

Safe at Home: Patient Safety During Home Hospital

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Background

Brick and mortar (BAM) hospital safety is poor

- 1 in 4 patients have an adverse event
- 1 in 4 adverse events are preventable

Home hospital safety is relatively unknown

- Safety of home hospital outside of small tightly controlled studies is relatively unknown

Definition of an adverse event

- Unintended physical injuries resulting from or contributed to by healthcare management (including the absence of needed medical treatment) that require additional monitoring, treatments, or hospitalizations, or that result in death

Objective

- Describe the safety of home hospital (HH) care through detailed chart review
- Compare safety to a propensity score-matched control group

Methods

Design

- 3 HH programs in a single health system in Boston, MA, USA
- February 2020 – August 2023
- Electronic health record retrospective review
- Irrespective of arm, entire episode of care analyzed

Analysis

- Applied HH inclusion/exclusion criteria to all patients
- Propensity score matched 4:1 BAM:HH on sociodemographic, chronic clinical, site, and acute clinical characteristics (diagnosis-specific criteria applied each day to assess for eligibility)

Home hospital, compared to the brick-and-mortar hospital, was associated with large reductions in potential adverse events

Results

Patient characteristics after matching

	Home Hospital (n = 1875)	Brick and Mortar (n = 5729)
<i>Sociodemographic characteristics</i>		
Age, mean	71	70
Female	56	54
White race	62	65
Partnered	42	40
English language preference	81	83
Private insurance	38	39
<High school education	18	16
Retired	59	57
Area deprivation index, most deprived	10	10
<i>Chronic clinical characteristics</i>		
Elixhauser comorbidity score, mean	10	10
BMI, mean	30	29
Prior smoker	40	40
0 hospitalizations last 6 months	37	56
0 ED visits last 6 months	50	54
Fujii code	63	62
<i>Acute clinical characteristics</i>		
1 st calendar quarter	24	25
eCART score	11	11
Emergency severity index, least urgent	63	73

Total harm, potential adverse events, and triggers

	Home Hospital (n = 1875)	BAM (n = 5729)	IRR	P-value
<i>Total harm</i>				
Total number of AEs per 100 pts, mean	17	97	0.18	<0.001
Total number of AEs w/o delirium, mean	15	40	0.38	<0.001
Any safety event, %	13	41	0.32	<0.001
Any safety event w/o delirium, %	13	29	0.42	<0.001
<i>Potential adverse events, per 100 patients</i>				
Inpatient mortality	0.11	1.69	0.06	<0.001
Mortality within 72 hours of discharge	0.27	0.35	0.76	0.59
Hospital-acquired pressure injury	0.53	2.41	0.22	<0.001
CLABSI	0	0	--	--
CAUTI	0.16	0.59	0.27	0.03
Hospital-acquired AKI	1.6	3.77	0.42	<0.001
Hospital-acquired delirium	2.29	57.36	0.04	<0.001
Severe hypoglycemia	1.97	6.13	0.32	<0.001
Hospital-acquired C. Dif infection	0.16	0.28	0.57	0.38
Hospital-acquired MRSA infection	0.64	2.51	0.25	<0.001
<i>Triggers, per 100 patients</i>				
Code or rapid response	0.05	3.28	0.02	<0.001
Home Hospital to BAM transfer	4.43	NA	--	--
ED visit within 48 hours of discharge	2.13	3.02	0.71	0.04
Diphenhydramine administration	2.45	8.99	0.27	0.04
PTT>100	0.59	6.58	0.09	<0.001



Results

	Home (n = 1875)	BAM (n = 5729)	P-value
Total length of stay, mean (SD)	6.8 (5.4)	7.2 (7.1)	0.51
Discharge destination, %			<.001
Home	61	40	
Home with services	33	39	
Skilled nursing facility	0.3	15	
Other	5	3	
Expired	0.1	1.6	

Discussion

Home hospital is associated with reduced harm

- Rigorous matching
- Real-world data

Limitations

- Still to come: manual chart review for exclusions in unstructured data; adjudication for AEs
- Missed AEs not in the EHR
- Generalizability: 3 sites in one health care system
- Association, not causation

Urgent call

- To home hospitalize our patients
- To identify evidence-based interventions to curtail harm at home – *few exist*