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Supporting Information

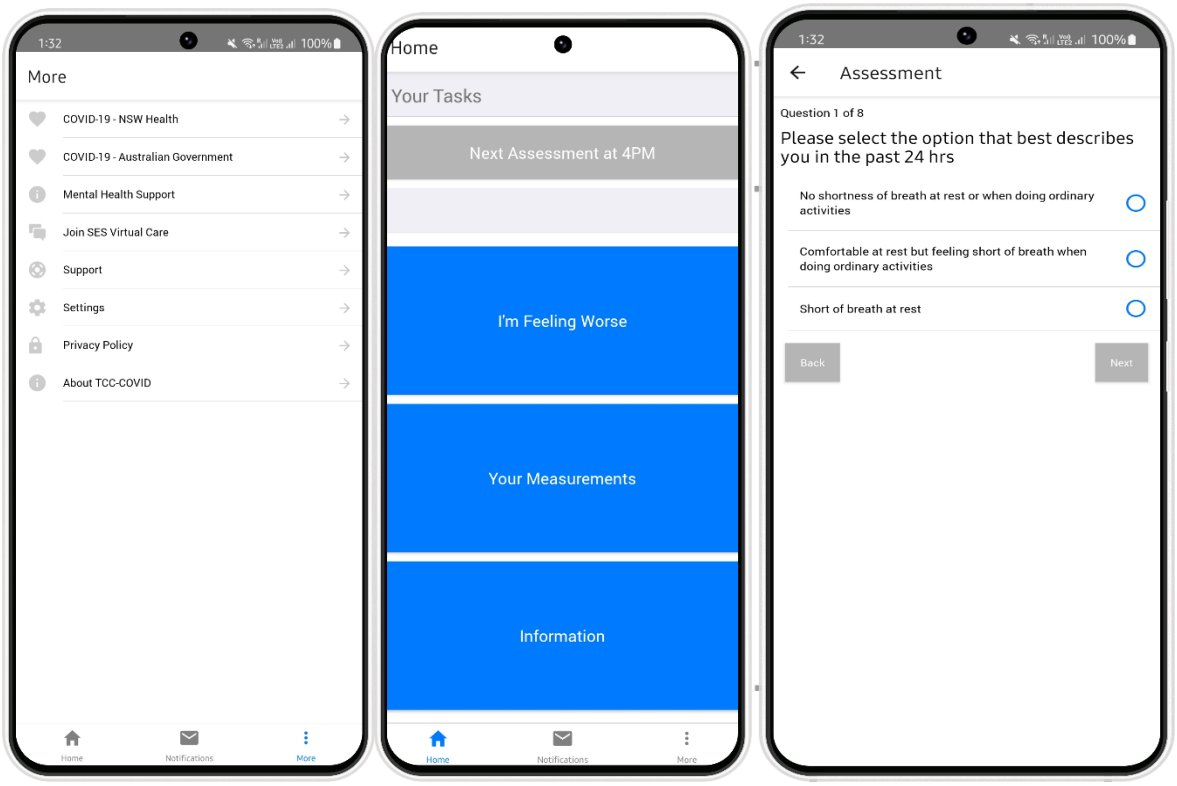
Supplementary methods and results

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

Appendix to: Kim MG, Phan PT, McMaster C, et al. Remote patient monitoring for managing acute COVID-19 and mortality and hospital use in Sydney, New South Wales, 2021–22: a retrospective observational cohort study. *Med J Aust* 2025; doi: 10.5694/mja2.52685.

