Hospital at Home: An Introduction

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August 12, 2022

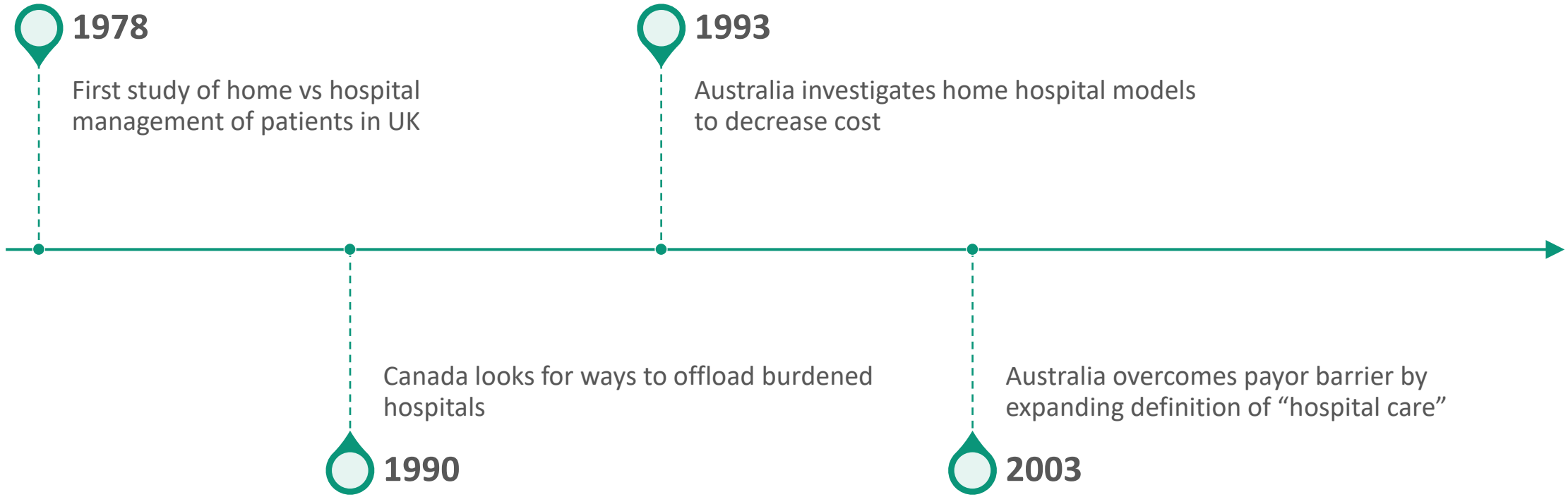
Disclosures

- Currently serving as Medical Director of patient acquisition for Integris Health at Home
- I will be discussing specifics of one clinical partner Medically Home. Other models may be seen in other health systems

Objectives

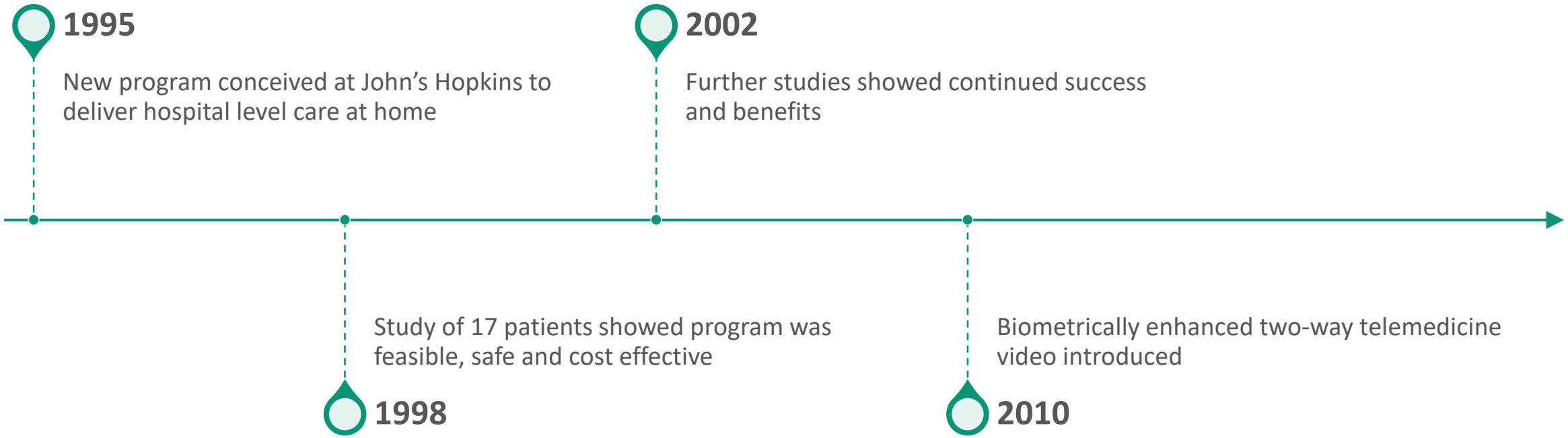
- Understand the history of home hospital care
- Discuss the benefits of a home hospital program
- Outline a successful model for home hospital services
- Detail the patient acquisition process for ongoing home hospital growth

