

# Hospital AT Home USERS GROUP™

## Hospital at Home for Cancer Care: Current Innovations, Opportunities, and Challenges

Susan Dentzer | Duke-Margolis Center for Health Policy



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**Webinar**  
December 14, 2021



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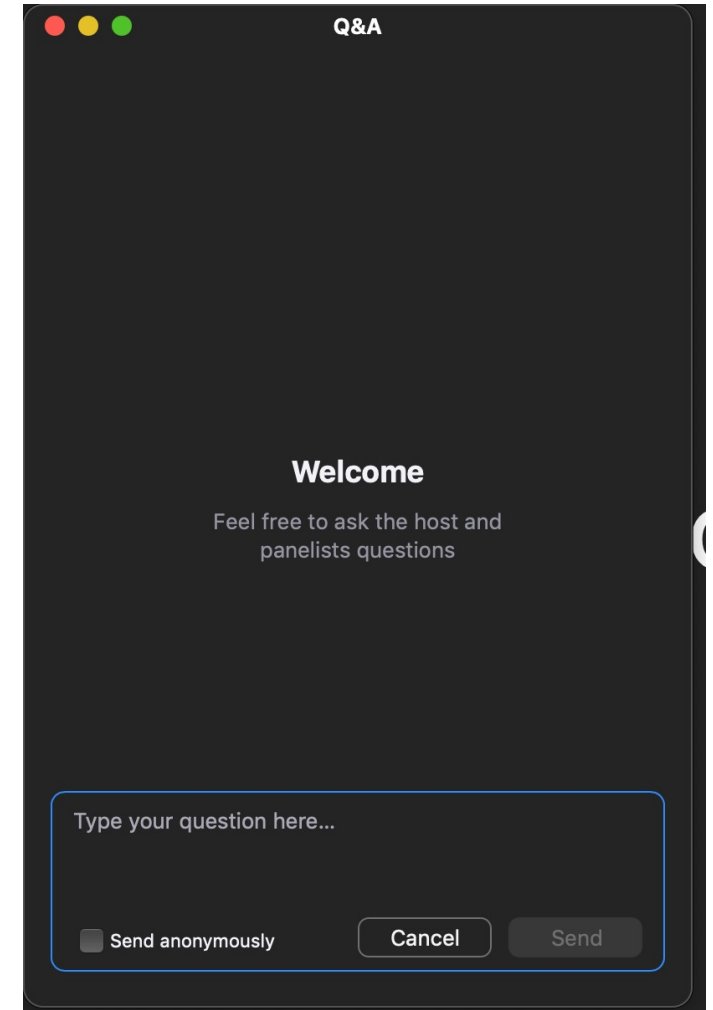


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# ZOOM Webinar Housekeeping

- Please submit your questions via the Q&A option.
- Due to the large audience for today's webinar, everyone has been placed on mute.
- If you have any technical issues, please contact Gabrielle Schiller (gabrielle.schiller@mssm.edu) or send her a message via the Zoom chat feature.



# Hospital AT Home USERS GROUP™

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- The Hospital At Home Model and the CMS Acute Hospital Care At Home Waiver
- Building Support for Your Hospital at Home Program: Issues in Strategic Engagement
- Who's In, Who's Out? Deciding Which Patients Are Right for Your Hospital at Home Program
- Tech Matters: Building the Right Digital Platform for Your Hospital at Home Program
- Efficient, Effective, Excellent: Issues in Hospital at Home Logistics and Operations
- On Time, Every Time: Delivering Hospital at Home Ancillary Services
- How Are We Doing? Evaluating Hospital at Home Quality and Safety
- Mastering Meds: Exploring Issues of Pharmacy in Hospital at Home
- Finding Your People: Issues in Patient Identification, Recruitment and Referral
- Looking Ahead: Hospital At Home Beyond the Public Health Emergency
- By the Numbers: Financial Models, Value Propositions, and Projections for the Next Generation of Hospital at Home Programs

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**Susan Dentzer**  
Senior Policy Fellow  
Duke-Margolis Center for Health Policy

# Hospital at Home for Cancer Care: Current Innovations, Opportunities, and Challenges

**Huntsman at Home**  
**Huntsman Cancer Institute**  
**Salt Lake City, Utah**





**Kathi Mooney, PhD, RN, FAAN**  
Director of Research and Evaluation  
Huntsman at Home  
Distinguished Professor  
College of Nursing  
University of Utah



**Karen Titchener, MSN**  
Director of Strategic Development  
Huntsman at Home  
Adjunct Assistant Professor  
College of Nursing  
University of Utah

