

**Mount Sinai Hospitalization at Home  
and Rehabilitation at Home**

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IMPLEMENTATION  
MANUAL



**Mount  
Sinai**



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SECTION 1  
**BACKGROUND AND BASICS**



## CHAPTER 1

### Introduction to the Mobile Acute Care (MACT) Program

MACT is a health care innovation developed by the Icahn School of Medicine at Mount Sinai and modeled after a similar program — Hospital at Home — pioneered at the Johns Hopkins University Schools of Medicine and Public Health. MACT stands for Mobile Acute Care Team, and its full name reveals the fundamentals of the program.

**Mobile:** Before World War II, the delivery of medical care was frequently a mobile activity. House calls were common, and a great majority of physicians traveled to see their patients, not the other way around. In many ways, MACT draws upon this legacy — it's an old idea updated for the 21st century.

**Acute Care:** This is the real heartbeat of MACT. Acute care, treatment for a serious illness or condition that arises rapidly, is typically delivered in hospitals in the United States. Unfortunately, hospital care is expensive and can pose threats for certain populations of people, especially older adults. MACT provides true hospital-level care, warranting a full hospital admission, in the homes of its patients.

**Team:** In the same way that hospital patients receive care from a cadre of nurses, physicians, social workers, and other professional and support staff, MACT patients and their families have access to an interdisciplinary team of professionals dedicated to treating and monitoring their health. This team of registered nurses, doctors, nurse practitioners, social workers, lab technicians, home health aides, rehabilitation specialists, and other disciplines works together in a coordinated manner and is in contact multiple times a day.

In other countries, such as Australia, New Zealand, the United Kingdom, Italy, and Israel, programs similar to MACT are much more common. (1) In the United States, adoption has been much slower. But the tide is changing and evidence of the benefits of home-based hospital care is mounting. This evidence includes demonstration of the hazards of inpatient hospitalization for older adults and how many of these hazards can be avoided in the home, confirmation that home hospitalization can be done safely, especially with added technological innovations (e.g., telemedicine, Electronic Medical Records (EMRs) with remote-access capabilities), and validation of reduced costs. In addition, as consumers have become more involved in healthcare decision-making, they have demanded to have care delivered in ways that suit their lifestyles and needs.

## Components of MACT

The MACT program consists of three core components:

### 1. Hospitalization at Home (Acute Care)

This is the “traditional” Hospital at Home program that provides visits from nurse practitioners and doctors who deliver care and respond to emergencies, as well as nurses to provide clinical treatments, and a social worker to coordinate care as needed. Additionally, medications and durable medical equipment are provided and delivered, routine lab tests are preformed, and infusion is administered in the home. For many patients, follow-up is provided for 30 days after the acute care episode.

#### ***Hospital Averse at Home***

*This variant of MACT is a short-term (3-5 day) hospital at home solution for patients who decline needed hospitalization.*

#### ***Palliative Care Unit at Home***

*Another short-term (3-5 day) hospital at home variant, with 30-day follow up (and possible transition to hospice), for hospice-eligible patients who are being admitted for a serious illness for which the MACT team would normally recommend facility hospitalization rather than HaH except for their goals of care.*

### 2. Observation Unit at Home

This model is for patients who need further medical observation before discharge or admission to MACT Hospital at Home. Patients are observed for a day in their home, receiving needed services and appropriate monitoring, and are then reevaluated after 24 hours. Based on this reassessment, the patient may then be formally admitted into MACT or discharged.

### 3. Rehabilitation at Home

This program is designed to provide post-acute rehabilitation, medical, and nursing services in lieu of a nursing home stay for qualifying patients. Admitted patients receive physician oversight throughout their rehabilitation, an in-home visit from a physician and RN within 48 hours, as well as physical therapy six days a week. They also receive additional nursing visits as needed for treatments and IV medications, social work visits, and as needed occupational, and/or speech therapy visits. All of these services are delivered for two to three weeks, and MACT follows up, as indicated, for up to a total of 30-60 days.

## The MACT Vision

### The Changing Health Care Landscape

In 1946, the year that marks the official beginning of the Baby Boom, U.S. births soared to 3.4 million, up from 2.8 million just the year before. Boomers would grow up to witness a fundamental shift in how health care was delivered. Most lived far from cities, in rural communities without easy access to hospitals and institutions such as nursing homes that provided care. As a result, they didn't travel to a hospital for treatment of illness or injury. Rather, they remained at home and the doctor came to them. Indeed, 40 percent of all doctor-patient encounters before World War II were house calls. (2)

After the war, health care delivery began to change rapidly. Unprecedented prosperity encouraged Americans to move their families from rural areas to urban centers and suburbs. At the same time, medical advances, such as the introduction of penicillin and vaccines for devastating diseases and the routine use of X-rays, emerged rapidly in the 1940s. Many of those advances were only available in hospitals, so they became an important part of a health care revolution that saw people living longer and enjoying healthier lives. More and more people began relying on hospitals — both public general hospitals and private teaching hospitals affiliated with universities — for their medical care. For example, outpatient visits to public hospitals rose more than 300 percent from 1944 to 1965. (3)

Today, a significant portion of health care is delivered in the 5,534 hospitals registered in the U.S., (4) and house calls and home care have fallen out of favor as suitable alternatives for significant medical needs. Given the sophistication of modern hospitals, this would seem to be a positive trend. But hospital care presents its own challenges. There is a substantial body of literature pointing to the hazards of hospitalization for elderly persons, including delirium, pneumonia, falls, polypharmacy, pressure sores, and infections. Persons 80 years and older and those with cognitive impairment are at particular risk for death during hospitalization.

### The Need for Care Alternatives

In an ideal world, a balanced, rational system incorporating both home-based and hospital-based acute care would be available to all patients and families. In this system, a patient would be evaluated, based on the type and severity of his or her conditions, and then admitted to the care environment most appropriate for the presenting situation. And the care delivered in either setting would be fully covered by insurance programs.

