The Next Frontier of Inpatient Care: A Comparative Analysis of Hospital at Home Program and Traditional Brick-and-Mortar Quality Outcomes

Elizabeth Stearns, PA-C, MS, MBA[1,2]; Anh-Phuong Pham, MPH[3]; Summer Hill, MHA[2]; Praneetha Elugunti, MS, MHA, MBA[2,4]; Michelle Larson, DNP[2]; Erika Cavallaro, MBA[2]; Chad Nelson, MD[1]

[1]Division of Hospital Internal Medicine, [2]Department of Administration, [3]Department of Quality, [4]Center for Digital Health

BACKGROUND

Mayo Clinic in Arizona (MCA) set out to deploy a hospital at home program to decompress the unprecedented need for hospital beds. Leveraging cutting-edge technology to craft innovative care models with a vision to unleash a wave of programmatic offerings tailored specifically for inpatient status patients. As a result, the Advanced Care at Home (ACH) program was designed to transition patients with diagnoses traditionally managed in a hospital to a home setting through a highly innovative supplier care network infrastructure.

OBJECTIVES

The Advanced Care at Home (ACH) program aims to:

- Provide high-quality inpatient status patient care equivalent to or exceeding that of traditional brick-and-mortar hospitalizations
- Eliminate or shorten the duration of patient brick-and-mortar admissions
- Increase hospital capacity and efficiency, by transitioning appropriate patients to a home setting, while also reducing hospital readmissions
- Improve patient access, outcomes, and satisfaction by allowing patients to heal where they are most comfortable
- Decrease patient costs for preventable brick-and-mortar admissions

METHODS

We compared quality outcomes for patients admitted to ACH and all of MCA between 2021 and 2023. Our analysis considered mortality and readmission rates, length-of-stay (LOS), and patient experience. Mortality, readmission, and LOS were compared among patients admitted with one of the top six Medicare Severity Diagnosis Related Groups (MS-DRGs) among ACH-admitted patients. Mortality and LOS metrics were risk-adjusted using the Vizient Risk-Adjustment Methodology. Readmissions were risk-standardized based on CMS methodology and include unplanned and planned readmissions, including readmissions for COVID-19. Patient experience was measured using the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey, a national, standardized survey.

RESULTS

From program inception (2021) to end of September 2023, there were 324 admissions into the Advanced Care at Home program, resulting in, 1,351 bed days saved. Overall, quality outcomes for ACH patients are comparable to outcomes for brick-and-mortar patients. Patients would frequently report top-box satisfaction scores for likelihood to recommend the program, on average 92.7% since program inception. LOS provides an opportunity for improvement for the Advanced Care at Home program.

RESULTS

TABLE 1: ACH ADMISSIONS BY MS-DRG FAMILY

MS-DRG FAMILY		# ADMISSIONS	% ADMISSIONS
870, 871 ,872	SEPTICEMIA OR SEVERE SEPSIS	68	21%
177, 178, 179	RESPIRATORY INFECTIONS AND INFLAMMATIONS	43	13%
602, 603	CELLULITIS	28	9%
193, 194, 195	SIMPLE PNEUMONIA AND PLEURISY	19	6%
291, 292, 293	HEART FAILURE AND SHOCK	19	6%
698, 699, 700	OTHER KIDNEY AND URINARY TRACT DIAGNOSES	19	6%
	TOTAL	196	60%

FIGURE 1: ACH ADMISSIONS BY MONTH

324 admissions to MCA ACH occurred between 9/13/21 – 9/30/23.

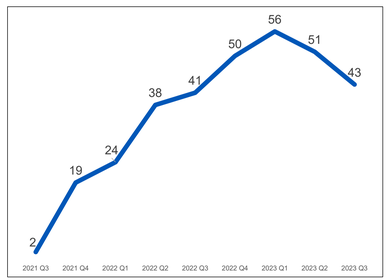


FIGURE 2: PATIENT EXPERIENCE SCORES BY MONTH

The likelihood to recommend top box score has averaged at **92.7%** since ACH program inception, compared to the inpatient B&M average score of **91.4%** in the same period.

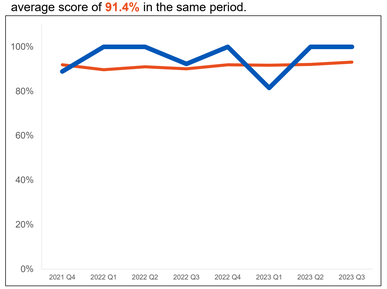


FIGURE 3: MORTALITY INDEX BY MONTH

Zero mortalities have occurred during an ACH admission. Compared to **brick & mortar** discharges, the expected mortality for patients discharged from **ACH** typically trends lower.

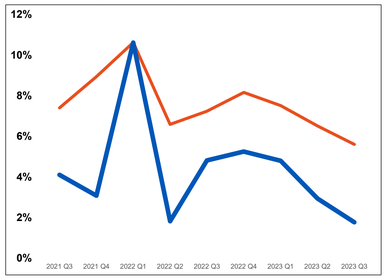
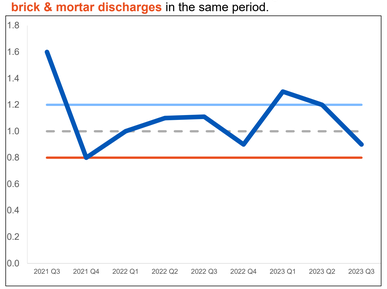


FIGURE 4: LOS INDEX BY MONTH

The average LOS index for ACH discharges was **1.2**, which is greater than **expected** and higher than the average LOS index for **brick & mortar discharges** in the same period.



CONCLUSIONS

As hospital-at-home programs continue to gain prominence, measuring and improving quality of care will continue to be paramount. Trending data on mortality and patients returned to brick-and-mortar for escalation of care will be important for identifying opportunities and adjusting acuity of patients within the program. The next frontier of inpatient care explores the transformative trends and factors that are reshaping the landscape of traditional healthcare delivery. As we move forward, embracing technology, fostering collaboration, empowering patients, and leveraging data will be integral to redefining inpatient care models and ensuring high-quality, patient-centered healthcare delivery.

Hospitals looking to establish a hospital at home program should consider:

1. Establishing clear and consistent guidelines for patient eligibility, admission, discharge, and transfer, based on clinical evidence, patient preferences, and available resources
2. Developing standardized protocols and pathways for delivering evidence-based care in the home setting.

REFERENCES

Elliott M, et al. "Identifying Optimal Acute Care Comparators to Inform the Evaluation of an Advanced Care at Home Pilot Program." Permanente Journal 27.4 (2023): 90-99. Ovid MEDLINE(R). Web. 01 March. 2024.

Maniaci MJ, et al. "Overall patient experience with a virtual hybrid hospital at home program." SAGE Open Medicine 10.(2022): 20503121221092589. Ovid MEDLINE(R) PubMed-not-MEDLINE. Web. 01 March. 2024.

Yao X, et al. "Effect of hospital-at-home vs. traditional brick-and-mortar hospital care in acutely ill adults: study protocol for a pragmatic randomized controlled trial." Trials [Electronic Resource] 23.1 (2022): 503. Ovid MEDLINE(R). Web. 01 March. 2024.