# Huntsman at Home

- Began in 2018 in a 25-mile radius of Huntsman Cancer Institute and within the Salt Lake metropolitan area
- Exclusively for cancer patients- referral received from inpatient, clinics and self referral after a Huntsman at Home stay. Have not taken directly from the emergency department
- Recently, July 2021, extended to 3 rural counties in Southeastern Utah, a 2 to 5-hour drive from Huntsman
- Home-based acute and subacute care but no chemotherapy
- Led by nurse practitioners in partnership with a local not for profit home health agency for registered nurse visits and PT, OT, social work as needed
- Oncology and palliative care Huntsman at Home Medical Director supports as well as interaction with the patients' oncologist and oncology team
- Home health agency bills for their visits; Huntsman at Home NPs bill for their visits
- Additional funding from Huntsman family philanthropy and cancer center clinical funds. Research funding from Cambia Health Foundation and the Rita & Alex Hillman Foundation



# Patient and Program Profile

- Approximately 950 patients have received Huntsman at Home care; currently collecting patient and caregiver outcomes and satisfaction- analysis planned for Spring 2022
- Common admitting diagnoses:
  - 38% Uncontrolled pain
  - 32% Nausea/vomiting/dehydration
  - 29% Adult failure to thrive
  - 28% Neutropenic fever or infection
  - 11% Acute hypoxia
  - 6% Nonsurgical bowel obstruction
- Program description:  
Huntsman at Home, an Oncology Hospital at Home Program Titchener et al. *NEJM Catalyst* 2021 2(11)





# Salt Lake Program Health Care Utilization Outcomes in the 30 days after a Huntsman at Home admission from a hospitalization



N= 367; 169 (H@H);198 (usual care)

Health Care Use; Cost	Estimate	p-value
Unplanned Hospitalizations OR Reduction	0.45 55%	<0.001*
Unplanned Hospital LOS	1.13 days	0.004*
ICU Stays OR	0.99	0.972
ED Visits OR Reduction	0.55 45%	0.022*
Reduction in Charges (%)	47%	0.001*

Mooney et al. *JCO* 2021; 39(23):2586-2593

original reports

## Evaluation of Oncology Hospital at Home: Unplanned Health Care Utilization and Costs in the Huntsman at Home Real-World Trial

Kathi Mooney, PhD, RN<sup>1</sup>; Karen Titchener, MS<sup>2</sup>; Benjamin Haaland, MS, PhD<sup>1</sup>; Lorinda A. Coombs, PhD, MSN<sup>1</sup>; Brock O'Neil, MD<sup>1</sup>; Richard Nelson, PhD<sup>1</sup>; Jordan P. McPherson, PharmD, MS<sup>2</sup>; Anne C. Kirchoff, PhD<sup>1</sup>; Anna C. Beck, MD<sup>1</sup>; and John H. Ward, MD<sup>1</sup>

**PURPOSE** Patients with cancer experience high rates of morbidity and unplanned health care utilization and may benefit from new models of care. We evaluated an adult oncology hospital at home program's rate of unplanned hospitalizations and health care costs and secondarily, emergency department (ED) use, length of hospital stays, and intensive care unit (ICU) admissions during the 30 days after enrollment.

**METHODS** We conducted a prospective, nonrandomized, real-world cohort comparison of 367 hospitalized patients with cancer—169 patients consecutively admitted after hospital discharge to Huntsman at Home (HH), a hospital-at-home program, compared with 198 usual care patients concurrently identified at hospital discharge. All patients met clinical criteria for HH admission, but those in usual care lived outside the HH service area. Primary outcomes were the number of unplanned hospitalizations and costs during the 30 days after enrollment. Secondary outcomes included length of hospital stays, ICU admissions, and ED visits during the 30 days after enrollment.

**RESULTS** Groups were comparable except that more women received HH care. In propensity-weighted analyses, the odds of unplanned hospitalizations was reduced in the HH group by 55% (odds ratio, 0.45; 95% CI, 0.29 to 0.70;  $P < .001$ ) and health care costs were 47% lower (mean cost ratio, 0.53; 95% CI, 0.39 to 0.72;  $P < .001$ ) over the 30-day period. Secondary outcomes also favored HH. Total hospital stay days were reduced by 1.1 days ( $P = .004$ ) and ED visits were reduced by 45% (odds ratio, 0.55; 95% CI, 0.33 to 0.92;  $P = .022$ ). There was no evidence of a difference in ICU admissions ( $P = .972$ ).

**CONCLUSION** This oncology hospital at home program shows initial promise as a model for oncology care that may lower unplanned health care utilization and health care costs.

