

Early Discharge Home Hospital Care: An Integrated Health System Experience

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BACKGROUND

The COVID-19 pandemic stressed our integrated health system's resources. Our early hospital discharge home care program was rapidly operationalized and scaled to relieve scarce hospital inpatient resources and skilled nursing facility resources.

OBJECTIVES

Primary Analysis

Assess Demographic, equity, chronic and acute illness burden, functional status, and quality outcomes of early discharge home hospital care (HCC) compared to skilled nursing facility care (SNF) and skilled home health (SHH) for COVID negative and COVID positive populations.

Primary quality outcomes:

- 30-day mortality
- 30-day all-cause readmission

METHODS

We conducted a retrospective cohort study from January 2020-January 2022 of 32,335 patients, representing 36,993 qualifying inpatient episodes including 1985 patients who were enrolled in early discharge home hospital care.

Patient demographic characteristics as well as clinical characteristics including severity of illness and risk of mortality using APR-DRG risk methodology, comorbidity risk using Charlson comorbidity scores, and functional status measured by sit to stand mobility prior to hospital discharge, as well as primary quality outcomes were studied. A qualifying inpatient episode was defined as an inpatient hospitalization in an Allina facility for a patient not admitted in the previous 30-days. A readmission episode was any hospitalization in the Allina system within 30 days of discharge from a qualifying inpatient episode.

Variables were analyzed using ANOVA and Chi-squared tests or Kruskal-Wallis and Fisher tests where appropriate. Groups were also compared using the maximum of the pairwise standardized differences (MSD) to identify practical importance. Additional pairwise comparisons with home hospital care to determine statistical significance were conducted for certain patient characteristics and outcomes.

Table 1. Population Demographic Characteristics

Measure	COVID -			COVID +		
	HHC	SNF	SHH	HHC	SNF	SHH
N (unique patients/hospital episodes)	954/977	12123/14044	16482/19136	1031/1031	751/751	994/994
Race (n%)**						
African American or Black	94 (9.9)	465 (3.8)	1140 (6.9)	104 (10.1)	28 (3.7)	109 (11.0)
Asian	35 (3.7)	96 (0.8)	341 (2.1)	40 (3.9)	13 (1.7)	26 (2.6)
White	799 (83.8)	11316 (93.3)	14510 (88.0)	835 (81.0)	693 (92.3)	828 (83.3)
Ethnicity (n%)**						
Hispanic/Latino	46 (4.8)	153 (1.3)	373 (2.3)	71 (6.9)	8 (1.1)	44 (4.4)
Charlson (± SD)*	3.23 (1.90)	4.17 (1.71)**	3.44 (1.90)**	2.37 (1.90)	4.43 (1.80)**	3.40 (1.82)**
Sit to stand transfer scores*††††						
0 (independent)	256 (35.5)	419 (4.3)	3810 (30.9)	381 (56.4)	50 (8.4)	323 (42.3)
1 (Standby to Contact Guard Assist)	404 (56.0)	4192 (42.9)	7036 (57.0)	267 (39.6)	291 (49.1)	366 (47.9)
2 (Minimal assist)	50 (6.9)	3329 (34.1)	1168 (9.5)	24 (3.6)	172 (29.0)	59 (7.7)
3 (Moderate assist)	7 (1.0)	1239 (12.7)	233 (1.9)	3 (0.4)	51 (8.6)	11 (1.4)
4 (Max assist)	4 (0.6)	594 (6.1)	100 (0.8)	0 (0.0)	29 (4.9)	5 (0.7)
Hospital ALOS (mean (SD))*†††	8.15 (7.46)	7.87 (8.15)	5.86 (5.77)	8.28 (7.01)	10.40 (9.47)	6.29 (5.16)

*P value <0.001
 ** P value pairwise comparison with HHC <0.001
 †MSD minimal <0.2
 †† MSD small 0.2-0.5
 †††MSD medium 0.51-0.8
 †††† MSD large >0.8

Figure 1. Distribution of APR-DRG SOI and ROM scores for Covid negative patients by discharge disposition.