MACT is already set up to operate in this flexible manner. Patients eligible for care in the Hospitalization at Home program are sick enough to require hospitalization, but they can only be admitted to the program if they have certain acute medical conditions to ensure that home-based care is safe and appropriate for them. These conditions include cellulitis, chronic obstructive pulmonary disease (COPD), Asthma, community acquired pneumonia (CAP), congestive heart failure (CHF), deep venous thrombophlebitis (DVT) or pulmonary embolus, diabetes, dehydration, and urinary tract infection. Beyond having a covered medical condition, patients must also have a suitable home environment. They must live in a residence where they stay consistently and that meets needs for safety, shelter, and basic utilities. And, of course, they must live within a reasonable distance of the team providing care to them.

Even with these programmatic elements in place, MACT and other similar programs have faced significant headwinds in the United States. Some of the sluggish adoption can be attributed to cultural barriers within hospitals and health systems, and to public perception that hospital-based acute care is superior to home-based care. There are also issues related to lack of reimbursement from Medicare, Medicaid, and other insurers.

Still, the time is ripe for a health care innovation such as MACT. A number of trends, findings, and payment strategies are making mobile acute care a viable — and desirable — 21st century solution.

## Why MACT? Why Now?

Although there has been some resistance to home-based acute care, there may be no better time to consider such a program, especially for innovation-driven hospitals and health systems looking to have a sustainable impact in their communities. Here are five trends that make MACT attractive:

**Bundled payments:** Historically, hospital at home programs have faced enormous resistance to adoption because the fee-for-service model of traditional Medicare and most insurances couldn't accommodate hospital services provided at home. Recently, new reimbursement models are emerging as a result of the Affordable Care Act and the move toward value-based care delivery. For example, in some models, the hospital at home program receives a bundled rate for each admission, based on diagnosis codes. The bundled payment covers fees for provider visits, nursing visits, home health aide visits, ancillary services such as durable medical equipment, and diagnostic tests.

**Shift from institutional care to community-based care:** In the past several years, there has been mounting attention among members of the public, policymakers, and researchers about the optimizing care in home-based settings. Other large health systems have developed and implemented home-based primary care programs with promising results. By bringing together formal and informal caregivers, community-based care can meet patient needs in ways that are safer and better tailored to individual situations

**Increased focus on care transitions:** Handoffs from setting to setting along the care continuum are fraught with dangers for elderly patients with multiple health conditions. Poor hand-offs result in medication errors, lack of family and patient education, and inadequate information transfer among clinicians. This creates an increased risk of functional decline, rehospitalization, or even death (Coleman, Parry, Chalmers & Min, 2006). The evidence is clear that, with the right interventions, patients discharged from hospital care can adjust back to their daily lives more effectively and avoid readmissions (Naylor, Hirschman, O'Connor, Barg, Pauly, 2013).

**Growth of telemedicine:** Technology is making it easier than ever for patients to receive care without having to go to a health care facility. Those who wouldn't normally have easy access to health care or who can't easily travel to a hospital or clinic can now consult with a health care provider for medical and psychosocial concerns. Providers can share electronic medical records and consult with their patients virtually, resulting in reduced travel times, better disease management, and fewer or shorter hospital stays.

**Increased patient, family, and caregiver involvement in health care decision-making:** With unprecedented access to information and services, consumers are now participating in their own health care like never before. Patients and loved ones are asking more thoughtful questions, making informed decisions about their medications and health care options, and even self-managing long-term conditions. By returning care to the home, power can be restored to the patient and his or her family and caregivers.

## MACT: A Historical Perspective

The MACT program is built on a legacy of careful research evaluating the effectiveness of home-based hospital care. In 1994, Bruce Leff, MD, of Johns Hopkins University, saw the need for an alternative to hospitalization for older adults with acute illnesses. In his practice, he noted that visits and stays in the hospital often caused more harm than good for his older patients, so he and his colleagues (Lynda Burton, ScD, Susan Guido, RN, William B. Greenough, MD, Donald Steinwachs, PhD, and John R. Burton, MD) proposed a novel treatment approach that channeled the house call mindset so prevalent in medicine until the 1940s. The Institutional Review Board of the Johns Hopkins Bayview Medical Center approved his Home Hospital Program study guide in 1996, and the first pilot study began.

Patients were eligible for enrollment in the Home Hospital program (also known as Hospital at Home, or HaH) if they were aged 65 and older; insured by Medicare; lived within a defined area; and required an acute hospital admission for one of four target illnesses—community-acquired pneumonia, an exacerbation of CHF, an exacerbation of chronic obstructive pulmonary disease (COPD), or cellulitis.

The pilot study included 17 older adults who had visited the emergency room and were determined to be eligible patients for HaH care. The admission process began by obtaining informed consent for care in HaH from the patient and his or her caregiver. The patient was then evaluated by the HaH physician and taken home by the HaH nurse coordinator. The physician evaluated the patient again in the home, and the results were used to implement appropriate diagnostic and therapeutic measures. Once the patient was settled, the HaH physician would leave and return at least once daily to care for the patient. He or she was also available 24 hours a day for urgent or emergency visits.

The pilot study lasted two years and was proven to be cost-effective, safe, and feasible. Financially, charges for patients treated in HaH were between 53 percent and 60 percent of average acute hospital charges. Two sources were used to obtain cost data — for hospital patients, the hospital billing system; for HaH patients, the home health agency billing system, as well as the hospital billing system for Emergency Department use. In addition to direct care costs, other charges included medications, procedures and X-rays, supplies and durable medical equipment, and laboratory and therapy fees.