J Clin Oncol 00. © 2021 by American Society of Clinical Oncology

**INTRODUCTION**

Cancer and its associated morbidity ranks among the top reasons for health care utilization in the United States.<sup>1,2</sup> Although cancer treatment is largely provided in the ambulatory setting, unplanned hospitalizations and emergency department (ED) visits are common, particularly for symptoms and toxicities such as pain, dehydration, and neutropenic fever, and contribute to substantial costs.<sup>3,5</sup> Patients residing at home between treatment and clinic visits experience these distressing symptoms, toxicities, and disease progression that affect their quality of life and result in high rates of unplanned health care utilization.<sup>6,9</sup>

There are few models of care that address the home support needs of patients with cancer or provide alternatives to ED use and readmission for unresolved and emergent symptoms and acute toxicities. Patients with cancer may benefit from additional approaches to care in the home, especially when acute-level

monitoring and services are needed to resolve symptoms and toxicities. The hospital-at-home model of care is an approach that has demonstrated efficacy in nononcology populations.<sup>10-15</sup> There is increasing interest in evaluating this model in adult oncology patients.<sup>16</sup>

As the name suggests, hospital-at-home programs bring hospital-level care to the home. These programs have primarily focused on care for pneumonia, cellulitis, urinary tract infections, and exacerbations of chronic diseases such as chronic obstructive pulmonary disease or heart failure.<sup>10-15</sup> It is more commonly found in single-payer health systems such as the United Kingdom, Spain, and Australia. The earliest roots for hospital at home in the United States focused on gerontology.<sup>10,11</sup> However, these programs have not been widely integrated into US health care, primarily because reimbursement models do not adequately compensate for intensive home-based care that would otherwise require hospitalization.

ASSOCIATED CONTENT

Appendix

**Protocol**

Author affiliations and support information (if applicable) appear at the end of this article.

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ASCO

Journal of Clinical Oncology<sup>®</sup>

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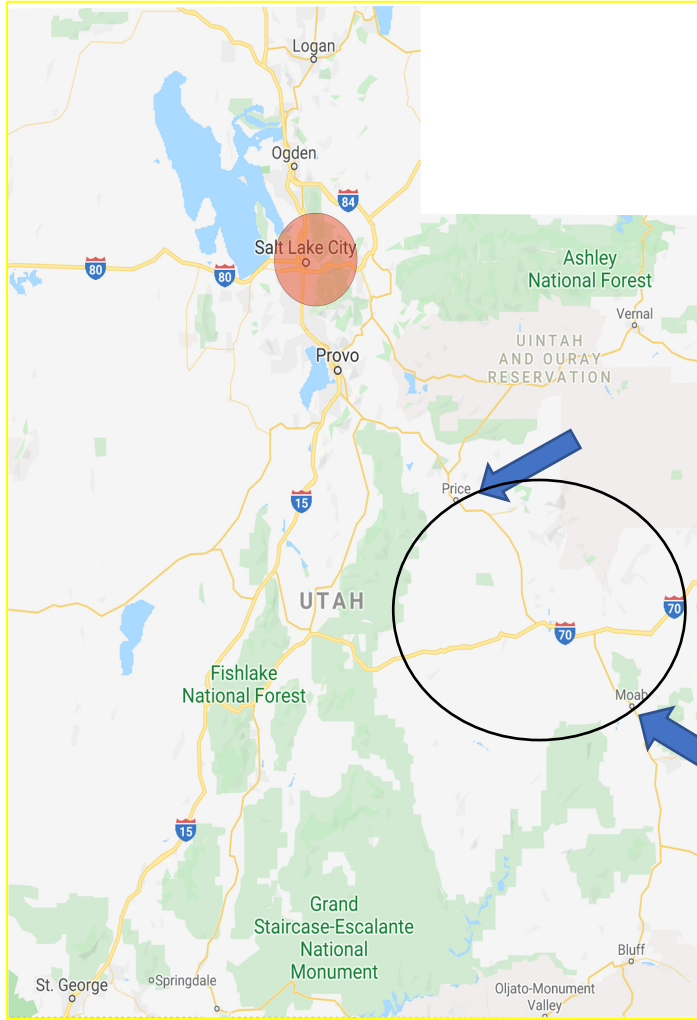
# Key Lessons Learned

- Learning health care community approach
- Adapt to context
- From treatment to prevention
- Need for new payment models





# Rural Program



- No oncologist in the 3 counties
- Two hospitals
  - Carbon- 27 beds
  - Grand- 17 beds
- 250 HCI active patients
- Rural model- population based model rather than referral
  - NP, home health RNs, PT, SW
  - Paramedics
  - Nurse care manager (navigator)
- Transportation
- Visit balance-in person/telehealth
- Financial toxicity
- Health literacy, self reliance