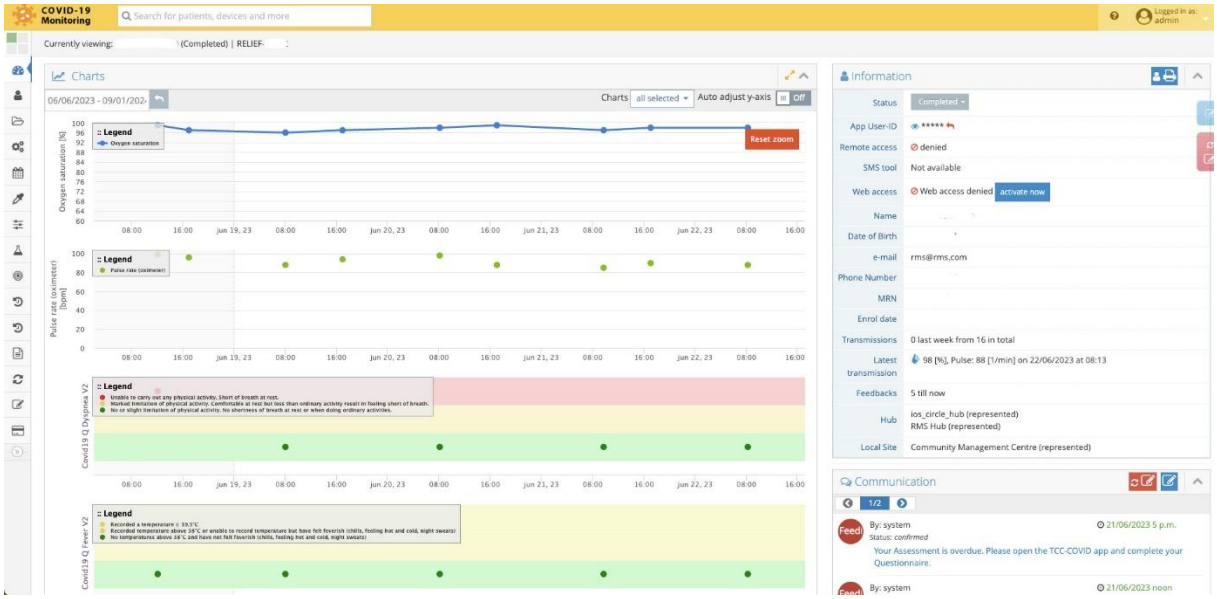
Supplementary methods

1. TeleClinical Care (TCC)-COVID app snapshots*



* Reproduced with the permission of Nigel Lovell (Tyree Institute of Health Engineering, University of New South Wales) and Sze-Yuan Ooi (Prince of Wales Hospital, South Eastern Sydney Local Health District, Sydney; School of Clinical Medicine, University of New South Wales).