Hospital at Home: International History



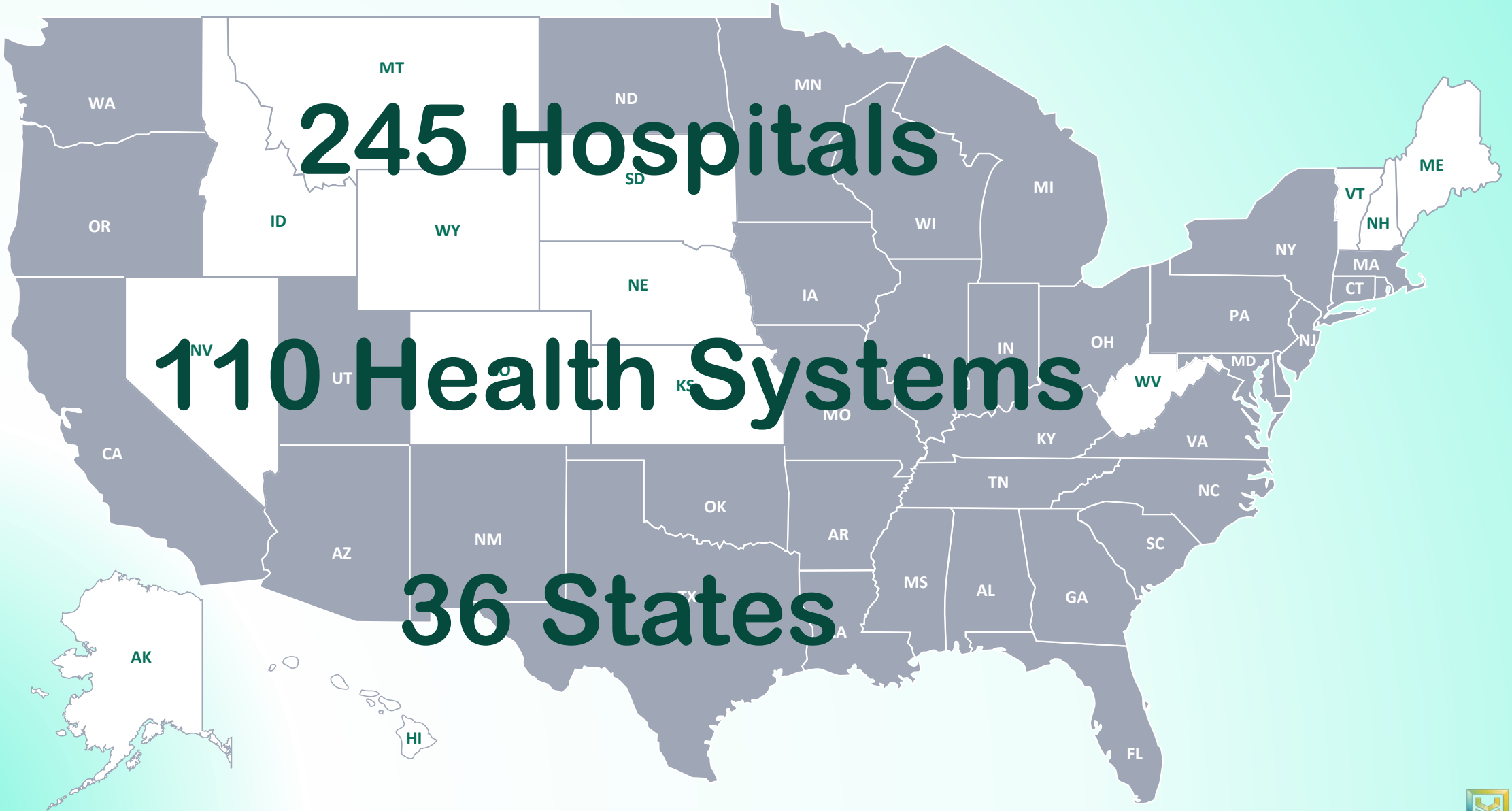
Hill JD, Hampton JR, Mitchell JR. A randomised trial of home-versus-hospital management for patients with suspected myocardial infarction. Lancet. 1978 Apr 22;1(8069):837-41. doi: 10.1016/s0140-6736(78)90190-3. PMID: 76794.
Bouchard HS. Can in-home hospital care be implemented in Ontario? Implications for public policy. Healthc Manage Forum. 1990 Summer;3(2):24-7. doi: 10.1016/S0840-4704(10)61262-8. PMID: 10105180.
Montalto M, Dunt D. Delivery of traditional hospital services to patients at home. Med J Aust. 1993 Aug 16;159(4):263-5. doi: 10.5694/j.1326-5377.1993.tb137831.x. PMID: 8412896.