# Hospital at Home for Cancer Care: Current Innovations, Opportunities, and Challenges

## Supportive Oncology Care at Home Massachusetts General Hospital Boston, Massachusetts





**Ryan Nipp, MD, MPH**

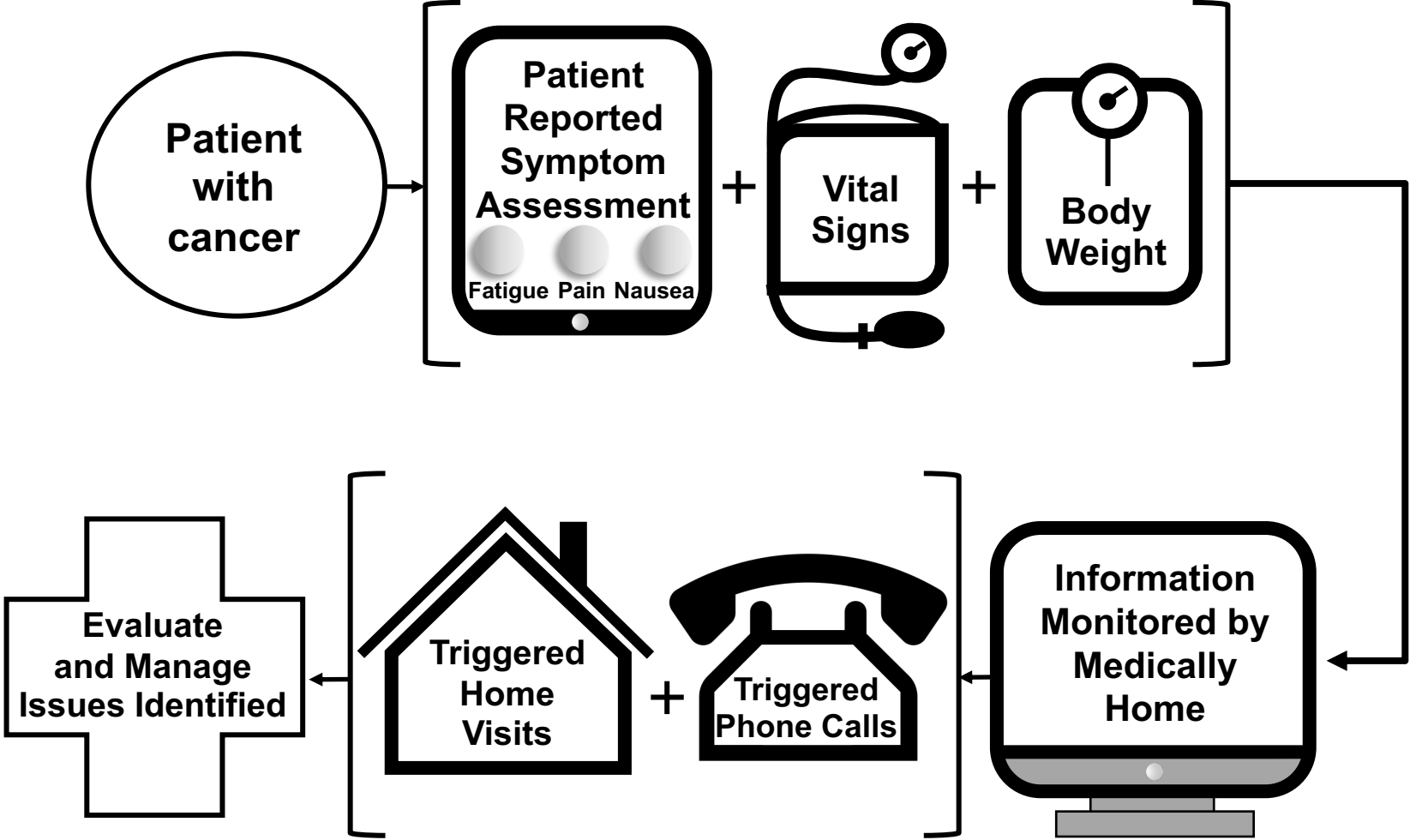
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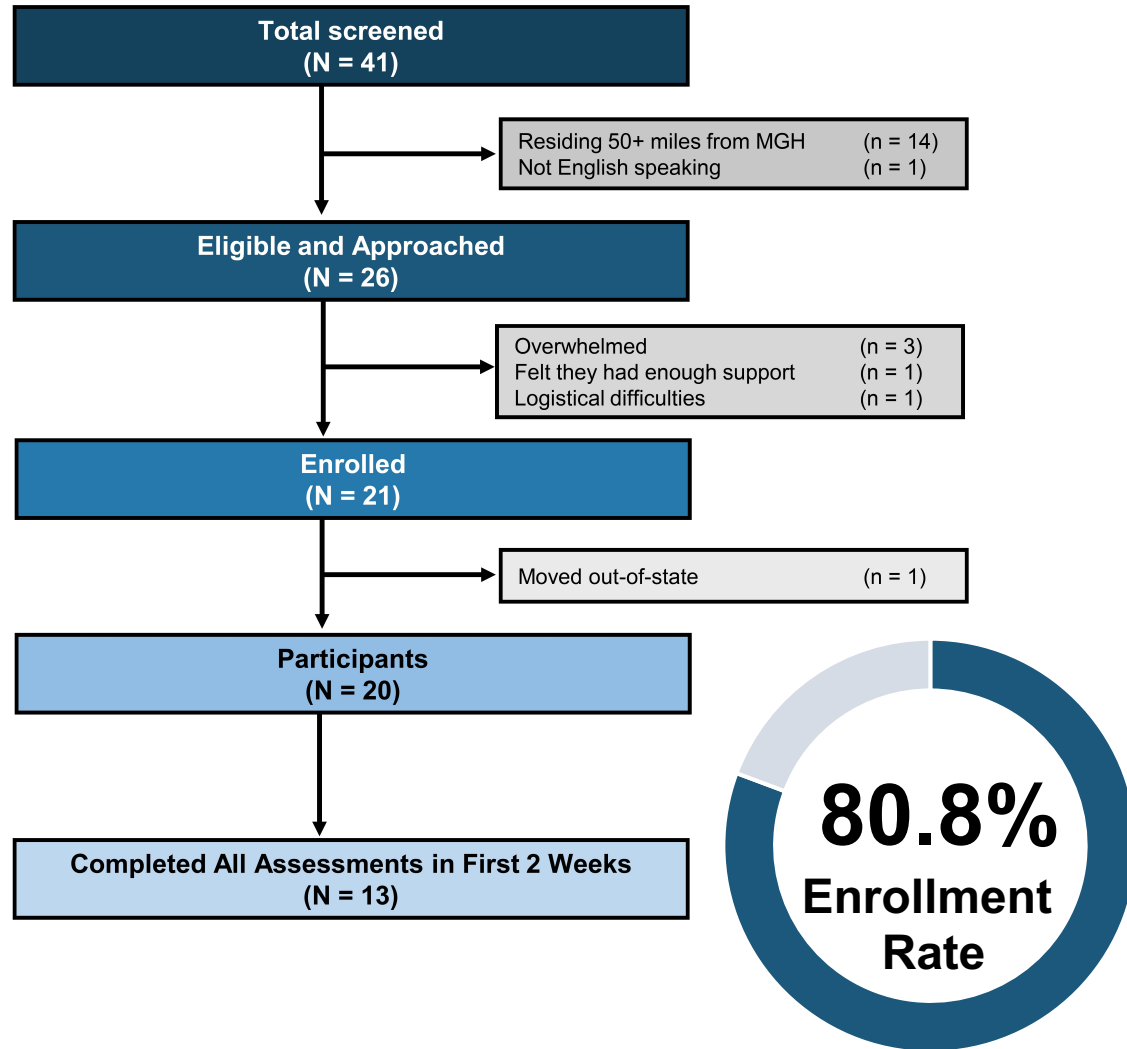
Massachusetts General Hospital

