



HOSPITAL AT HOME FOR RURAL COMMUNITIES

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DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIP(S) WITH INDUSTRY

- Speakers have nothing to disclose
- Mayo Clinic has an investment in Medically Home

REFERENCES TO OFF-LABEL USAGE(S) OF PHARMACEUTICALS OR INSTRUMENTS

- None

LEARNING OBJECTIVES



Identify health care concerns that may be solved by implementing a hospital at home model of care in your organization



Recognize the barriers in launching a hospital at home program, and the limitations of acute care in the home



Reflect on lessons learned from a rural hospital at home program

ADVANCED HOSPITAL CARE AT HOME

THE ORIGINAL HOME HOSPITAL



The Doctor 1891 Oil on Canvas by Luke Fildes

ADVANCED HOSPITAL CARE AT HOME

FIRST HOSPITAL IN THE UNITED STATES

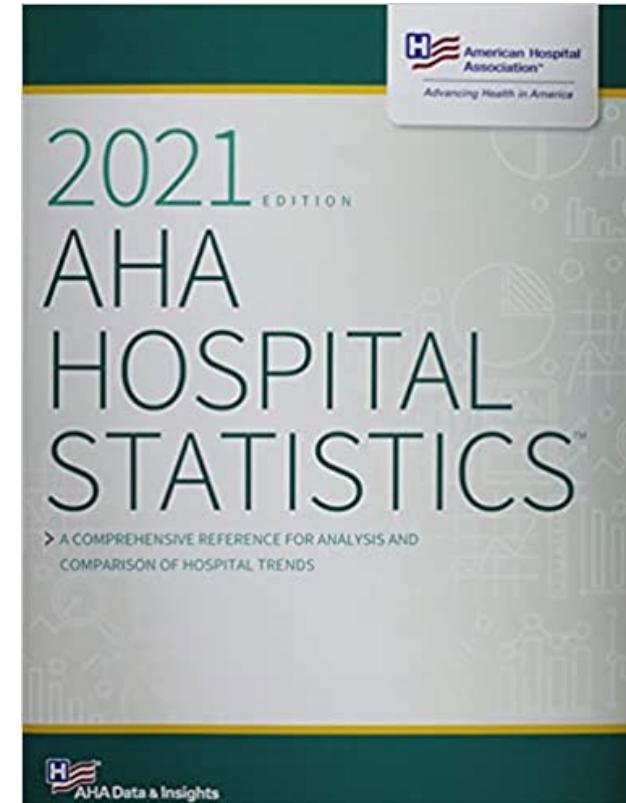


- Pennsylvania Hospital -1751
 - Dr. Thomas Bond and Ben Franklin
 - “To care for the sick-poor and insane who were wandering the streets of Philadelphia“

ADVANCED HOSPITAL CARE AT HOME (2)

From 1751 to 2021

- Over 6000 hospitals in the United States
- >900,000 hospital beds
- >36 million admissions annually
- >\$1.1 trillion – hospital costs



ADVANCED HOSPITAL CARE AT HOME (3)

Why should we
return to
hospital at
home?

“I can’t see my family”

“Food is terrible”

“I’m stuck here”

“No one tells me what’s
going on”

“I can’t sleep in this bed”

ADVANCED HOSPITAL CARE AT HOME

Annals of Internal Medicine[®]

LATEST ISSUES IN THE CLINIC JOURNAL CLUB MULTIMEDIA CME / MOC AUTHORS / SUBMIT

Ideas and Opinions | 6 October 2020

How Hospital Stays Resemble Enhanced Interrogation

Kenneth J. Mishark, MD  , Holly Geyer, MD, Peter A. Ubel, MD

[Author, Article and Disclosure Information](#)

<https://doi.org/10.7326/M19-3874>



PDF



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ADVANCED HOSPITAL CARE AT HOME (3)

Start with **WHY**

What problems can hospital
at home solve?

ADVANCED HOSPITAL CARE AT HOME (4)

START WITH WHY - CAPACITY



National

Inside a hospital as the coronavirus surges: Where will all patients go?

