

SENATE SELECT COMMITTEE  
January 2022

FAS BRIEF – KEY INFORMATION

OHPR Brief XX

**Analysis of Omicron cases:  
Including enhanced data on ICU hospitalisation**

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**KEY FACTS**

**NINDSS**

- As at 19 January 2022, there have been 6,759 confirmed Omicron variant cases officially reported in Australia since the first case was reported on 27 November 2021
  - Information on 74% (5,002/6,759) of confirmed Omicron cases is available in National Interoperable Notifiable Disease Surveillance System (NINDSS)
- Of all Omicron cases reported in NINDSS, 35 cases have died, an additional 151 have been admitted to ICU and 514 have been admitted to hospital (and not admitted to ICU or died).
  - Excluding cases with an onset date in the last two weeks (to allow time for severe illness to develop), 0.5% of confirmed Omicron cases have died, an additional 2.2% have been admitted to ICU and 9% have been admitted to hospital (Table 1).
- Of cases aged 12 and over, 69% were fully vaccinated, of which 93 had received a booster (Table 2).
  - The proportion of cases that are fully vaccinated is similar across all levels of severity.
  - An increased proportion of vaccinated cases is partially a reflection of high vaccination rates among the general population.
- Given the resources required to sequence cases, not all cases are sequenced. Since November 2021, 1.1% of confirmed cases reported to NINDSS have had sequencing information.
  - Each jurisdiction has different guidelines for prioritising case sequencing.
  - In general, these guidelines recommend prioritising overseas acquired cases, severe cases and cases without a known epidemiological link for sequencing. As such, analyses limited to sequenced cases may not be representative of all cases.

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**SPRINT-SARI**

- Preliminary analysis from SPRINT-SARI data suggests that the profile of people being admitted to ICU with COVID-19 attributed to Omicron differs slightly from those admitted as a result of Delta infection.

- Consistent with previous analyses, it is clear that unvaccinated individuals are at a greater risk of poor health outcomes requiring management and admission to ICU. This is the case regardless of age or which strain of COVID-19 people are infected with.
  - During the Omicron wave, of those aged under 50 years, 67% of ICU admissions could have been prevented by being fully vaccinated, compared to 49% of those aged 50 years and over.
  - For the Delta wave, 98% of ICU admissions could have been avoided if fully vaccinated, compared to 93% for those aged 50 years and over.
- *Public health implications and messaging:*
  - Continued vaccination uptake, including boosters, is important, especially among those under 50 years of age.
  - In addition to maintaining high levels of vaccination among those aged over 50 years, earlier treatment options should be considered, especially among those with comorbidities who are at increased risk of ICU admission and poor health outcomes.

## BACKGROUND

### SPRINT-SARI Supporting data

#### Vaccination Status

Of cases admitted to ICU from 1 July to 14 December 2021 (representing the Delta wave), 76% of those aged less than 50 were unvaccinated. This trend has continued during the current wave, with the majority (53%) of cases aged less than 50 having not received an effective vaccine dose (Table 1).

- Given the staged vaccination rollout in 2021, with older age groups being eligible for vaccination first, it is expected that a larger proportion of cases during the Delta wave, particularly in those aged under 50, are unvaccinated. Therefore, comparisons of vaccine effectiveness between the two waves should be undertaken with caution. For instance, while there is a larger proportion of cases in ICU who are fully vaccinated in the Omicron wave compared to the Delta wave (46% vs. 5%), reflecting high-levels of vaccination rates among the general population.

#### Comorbidities

During the Delta wave, of cases aged 50 years and over, 69% had at least one of the specified comorbidities; and in the current wave, 76% of cases had at least one comorbidity. For those aged less than 50 years, the majority of cases in ICU during both the Delta and Omicron waves had at least one comorbidity, with 54% and 57% of cases, respectively.

- Listed comorbidities include cardiac disease, chronic respiratory condition, diabetes, obesity, chronic renal disease, chronic neurological condition, malignancy, chronic liver disease and immunosuppression.

#### Deaths

Hospitalisation outcome was available for 91% (2,070/22,995) of cases admitted to ICU between 1 July and 14 December 2021, and of these 17% (345/2,070) of cases were reported to have died. Where comorbidity information was available, 81% of those who died had at least one of the specified comorbidities.