# Supportive Oncology Care at Home Intervention



# Experience with the Intervention

## Enrolled patients from 01/2019 to 09/2020



## Intervention Completion

Daily Symptoms	first two weeks	96.1%
	throughout the study	94.7%
Daily Vital Signs	first two weeks	96.1%
	throughout the study	94.7%
Weekly Body Weight	first two weeks	92.5%
	throughout the study	89.7%



## Intervention Acceptability

Helpful	symptoms monitored	88.9%
	vital signs monitored	94.7%
	body weight monitored	94.7%
Convenient	symptoms reporting	100%
	vital signs reporting	100%
	body weight reporting	100%
Timing 'Just Right'	symptom frequency	88.9%
	vital sign frequency	94.4%
	body weight frequency	94.4%



# Experience with the Intervention

Outcomes	MH Participants (n = 20)	Non-MH Participants (n = 24)
<b>Treatment Delays</b>		
Any - N (%)	11 (55.0%)	18 (75.0%)
Total Number - mean (SD)	1.00 (1.03)	0.92 (0.72)
<b>Urgent Clinic Visits</b>		
Any - N (%)	2 (10.0%)	6 (25.0%)
Total Number - mean (SD)	0.15 (0.49)	0.38 (0.77)
<b>ED Visits / Hospitalizations</b>		
Any - N (%)	9 (45.0%)	15 (62.5%)
Total Number - mean (SD)	1.25 (1.83)	1.67 (2.24)
<b>Mean Proportion of Days Spent in Urgent Clinic, ED, or Hospitalized</b>	2.7%	7.8%