An open bed is "a gift" at a Wisconsin hospital where patients can't be people still don't take covid-19 seriously



SIGN IN NPR SHOP



Mayo Clinic paramedic Adam Glass, center, helps load an ambulance that will take her from the Eau Claire, W will finish her recovery while being monitored elector by Michael S. Williamson/The Washington Post)

& LIFE MUSIC SHOWS & PODCASTS SEARCH

ES
avirus By The Numbers

Federal Data Reveal Which Hospitals Are Dangerously Full This Week. Is Yours?

February 8, 2021 - 3:15 PM ET



SEAN MCMINN



AUDREY CARLSEN



TRACKING THE CORONAVIRUS

U.S. cases Hospitals Vaccines World cases

'No beds anywhere': Minnesota hospitals strained to limit by COVID-19

Open ICU beds were down to single digits in some parts of Minnesota last week, when Gov. Tim Walz ordered a four-week shutdown of bars and other venues.

By Jeremy Olson Star Tribune | NOVEMBER 22, 2020 - 11:40AM

GALLERY GRID

1/12



ADVANCED HOSPITAL CARE AT HOME (5)

START WITH WHY – QUALITY

2009 Meta-Analysis¹



- Meta-analysis of 10 HaH RCTs including n=1,372 patients
- 38% reduction in six month mortality (p<0.05)
- Trend toward higher patient satisfaction
- Trend toward reduction in cost.

2012 Meta-Analysis²



- Meta-analysis of 61 HaH RCTs including n=6,992 patients age >16 yrs
- 19% reduction in mortality (p<0.05)
- 25% reduction in readmission (p<0.05)
- Significant reduction in cost
- Higher patient satisfaction

¹Shepperd 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.

²Caplain, GA, Sulaiman NS, Mangin DA, et al. A meta-analysis of "hospital in the home". MJA. 2012 197(9): 512-519.

ADVANCED HOSPITAL CARE AT HOME (6)

START WITH WHY – QUALITY



JAMA Internal Medicine | Review

Alternative Strategies to Inpatient Hospitalization for Acute Medical Conditions A Systematic Review

Jared Conley, MD, PhD, MPH; Colin W. O'Brien, BS; Bruce A. Leff, MD; Shari Bolen, MD, MPH; Donna Zulman, MD, MS

Annals of Internal Medicine |

ORIGINAL RESEARCH

Hospital-Level Care at Home for Acutely Ill Adults A Randomized Controlled Trial

David M. Levine, MD, MPH, MA; Kei Ouchi, MD, MPH; Bonnie Blanchfield, ScD; Agustina Saenz, MD, MPH; Kimberly Burke, BA; Mary Paz, BA; Keren Diamond, RN, MBA; Charles T. Pu, MD; and Jeffrey L. Schnipper, MD, MPH

Clinical

- HaH patients used fewer healthcare resources (lab orders, radiologic studies, specialty consultations)
- Improved activity levels (less time sedentary), equivalent functional status, fewer safety events
- *Length of stay, patient quality & safety measures, patient satisfaction similar between groups*

Readmission

- No HaH patients were transferred back to an acute care hospital in this study
- *Patients were significantly less likely to require readmissions within 30 days (7% vs. 23%)*

Cost Reduction

- *Adjusted direct cost of HaH [and HaH acute plus 30-day post-acute period] was by 20-40% of inpatient hospital control arm*

- Improved sleep
- Increased mobility
- Improved recovery rates
- Reduced fall rates
- Higher patient engagement levels
- Reductions in the rates of incident delirium
- Reduced use of physical or chemical restraints
- Reduced sedative medication use
- *Beyond these measured patient outcomes, the research revealed high levels of provider satisfaction with the model*

ADVANCED HOSPITAL CARE AT HOME (7)

START WITH WHY – UTILIZATION

Hospital-at-Home vs. Hospital Inpatients

In 2014, the Center for Medicare and Medicaid Innovation gave the Icahn School of Medicine at Mount Sinai a grant to study the clinical effectiveness of hospital-at-home (HaH) care bundled with a 30-day postacute period of home-based transitional care. The researchers compared the outcomes of 295 patients participating in the HaH project and 212 concurrently admitted hospital inpatients who were HaH eligible but refused participation or who were seen in emergency departments when a HaH admission could not be initiated. Results included the following:



Can Mount Sinai be serious? The answer is a resounding yes. In fact, we couldn't be more serious.

Mount Sinai's number one mission is to keep people out of the hospital. We're focused on population health management, as opposed to the traditional fee-for-service medicine. So instead of receiving care that's isolated and intermittent, patients receive care that's continuous and coordinated, much of it outside of the traditional hospital setting.

