



Supporting Information

Supplementary methods and results

**This appendix was part of the submitted manuscript and has been peer reviewed.
It is posted as supplied by the authors.**

Appendix to: Williams P, Koirala A, Saravanos GL, et al. COVID-19 in New South Wales children during 2021: severity and clinical spectrum. *Med J Aust* 2022; doi: 10.5694/mja2.51661.

Supplementary methods

Data sources and data use for calculation of rates.

Data Source	Numerator	Denominator	Metric
Paediatric Active Enhanced Disease Surveillance (PAEDS)	SARS-CoV-2 associated ICU Admissions at SCHN		COVID-19 ICU admission 'rate'
PAEDS	PIMS-TS Admissions at SCHN		PIMS-TS admission 'rate'*
NSW Ministry of Health		Statewide age-specific SARS-CoV-2 infection	
PAEDS	SARS-CoV-2 associated 'Medical' Admissions at SCHN		COVID-19 hospital admission 'rate'
SCHN 'Home in the Hospital' program (Social admissions)	SARS-CoV-2 associated Social Admissions at SCHN		COVID-19 social vulnerability 'rate'
SCHN VirtualKIDS-CORT		SARS-CoV-2 associated Admissions at SCHN	

COVID-19, coronavirus disease 2019; ICU, intensive care unit; NSW, New South Wales, Australia; PIMS-TS, paediatric inflammatory multi-system syndrome temporally associated with SARS-CoV-2; SCHN, Sydney Children's Hospital Network.

* Admission rate calculated using data as at 30 September 2021, given lag time for this 'post-infectious' clinical manifestation.

Supplementary results

Table 1. Clinical features of children under 16 years of age who received virtualKIDS COVID-19 outpatient response team (CORT) care (sample of data) or were admitted to Sydney Children's Hospital Network hospitals for medical reasons, 1 June – 31 October 2021.

Characteristic	VirtualKIDS-COVID-19 positive outpatient response team sample	Medical (non-Intensive Care Unit) admission	Intensive Care Unit admission	P ²
Number of patients	344	150	15	
Symptomatic	233 / 344 (68%)	150 / 150 (100%)	15 / 15 (100%)	<0.001
Fever	30 / 219 (14%)	99 / 144 (69%)	12 / 15 (80%)	<0.001
Cough	116 / 232 (50%)	108 / 149 (72%)	12 / 15 (80%)	<0.001
Rhinorrhoea	117 / 232 (50%)	90 / 148 (61%)	8 / 15 (53%)	0.14
Ear pain	2 / 230 (0.9%)	1 / 131 (0.8%)	0 / 14 (0%)	>0.99
Oropharyngeal pain	51 / 230 (22%)	14 / 130 (11%)	5 / 14 (36%)	0.005
Dyspnoea	6 / 232 (2.6%)	43 / 146 (29%)	7 / 15 (47%)	<0.001
Wheeze	2 / 232 (0.9%)	6 / 145 (4.1%)	0 / 15 (0%)	0.10
Chest pain	1 / 230 (0.4%)	15 / 130 (12%)	1 / 14 (7.1%)	<0.001
Chest indraw	0 / 232	6 / 146 (4.1%)	0 / 15	0.005
Myalgia	31 / 230 (13%)	11 / 128 (8.6%)	6 / 14 (43%)	0.004
Arthralgia	12 / 230 (5.2%)	5 / 128 (3.9%)	2 / 14 (14%)	0.22
Fatigue/malaise	66 / 232 (28%)	56 / 143 (39%)	10 / 15 (67%)	0.003
Anosmia	23 / 231 (10.0%)	15 / 129 (12%)	3 / 14 (21%)	0.32
Hypogeusia	29 / 230 (13%)	14 / 129 (11%)	4 / 14 (29%)	0.16
Vomiting/nausea	21 / 232 (9.1%)	52 / 145 (36%)	7 / 15 (47%)	<0.001
Headache	70 / 230 (30%)	32 / 129 (25%)	8 / 14 (57%)	0.042
Diarrhoea	23 / 232 (9.9%)	42 / 147 (29%)	7 / 15 (47%)	<0.001
Confusion/altered consciousness	0 / 232	4 / 145 (2.8%)	3 / 15 (20%)	<0.001
Seizure	0 / 232	2 / 145 (1.4%)	1 / 15 (6.7%)	0.020
Abdominal pain	11 / 231 (4.8%)	19 / 132 (14%)	2 / 14 (14%)	0.003
Conjunctivitis	15 / 232 (6.5%)	11 / 145 (7.6%)	0 / 15	0.65
Rash	10 / 232 (4.3%)	6 / 145 (4.1%)	3 / 15 (20%)	0.055
Ulcers	1 / 232 (0.4%)	0 / 145	0 / 15	>0.99
Lymphadenopathy	0 / 232	3 / 145 (2.1%)	0 / 15	0.11
Bleeding/haemorrhage	0 / 232	2 / 145 (1.4%)	1 / 15 (6.7%)	0.02
Other ³	19 / 232 (8.2%)	77 / 149 (52%)	10 / 15 (67%)	<0.001

COVID-19, coronavirus disease 2019; ICU, intensive care unit.