2. TeleClinical Care (TCC)-COVID interface*



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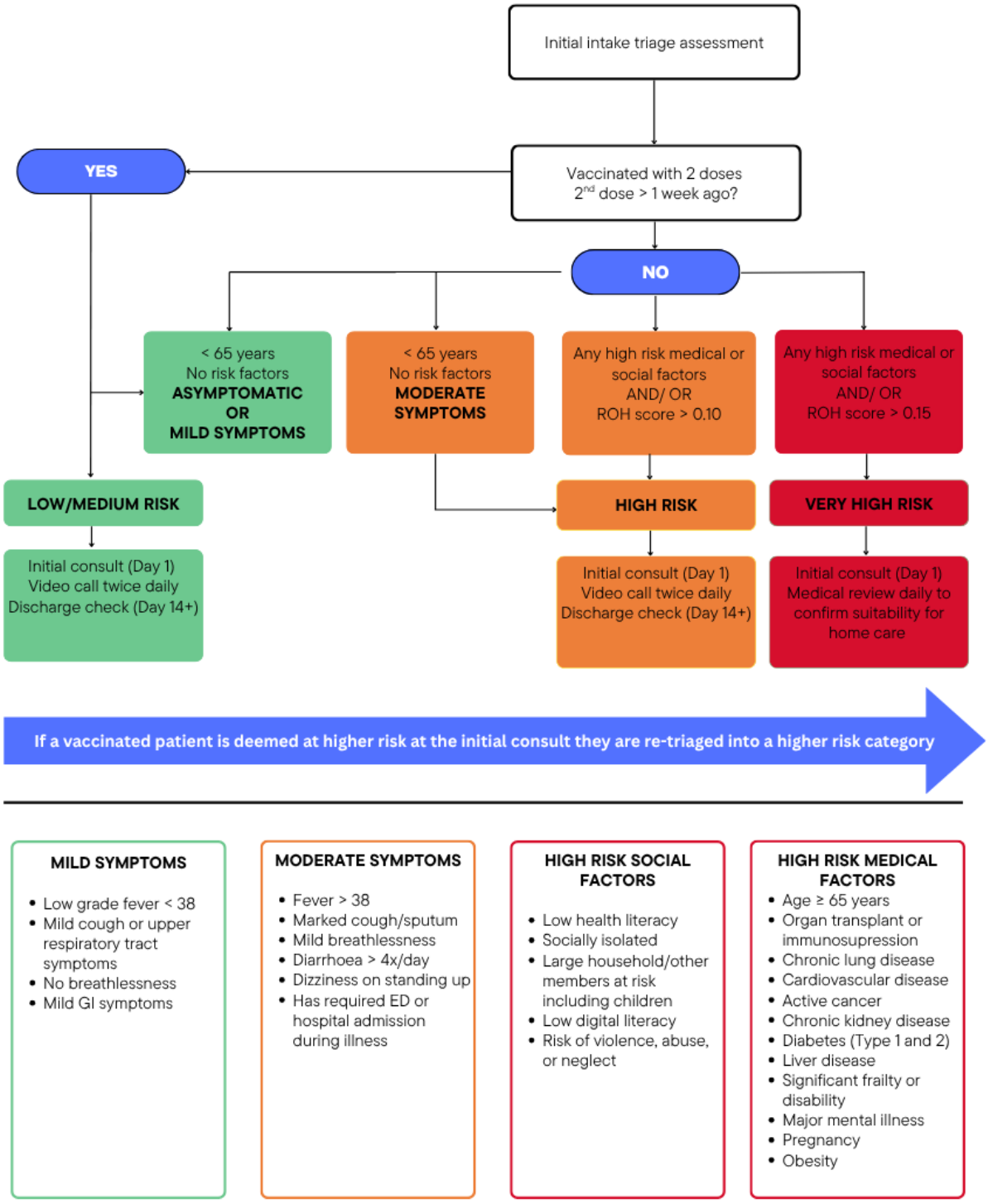
3. Determining the level of risk for COVID-19 care in the community*



ROH = risk of hospitalisation; ED = emergency department.

4. Risk of hospitalisation variable table

Variable	NSW Health updated "Risk of Hospitalisation" algorithm
Patient age group	4-9, 10-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+
Socio-demographic factor	IRSAD decile [Expand, add numbered reference.]
	Indigenous status
Lifestyle factor	Smoking status (Never smoked, current smoker, past smoker, not recorded)
Historical usage of emergency department	Number of emergency department visits during preceding 36 – 48 months
	Number of emergency department visits during preceding 24 – 36 months
	Number of emergency department visits during preceding 12 – 24 months
	Number of emergency department visits during preceding 12 months
	Historical trend of emergency department visits (no activity in past 4 years, activities well described by linear trend, activities not well described by linear trend)
Historical usage of public unplanned admissions	Number of emergency public admissions during preceding 36 – 48 months
	Number of emergency public admissions during preceding 24 – 36 months
	Number of emergency public admissions during preceding 12 – 24 months
	Number of emergency public admissions during preceding 12 months
	Historical trend of emergency public admissions (no activity in past 4 years, activities well described by linear trend, activities not well described by linear trend)
Historical usage of planned admissions	Number of planned admissions during preceding 36 – 48 months
	Number of planned admissions during preceding 24 – 36 months
	Number of planned admissions during preceding 12 – 24 months
	Number of planned admissions during preceding 12 months
	Historical trend of planned admissions (no activity in past 4 years, activities well described by linear trend, activities not well described by linear trend)
Comorbidity	Diabetes
	Chronic obstructive pulmonary disease
	Heart failure
	Liver disease
	Chronic kidney disease
	Coeliac disease
	Stroke
	Cancer
	Cardiovascular disease
	Acute coronary syndrome
	Carotid stenosis
	Myocardial infarction
	Atrial fibrillation
	Asthma
	Osteoporosis
	Depression
	Schizophrenia
	Bipolar
	Autism
	Mental health conditions (other than attention deficit hyperactivity disorder)
	Multiple medical conditions