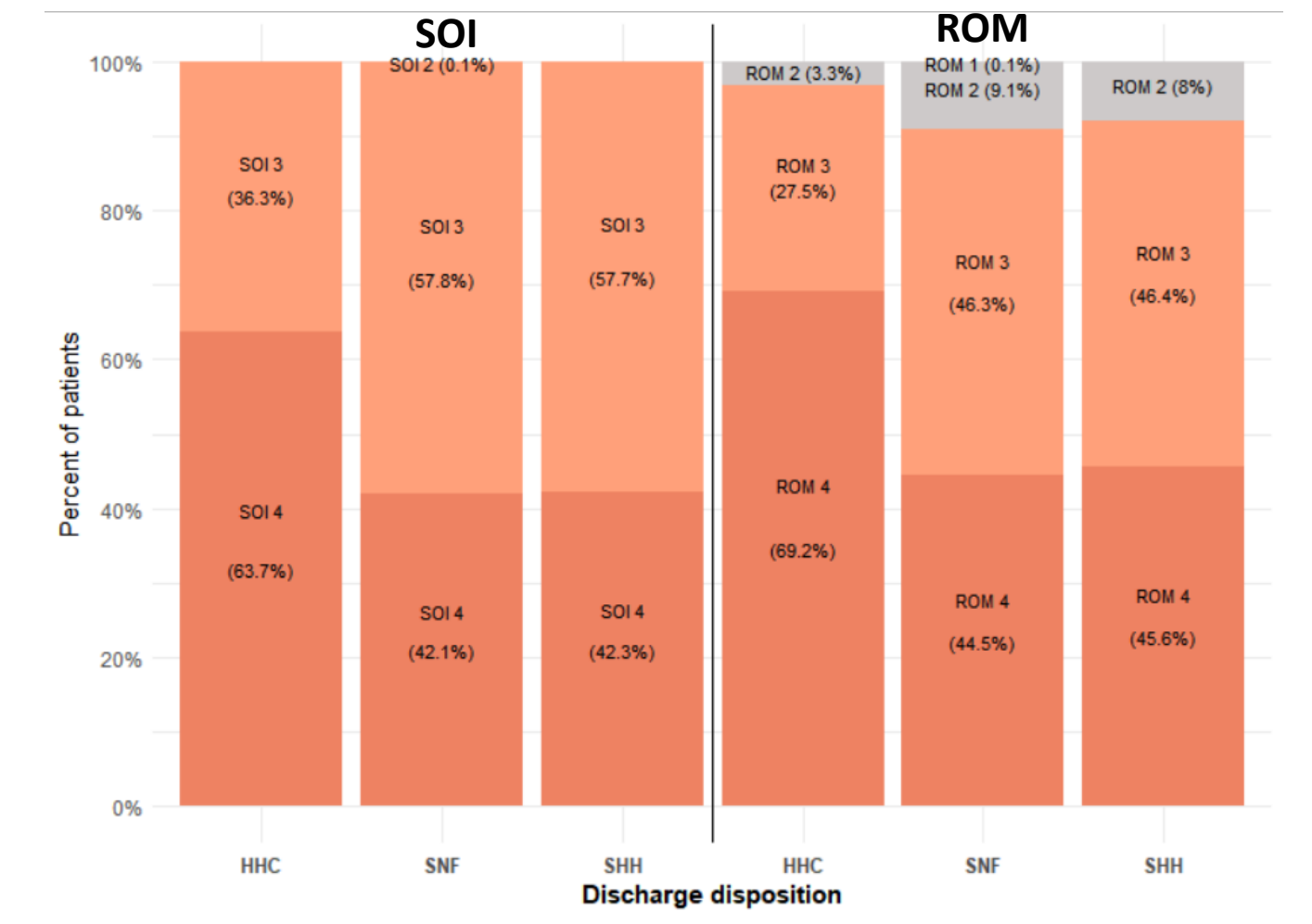


Figure 2. Distribution of APR-DRG SOI and ROM scores for Covid positive patients by discharge disposition.