In terms of quality of care, the pilot study showed that HaH patients were more comfortable and satisfied with HaH admission procedures, relationships with doctors and nurses, discharge procedures, and overall care than those who received traditional hospital care. The length of stay for each group was similar, showing that appropriate care could be given just as easily and timely with HaH as it could be in the hospital. According to Leff, overall results concluded that HaH

“resulted in fewer complications (e.g., drastic reductions in delirium), greater satisfaction with care for patients and family members, less caregiver stress, better functional outcomes, lower costs,” and lower six-month mortality rates. (5)

### **Mobile Acute Care Team (MACT) Program**

The Icahn School of Medicine at Mount Sinai in Manhattan, New York, started its own version of Hospital at Home in 2014, after receiving \$9.6 million from the Center for Medicare and Medicaid Innovation (CMMI). CMMI, an organization under the Centers for Medicare and Medicaid Services (CMS), is tasked with testing innovative health care payment and service delivery models with the potential to improve the quality of care and reduce Medicare, Medicaid, and CHIP expenditures.

Under the three-year CMMI Health Care Innovation Award, Mount Sinai’s Mobile Acute Care Team (MACT) partnered with community organizations to provide Medicare patients living in Manhattan with in-home hospital level care and a 30-day post-care follow-up. Treated conditions included cellulitis, COPD, community-acquired pneumonia, CHF, deep venous thrombophlebitis, diabetes, dehydration, and urinary tract infection.

Today, the MACT program is referred to as Hospitalization at Home or Rehabilitation at Home and continues to serve patients through Medicare Fee for Service and partnerships with payers.

### **What Is in a Name?**

#### **The transition from a grant-supported acronym to a health system enterprise.**

When MACT started in 2014, it was just a Hospitalization at Home program, but as will be described later, additional services were created to better support patients and the health system. Since MACT is not descriptive from the point of view of the patient, and as the number of home-based programs grew in the health system, a new unified name was created in the Spring of 2018: *Mount Sinai at Home*. This new enterprise has two key components: a service line of programs across the Mount Sinai Health System that care for patients in their own homes, comprised of

Mount Sinai Visiting Doctors  
Pediatric Visiting Doctors and Complex Care Program  
Hospitalization at Home  
Rehabilitation at Home

and a research arm, the *Institute for Care Innovations at Home*.

## CHAPTER 2

### The Hospitalization at Home (HaH) Platform

Mount Sinai adapted the Hospital at Home model to its system in 2014. In many respects, it began with a program similar in structure to the originally conceived approach. Patients in the Emergency Department presenting with several conditions (i.e. cellulitis, COPD/asthma, community acquired pneumonia, CHF, deep venous thrombophlebitis/PE, diabetes, dehydration, and urinary tract infections) were offered either HaH or hospital admission. Those choosing HaH were transported home and provided with acute-level care by nurse practitioners, doctors, and other clinicians, and ultimately discharged, as described in detail in other chapters of this guide.

Recruitment challenges (noted in Chapter 8 – Referrals and Intake) slowed HaH participation initially, and program developers sought additional sources of patients who would benefit from receiving this kind of “substitutive” care at home. Early experience with the model also led HaH developers to believe they could provide this care to sicker patients in certain cases and to reduce the exclusion criteria used in the traditional approach. This led to the development of several HaH variants described below, specifically designed to meet the needs of sub-populations of frail older patients. Ultimately, the founders of the program conceptualized these options as arms of a HaH platform that can be adapted in whole or in part by other systems and hospitals, depending on patient mix and clinical capabilities.

#### The Arms of the HaH Platform

The variations currently in operation at the Icahn School of Medicine at Mount Sinai (See Figure 1) include:

- ***Hospital at Home (Acute Care)***  
As described above (and in detail in Chapters 6 through 9), this is the “traditional” Hospital at Home program that:
  - Recruits patients from the Emergency Department (ED), observation unit, urgent care center, clinic and house call program
  - Focuses on a subset of 8 presenting conditions — expanded from the 4 diagnoses originally conceived — shown to respond safely and effectively to home-based acute care
  - Provides visits from: nurse practitioners and doctors who are available around the clock to ensure safety, deliver care and respond to emergencies; registered nurses to provide clinical treatments; and social workers to coordinate care and provide linkages to community-based services as needed

- Delivers and provides medications, routine lab tests, durable medical equipment and intravenous (IV) therapies in the home
- Follows the patient for 30 days following the acute care.
- ***Observation Unit at Home***

A variant of the Hospital at Home approach, this model is for patients who need further tests or observation to determine their course of care before admission to hospital at home. Patients are observed for a day in their home, receiving needed services and appropriate monitoring (as he or she would in an observation unit), and is then evaluated. Based on this assessment, a small subset of the patients may then be formally admitted into Hospital at home (or into the hospital) and receive care as described above.
- ***Hospital Averse at Home***

This variant of HaH is for those patients who present at the ED or during the an at-home primary care visit for complex conditions not included in the HaH protocol, but who refuse to be admitted to the hospital. A subset of these “hospital averse” patients can be admitted to HaH and receive care at home for three to five days as per HaH if the team can determine a safe care plan that the patient/family agree to. These patients may end up in the hospital when the patient (and their caregivers) finds that their conditions cannot be adequately treated at home and need additional services that are only available in the hospital. However, many are also able to be treated through outpatient appointments and scheduled admissions at a later time.
- ***Palliative Care Unit at Home***

Many seriously ill patients express the wish to avoid late-life hospitalizations and to die at home. For these patients, HaH provides a helpful, at-home bridge for hospice-eligible patients who had not previously been enrolled in hospice who require an inpatient stay for an acute issue. These patients are admitted to HaH through the ED, clinic, or from the patient’s primary care provider and receive palliative services through the Hospital at Home program, generally for three to five days for a condition the team would not normally have admitted through hospital at home, except that the goals of care are consistent with the home admission. They then receive 30 days of follow-up care. During this acute period the HaH team works with the patients and families in order to facilitate their acceptance of hospice services and subsequently transfer care.
- ***Rehabilitation at Home (RaH)***

Following a traditional hospitalization, many frail older patients are admitted to a rehabilitation or skilled nursing facility, so they may continue to recover from their illness or surgical procedure, building strength and stability, and eventually return home, a type of care known as Subacute Rehabilitation. Some patients, however, may prefer to return home immediately, with the proper supports and services in place. The Rehabilitation at Home program admits patients who are often recommended for the program by in-patient physical therapists, social workers, or discharge planners.