Supplementary results

Table 1. Characteristics of South Eastern Sydney Local Health District residents with COVID-19, by treatment group, unadjusted and after propensity score matching or inverse probability treatment weighting

				Weighted cohorts					
	Original cohort			Propensity score matching cohort			Inverse probability treatment weight cohort		
Characteristic	Standard care	Remote monitoring	SMD	Standard care	Remote monitoring	SMD	Standard care	Remote monitoring	SMD
All people	271 837	4399		4385	4385		4419	4399	
Age group (years)			0.77			0.008			0.009
15–24	46 980 (17.3%)	320 (7.3%)		321 (7.3%)	320 (7.3%)		320 (7.2%)	320 (7.3%)	
25–34	70 615 (26.0%)	636 (14.5%)		628 (14.3%)	636 (14.5%)		635 (14.4%)	636 (14.5%)	
35–44	55 925 (20.6%)	591 (13.4%)		594 (13.5%)	590 (13.5%)		589 (13.3%)	591 (13.4%)	
45–54	41 674 (15.3%)	562 (12.8%)		560 (12.8%)	561 (12.8%)		560 (12.7%)	562 (12.8%)	
55–64	28 283 (10.4%)	597 (13.6%)		592 (13.5%)	593 (13.5%)		597 (13.5%)	597 (13.6%)	
65–74	16 302 (6.0%)	777 (17.7%)		768 (17.5%)	773 (17.6%)		785 (17.8%)	777 (17.7%)	
75 or older	12 058 (4.4%)	916 (20.8%)		922 (21.0%)	912 (20.8%)		933 (21.1%)	916 (20.8%)	
Sex			0.11			0.003			0.003
Male	129 070 (47.5%)	1843 (41.9%)		1843 (42.0%)	1836 (41.9%)		1844 (41.7%)	1843 (41.9%)	
Female	142 767 (52.5%)	2556 (58.1%)		2542 (58.0%)	2549 (58.1%)		2575 (58.3%)	2556 (58.1%)	
Index of Relative Socio-Economic Advantage and Disadvantage[12]			0.24			0.002			<0.001
Quintiles 1 to 3	42 830 (15.8%)	676 (15.4%)		674 (15.4%)	676 (15.4%)		678 (15.4%)	676 (15.4%)	
Quintile 4	94 231 (34.7%)	2009 (45.7%)		1997 (45.5%)	2000 (45.6%)		2018 (45.7%)	2009 (45.7%)	
Quintile 5	134 776 (49.6%)	1714 (39.0%)		1714 (39.1%)	1709 (39.0%)		1722 (39.0%)	1714 (39.0%)	
Indigenous status			0.15			0.004			0.002
Non-Indigenous	268 885 (98.9%)	4254 (96.7%)		4238 (96.6%)	4241 (96.7%)		4272 (96.7%)	4254 (96.7%)	
Indigenous	2952 (1.1%)	145 (3.3%)		147 (3.4%)	144 (3.3%)		147 (3.3%)	145 (3.3%)	
Medical conditions									
None recorded	266 854 (98.2%)	3983 (90.5%)	0.34	3989 (91.0%)	3983 (90.8%)	0.005	4004 (90.6%)	3983 (90.5%)	0.003