*Data source and caveats*

- NINDSS data extracted 19 January 2022.
  - Note, this information should be interpreted with caution as hospitalisation and ICU status in NINDSS may be incomplete, cases may be hospitalised for reasons other than COVID-19 and the definitions of hospitalised used by states are not consistent. There is also potential for severe cases to be overrepresented among confirmed Omicron case numbers, as severe cases are more likely to be sequenced.
- SPRINT-SARI data extracted on 18 January 2022 and represents cases with an ICU admission date of 1 July 2021 to 16 January 2022.
  - SPRINT-SARI is a sentinel system that collects detailed data on the characteristics and outcomes of interventions for patients admitted to ICUs or High Dependency Units with COVID-19 at participating sites across Australia.
  - In the absence of comprehensive genetic sequencing data capture, timeframe has been used as a proxy for the 'Delta wave' and 'Omicron wave' respectively. For the purposes of this analysis, ICU admission dates from 1 July to 14 December 2021 are considered to be predominantly driven by Delta. Those with admission dates after 14 December 2021 are considered most likely to be driven by the Omicron strain.

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**ATTACHMENTS**

**Attachment 1 NINDSS**

- Figure 1: Locally acquired confirmed Omicron cases by age group, Australia
- Table 1: Confirmed Omicron cases by age and highest level of illness severity, Australia, cases with an onset to 4 January 2022 (two weeks delay)
- Table 2: Confirmed Omicron cases aged 12 years and over by vaccination status and highest level of illness severity, Australia, cases with an onset to 4 January 2022 (two weeks delay)

**Attachment 2 SPRINT-SARI**

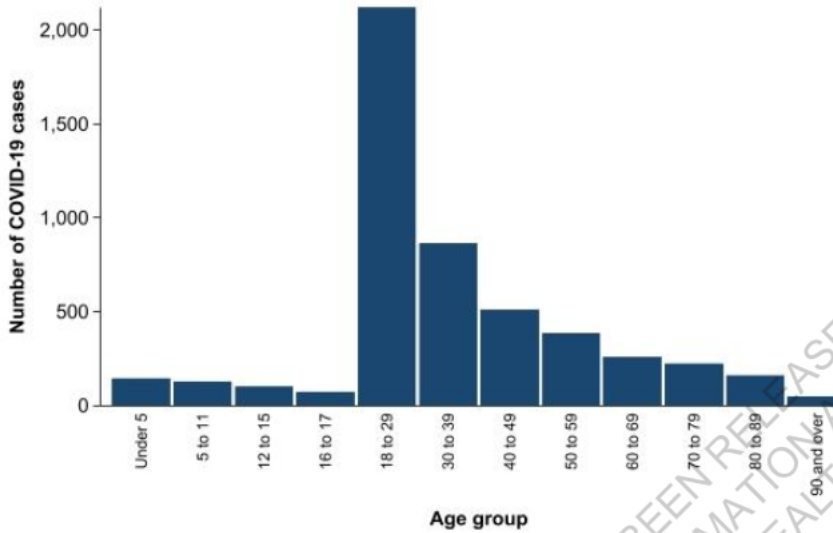
- Table 3. COVID-19 cases admitted to ICU at participating SPRINT SARI sentinel sites by vaccination status and age group, 1 July 2021 – 16 January 2022
- Table 4. Number of comorbidities in COVID-19 cases admitted to ICU at participating SPRINT SARI sentinel sites by age group, 1 July 2021 – 16 January 2022
- Table 5. Number of comorbidities in COVID-19 cases who died at participating SPRINT SARI sentinel sites, 1 July 2021 – 14 December 2021

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**ATTACHMENT 1 NINDSS**

**Figure 1: Locally acquired confirmed Omicron cases by age group, Australia**

Data source: NINDSS, extracted 19 January 2022



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**Table 1: Confirmed Omicron cases by age and highest level of illness severity, Australia, cases with an onset to 4 January 2022 (two weeks delay) ^\***

Data source: NINDSS, extracted 19 January 2022

Age group	Count				Total cases	% of total cases by age group		
	Not severe	Hospitalised only (not ICU or died)	ICU (but not died)	Died		Hospitalised only (not ICU or died)	ICU (but not died)	Died
0-4	104	20	1	1	126	15.9%	0.8%	0.8%
5-11	108	4	1	0	113	3.5%	0.9%	0.0%
12-15	89	3	0	0	92	3.3%	0.0%	0.0%
16-17	68	1	0	0	69	1.4%	0.0%	0.0%
18-29	1,947	115	3	1	2,066	5.6%	0.1%	<0.05%
30-39	753	51	8	1	813	6.3%	1.0%	0.1%
40-49	427	33	10	0	470	7.0%	2.1%	0.0%
50-59	291	42	15	1	349	12.0%	4.3%	0.3%
60-69	149	36	20	3	208	17.3%	9.6%	1.4%
70-79	93	41	28	7	169	24.3%	16.6%	4.1%
80-89	43	55	15	5	118	46.6%	12.7%	4.2%
90+	17	18	2	4	41	43.9%	4.9%	9.8%
Unknown	0	0	0	0	0	NA	NA	NA
<b>Total</b>	<b>4,089</b>	<b>419</b>	<b>103</b>	<b>23</b>	<b>4,634</b>	<b>9.0%</b>	<b>2.2%</b>	<b>0.5%</b>