Numerator and denominator data source is PAEDS.

²Kruskal-Wallis rank sum test applied to Length of stay; Fisher's exact test applied to all other characteristics

³Heterogenous mix of symptoms.

Table 2. Clinical features, treatment, and outcomes of children under 16 years of age who received virtualKIDS COVID-19 outpatient response team (CORT) care (sample of data) or were admitted to Sydney Children's Hospital Network hospitals for medical reasons, 1 June – 31 October 2021

Characteristic	VirtualKIDS-CORT	Medical admission (no intensive care)	Medical admission (with intensive care)	P*	Post hoc multiple comparisons: P‡		
					VirtualKIDS v medical admission	VirtualKIDS v intensive care	Medical admission v intensive care
Number of patients	344	150	15				
Patients with symptoms	233/344 (68%)	150/150 (100%)	15/15 (100%)	< 0.001	< 0.001	0.011	0.99
Fever	30/219 (14%)	99/144 (69%)	12/15 (80%)	< 0.001	< 0.001	< 0.001	0.56
Cough	116/232 (50%)	108/149 (72%)	12/15 (80%)	< 0.001	< 0.001§	0.06	0.76
Rhinorrhoea	117/232 (50%)	90/148 (61%)	8/15 (53%)	0.14	NA	NA	NA
Fatigue/malaise	66/232 (28%)	56/143 (39%)	10/15 (67%)	0.003	0.08	0.010	0.08
Second pathogen detected	0/343	9/150 (6%)	2/15 (13%)	< 0.001	< 0.001	0.003	0.26
Medication provided							
Antibiotics	1/50 (2%)	49/116 (42%)	13/15 (87%)	< 0.001	< 0.001	< 0.001	0.001
Antivirals†	0/50	1/116 (1%)	8/15 (53%)	< 0.001	0.99	< 0.001	< 0.001
Antifungals	0/50	1/115 (1%)	2/15 (13%)	0.019	0.99§	0.76	0.76
Corticosteroids	0/50	18/116 (16%)	14/15 (93%)	< 0.001	0.001	< 0.001	< 0.001
Systemic anticoagulation	—	6/115 (5%)	10/15 (67%)	< 0.001	NA	NA	NA
Respiratory support				< 0.001	NA	NA	NA
None	—	134/144 (93%)	1/15 (7%)				
Low flow oxygen	—	7/144 (5%)	2/15 (13%)				
High flow oxygen	—	3/144 (2%)	2/15 (13%)				
Non-invasive ventilation	—	0/144	3/15 (20%)				
Invasive ventilation	—	0/144	7/15 (47%)				
Hospital length of stay (days), median (IQR)	—	2 (1–8)	7 (4–11)	0.015	NA	NA	NA
Deaths	0/344	0/150	1/15 (7%)	0.029	0.99§	0.01	0.14

CORT = COVID-19 outpatient response team; COVID-19 = coronavirus disease 2019; IQR = interquartile range; NA, not applicable.

* virtualKIDS-CORT v medical admission (with or without intensive care component) or medical admission (with intensive care component) v medical admission (without intensive care component) for characteristics not relevant to virtualKIDS-CORT care; Kruskal–Wallis rank sum test (hospital length of stay) or Fisher exact test (other characteristics). $P < 0.016$ deemed statistically significant after Bonferroni correction for multiple comparisons. Data for a more comprehensive list of symptoms is included in the Supporting Information, table 1.

† Six children were prescribed remdesivir, three acyclovir.

‡ Post-hoc Pairwise Tukey's HSD and Fisher's exact tests with adjusted p values for multiple comparisons between groups;

§ Unadjusted Fisher exact post hoc P for pairwise comparisons of virtual care v medical admission, virtual care v intensive care unit, and medical admission v intensive care unit for cough ($p < 0.001$, 0.03, 0.7), antifungals ($p = 1.0$, 0.05, 0.04), and death ($p = 1.0$, 0.04, 0.09).