Thus the tremendous emphasis on wellness programs designed to help people stop smoking, lose weight and battle obesity, lower their blood pressure and reduce the risk of a heart attack. By being as proactive as possible, patients can better maintain their health and avoid disease.

Our Mobile Acute Care Team will treat patients at home who would otherwise require a hospital admission for certain conditions. The core team involves physicians, nurse practitioners,

registered nurses, social workers, community paramedics, care coaches, physical therapists, occupational therapists, speech therapists, and home health aides.

Meanwhile, Mount Sinai's Preventable Admissions Care Team provides transitional care services to patients at high risk for readmission. After a comprehensive bedside assessment, social workers partner with patients, family caregivers and healthcare providers to identify known risks such as

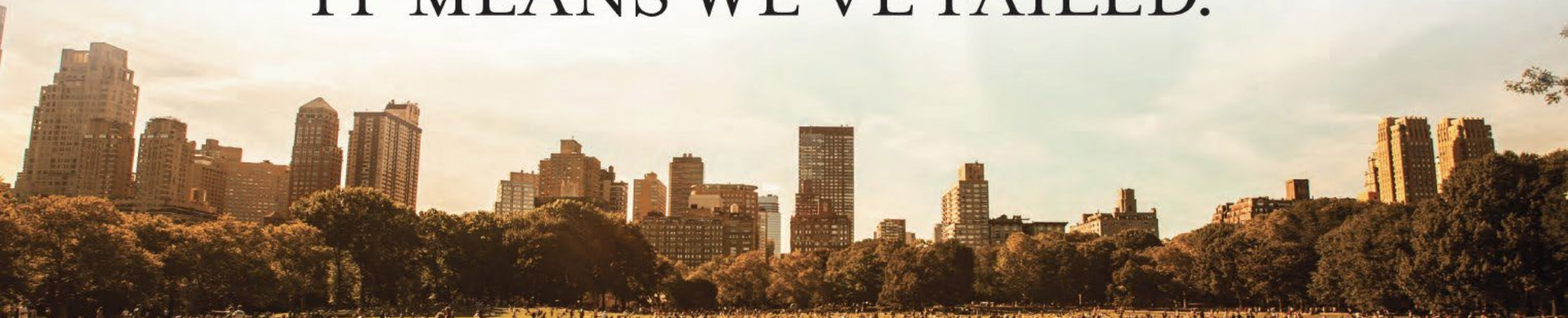
problems with medication management and provide continuing support after discharge.

It's a sweeping change in the way that health care is delivered. And with the new system comes a new way to measure success. The number of empty beds.