History of Home Hospital in the US



Leff B, Burton L, Guido S, Greenough WB, Steinwachs D, Burton JR. Home hospital program: a pilot study. J Am Geriatr Soc. 1999 Jun;47(6):697-702. doi: 10.1111/j.1532-5415.1999.tb01592.x. PMID: 10366169.
Leff B, Burton L, Mader SL, Naughton B, Burl J, Inouye SK, Greenough WB 3rd, Guido S, Langston C, Frick KD, Steinwachs D, Burton JR. Hospital at home: feasibility and outcomes of a program to provide hospital-level care at home for acutely ill older patients. Ann Intern Med. 2005 Dec 6;143(11):798-808. doi: 10.7326/0003-4819-143-11-200512060-00008. PMID: 16330791.

States with Hospital at Home Waivers*



* As of July 22, 2022

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The Waiver Experience: *NEJM Catalyst* Review – Dec. 2021

COMMENTARY

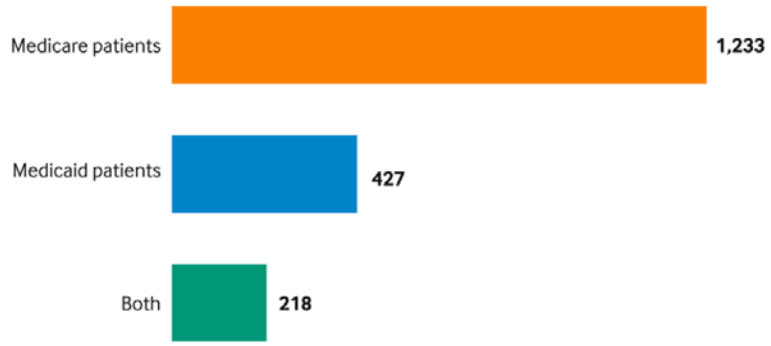
Acute Hospital Care at Home: The CMS Waiver Experience

Douglas V. Clarke, MD, MBA, Jillian Newsam, MPH, Douglas P. Olson, MD, Danielle Adams, MS, BSN, RN, Ashby J. Wolfe, MD, MPP, MPH, Lee A. Fleisher, MD

DOI: 10.1056/CAT.21.0338

Patients Treated via Acute Hospital Care at Home Waiver, by Insurance Type

Of the 1,878 patients served by Hospital at Home programs under the AHCaH waiver through October 2021, the majority were Medicare Fee-for-Service beneficiaries, with a small proportion dually insured by Medicare and Medicaid.



Source: The authors

Escalation and Unexpected Mortality Associated with the Acute Hospital Care at Home Initiative

Total Patients	1,878
# Escalations	134
% Escalations	7.14%
# Unexpected Mortalities	8
% Unexpected Mortalities	0.43%

This data is based on participation among hospitals that received waivers to participate in the Acute Hospital Care at Home program between November 25, 2020, and October 27, 2021. Source: The authors

https://catalyst.nejm.org/doi/full/10.1056/CAT.21.0338

About Medically Home

Building the World's First Decentralized High Acuity Medical Care Delivery System

