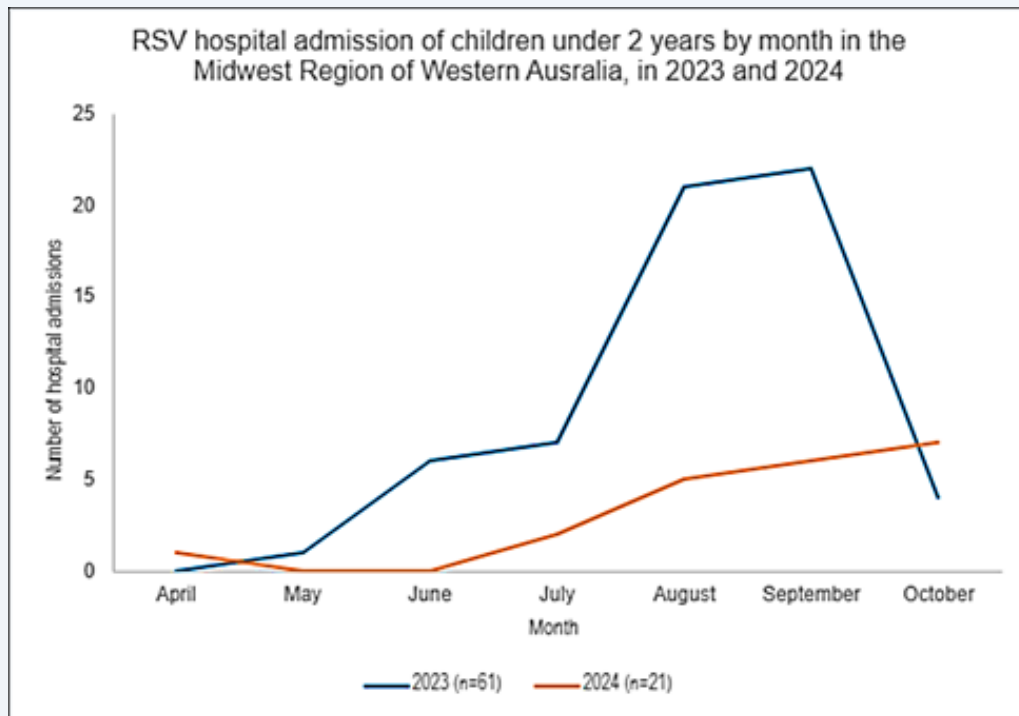
Results

RSV notifications in the Midwest region in children aged < 2 years in 2023 and 2024 during the RSV season.



Results

RSV-related hospitalisations in the Midwest region in children aged < 2 years by month in 2023 and 2024



Results

Characteristics	2023		2024	
	number (n=61)	%	number (n=21)	%
Age group	61		21	
0- < 3months	9	15%	1	5%
3- < 6 months	8	13%	4	19%
6- <12 months	22	36%	8	38%
12 - 24 months	22	36%	8	38%
Average age	9.67 months		10.2 months	
Gender				
Male	29	48%	10	48%
Female	32	52%	11	52%
Aboriginal	27	44%	10	48%
Prematurity				
<28 weeks	0	0%	0	0%
28- <32 weeks	1	2%	0	0%
32 to < 37 weeks	10	16%	1	5%
Term	46	75%	17	81%
Unknown	4	7%	3	14%

Results

	2023		2024	
	number (n=61)	%	number (n=21)	%
Eligibility criteria group				
Eligible	N/A		13	62%
Received Nirsevimab	N/A		3	23%
Not eligible	N/A		8	38%
Category 1 <i>(first RSV season)</i>	N/A		11	52%
Category 2 <i>(born during RSV season)</i>	N/A		2	9%
Category 3 <i>(Aboriginal children entering 2nd RSV season)</i>	N/A		9	43%
Category 4 <i>(High risk medical conditions)</i>	N/A		0	0%

Results

Clinical outcomes	2023		2024		
	number (n=61)	%	number (n=21)	%	
Average length of stay (days)	2.07		2		↓
Hospital transfer	4	7%	0	0%	↓
ICU admission	0	0%	0	0%	↔
Any oxygen or respiratory support	24	39%	9	43%	↑
High Flow Nasal Cannula	15	25%	3	14%	↓
Fluid requirement	29	48%	7	33%	↓
Complications (pneumonia, readmission)	9	15%	5	24%	↑
Coinfection	3	5%	0	0%	↓
Death	0	0%	0	0%	↔

Summary:

RSV notifications and hospitalisations decreased in 2024 in children <2 years in the Midwest

RSV notifications:

- **2023:** 106 cases
- **2024:** 55 cases → **48% decrease**

RSV-hospitalisation rate:

- **2023:** 58% (61/106)
- **2024:** 38% (21/55) → **35% decrease**

Summary:

RSV notifications and hospitalisations decreased in 2024 in children <2 years in the Midwest




notification rates compared with other jurisdictions such as NSW and Qld. WA experienced a much later and lower, peak in notification rates (20 cases per 100,000 population per week) compared with other jurisdictions (Figure 10). The low notification rates in WA, and to a lesser extent in Qld, may be in part due to the 2024 RSV Infant Immunisation Programs in these states. In 2024, there were a lower number of notified cases

Summary: RSV notifications and hospitalisations decreased in 2024 in children <2 years in the Midwest

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Nirsevimab immunisation of infants and respiratory syncytial virus (RSV) population

Lauren E B
and Paul V
Med J Aust
Published

With 71% of nirsevimab-eligible infants receiving RSV prophylaxis during April–September 2024, the number of RSV-associated hospitalisations in WA was 57% lower than expected during May–December 2024, equivalent to one hospitalisation averted per 43 infants immunised. The number of hospitalisations



Summary: disease severity

In 2024

- Overall oxygen therapy use remained similar to 2023
- Lower high-flow nasal cannula use
- Lower fluid support needs
- No transfers to tertiary level care
- Slightly higher rate of complications



Summary: ongoing disparity

Aboriginal children represent 16% of Midwest 0–4-year-olds, but

- **2023:** 44% of hospitalisations
- **2024:** 48% of hospitalisations

Of 21 RSV-hospitalisations in 2024:

- 13 were eligible for Nirsevimab
- Only **3 received it** (23%)

Possible barriers to uptake:

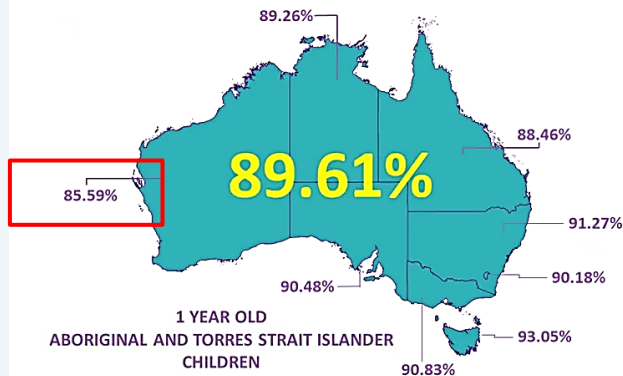
- Barriers to access
- Lack of awareness
- Cultural safety concerns
- Hesitancy of a new immunisation
- Staff training

Summary: ongoing disparity

State and territory coverage rates

Coverage rates for Aboriginal and Torres Strait Islander one year olds

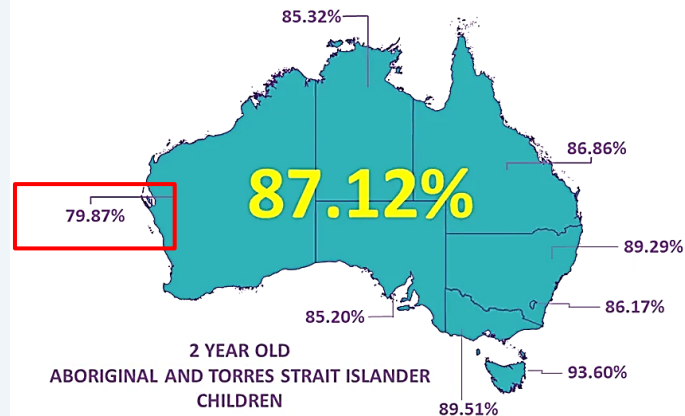
States and territories have not yet achieved coverage rates above the aspirational target of 95% for Aboriginal and Torres Strait Islander one year old immunisation coverage.



DATA AS AT 30 June 2025
SOURCE: AUSTRALIAN IMMUNISATION REGISTER

Coverage rates for Aboriginal and Torres Strait Islander 2 year olds

States and territories have not yet achieved coverage rates above the aspirational target of 95% for Aboriginal and Torres Strait Islander two year old immunisation coverage.



DATA AS AT 30 June 2025
SOURCE: AUSTRALIAN IMMUNISATION REGISTER



Conclusion & future Directions

- This study showed that in the Midwest Nirsevimab introduction likely contributed to:
 - Reduced RSV hospitalisations
 - Possible lower disease severity in infants <2 years
- First regional RSV study in WA
- Future research needed:
 - Improve uptake and coverage in regional/rural WA
 - Explore barriers to access
 - Focus on culturally appropriate health promotion for Aboriginal communities



Acknowledgment

Dr Yolande Knight and the Public Health team, Midwest, WACHS.

Thank you