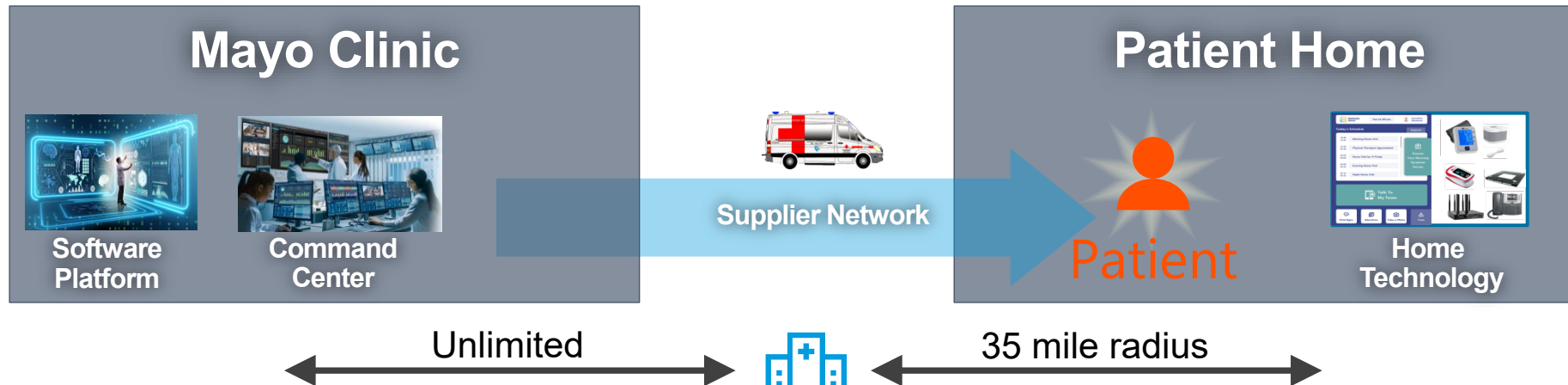
1-800-MD-SINAI
mountsinaihealth.org



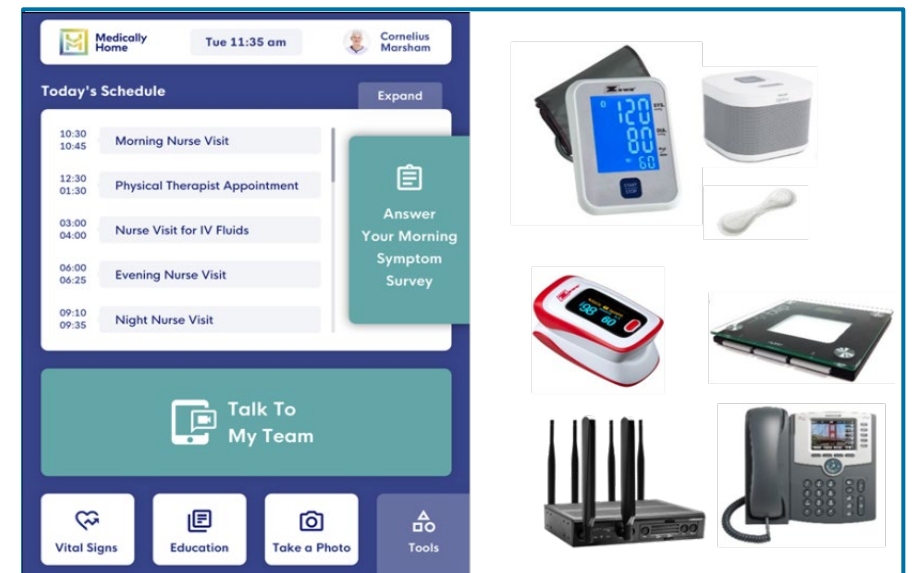
IF OUR BEDS ARE FILLED, IT MEANS WE'VE FAILED.



MAYO CLINIC'S VIRTUAL HYBRID HOSPITAL AT HOME



**Local
Hospital**



CHASSIS COMPONENT #1: THE MEDICAL COMMAND CENTER

Medical Command Center Key Attributes

- 24/7/365
- Staffed by Physicians/APPs, RNs
- Tethered to clinicians dispatched to home
- Purpose-built software enabled



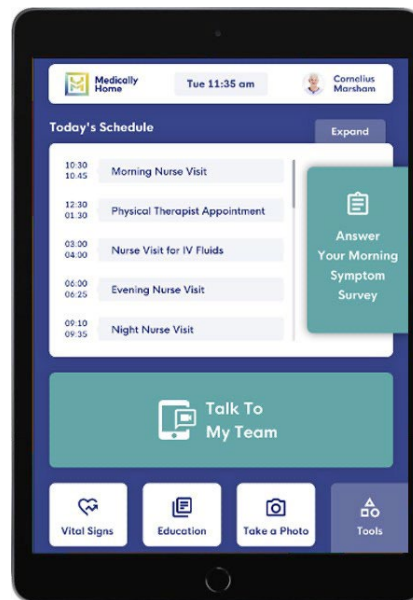
CHASSIS COMPONENT #2: TECHNOLOGY IN THE HOME

VIRTUAL HOSPITAL ROOM HARDWARE AND SOFTWARE *DESIGNED FOR REDUNDANCY, RELIABILITY, AND EASE OF USE*

Communications and Safety



Multi-path redundancy and patient-friendly form factors



- Device Integration
- Inbound/Outbound Video
- Vital Signs Collection
- Patient Outcomes Reporting
- Patient Education