Table 3. SARS-CoV-2-positive children under 16 years of age who received ambulatory or hospital care (non-intensive care) at Sydney Children’s Hospital Network hospitals, 1 June – 31 October 2021

Characteristic	VirtualKIDS-CORT	Medical admission (no intensive care)	Medical admission (with intensive care)	P*	Post hoc multiple comparisons: adjusted P [‡]		
					VirtualKIDS v medical admission	VirtualKIDS v intensive care	Medical admission v intensive care
Number of patients	344	150	15				
Age (median), years, (IQR) [†]	7.8 (3.8–11.4)	2.0 (0.3–11.2)	12.8 (10.4–15.5)	< 0.001	< 0.001	0.012	< 0.001
Age group [†]							
Under 6 months	13/344 (4%)	49/150 (33%)	1/15 (7%)	< 0.001	< 0.001	0.45	0.06
6–23 months	34/344 (10%)	26/150 (17%)	1/15 (7%)	0.06	NA	NA	NA
2–4	67/344 (19%)	20/150 (13%)	0/15	0.05	0.09	0.09	0.22
5–11	157/344 (46%)	22/150 (15%)	4/15 (27%)	< 0.001	< 0.001	0.26	0.26
12–15	73/344 (21%)	33/150 (22%)	9/15 (60%)	0.005	0.91	0.00	0.00
Sex (boys)	189/344 (55%)	78/150 (52%)	9/15 (60%)	0.75	NA	NA	NA
Indigenous Australians	13/334 (4%)	8/147 (5%)	1/15 (7%)	0.43	NA	NA	NA
Vaccination status [‡]				0.36	NA	NA	NA
Unvaccinated	313/319 (98%)	135/136 (99%)	12/13 (92%)				
One dose	3/319 (1%)	1/136 (1%)	1/13 (8%)				
Two doses	3/319 (1%)	0/136	0/13				
Household contact [§]	285/306 (93%)	128/138 (93%)	12/14 (86%)	0.44	NA	NA	NA
Premature birth (≤ 36 weeks’ gestation)	13/209 (6%)	17/123 (14%)	2/13 (15%)	0.037	0.08 ¹⁴	0.32	0.99
Weight > 95th percentile	—	27/139 (19%)	8/14 (57%)	0.004	NA	NA	NA
Any medical condition**	62/337 (18%)	52/149 (35%)	9/15 (60%)	< 0.001	< 0.001	<0.001	0.09
Asthma	35/62 (56%)	13/52 (25%)	3/9 (33%)	0.002	0.001	0.43	0.68
Viral induced/recurrent wheeze	0/62	6/52 (12%)	0/9	0.017	0.023	0.99	0.87
Other respiratory disease ^{††}	1/62 (2%)	7/52 (13%)	1/9 (11%)	0.038	0.06 ^{§§}	0.35	0.99
Cardiac disease	4/62 (6%)	6/52 (12%)	2/9 (22%)	0.20	NA	NA	NA
Neurological disease	3/61 (5%)	5/52 (10%)	1/9 (11%)	0.46	NA	NA	NA
Immunodeficiency	1/62 (2%)	3/52 (6%)	0/9	0.51	NA	NA	NA
Renal disease	0/62	1/51 (2%)	1/9 (11%)	0.07	NA	NA	NA
Liver disease	0/62	2/52 (4%)	0/9	0.32	NA	NA	NA
Diabetes	0/62	1/52 (2%)	0/8	0.50	NA	NA	NA
Other	24/62 (39%)	32/52 (62%)	7/9 (78%)	0.013	0.07 ¹⁴	0.07	0.46

CORT = COVID-19 outpatient response team; COVID-19 = coronavirus disease 2019; IQR = interquartile range; NA = not applicable; SARS-CoV-2 = severe acute respiratory syndrome coronavirus 2.

* virtualKIDS-CORT v medical admission (with or without intensive care component) or medical admission (with intensive care component) v medical admission (without intensive care component) for characteristics not relevant to virtualKIDS-CORT care; Kruskal–Wallis rank sum test (hospital length of stay) or Fisher exact test (other characteristics). $P < 0.016$ deemed statistically significant after Bonferroni correction for multiple comparisons. Data for a more comprehensive list of symptoms is included in the Supporting Information, table 1.

† At confirmation of positive SARS-CoV-2 test result (polymerase chain reaction-confirmed).

‡ Dose 1 dates for two virtualKIDS-CORT children unconfirmed; child excluded if dose 1 date was after positive SARS-CoV-2 PCR test confirmation.

§ That is, child was a household contact of an infected person.