Patients admitted to the Rehabilitation at Home program are evaluated usually within 24 hours by the RaH physical therapist to establish a plan of care for physical, occupational and speech therapy as indicated. At a minimum, the patient will received physical therapy

6 days per week. Provider oversight and RN home visits are initiated usually within 48 hours at which time a plan is developed for ongoing visits by the provider, RN and social worker. These services are delivered for two to three weeks with RaH oversight, as indicated, for up to a total of 30-60 days. During this follow-up period, service intensity varies depending on the needs of the patient and may range from daily clinician visits for high-risk patients to weekly check-in telephone calls for regular-risk patients whose condition(s) are stable or improving.

**Figure 1: Diversifying the HaH “At Home” Suite of Services**

<b>Hospital at Home</b>	<b>Observation Unit at Home</b>	<b>Palliative Care Unit at Home</b>	<b>Hospital Averse at Home</b>	<b>MACT@Nite</b>	<b>Pediatric Hospital at Home</b>	<b>Completing Hospital Stay at Home</b>	<b>Rehab at Home</b>
Short-term (3-5 day) acute inpatient-level care at home with 30 day follow up <sup>1 2</sup>	Short-term (1 day) acute observation unit level care at home that can transition to Hospital at Home with 30 day follow up	Short-term (3-5 day) acute level care at home for hospice-eligible patients with 30 day follow up (and possible transition to hospice)	Short term (3-5 day) acute level care at home for patients who decline being in the hospital	Recruitment at night with overnight care in the hospital with transition to home in the morning	Short-term (3-5 day) acute inpatient-level care at home for children up to age 18 with select illnesses. Provider visits through Pediatric Visiting Doctors and Complex Care program.	Short-term (<20 day) completion of acute inpatient level care at home for hospital inpatients <sup>2,3</sup>	Short-term (<20 day) post-acute rehabilitation, medical, and nursing services in lieu of a nursing home stay with follow up to 30 days
Substituting for Full Hospital Stay						Shortening Hospital Stay	Substituting for SNF
<b>Hospital at Home Acute Care Team</b> Medicine, nursing, social work, rehabilitation, community paramedics, pharmacy, laboratory, radiology, other community-based services, and transport							

1 Ambulatory Surgery Post-Op (tbd)  
 2 Program for veterans (July 2018)  
 3 Mount Sinai Center for Transgender Medicine and Surgery (April 2018)

**Building a Broader Program of Care at Home**

As Bruce Leff, MD, one of Hospital at Home’s lead developers at Johns Hopkins University wrote in the Harvard Business Review in 2015, this multi-arm platform has a variety of benefits. This approach, writes Dr. Leff,

...allows hospitals to link [Hospital at Home or HaH] to disease-management programs and to hospice — and home-based primary — and palliative-care programs. Along with other home-based care models, HaH can be a versatile platform for creating an alternative to skilled-nursing-facility care after hospital discharge, a complement to early-discharge programs, and an option for post-surgical care (Leff, 2015).

In sum, the multi-plan HaH platform enables hospitals and health care system adopters to consider different HaH options depending on their unique capacities, populations, and settings and pick the right configuration to meet those considerations and a health organization's "sweet spot." As HaH continues to build experience with different approaches, the team will introduce program variations to target new populations. For example, a Pediatric HaH has been successfully piloted at Mount Sinai, and the future will see post-operative care at home, and models that allow for early discharge.

## CHAPTER 3

### Staffing

This section will describe the key roles in the HaH program as well as a variety of issues implementers should address or consider related to deploying a workforce through hiring and/or utilization of vendors. The success of the HaH model ultimately rests with the people who oversee, deliver, and evaluate care. Successful HaH staff are nimble improvisers and problem solvers. By definition, the services and resources of a traditional hospital are not close at hand. Clinicians have a great deal of autonomy in decision making, without the ability for hallway consultations. The work is also much less predictable. While intake provides some basic information, those admitting a HaH patient likely don't know a patient's home situation until they get there. Operating under these circumstances does not appeal to everyone, and it is critical to ensure that staff at all levels understand and embody the different skills and aptitudes required to build a high functioning home health team.

#### Roles and Responsibilities: Understanding the Core HaH Team

##### Leadership

A senior leadership team that is savvy in navigating institutional systems and building relationships with community partners is crucial for the success of HaH at Mount Sinai, this team consists of the Project Director, a Clinical Director, and a Project Manager.

- The Project Director provides the strategic vision for the project and broadly oversees the work of the leadership team.
- The Clinical Director takes the lead in getting the clinical teams off the ground and oversees all clinical operations.
- The Project Manager is responsible for all administrative functions of HaH, including hiring, development and management of budgets, attainment of project goals, and all required reporting.
- The Clinical Nurse Manager supervises all nursing personnel and assigns visits to insure all patients' needs can be met with staffing available.

The leadership team is also assisted by a Coordinator who handles enrollment logistics, scheduling clinical team visits, and the timely ordering and delivery of equipment, supplies, drugs, labs, and X-rays.

##### Lead Clinicians: Physicians and Nurse Practitioners

In the Mount Sinai model of HaH, a nurse practitioner (NP) and physician share the responsibilities of the Lead Clinician, while in other hospital at home implementations, only physicians take the lead. The physician plays an important role in recruiting patients and, as a result, may spend much of his or her time in the Emergency Department. In this role, the physician will obtain consent and develop care plans and admission orders for appropriate

medications, equipment, X-rays, and labs. Typically, the NP is the first provider to meet the patient when she or he returns home (either with a family member or by ambulance). The NP conducts a safety assessment and then alters the care plan as needed.

The NP works with patients and or family members to do what is necessary to adapt the home environment to the care required, ensure there is someone available to be with the patient as needed, and identify what other team members (e.g., occupational therapist, physical therapist, social worker) may be needed, and whether/how to coordinate specialist consultations. Following admission, the NP will collaborate with a HaH RN, and will visit the patient daily for reassessment, respond to emergent needs, and ultimately help prepare patients for program discharge and transition.