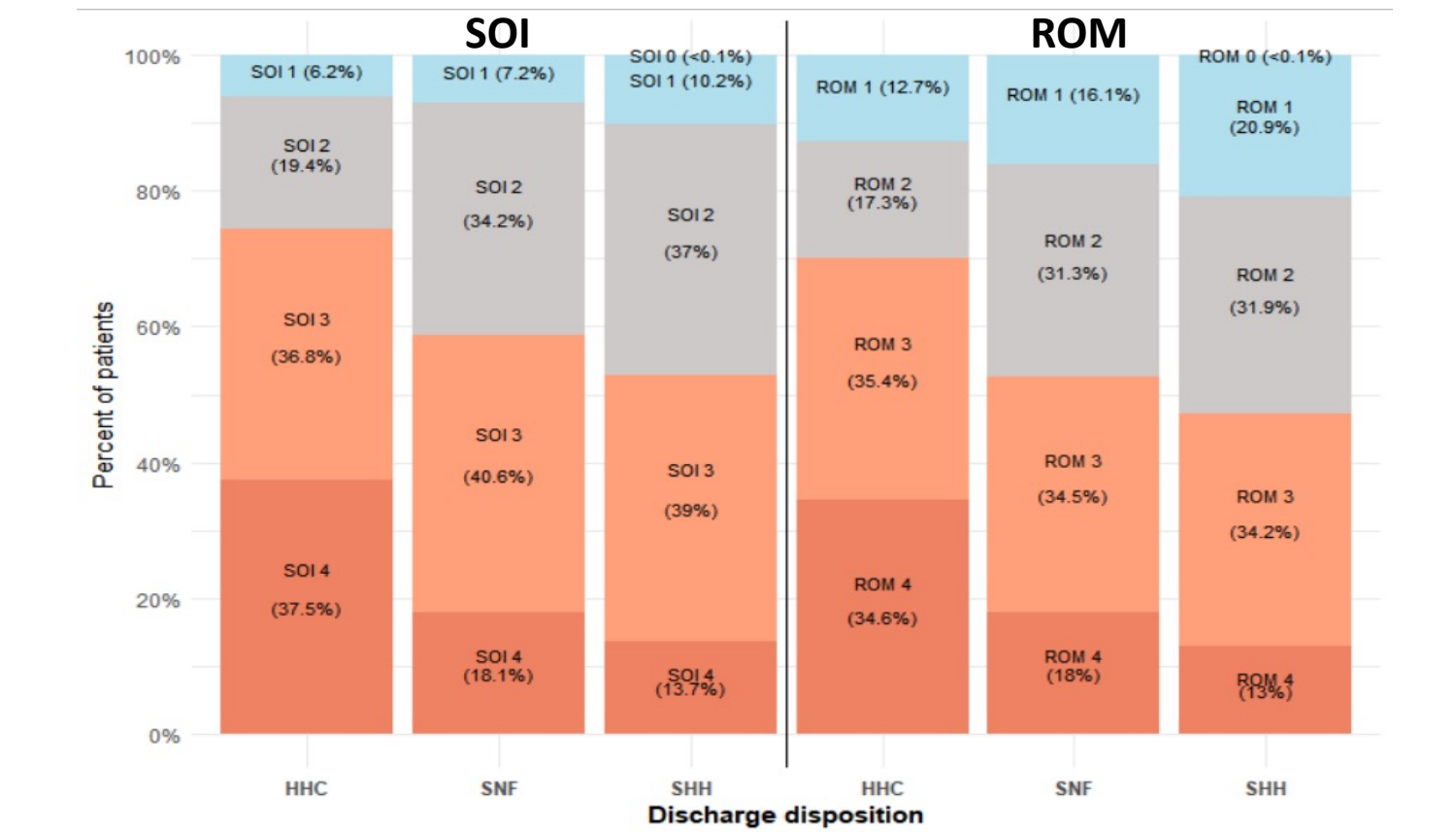


Table 2. Results

Measure	COVID -				COVID +			
	HHC	SNF	SHH	MSD	HHC	SNF	SHH	MSD
N (unique patients/hospital episodes)	954/977	12123/14044	16482/19136		1031/1031	751/751	994/994	
30d readmission (%)*	209 (21.4)	2015 (14.3)**	3148 (16.5)**	0.19	98 (9.5)	139 (18.5)**	165 (16.6)**	0.26
30d mortality (%)*	30 (3.1)	753 (5.4)	509 (2.7)	0.11	15 (1.5)	56 (7.5)**	35 (3.5)**	0.29

*P value <0.001
 **P value pairwise comparison with HHC <0.001

LIMITATIONS

Readmission hospitalization data outside of Allina Health facilities is not included.

CONCLUSIONS

Early discharge HHC demonstrated similar or improved quality outcomes for the selected populations irrespective of COVID-19 infection status – with improved mortality versus SNF patients and fewer readmissions in COVID positive patients; higher readmissions in COVID negative patients. HHC patients were younger, and more diverse in terms of race, ethnicity and language. Additionally, patients were more acutely ill and medically complex, with higher functional capacities. HHC can serve as an adequate early discharge and post-acute care alternative option for this population.