Research supported by Stand Up to Cancer – Lustgarten Foundation  
Cancer Team Translational Research Grant #SU2C-AACR-DT26-15

# Summary and Next Steps

- We have successfully completed a pilot study to assess the feasibility of Supportive Oncology Care at Home.
  - Enrolled  $\geq 60\%$  of potentially eligible patients and they completed  $\geq 60\%$  of daily assessments within the first two weeks of enrollment.
- Our findings demonstrate the feasibility and acceptability of a Supportive Oncology Care at Home intervention.
- We cannot evaluate efficacy in the current pilot study, and thus future work will entail a randomized trial.
  - Will test the efficacy of this Supportive Oncology Care at Home intervention for decreasing health care use and improving clinical outcomes for patients with cancer.

# Representative Patient Story

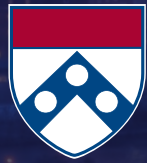




# **Hospital at Home for Cancer Care: Current Innovations, Opportunities, and Challenges**

**Penn Center  
for Cancer Care Medicine  
Philadelphia, PA**





# PC3I PENN CENTER *for* CANCER CARE INNOVATION

FOUNDED AT THE ABRAMSON CANCER CENTER AT PENN MEDICINE

# Cancer Care @ Home



**Lindsey Zinck MSN RN OCN NEA BC**  
Associate Chief Administrative Officer  
Cancer Service Line  
Penn Medicine

[pc3i.upenn.edu](http://pc3i.upenn.edu) | [@PC3Innovation](https://twitter.com/PC3Innovation)



We aimed to demonstrate that home cancer treatment could, for appropriate cancer drugs and patient populations, take the place of inpatient or outpatient administration while