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<sup>A</sup>Given the delay between illness onset and severe illness, to provide a more accurate assessment of the highest level of severity, cases with an onset in the last two weeks were excluded from the analysis.

<sup>\*</sup>Note this information should be interpreted with caution as hospitalisation and ICU status in NINDSS may be incomplete and the definitions used by states are not consistent. There is also potential for severe cases to be overrepresented among confirmed omicron case numbers, as severe cases are more likely to be sequenced.

**Table 2: Confirmed Omicron cases aged 12 years and over by vaccination status and highest level of illness severity, Australia, cases with an onset to 4 January 2022 (two weeks delay) <sup>^\*</sup>**

Data source: NINDSS, extracted 19 January 2022

Vaccination status	Not severe (no hospital or death)	Hospitalised (no ICU or death)	ICU (but no death)	COVID-19 related death	Total cases
Fully vaccinated	2,674 (69.0%)	284 (71.9%)	73 (72.3%)	16 (72.7%)	3,047 (69.3%)
Partially vaccinated	202 (5.2%)	25 (6.3%)	3 (3.0%)	2 (9.1%)	232 (5.3%)
No effective vaccination <sup>**</sup>	288 (7.4%)	21 (5.3%)	7 (7.0%)	1 (4.5%)	317 (7.2%)
Unknown	713 (18.4%)	65 (16.5%)	18 (17.8%)	3 (13.6%)	799 (18.2%)
<b>Total</b>	<b>3,877</b>	<b>395</b>	<b>101</b>	<b>22</b>	<b>4,395</b>

<sup>\*\*</sup> Includes cases without a vaccination and cases with symptom onset within 21 days of a single dose of a two dose regimen

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ATTACHMENT 2 SPRINT-SARI

Table 3. COVID-19 cases admitted to ICU at participating SPRINT SARI sentinel sites by vaccination status and age group, 1 July 2021 – 16 January 2022

Vaccination Status	1 Jul to 14 Dec 2021			15 Dec 2021 to 16 Jan 2022		
	<50 year	≥50 years	Total	<50 year	≥50 years	Total
Fully vaccinated	20	95	115	40	162	202
	2%	7%	5%	33%	51%	46%
Partially vaccinated	60	199	259	5	10	15
	7%	14%	11%	4%	3%	3%
No effective vaccine	676	892	1,568	64	130	194
	76%	64%	68%	53%	41%	44%
Unknown	139	214	353	11	18	29
	16%	15%	15%	9%	6%	7%
<b>Total</b>	<b>895</b>	<b>1,400</b>	<b>2,295</b>	<b>120</b>	<b>320</b>	<b>440</b>

Table 4. Number of comorbidities in COVID-19 cases admitted to ICU at participating SPRINT SARI sentinel sites by age group, 1 July 2021 – 16 January 2022<sup>a</sup>

Number of comorbidities	<50 years		≥50 years	
	1 Jul to 14 Dec 2021	15 Dec 2021 to 16 Jan 2022	1 Jul to 14 Dec 2021	15 Dec 2021 to 16 Jan 2022
None	346	47	356	73
	46%	43%	31%	24%
One or more	409	62	807	232
	54%	57%	69%	76%
Two or more	145	30	403	133
	19%	28%	35%	44%
Three or more	37	10	159	57
	5%	9%	14%	19%

<sup>a</sup>Excludes cases for which comorbidity information was unavailable, including 140 cases in the Delta wave and 11 cases in the Omicron wave for those aged under 50 years; and 237 cases in the Delta wave and 15 cases in the Omicron wave for those aged 50 years and over.

Table 5. Number of comorbidities in COVID-19 cases who died at participating SPRINT SARI sentinel sites, 1 July 2021 – 14 December 2021<sup>a</sup>

Number of comorbidities	Deaths
None	56
	19%
One or more	239
	81%
Two or more	152
	52%
Three or more	71
	24%

<sup>a</sup>Excludes 50 deaths for which comorbidity information was unavailable.