Within all HaH models, there needs to be a provider on call 24 hours a day. One approach, which was implemented at Mount Sinai, is to have the physician on call “after office hours”, with the NPs on call from 9 a.m. to 5 p.m. At the end of the day, a “sign-out” is conducted which involves the social worker, the physical therapist, and the clinicians, and which enables the team to communicate provider issues from the day that need more attention.

## Characteristics of Strong HaH Staff

### Lead Provider

The Mount Sinai HaH program found that successful NPs or physicians in the HAH program often have a background in conducting house calls either in practice or during their training. They have enjoyed this work or found it to be stimulating (as opposed to daunting). HaH clinicians should also have experience managing complex medical care. Those with geriatrics or palliative medicine preparation are optimal as they are trained to treat older people who have a variety of co-morbidities.

### Nurse

The HaH nurse, trained as an RN, provides the day-to-day care for patients. In NYC, nurses see four to six patients per day in 12-hour shifts, depending on travel time between patients' homes. After coming into the office to review their patients for the day, the HaH nurse carries supplies, including IVs as needed, essentially bringing the hospital to the home of each patient. The nurse records vitals, administers IVs, and checks medications—much as he or she would do in a hospital setting. If an emergent condition arises, the nurse will call the lead NP or physician and potentially do a video visit with the provider. After the visit, HaH nurses document in the same Electronic Medical Record (EMR) as the providers and communicate with the on-call provider, as indicated. Supplies are immediately restocked in their bags to insure all nursing care can be carried out timely and efficiently the following day. Presently, the Mount Sinai model requires nurses to work 12-hour shifts (8 a.m. to 8 p.m.) in order to be available for evening infusions.

HaH will only hire nurses with relevant clinical experience. They must possess strong assessment skills and clinical judgment, and know, for example, when to call in the NP or physician. Experience with infusion is a plus, but most likely will be taught and practiced during orientation period. Experience in home care is helpful, particularly in responding to environmental and family/caregiver challenges that inevitably arise. In HaH, the team has found that RNs with also Emergency Department experience often develop the temperament and skills needed to navigate

the unpredictable HaH clinical setting. Like all HaH providers, HaH nurses welcome the greater levels of autonomy and independence that comes with providing care in the home.

### **Social Worker**

The HaH social worker plays a critical connector role between the core clinical staff and the wide array of community-based services that patients often require. This can range from finding suitable long-term services and supports, ensuring the right fit of home aides with the family and patient, and addressing broader family dynamics that may complicate post-discharge care. Psycho-social issues are often central to the well-being of HaH patients, like many older patients with multiple chronic conditions, and the HaH social worker is uniquely trained to address these issues. At Mount Sinai, the social workers are Licensed Clinical Social Workers (LCSW), Licensed Master Social Workers (LMSW) or LMSW eligible. The social workers are formally supervised by a senior LCSW once a week.

### **Physical Therapist**

Licensed physical therapists evaluate patients and develop a plan of care that promotes movement, improves and restores mobility and muscle strength, reduces pain, restores function, and prevents disability. The physical therapist works with the patient, family members, and the HaH clinicians to ensure that goals of the plan of care are met and that patient outcomes are optimal. Although the level of their involvement varies on a patient by patient basis, physical therapists are key members of the HaH team, especially in Rehabilitation at Home interventions (see below section).

### **Administrative Assistant**

The HaH administrative assistant (AA) plays a vital role in helping the team work efficiently and stay productive. In addition to answering phones, processing paperwork, and scheduling visits, the administrative assistant conducts the first level of case finding by electronically scanning the admissions of the ED and observation unit for potential eligible patients to refer to recruitment provider. The AA will also verify place of residence and insurance coverage, map the locations of patient homes to best coordinate home visit schedule, coordinate deliveries and pick-ups with vendors, as well as scheduling all post discharge visits to primary care provider or specialist.

## **Coordination & Communication**

HaH care, like all good geriatrics care, is team based. Strong communication and coordination among the physicians, nurse practitioners, nurses, social workers, and other clinical and administrative team members is vital. In addition to day-to-day communications, HaH staff members have twice-a-month clinical team meetings to discuss cases as a group, build team capacity and monitor quality control.

Day-to-day communication is focused on clinical updates related to patient care and emerging clinical issues. The clinical team has two daily huddles. Every morning at approximately 8:40 AM there is an interdisciplinary team huddle involving all HAH disciplines as well as the rotating medical students and fellows. The purpose of this huddle is to communicate any updates from overnight, discuss each patient's plan from a multidisciplinary perspective, and coordinate assignments for the day. A formal clinical handoff takes place every afternoon among HAH providers to discuss the plan of care of "active" patients as well as new admissions more in detail. Those patients who are in the 30-day post-acute episode are only discussed as needed during the

afternoon handoff. The huddle is led by either the clinical nurse manager or the lead physician and lasts no longer than 20 minutes. Team members that are in the field can join the huddle/handoff meetings via secured conference line. A handoff summary and scheduling are entered into a HIPPA-compliant, Internet-based file-sharing system only until this information can be appropriately kept in the EMR. This allows for easy access when team members are away from the office.

Other communication is conducted by phone to the office-based NP who triages all calls. Experience has proven that once the volume of patients is sufficiently large, there will be a significant number of phone calls to the office each day. It is more efficient to have one office-based NP or provider to handle all calls rather than interrupting physicians or NPs who are making home visits or recruiting. Charting in the EMR is completed before the end of the day by each clinician and is another source of communication. Emails, texts, and voice mail messages are discouraged for many reasons, including unreliability, HIPPA compliance issues, and inadequate means of verification.

## Implementation Considerations

In addition to finding the right people to staff HaH, there are a number of implementation issues that need careful attention. Adopting an evidence-based care model always requires flexibility and tweaks. Each health system or hospital has distinct clinical capabilities, different patient and payer mixes, and unique environmental challenges. With the ever-changing health care landscape, it is important to be aware of and responsive to evolving trends and the emergence of new models that focus on performance and value-based payments rather than volume-based payments.