2008 — *Personal adverse event calls for a new model*

2012 — *Solution design period*

2015 — *Published clinical trial*

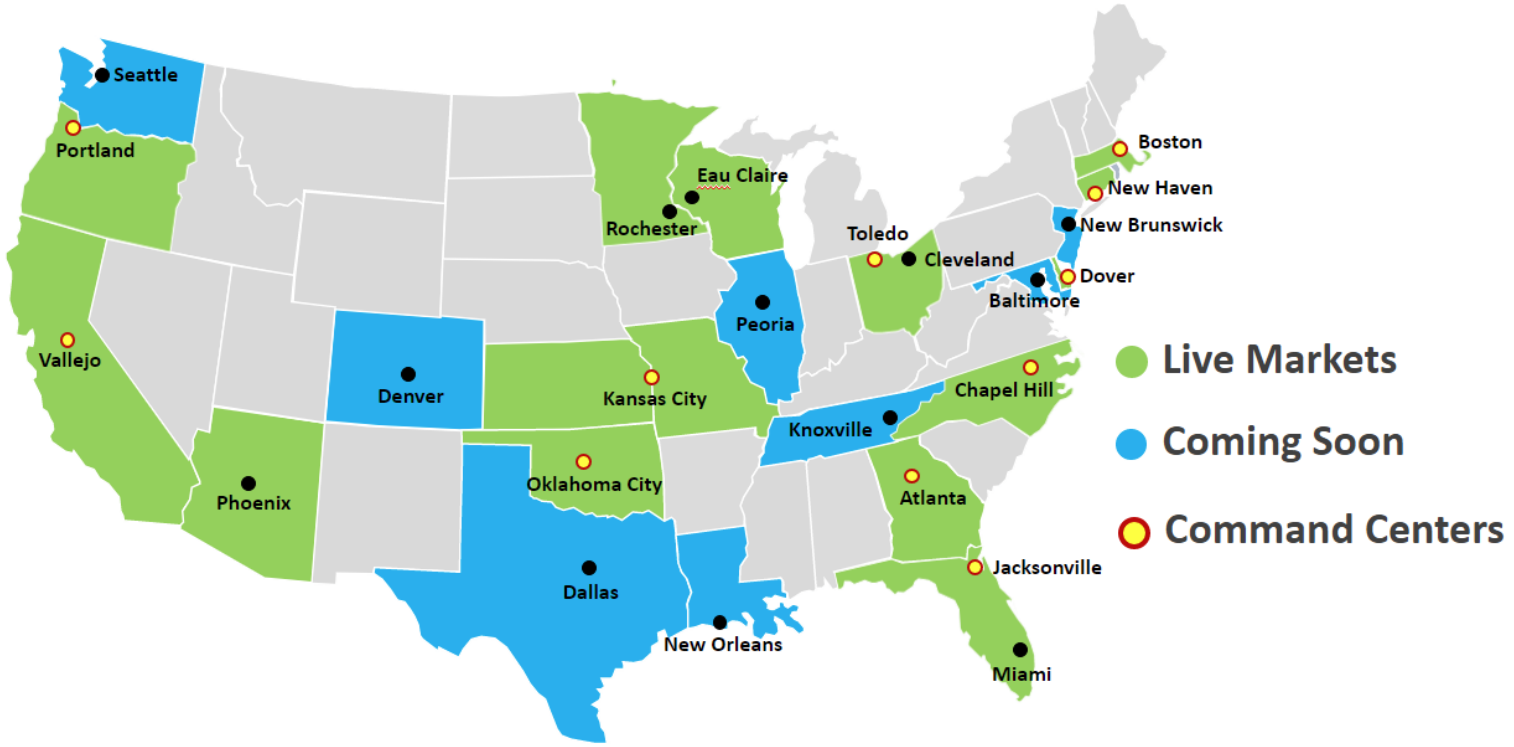
2017 — *Medically Home® launches partnership w/Atrius Health*

2019 — *Explosive tailwinds drive scaling of Hospital@Home market*

2020 — *COVID arrives driving surge capacity needs*

2021 — *Kaiser Permanente & Mayo Clinic announce deep partnership with Medically Home®*

2022 — *Medically Home® announces partnership with GMR, Baxter, and Cardinal*



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Forces Behind the Shift to Virtual Care at Home

STRATEGIC SHIFTS

By 2020, Healthcare organizations plan to invest most in:

- **44% in Home Health**
- **44% in Palliative Care**
- **39% in Geriatric Caretakers**

HOSPITALS

Hospitals are experiencing:

- **Increased margin pressures**
- **Eventual shift to Risk**
- **Increased Consumerism**
- **Increased shift to Medicare**

Call to Action

Improve Quality and Safety

Decrease costs through reduced care variation and lower cost delivery sites

Improve consumer satisfaction to patient and caregivers

Sources:

- B. Leff, L. Burton, S. L. Mader et al., "Hospital at Home: Feasibility and Outcomes of a Program to Provide Hospital-Level Care at Home for Acutely Ill Older Patients," *Annals of Internal Medicine*, Dec. 2005 143(11):798–808.
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3107566/
- https://costprojections.cancer.gov/expenditures.html
- https://rockhealth.com/reports/2018-year-end-funding-report-is-digital-health-in-a-bullble

Virtual Acute Care Hospital at Home Benefits

REDUCED

- Re-admission by 8.1%[1]
- Mortality by 20-40%[2]
- Costs by 30% per admitted patient[1]
- Hospital acquired infections, falls, delirium
- Deterioration of patient functional status

IMPROVED

- Patient Satisfaction (100%)[1]
- Rest for patient & caregivers
- Patient & Family Engagement
- Nutrition intake
- Patient perception of quality of life

Medically Home Program Impact

Sources:

1. Medically Home internal reported data through February 2020
2. Shepperd S, Doll H, Angus RM, et al. Avoiding hospital admission through provision of hospital care at home: a systematic review and meta-analysis of individual patient data. CMAJ. 2009. 180(2):175-182. and Caplain, GA, Sulaiman NS, Mangin DA, et al. A meta-analysis of "hospital in the home". MJA. 2012 197(9): 512-519.
3. https://www.commonwealthfund.org/publications/case-study/2016/aug/hospital-home-model-bringing-hospital-level-care-patient