				Weighted cohorts					
	Original cohort			Propensity score matching cohort			Inverse probability treatment weight cohort		
Characteristic	Standard care	Remote monitoring	SMD	Standard care	Remote monitoring	SMD	Standard care	Remote monitoring	SMD
Diabetes	1565 (0.6%)	148 (3.4%)	0.20	131 (3.0%)	141 (3.2%)	0.013	160 (3.6%)	148 (3.4%)	0.014
Hypertension	898 (0.3%)	73 (1.7%)	0.13	60 (1.4%)	71 (1.6%)	0.021	73 (1.7%)	73 (1.7%)	<0.001
Asthma	1450 (0.5%)	114 (2.6%)	0.17	113 (2.6%)	108 (2.5%)	0.007	120 (2.7%)	114 (2.6%)	0.008
Chronic obstructive pulmonary disease	464 (0.2%)	45 (1.0%)	0.11	40 (0.9%)	42 (1.0%)	0.005	47 (1.1%)	45 (1.0%)	0.004
Interstitial lung disease	32 (0.0%)	2 (0.0%)	0.02	1 (< 0.1%)	2 (< 0.1%)	0.012	2 (0.0%)	2 (< 0.1%)	0.001
Bronchiectasis	51 (0.0%)	7 (0.2%)	0.05	7 (0.2%)	6 (0.1%)	0.006	7 (0.2%)	7 (0.2%)	0.001
Liver disease	237 (0.1%)	11 (0.3%)	0.04	9 (0.2%)	11 (0.3%)	0.010	12 (0.3%)	11 (0.3%)	0.003
Heart disease	1143 (0.4%)	82 (1.9%)	0.14	79 (1.8%)	78 (1.8%)	0.002	85 (1.9%)	82 (1.9%)	0.005
Obesity	494 (0.2%)	74 (1.7%)	0.16	67 (1.5%)	67 (1.5%)	<0.001	81 (1.8%)	74 (1.7%)	0.012
Chronic kidney disease stage 3 or higher	449 (0.2%)	71 (1.6%)	0.16	55 (1.3%)	62 (1.4%)	0.014	76 (1.7%)	71(1.6%)	0.009
Immunosuppressed	160 (0.1%)	42 (1.0%)	0.13	15 (0.3%)	33 (0.8%)	0.056	48 (1.1%)	42 (1.0%)	0.013
Local risk of hospitalisation group			0.69			0.009			0.012
Low risk	210 219 (77.3%)	2128 (48.4%)		2115 (48.2%)	2128 (48.5%)		2125 (48.1%)	2128 (48.4%)	
Medium risk	48 051 (17.7%)	1264 (28.7%)		1263 (28.8%)	1263 (28.8%)		1264 (28.6%)	1264 (28.7%)	
High risk	10 208 (3.8%)	690 (15.7%)		690 (15.7%)	685 (15.6%)		700 (15.8%)	690 (15.7%)	
Very high risk	3359 (1.2%)	317 (7.2%)		317 (7.2%)	309 (7.0%)		330 (7.5%)	317 (7.2%)	

COVID-19 = coronavirus disease 2019; SMD = standardised mean difference.

Table 2. Clinical outcomes for people with COVID-19 who received remote patient monitoring and those who received usual care

	Original cohort		Propensity score-matching cohort		Inverse probability treatment-weighted cohort	
Outcome	**Standard care**	**Remote monitoring**	**Standard care**	**Remote monitoring**	**Standard care**	**Remote monitoring**
Number of people	271 837	4399	4385	4385	4419	4399
Primary outcome						
Died within 28 days	358 (0.1%)	7 (0.2%)	36 (0.8%)	7 (0.2%)	36 (0.8%)	7 (0.2%)
Secondary outcome						
Intensive care unit admission within 14 days	222 (0.1%)	16 (0.4%)	18 (0.4%)	15 (0.3%)	17 (0.4%)	16 (0.4%)
Hospital admission within 14 days	2045 (0.8%)	190 (4.3%)	136 (3.1%)	187 (4.3%)	143 (3.2%)	190 (4.3%)
Emergency department presentation within 14 days	4171 (1.5%)	228 (5.0%)	240 (5.5%)	226 (5.2%)	223 (5.1%)	228 (5.0%)

Table 3. Median hospital length of stay for people with COVID-19 who received remote patient monitoring and those who received usual care*

	Original cohort		Propensity score-matched		Inverse probability treatment-weighted	
Parameter	Standard care	Remote monitoring	Standard care	Remote monitoring	Standard care	Remote monitoring
Length of stay (median), days (interquartile range)	5 (2-11)	3 (2-7)	6.5 (3.5-14)	3 (2-6.5)	7 (4-13)	3 (2-7)
Length of stay (days), range	1-24	1-14	1-29	1-13	1-26.5	1-14