### **Organizational Structure: Insourcing vs. Outsourcing**

One of the biggest challenges (and learnings) in the implementation of HaH has been how to structure the cost of staffing. More specifically, is it more cost and clinically effective to “insource” staff (that is, have salaried physicians, nurse practitioners, nurses, and social workers paid by the HaH program or hospital) or is it more beneficial to contract/outsource the staffing to an independent agency or agencies? Initially, the volume of the program may be slower, so it may make sense to contract with faculty and staff from other practices and agencies, providing they can be accessed immediately when a patient is identified.

One should also consider the limitations inherent to outsourced employees. For example, outsourced employees often cannot be granted access to the EMR in the same manner as staff employees. In addition, an outsourced FTE is not typically a single dedicated individual but a team from which an individual is assigned as needed. This approach precludes the outsourced individual from being part of the team and participating in huddles, meetings, in-services, etc.

Earlier implementation strategies of hospital at home in nonprofit and VA settings have hired staff from the beginning. AT Mount Sinai, HaH started with a hybrid approach. The program hired physicians from Mount Sinai’s Visiting Doctors house calls program and recruited NPs as new hires. The nurses were contracted through the Visiting Nurse Service of New York (VNSNY), NYC’s largest home care agency. The decision to outsource nurses had three related rationales. First, since HaH was being developed as a model program through support from the Center for

Medicare and Medicaid Innovation (CMMI), it was thought that contracting outside the hospital to a home care agency would make the program easier for others to replicate. Second, Mount Sinai already had a working relationship with VNSNY and the HaH implementers were comfortable with the agency's reputation and leadership. And finally, there was initial concern about the ability to recruit enough nurses with the right kind of home and community experience from within the Mount Sinai hospital system.

Initially, this decision was helpful as HaH's caseloads grew more slowly than expected (See Chapter X). HaH did not have salaried nurses or "sunk" salary costs. VNSNY also took responsibility for staff training for HaH, which enabled HaH leadership to focus on other aspects of program development (e.g., fine-tuning the recruitment process and building out other parts of the HaH platform). As the program grew, ongoing coordination with a vendor became increasingly challenging and time consuming, and the outsourced model grew less attractive. HaH then decided to staff nursing internally.

"Insource-or-outsource" decisions have to be made for other staff roles and functions as well. HaH X-ray and ultrasound techs have come from an external agency, while other hospital at home implementations have hired or sub-contracted from their hospital's radiology services. HaH also decided to contract with external vendors to supply durable medical equipment (DME).

Hospitals or health systems implementing HaH will need to make staffing decisions based on the care needs of the patients they treat, their system's capacity, relationships with vendors, and the community or regional organizations available to extend their reach. The presence of unions in a hospital as well as state laws may also affect how *hospital at home* programs are structured.

### **Capacity and Training**

Since it serves as an alternative to hospital-based care, HaH requires seven-day/week coverage. This means ensuring sufficient staffing to account for vacations, professional development days, or unplanned leave. At year three, HaH at Mount Sinai recruited from three emergency departments and admitted about eight to 10 patients per week. To cover this volume, the staff consisted of four providers daily and a minimum of two nurses with the ability to staff up through the use of contracted agencies or per diem staff. One of the early advantages of outsourcing the nurses to VNSNY was that HaH could take advantage of that organization's broader capacity to more easily pull in nurses as caseloads increased or schedules varied.

Onboarding and training also require time and effort. A new hire to the health system will take more onboarding time, as will a provider less familiar with home visits. All HaH MDs have had significant inpatient experience and ambulatory experience including house calls during their residencies.

HaH physicians that come from the Mount Sinai Visiting Doctors program can generally be prepared within one week of shadowing to ensure training in recruitment, patient evaluation, and placing orders. Many hospital at home implementations build off an existing house calls program while others choose to create a program de novo. Having a readily available house calls service not only provides doctors to deliver home hospital services, but also a "place" to discharge patients who don't have an existing primary care provider.

Training for HaH NPs has taken longer not just to learn HaH processes and clinical responsibilities, but for orientation to hospital-wide policies and procedures for their discipline. In addition, NPs are trained in specific areas and obtain their specialization in primary, acute, or specialty health care. An NP specializing in acute care will obviously be experienced in acute inpatient issues but may have never done home visits. Conversely, a primary care NP may not have encountered the clinical acute nature of patients. As a result, most NP hires require significant training.

HaH nurses were originally employed by the VNSNY as part of a special HaH team geared to responding effectively to patients with a level of acute needs rather than traditional home care patients. Today, HaH nurses are employed by Mount Sinai and receive hospital-wide RN orientation through nursing education as well as one month of HaH training prior to practicing independently. HaH RN training includes updating skills in IV, wound care, and medication reconciliation, as well as documentation and responsibilities associated with home care visits for HaH. This is accomplished through shadowing, one-on-one training in the office, and participation in clinical meetings and huddles.

PT's, similar to RNs, originally were employees of VNSNY however the incentives and model of PT in a home health episode of care is very different from the care provided in Hospital at Home and especially Rehabilitation at Home (RaH). Once the volume was great enough in RaH the team was able to employ PTs. Their training primarily consisted of the HaH and RaH model of care and the outcomes expected. Given the requirement of possessing experience in both home and sub-acute rehabilitation settings, additional training was not required.

Administrative Assistants (AA) were trained by the project coordinator who was familiar with both hospital and Hospital at Home systems as a result of her functioning in this AA role in the very early development of the program. Training for newly hired AAs centered on EMR training, other electronic programs for scheduling, insurance verification, etc., as well as patient admission protocols, check lists and data collection methods.

### **Vendor and Consultant Agreements**

Beyond the central issue of outsourcing/insourcing staff, HaH (and most hospital at home models) had to create agreements with a variety of local vendors to provide a range of services and equipment. This may mean contracts with local durable medical equipment providers, pharmacies, phlebotomists, X-ray/ultrasound technicians, paramedics, and transportation services. How these agreements are made and with whom will no doubt vary by hospital/practice and community, but they require a comprehensive knowledge of the providers in the area and their respective capacities.