Device accuracy, reliability, and ease of use for defined patient populations



Biometrics and Engagement

CHASSIS COMPONENT #3: ACUTE RAPID RESPONSE SERVICES



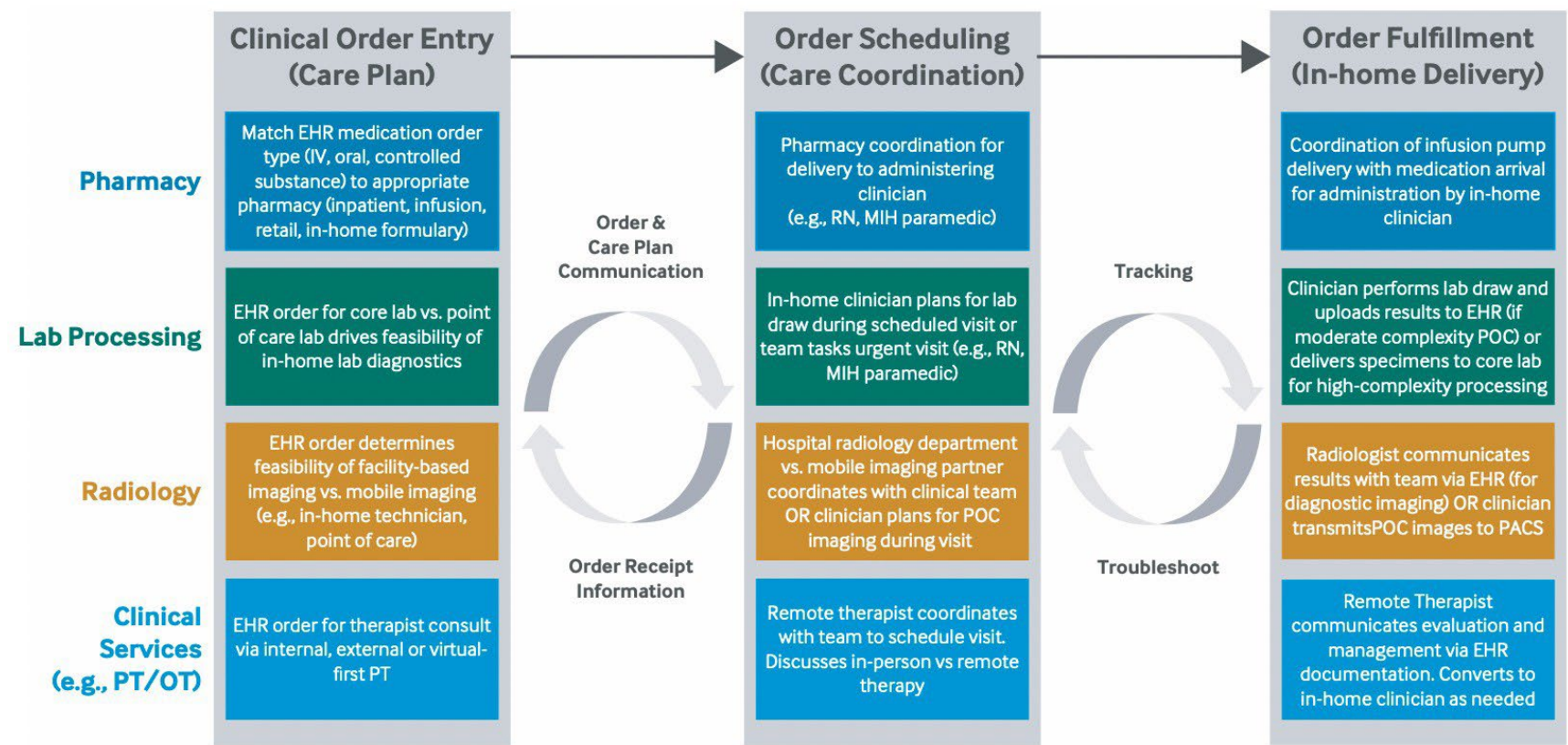
EVERYTHING PATIENTS NEED BROUGHT TO THE HOME ON-DEMAND

Community Paramedicine	Home Care Services (Aides)	Mobile Imaging
Home Health (RN, Therapy, SW)	APPs (NPs and PAs)	Phlebotomy
Infusion Therapy	Lab Processing	Courier Delivery
Security	Medical Waste	Home Technology Installation
Medical Meals	Oxygen / Respiratory	DME
Pharmacy Services	Medical Supplies	Patient Transportation