Improving the **patient** experience



Improving the **clinician** experience

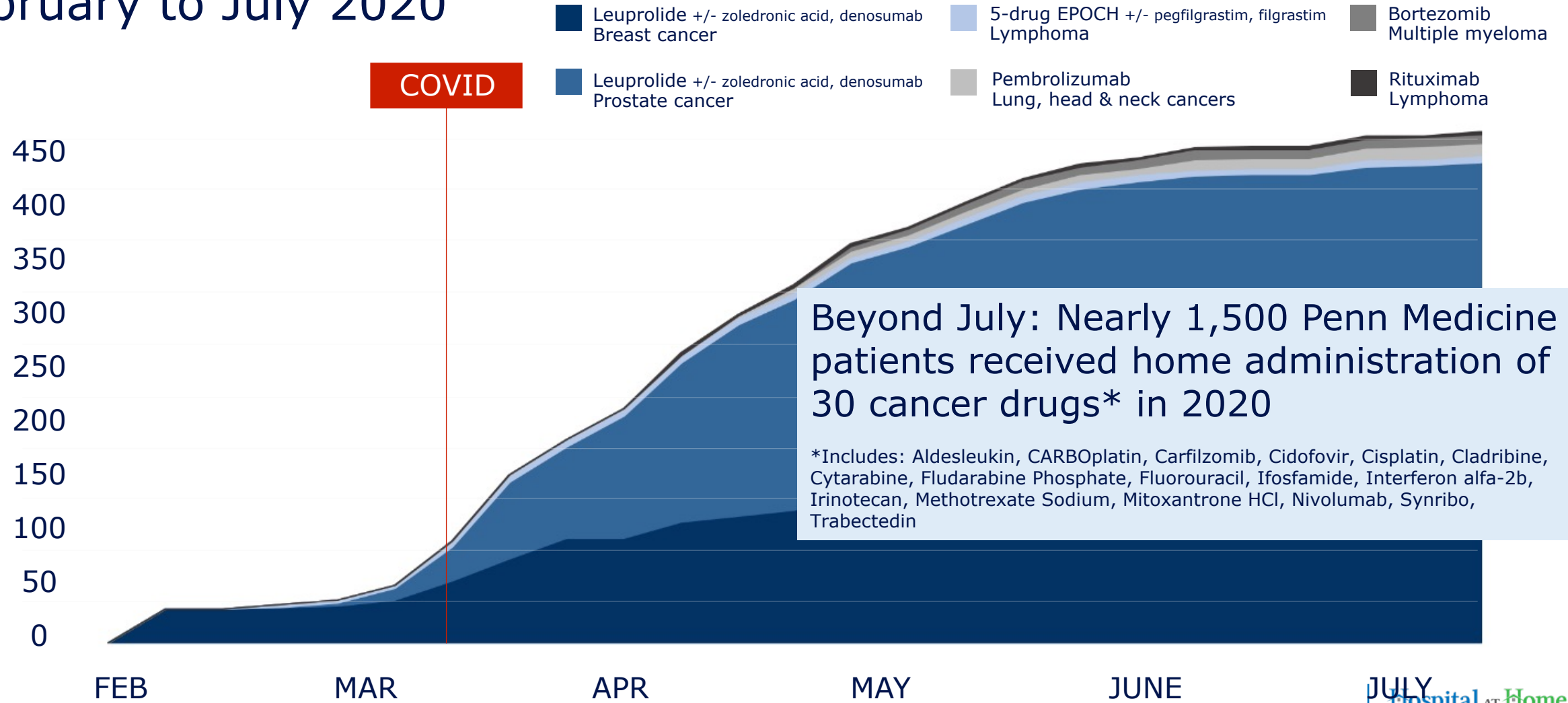


Improving **health system** efficiency



Enhancing **safety** and **outcomes**

# Patients referred for home administration of 13 cancer drugs, February to July 2020



Beyond July: Nearly 1,500 Penn Medicine patients received home administration of 30 cancer drugs\* in 2020

\*Includes: Aldesleukin, CARBOplatin, Carfilzomib, Cidofovir, Cisplatin, Cladribine, Cytarabine, Fludarabine Phosphate, Fluorouracil, Ifosfamide, Interferon alfa-2b, Irinotecan, Methotrexate Sodium, Mitoxantrone HCl, Nivolumab, Synribo, Trabectedin



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## **The right patients**

Can the targeted patient population safely receive the drug at home?

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## **The right drugs**

Is the drug stable and safe to deliver at home?

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## **Reimbursement and benefits**

Are there insurance coverage restrictions or additional costs for patients to receive the drug at home vs. in the inpatient or outpatient setting?

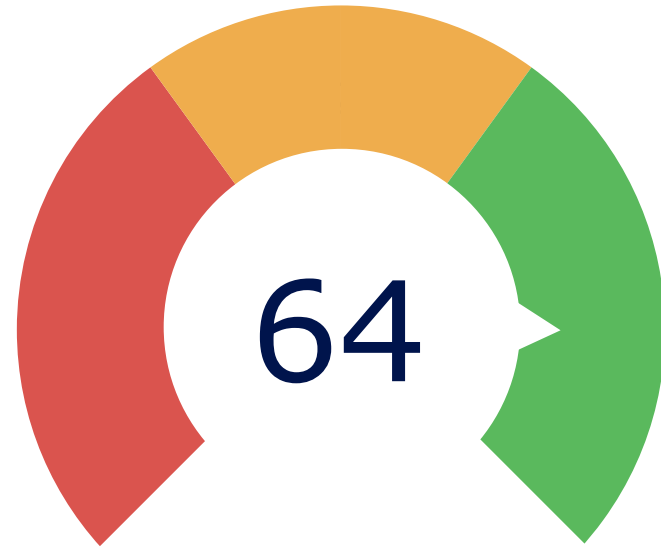
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## **Financial sustainability**

Is it sustainable to administer the drug at home vs. in the inpatient or outpatient setting?



-100 100  
**Patient**  
**Net Promoter Score**



-100 100  
**Clinician**  
**Net Promoter Score**





“The best way to sum up the difference between undergoing R-EPOCH chemo in the hospital and at home is that it transformed [him] from being a patient and back into a person”

– Spouse of participant in the Cancer Care @ Home program







# Hospital at Home for Cancer Care: Current Innovations, Opportunities, and Challenges

**Mount Sinai Health System  
New York**



**Cardinale B. Smith, MD, PhD**

Associate Professor of Medicine

Associate Director, Community, Outreach and Engagement

Tisch Cancer Institute

Chief Quality Officer, Tisch Cancer Center, Mount Sinai Health System

Division of Hematology/Medical Oncology and Brookdale Department of

Geriatrics and Palliative Medicine

# Overview

- Mount Sinai Health System's Hospitalization at Home Program is a clinical model that delivers the essential elements of inpatient care in the comfort of a patient's home
- The program serves Manhattan, Brooklyn, Queens, and The Bronx
  - For patients who live outside of the catchment area, Mount Sinai's Oncology Living Center apartment is available for use by the patient and their caregiver
- There are two pathways for oncology patients:
  - Hospital at Home (HaH) traditional pathway: patients are admitted directly from the Emergency Department
  - Completing Hospitalization at Home (cHaH): patients are admitted from the inpatient unit to complete the remainder of their care plan from home
- MSHS Oncology has had most success with the cHaH pathway, which has included cHaH admissions for solid tumor patients during an acute episode, Multiple Myeloma patients between DCEP chemotherapy cycles, and Lymphoma patients between EPOCH chemotherapy cycles