Your hospital, health system, or practice may already have relationships with many of these groups to provide services or equipment in the hospital. However, these organizations may not have the capacity to schedule services/deliveries within 24 or 48 hours. They may not be able to deliver IV or medical equipment on a daily or on demand basis to multiple locations. In NYC, HaH initially worked with an infusion pharmacy until it became clear that the vendor simply wasn't able to be responsive to the rolling and odd hour requests of a hospital at home program. HaH now acts as its own inpatient floor, necessitating ordering IV medications and supplies from the hospital pharmacy and central supply warehouse, and maintains its own secure refrigerated storage for these medications. Nonstandard medications are also ordered from the inpatient or

outpatient pharmacy. Nurses can then access required supplies and medications prior to each day's assignments in a timely and efficient manner.

Similarly, some HaH vendors have been challenged to develop pricing for these unorthodox offerings. For example, an agency may know how to bill oxygen for patients who have chronic needs over six months, but they are not set up to bill for patients who need oxygen for a much shorter, acute period. The specifics, of course, will vary from partner to partner and service to service. Ultimately, new consultant and vendor agreements will take time and effort to develop and may look quite different than the traditional or existing arrangements.

In many ways, the HaH program creates a whole new integrated supply chain—a combination of its own home-grown sources, groups used to serving brick-and-mortar hospitals or rehabilitation facilities, and/or those with experience delivering sub-acute, home-based services and products. It is a complex and often changing patchwork of services which requires constant monitoring and refinement.



#### LESSON LEARNED

During the ramp-up phase, outsourcing nursing and physical therapy was optimum, but once the census supported a full-time employed RN, etc. it was found that it allowed a higher level of efficiency, better communication and full control over patient care. Each health system needs to account for delays in hiring and on-boarding when considering bringing on new staff. At Mount Sinai on-boarding for providers can take more than six months and nursing can take three to four months to onboard. It is also important to consider lengthy orientation for a Hospitalization at Home position since it is unlikely new staff will come with the exact experience required.



## SECTION 2

# IMPLEMENTATION



## CHAPTER 4

### Setting Up the Electronic Medical Record System

For most hospitals and health systems, setting up an electronic medical record (EMR) solution for the HaH program will be a good news/bad news situation. Most systems have gone through the involved process of building an EMR for their inpatient environments. Some have created analogous outpatient records. They understand how rigorous the implementation will be and how important it is to find the right solution provider. They've also come to learn, from firsthand experience, both the opportunities and limitations of the technologies available. For the most part, however, hospitals realize that EMRs contribute to consistently high-quality and cost-effective care. That's the good news.

The bad news is that the EMR solutions built by most hospitals aren't flexible enough to accommodate proper coding of acute care delivered in a patient's home. Such care does not fit neatly in either the inpatient or outpatient categories, mainly because the patient possesses characteristics of both. For example, take a male patient, 65 years of age, diagnosed with chronic obstructive pulmonary disease (COPD) and presenting with his third exacerbation of the year, likely due to a viral or bacterial infection. He's admitted to the HaH program and sent to his home, where he begins receiving care.

His treatment from that point forward will be standard — oxygen therapy combined with a number of medications, including beta2-agonists, bronchodilators, antibiotics, expectorants, and oral steroids. His treatment environment, however, will be outfitted differently than a typical hospital room. For example, the electronic processes for medication ordering and pharmacy verification and dispensing are more challenging in a hospital-at-home model because the nurse, physician, and pharmacy will be in different locations. Even durable medical equipment must come from an external provider. As a result, the approach to treatment may require different, even unusual, workflows. It is this idiosyncratic nature of the care environment that makes a straight inpatient EMR setup problematic for HaH programs.

If your hospital has already been involved with inpatient and outpatient EMR implementations, then you're already familiar with some of these challenges. When planning for a HaH implementation, you'll confront similar issues. Your biggest decision will be whether to build a system based on either an inpatient or outpatient platform, because most EMR systems won't accommodate a new hybrid approach. Similarly, you'll need to consider any system from the standpoint of remote access — can your care team reliably access the system and use it comfortably in environments that will change from one visit to the next.

Before deciding, here are some important considerations:

**Organizational philosophy:** Your hospital must define its fundamental approach to designing a mobile acute care program. Does it want a closed system in which it owns everything — physicians, nurses, therapists, pharmacy, medical equipment? Or does it want a more permeable system in which a constellation of service providers, working in partnership with the hospital, coordinate and deliver care? This decision will dramatically

affect your EMR implementation. An open system, for example, will present certain challenges when it comes to sharing information across a number of disparate electronic data interchanges (EDIs).

**Experience with a Visiting Doctors/Nurses program:** If your hospital has implemented a Visiting Doctors or Visiting Nurses program, then you already have some experience with delivering home-based care. For example, at Mount Sinai, where HaH was developed, the hospital has had a Visiting Doctors program since 1995, with clinicians making more than 6,000 home visits annually to more than 1,500 patients. The providers in that program already used the EMR on iPads in the patient's home.

**Experience implementing an EMR system:** If your hospital has implemented an inpatient or ambulatory EMR system, then you have a leg up on hospitals that haven't. You'll have staff with knowledge about EMRs, leaders who embrace the value of technology and who have consistently demonstrated a positive point of view toward the solution and implementation process. When Mount Sinai evaluated the feasibility of HaH, the hospital benefitted from having in-house experts, on both the inpatient and outpatient sides, with extensive experience designing and building an EMR system.

**Legacy EMR vendor:** If you have an existing EMR platform and a technology partnership, you'll probably move in a similar direction. This will likely give you an integration advantage and will offer you some institutional experience with the platform in question. For example, while developing HaH, Mount Sinai found an Epic-based EMR attractive because the hospital had extensive experience with the Wisconsin-based technology provider. It had in-house staff who had implemented both Epic inpatient and outpatient systems, making it possible to leverage their knowledge to build an optimized Epic system specifically for mobile acute care.