CHASSIS COMPONENT #4: TECHNOLOGY PLATFORM ENABLING CARE

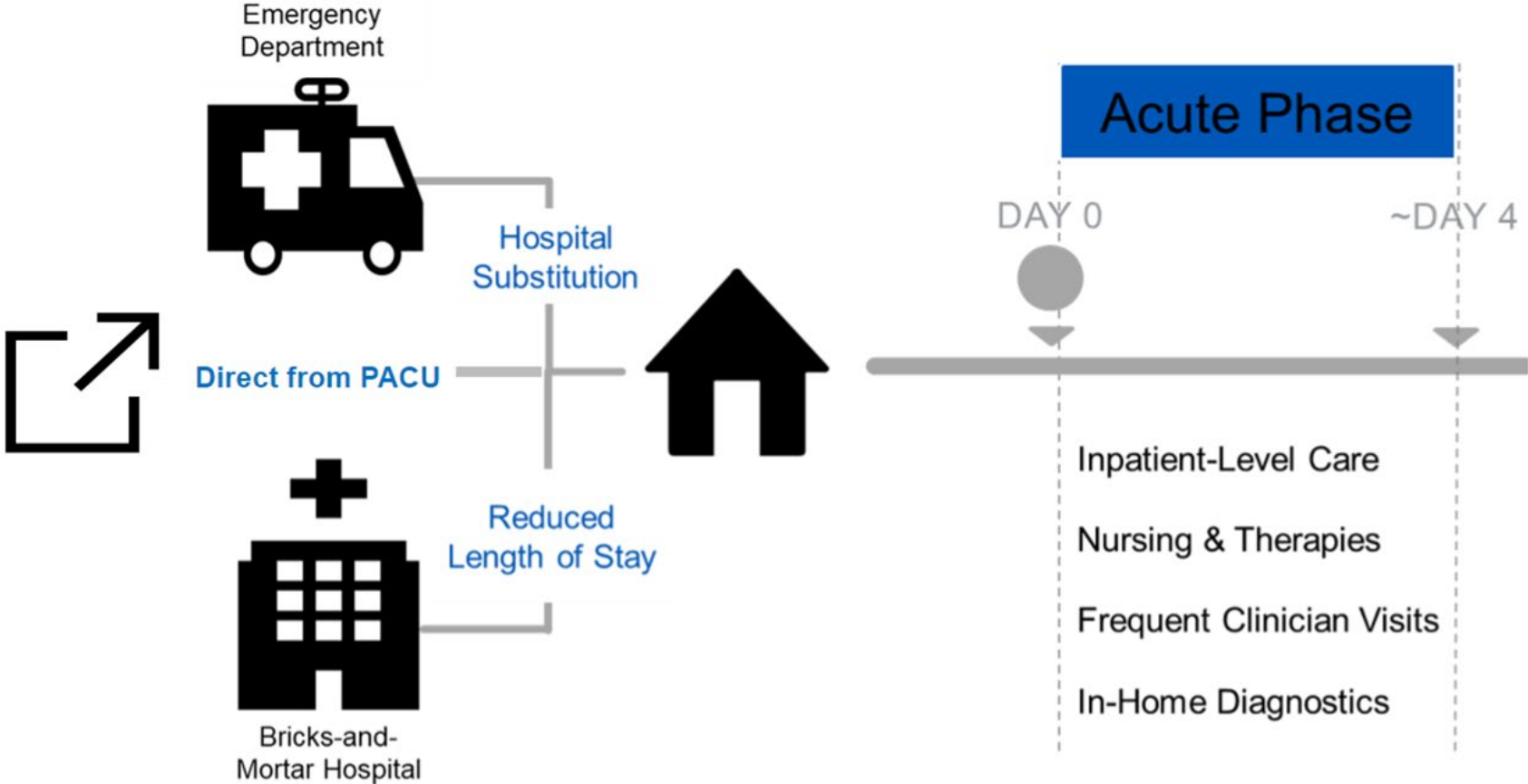
COMPLEMENTS YOUR EMR TO ENABLE DELIVERY OF CARE IN THE VIRTUAL HOSPITAL MODEL



EHR = electronic health record, IV = intravenous, MIH = mobile integrated health, OT = occupational therapy, PACS = picture archiving and communication system, POC = point of care, PT = physical therapy, RN = registered nurse.