# Key Metrics

Key Metrics	
<b>Number of HaH/cHaH Admissions</b>	25 (including 3 repeat patients)
<b>Average Number of Days Admitted</b>	5.6
<b>Median Number of Days Admitted</b>	4
<b>Breakdown of Disease Type</b>	Solid Tumor: 15 Multiple Myeloma: 7 Lymphoma: 3
<b>Number of Patients Escalated Back to MSH</b>	2
<b>Number of MSH Inpatient Days Saved</b>	114
<b>MSH Cost Savings Estimate</b>	\$215K+



# Payment Model

**Due to the two admission pathways, there are two payment structures:**

1. Hospitalization at Home (HaH)
    - Payment Structure: 30-day bundle with eligible payor contracts
    - Patients must be covered by one of the following national providers or regional providers, including Emblem Health (Commercial, MA, MMC), Healthfirst (MSHS PCP, MA, MMC), Humana (MA), Empire BCBS (MA, Commercial) and CMS FFS Medicare
  
  2. Completing Hospitalization at Home (cHaH)
    - Payment Structure: MSH bills the payor the normal DRG and pays Hospital at Home program a daily rate
    - Currently ALL payors are covered except liability insurance
    - The majority of oncology patients are admitted via cHaH
- CMS Waiver Impact: Enabled FFS patients eligibility for admission directly from ED

# Lessons Learned & Plans for Expansion

- Challenges

- Physician buy-in
- Consistent patient referral stream
- Excessive communication during hand-off process
- Restriction of prescribed opioids

- Solutions & Key Lessons Learned

- Start with less complex cases to prove the concept, safety and benefits
- Standardize the patient identification process (i.e. screen all EPOCH and DCEP patients for eligibility)
- Streamline communication via referral form on Epic to reduce back-and-forth communication for oncology referrals
- Ensure patients have a support system in their home

- Future Expansion

- Autologous Stem Cell Transplant patients



# **Hospital at Home for Cancer Care: Current Innovations, Opportunities, and Challenges**

**Smilow Cancer Hospital and Yale  
Cancer Center/ Smilow Home  
Hospital  
New Haven, CT**



**Kerin Adelson, MD**

Chief Quality Officer and Deputy Chief Medical Officer  
Smilow Cancer Hospital and the Yale Cancer Center



# Smilow Home Hospital

Program will focus on cancer patients who meet criteria for hospital admission and have acute symptom exacerbations, non-critical infections, and treatment-related side effects

Will not be a home chemotherapy program or enhanced home care

Will build on larger Yale New Haven Health System (YNHHS) home hospital program with some key modifications

Is in planning stages while YNHHS finalizes contract with care delivery partner, Medically Home; estimated to launch in 2022

# Key Features

Twice daily nursing visits provided by Smilow acute care oncology nurses

Clinical partner, Medically Home, will provide 24/7 command center, IT infrastructure and paramedic support, while YNHHS builds infrastructure to become more autonomous

Model design currently limited by scope of CMS waiver—ED substitution or early hospital discharge

Plan is to become more comprehensive over time with commercial contracts that will allow admission from clinic or our Smilow Extended Care Center (urgent care)

Future integration likely with Smilow Hospitalist Medicine Program

# Challenges

Despite support from clinical leaders across system, multiple barriers have slowed implementation

Financial concern that, even with CMS waiver and hospital experiencing 3-day waits in ED, backfill of patients will not lead to growth in volume or revenue

Additional financial concern: Hospital still has to support fixed inpatient costs; contract with clinical partner requires upfront investment with delayed ROI in restrictive budgetary environment post-pandemic

Regulatory concern that CMS waiver would require same care model as for inpatients (e.g., obtaining vital signs every four hours)

Connecticut state health department had no existing policy for hospital at home and the oversight role was vacant

# Smilow Cancer Center Patients Expressed Desire for New Care Model

A woman wearing a white headscarf is shown in profile, looking out a window. The background is a soft-focus view of a hospital room with a white chair and a window with greenery outside.

“I had to be in the hospital for 72 hours for IV antibiotics, I didn’t feel that sick, and it seemed like a waste to have to stay at the hospital.”

“My husband was very sick before he died and was hospitalized countless times. Staying in the hospital with him was hard on us both. He really wanted to be back home.”

“Hospital at Home would have been a lifeline for me.”



# Discussion

# Binge them all

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