

Supplementary material A: Criteria used for HealthLinks prediction algorithm

- Age
- Number of unplanned admissions in the past six months
- Number of emergency department visits in the past three months
- Hospital stay being caused by selected chronic progressive condition(s) and multiple co-morbidities such as asthma, kidney disease, chronic obstructive pulmonary disease, rheumatoid arthritis, hepatitis
- Smoking status
- Place of residence (residential aged care or private residence).

Each criterion provides a weighted value and inclusion into Health Links is triggered once a points threshold is reached. A strong correlation has been demonstrated between the observed and expected proportions of frequent users, and the model has been found to accurately identify patients who will be admitted three or more times in the following 12 months 32% of the time .

Supplementary material B: Coefficients of segmented interrupted time series analysis (note, data is centred around COVID impact)

term	Coefficient	std.error	p.value	Lower CI	Upper CI
(Intercept)	256.390	7.738	<0.001	241.009	271.770
Week	0.025	0.210	0.907	-0.393	0.442
Covid Phase	-91.567	13.587	<0.001	-118.574	-64.560
Week : COVID Phase (Interaction)	-2.742	0.740	<0.001	-4.213	-1.270

Supplementary material C: Coefficients of segmented interrupted time series analysis adjusted for season (note, data is centred around COVID impact)

term	Coefficient	std.error	p.value	Lower CI	Upper CI
(Intercept)	264.549	5.323	<0.001	253.967	275.132
Week	0.096	0.143	0.505	-0.189	0.380
Covid Phase	-99.727	9.274	<0.001	-118.163	-81.290
Season	-123.535	12.222	<0.001	-147.831	-99.240
Week : COVID Phase (Interaction)	-2.813	0.503	<0.001	-3.814	-1.812

Supplementary material D: COM-VID study demographic characteristics for Health Links eligible cohort and sub-sample of interview participants

	Interview participants (n = 200)	Health Links eligible cohort 2019 (n = 4,868)
Age (SD)	66.4 (15.6)	66.9 (17.5)
Gender		
Male	103 (52%)	2,282 (47%)
Female	97 (49%)	2,586 (53%)
Spoken Language		
English Speaking	85 (43%)	3,454 (71%)
Non-English Speaking	115 (58%)	1,414 (29%)
Primary Language		
Southern European (Italian, Greek, Turkish, Maltese, Macedonian)	54 (27%)	901 (19%)
West Asian/ Middle Eastern (Arabic, Assyrian/ Chaldean Neo- Aramaic, Persian)	43 (22%)	295 (6%)
East, South and South-East Asia (Hindi, Urdu, Punjabi, Mandarin, Vietnamese, Nepalese)	19 (9%)	59 (1%)