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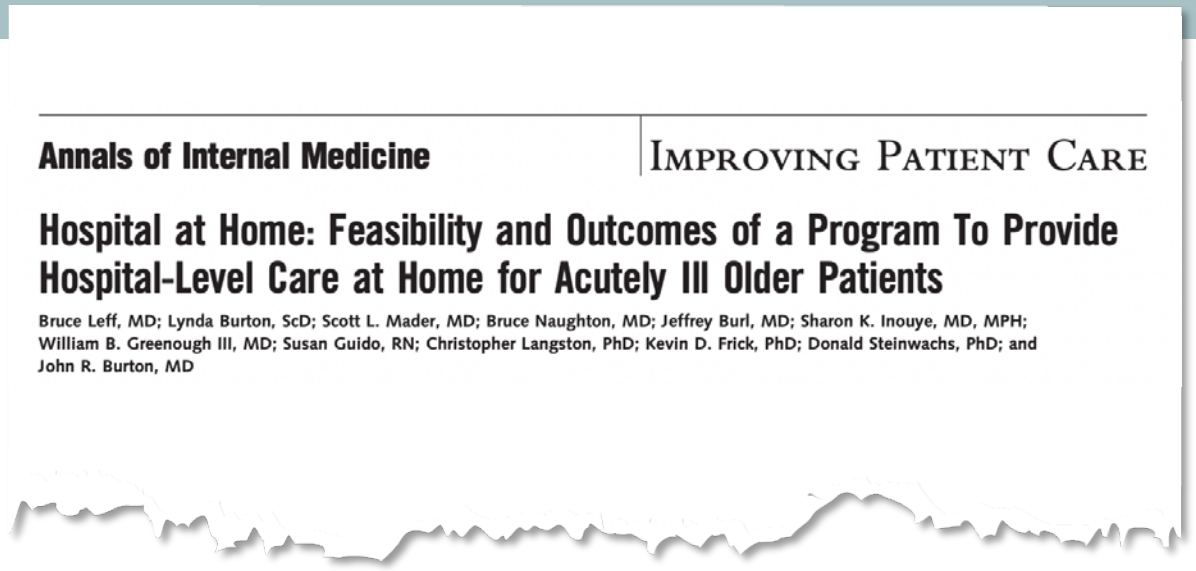
Further Evidence



Annals of Internal Medicine | IMPROVING PATIENT CARE

Hospital at Home: Feasibility and Outcomes of a Program To Provide Hospital-Level Care at Home for Acutely Ill Older Patients

Bruce Leff, MD; Lynda Burton, ScD; Scott L. Mader, MD; Bruce Naughton, MD; Jeffrey Burl, MD; Sharon K. Inouye, MD, MPH; William B. Greenough III, MD; Susan Guido, RN; Christopher Langston, PhD; Kevin D. Frick, PhD; Donald Steinwachs, PhD; and John R. Burton, MD

	HaH N=169	Brick & Mortar Hospital N=286
Acute LOS (days)	3.2	4.9
Cost ($)	5081	7480
Falls (%)	1	6

Original Investigation

August 2018

Association of a Bundled Hospital-at-Home and 30-Day Postacute Transitional Care Program With Clinical Outcomes and Patient Experiences

	HaH N=295	Brick & Mortar Hospital N=212
Acute LOS (days)	3.2	5.5
Readmission, all cause (%)	8.6	15.6
ED visits, all cause (%)	5.8	11.7
Highest overall exp rating (%)	68	46
Discharge to Skilled Nursing Facility (%)	1.7	10.4

Ann Intern Med 2005; 143: 798-808

JAMA Network Open

Original Investigation | Health Policy

Hospital-at-Home Interventions vs In-Hospital Stay for Patients With Chronic Disease Who Present to the Emergency Department

A Systematic Review and Meta-analysis

Geneviève Arsenault-Lapierre, PhD; Mary Henein, MSc; Dina Gaid, PhD; Mélanie Le Berre, MSc; Genevieve Gore, MLIS; Isabelle Vedel, MD, PhD

Systematic review of 9 randomized clinical trial studies of similarly situated patients, including 959 adult patients with a chronic disease – JUNE 2021	HaH N=513	Brick & Mortar Hospital N=446
Readmission, all cause	29%	39% (25% higher than HaH)
Discharge to Skilled Nursing Facility	0.6%	9.7%
Anxiety at 14 days post discharge	Improved	Worsened
Depression post discharge	Greater Improvement	Less Improvement

9 studies USA (1), Spain (2) Italy (4) England (2)

JAMA Netw Open. 2021;4(6):e2111568. doi:10.1001/jamanetworkopen.2021.11568

INTEGRIS Health @ Home: Hospital at Home Scope

HAH Go-live #1: Jan 31, 2022
- INTEGRIS Baptist
- INTEGRIS Southwest

HAH Go-live #2: June 6th, 2022
- INTEGRIS Edmond Hospital
- INTEGRIS Canadian Valley

Restorative Care Go-live: January 1, 2023

Hospital at Home Program includes:
- ED Admissions for Acute Substitution
- Inpatient Brick and Mortar Hospital Transfers (Reduced B & M LOS)
- Restorative Care through 30-day Episodes