Source: The authors

PATIENT JOURNEY AT MAYO CLINIC





ADVANCED CARE AT HOME (ACH)

Mayo Clinic's Virtual Hybrid Hospital at Home

Likelihood to
Recommend

91.3%

Of patients would highly recommend ACH to a family member or friend

Patients
Cared For

815+

Bed
Days Saved

3,000+

Provider
Experience

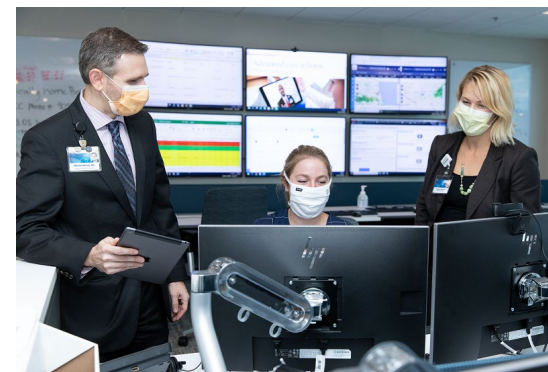
4.5

Provider ranking, on a 1 to 5 scale, of how likely they are to recommend ACH to their family and friends

ADVANCED CARE AT HOME

HOSPITAL AT HOME BARRIERS

- **What are the barriers to launching a hospital at home program?**
 - Competing institutional priorities
 - Resources
 - EHR infrastructure
 - Regulatory environment
 - Reimbursement
 - Telehealth access and literacy
 - Local culture



ADVANCED HOSPITAL CARE AT HOME (8)

HOSPITAL AT HOME LIMITATIONS

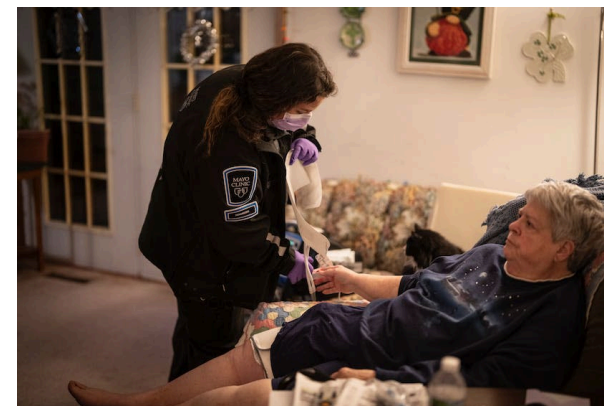


- ### A Word on Diversity, Equity and Inclusion
- Vulnerable and Marginalized
 - English Language Learners
 - Disabilities
 - Rural

ADVANCED HOSPITAL CARE AT HOME

The Rural Hospital at Home Model

- Evaluate existing resources
- What can be done virtually?
- Anticipate needs of your patient population
- Partnership is the key
 - Community – home health, mobile integrated health
 - Providers – subspecialists, hospitalists, APPs
 - Technology



ADVANCED HOSPITAL CARE AT HOME (9)

Rural Hospital at Home Lessons Learned

- **Connectivity** is essential for high acuity patients
- **One** staff absence can derail operations for **days at a time**
- **“Plug and Play”** may not work in a setting without redundancies
- **Bundling** of activities
- Valuing the **“Generalist”** with specialty support
- **Technology innovation**
 - Automate tasks to free health care workers for patient care
 - Decrease drive time/patient wait time
 - Leverage existing EHR tools - identifying candidates, recognizing deterioration
 - Artificial Intelligence (AI)



ADVANCED HOSPITAL CARE AT HOME (10)

Future needs to improve Rural Hospital at Home Access and Equity



Regulatory

Medicaid approval
CMS support for Critical Access
Hospitals to provide this care



Technology

Connectivity
Point-of-care diagnostics and therapeutics
Automation of tasks



Innovate

Create redundancies
supporting Hospital at
Home care



Measurement of Socioeconomic Vulnerability



Partnerships

Clinical, industry, community



Research on HaH in rural regions

Lessons learned for
underserved patient
populations

LEARNING OBJECTIVES (CONT.)



Identify health care concerns that may be solved by implementing a hospital at home model of care in your organization



Recognize the barriers in launching a hospital at home program, and the limitations of acute care in the home



Reflect on lessons learned from a rural hospital at home program

QUESTIONS & DISCUSSION

World Hospital at Home Community
<https://whahc-community.kenes.com/>

Hospital at Home Users Group
hahusersgroup.org

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