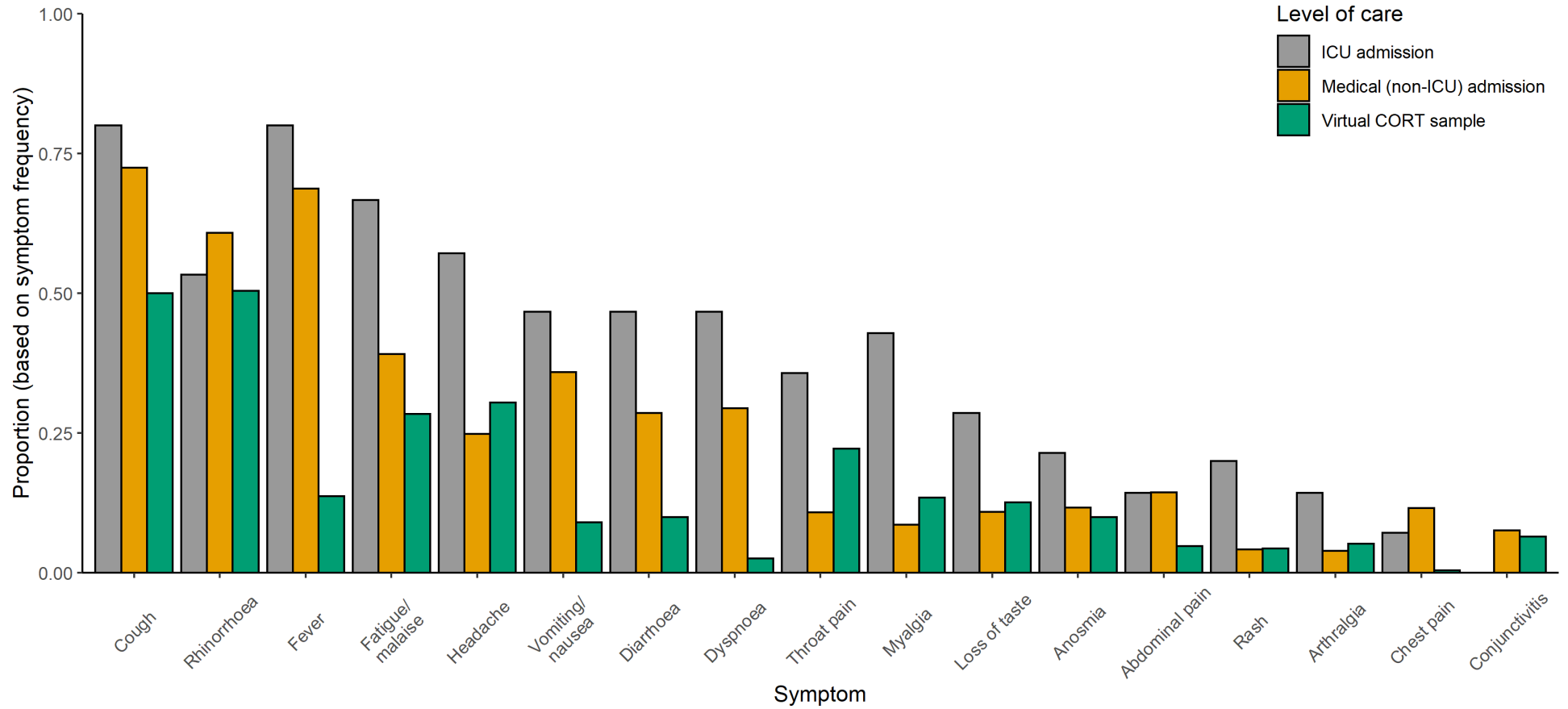
** Based on medical history review.

†† Chronic lung disease (four children), obstructive sleep apnoea (two), type 1 laryngeal cleft (two), laryngomalacia (one).

‡‡ Post hoc pairwise Fisher exact tests with adjusted P for multiple comparisons between groups.

§§ Unadjusted Fisher exact post hoc P for pairwise comparisons of virtual care v medical admission, virtual care v intensive care unit and medical admission v intensive care unit for prematurity ($p = 0.08, 0.04, 1.0$), other respiratory disease ($p = 0.02, 0.2, 1.0$), and other ($p = 0.02, 0.03, 0.5$).

Figure 1. Proportion of children with symptoms (n ≥ 10*) among cases of acute SARS-CoV-2 infection admitted to the Sydney Children’s Hospitals Network (SCHN) by highest acuity level of care amongst children aged 0-15 years managed through SCHN, June 1 - October 31, 2021



CORT, COVID-19 outpatient response team; ICU, intensive care unit.

*Excluded from figure: Wheeze (n = 8), Chest indraw (n = 6), Confusion/altered consciousness (n = 7), Seizure (n = 3), Ulcer (n = 1), Lymphadenopathy (n = 3), Haemorrhage (n = 3).