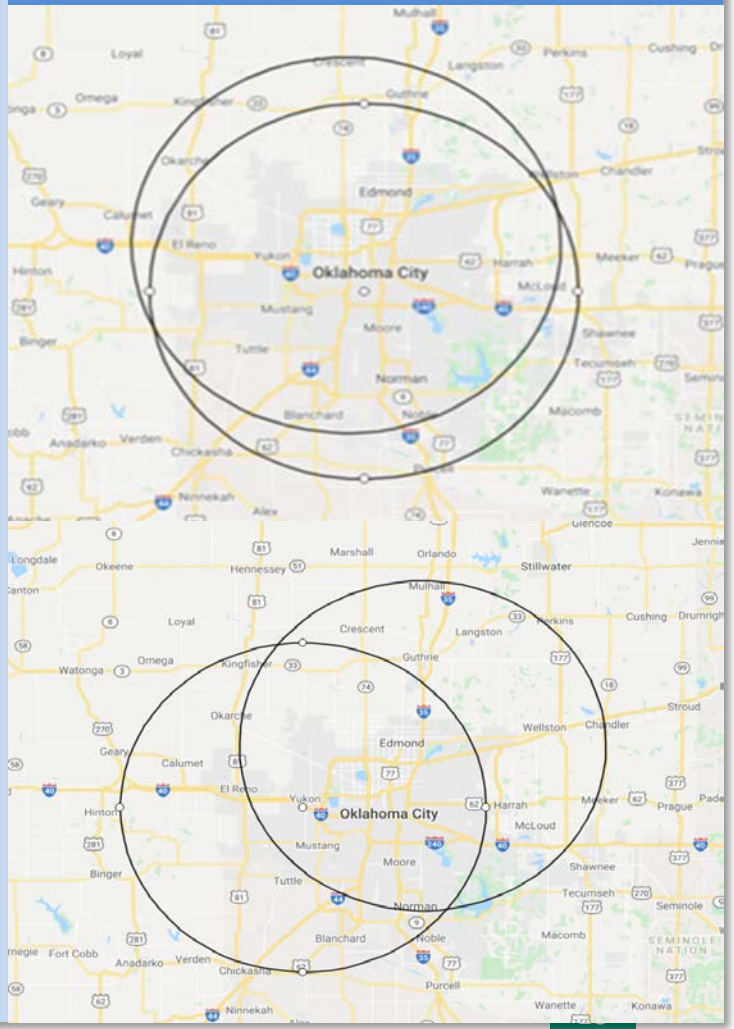
Acquire Payers:
- CMS Waiver: Medicare, Medicaid and Community Care MA, United MA, AARP MA, INTEGRIS WebTPA
- Active Commercial contract discussions with Blue Cross Blue Shield, United Healthcare, Humana, and Aetna

Target Population:
- Under CMS waiver, must meet inpatient admission criteria
- Expanding to Observation level (w/ 2 midnights) with commercial contracts

Service Providers: Hybrid of Internal and External Providers

Bed Capacity Plan:
- 10 Beds at go-live on Jan 2022
- 15 beds in April 2022
- 20 beds by Oct 2022
- 25 beds by Jan 2023

Patient Geography: 30-mile radius from sourcing facilities



Hospital at Home Key Roles

Command Center Hospitalist

- Screen and admit patients based on established program criteria
- Establish goals, develop and direct condition-specific plans of care, and place associated orders. (Direct oversight during Acute Phase; Escalation point/consultative for Restorative Phase)
- Conduct **daily (or more) virtual visits** during the Acute Phase
- Communicate and consults with primary and secondary providers including relevant specialists and PCP
- Participate in daily huddles/interdisciplinary rounds
- Document H&P, progress notes, & other clinical notes in the EHR (or **performs 'tuck in' admission visit** when H&P completed in brick & mortar following waiver requirement)
- **NOTE: Patient Acquisition APP imbedded in the Bricks & Mortar (IBMC/ISMC) will assist to identify eligible ED & Med/Surg patients, consult with referring provider and Command Center Hospitalist to confirm clinical stability and complete H&P required by CMS waiver.**

APP/NP

- **Complete <u>in-home</u> patient visits Day 1 and Day 3** during the Acute Phase of treatment and otherwise, as needed
- **Complete <u>in-home</u> or virtual care Discharge visit**, based upon established criteria
- Participate in daily huddles/interdisciplinary rounds
- Develop discharge plan in collaboration with Hospitalist and other care team members
- **<u>Restorative Phase</u>: Assume responsibility** for daily oversight of the plans of care during the Restorative Phase (e.g., orders, medications, progress notes, virtual visits, communication with primary/secondary providers)

Registered Nurse

- Support Hospitalist in admission process & plan of care execution
- Provide the patient 24/7 triage, access to care, and medical advice
- Provide patient/family education (medication, disease mgmt., procedures, etc.)
- Conduct nursing assessment virtual rounds, min 4x daily in acute phase, min 2x daily during restorative phase
- Provide guidance to Service Coordinator and in-home service provider in order fulfillment. Coordinate discharge planning including communication w/PCP or other longitudinal provider
- Lead daily huddles/interdisciplinary rounds

Service Coordinator – Medically Home

(Patient Digital Ambassador)

- Direct fulfillment of supply chain/service provider orders to the patients' homes from order to service fulfillment
- Support documentation to patient record including required information for billing
- Participate in daily huddles/interdisciplinary rounds

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Key Elements of the Model

Patient Acquisition

- Referrals from Hospital Emergency Departments and Med/Surg floors at launch – Baptist and Southwest initially for Medicare FFS patients
- Expand referrals from PCP offices and Urgent Care clinics once payers are expanded to MA & Commercial

Medical Command Center

Manage patients telemedically

INTEGRIS Health Physicians

INTEGRIS Health RNs

INTEGRIS Health APPs

Imbedded in Larger Hospitals, Command Center and Field Calls

INTEGRIS HEALTH

VIRTUAL HOSPITAL

Technology Platform

EMR

Ensuring integration with the longitudinal record

Epic

CESIA™ TECH PLATFORM

Enabling the delivery of care in the virtual hospital model

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TECHNOLOGY IN THE HOME

Create telepresence for the command center

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Acute Rapid Response Services

Everything patients need brought to the home

RRS Management, Service Coordination and Flow Mgmt.

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INTEGRIS Health/Medically Home Blend

1. APP (NP/PA)
2. Paramedicine
3. Infusion
4. O2 services
5. DME
6. Mobile imaging
7. Oral Meds/Rx svs.
8. Phlebotomy
9. Lab
10. Skilled nursing
11. Home health aide
12. Therapies (PT, OT, ST)
13. Transportation
14. Courier Delivery
15. Meals
16. Medical supplies
17. Licensed social worker
18. Home tech. installation

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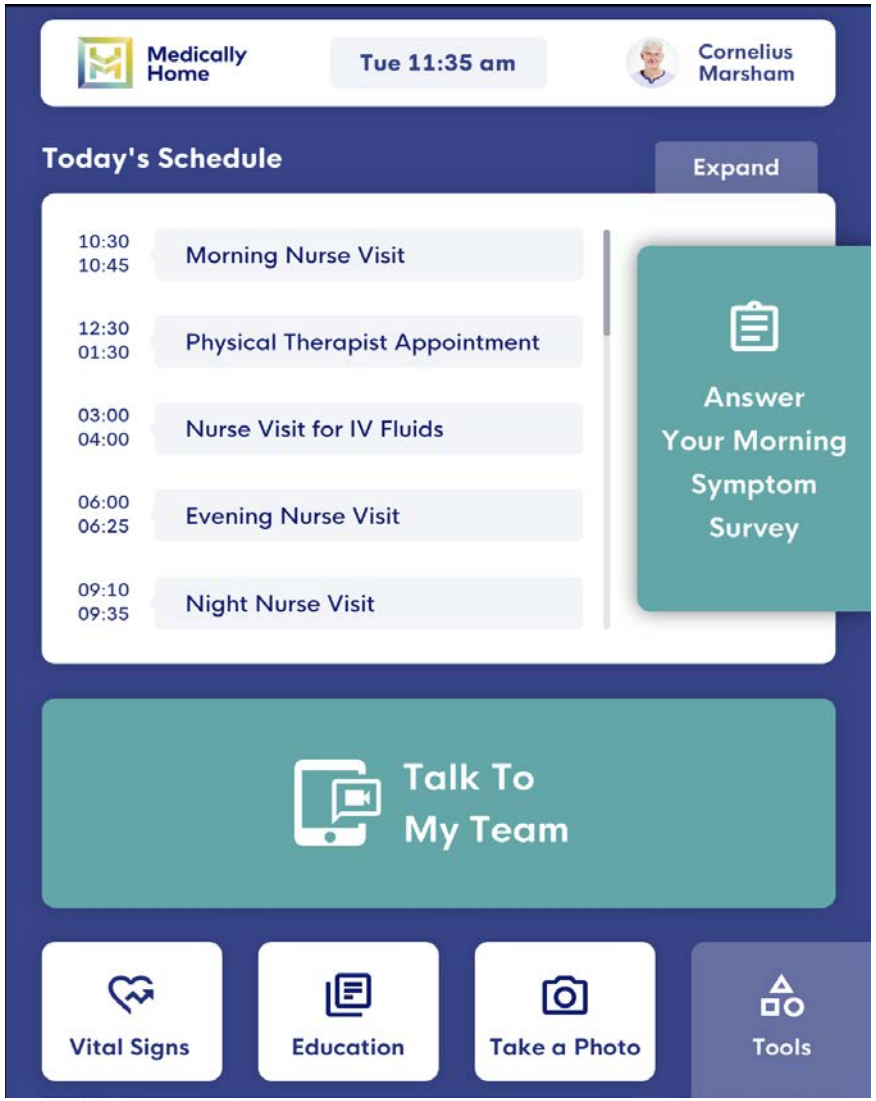
Technology in the Home

Virtual Hospital Room Hardware and Software designed for redundancy, reliability and ease of use



Biometrics and Engagement

Communications and Safety

Clinical Model Overview

Emergency Department

Acute Hospital Substitution

- Qualifying DRG
- Meet IP Criteria
- Clinical Stability Screen
- Social Stability Screen
- Participating Health Plan
- Covered Geography

Reduced Length of Stay

Brick & Mortar Hospital

Acute Phase	Restorative Phase	Ongoing Care Phase
DAY 1	~DAY 5	~DAY 30
Treatment plan is similar to inpatient	Shifts to focus on teaching, goals of care, modification of risk factors	Ongoing management by PCP or Specialist
Inpatient-Level Care	Post-Acute Level Care	Full recovery from medical episode
Physician-Led Care	APP-Led Care	New stable baseline established
Nursing & Therapies (Daily Virtual RN Assessments at least 4x day)	Continued Rehabilitation with focus on ancillary services such as PT, OT, nutrition, and social work (Daily Virtual RN Assessments at least 2x day)	
Frequent Clinician Visits (Day 1 & 3 NP/APP Visits)	Medication Management	
In-Home Diagnostics (Labs, IV medication, imaging, home health aid, medical meals)	Patient Education	
	Gradual Transition to PCP	

All services, equipment, and supplies brought to the patient

Ongoing patient and family engagement

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Patient Acquisition

Clinical Stability

Social Stability

Eligible Diagnoses

Payer Coverage

- Have a qualifying diagnosis (APDRG)
- Meet criteria for inpatient, hospital-level care (InterQual or Milliman), at GMLOS and/or waiting for SNF/LTACH
- Meet Social Stability Criteria - *confirmed prior to admission to Hospital at Home*
- Meet Clinical Stability Criteria – *confirmed prior to admission to Hospital at Home*
- **Not** eligible/appropriate if:
  - Unable to push PERS/lifeline or no responsible person available 24/7 to push for them
  - Patient previously informed they require 24/7 care or long-term care/nursing home
  - Hospice
  - Dialysis
  - Substance abuse, unsafe/ socially unstable environment
  - Unable to sign consent or no HCP to sign consent
  - Not willing to participate and agree to multiple providers coming into home
- Generally eligible if:
  - Fail outpatient therapy for 24-48 hours with appropriate diagnosis AND
  - "Sick" enough you would consider patient for hospitalization AND
  - Not in need of advanced diagnostics or ICU level of care

Case Mix

First 40 Admissions

Left Leg Cellulitis
PNA
Multifocal Pneumonia
COPD Exacerbation
COPD Exacerbation
Pneumonia (COVID R/O)
CHF exacerbation pyelonephritis
UTI
Cellulitis LLE, COVID + COPD Exacerbation
COPD/Pulmonary Edema
Hyponatremia
PNA
Sepsis
Gastroparesis, COVID + Empyema
Pleural Effusion
Endocarditis
OM of Right Hand
Spontaneous Bacterial Peritonitis
Pyelonephritis
Volume Overload, CHF Exacerbation
Hypoxia
COPD exacerbation
Acute Respiratory Failure with Hypoxia and Hypercapnia
RUE Cellulitis
Acute Respiratory Failure with hypoxemia
Colitis
Hypotension
Multifocal pneumonia
Multifocal Pneumonia
Right Total Knee Infection
CHF
Cellulitis LLE (Foot)
Hypoxia
Aspiration Pneumonia
Diabetic foot ulcer
Acute/Chronic Heart Failure
Severe Sepsis
Complications of COVID
Pneumonia/COPD
Various infections – UTI, cellulitis, etc.
CHF

Patient Decline

Plan for it

Rapid Response Services in place for quick evaluation and intervention

May need to return to the Hospital. That's OK

We have built robust workflow for return to hospital

Transfer Center

→ **Auto-acceptance**

→ **EMSA Transport**

→ **Rapid Response Team**

INTEGRIS Health @ Home Outcomes

January 31 to June 30, 2022

1220

Number of bricks and mortar new patient opportunity days.

Total Program Capacity

15

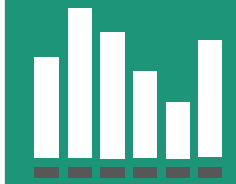
Avg. HAH LOS 5.54 Days

Total # of Discharges

188

198

Total # of Admissions



Feb – 5.39
Mar – 6.65
April – 9.70
May – 9.42
June – 9.89

ADC

Admission Type

Hospital Substitution
(admitted from ED)

23 **11.6%**

175 **B&M Transfer**
88.4%

10.58%

20 Readmissions
Jan – June discharges

9.14%
18

Total # of returns to hospital for escalation in care

Questions?

Contact Information

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