**Alignment with hospital systems:** Since most patients enrolled in a HaH program will come from the ED, it makes sense to model the HaH EMR after the same system used in the ED. This allows for a straight, one-to-one transfer of data along matching code designations. The same holds true for patients that return to the hospital because of an escalation. Alignment between the EMR used by HaH providers and the system used by inpatient providers offers a number of advantages.

## In-house or External Developers

Deciding between internal and external developers is the next big question related to EMR implementation. At the heart of this question is hands-on technical expertise. Ideally, your hospital or practice will have IT resources with direct EMR experience who can be dedicated to your HaH system implementation. Given the multiple demands on IT teams today, however, it's more likely that you will need to rely on external partners to get a HAH-specific EMR built.

Often, EMR vendors can provide support with software installation, networking, and interfacing, especially during the implementation phase. Larger organizations may consider hiring dedicated technical assistance staff or contracting with a technical support service to meet their needs. This was the approach taken at Mount Sinai. Part of the implementation budget was set aside to cover

the costs of an external Epic consultant, who was able to work full-time to customize the code to meet the needs of the HaH program.

Either way, internal or external, you will need an in-house clinical resource to serve as the HaH EMR lead. The highest priority of the EMR lead is to map the patient journey as it unfolds in your specific hospital/community environment. A patient journey map is a visual representation of the relevant procedures and administrative processes that occur for any patient receiving mobile acute care. It is critical for the map to represent actual workflows and experiences, rather than an ideal state. This helps everyone see all key views and roles and build out the EMR so it accommodates those views, roles, and processes.

Beyond the HAH EMR lead, your hospital should include the following stakeholders on the development team to ensure success:

- **Project coordinator** — responsible for organizing team meetings, establishing ground rules, documenting team decisions, ensuring on-time completion of tasks, maintaining the overall schedule, and securing resources for the team.
- **Information technology lead** — responsible for deployment and operation of the software and hardware (e.g., workstations, wireless tablets, printers and scanners) required to successfully run the EMR.
- **Representatives from other areas** — such as pharmacy and dietary, whose departments are part of EMR workflow.

## Timelines

No two EMR implementations for HaH will have the same timeline. Much depends on the size of your hospital or practice, the number of external partners you'll engage to deliver services, the availability of IT resources, and your organization's experience with previous EMR implementations. It is critical to have a timeline and adopt project management best practices to ensure timely delivery of the EMR system. You should establish an official start date, completion date, and key milestones that must be met along the way. If an implementation lacks the appropriate project management or resources, then the project can easily lag in certain areas and end up taking longer than necessary, and ultimately, jeopardize the implementation.

What follows is a rough timeline for a typical HAH implementation:

Phase	Key Activities	Time
Preparation	<ul style="list-style-type: none"> <li>• Establish appropriate EMR implementation budget</li> <li>• Engage all key stakeholders and build the implementation team</li> <li>• Map the patient journey for mobile acute care, identifying key processes and interactions</li> </ul>	30 days

<b>Selection</b>	<ul style="list-style-type: none"> <li>• Evaluate EMR platforms, including those already in use</li> <li>• Select an EMR platform based on patient mapping and interoperability needs</li> <li>• Decide on an inpatient vs. outpatient build</li> <li>• Identify a hands-on technical lead to customize EMR templates</li> </ul>	25 days
<b>Implementation</b>	<ul style="list-style-type: none"> <li>• Build out the EMR system, with appropriate codes and templates</li> <li>• Interact with external agencies and providers to ensure efficient exchange of data</li> <li>• Test the new system with actual patient data</li> <li>• Set up and administer end-user training; be sure to include team-based and role-based training and to welcome internal and external team members</li> <li>• Establish a go-live date and then launch the system</li> </ul>	30-45 days
<b>Post-Implementation</b>	<ul style="list-style-type: none"> <li>• Monitor the system during initial patient onboarding and fine-tune workflows, as necessary</li> <li>• Determine a process for auditing electronic documentation</li> <li>• Coordinate refresher training for users, as needed</li> <li>• Solicit user suggestions for making further improvements</li> </ul>	30 days and beyond



#### Lesson Learned

The ideal medical electronic record (EMR) for a hospital at home program should mimic the capabilities of EMRs in the inpatient setting. EMR components, such as active orders lists, medication administration records, and an interface for sign out are not usual in the outpatient world but are critically important for the documentation of acute care delivered in the home setting.

## CHAPTER 5

### Contracts and Legal Documents

Delivering care in traditional hospital environments is complex enough when you consider that most hospitals purchase their medical equipment, medical devices, and hospital supplies under one or more purchasing contracts. These are complicated arrangements that must involve the legal teams of both the supplier and the hospital. The size of scope of each entity can also extend the time it takes to negotiate a final agreement.

For hospital-at-home programs such as HaH, where care is provided to patients in different locations and care providers are far from their home facility for much of the day, reliance on external vendors and suppliers is magnified, which makes the contract management process even more challenging. Here are some general suggestions for HaH program administrators to keep in mind as they establish their vendor processes and systems:

**Create a patient care map to identify all possible vendor/supplier needs.** Remember, it's likely that the needs from a supplier for proper HaH implementation will be more extensive than those of a traditional inpatient hospital environment. At Mount Sinai, the HaH program required the following suppliers/providers to implement and sustain the program:

- Infusion Pharmacies and Nursing Agencies
- Home Attendant Providers
- Labs (for both drawing samples and analyzing)
- Pharmacy
- Ground Transport (car service and ambulance)for patients
- Durable Medical Equipment (including oxygen)
- Medical Supplies
- Home X-ray Services
- Rehabilitation Services (PT, OT, and ST)
- Call Center/Answering Service
- Courier Service
- Consulting Services
- Data Analysts
- IT Consultants (for EMR deployment)
- Hospital at Home Model Experts
- Communications Experts (for promotional activities, branding, website, etc.)

**Understand your hospital's requirements.** Every hospital is unique when it comes to managing vendor contracts. For example, a hospital might decide that purchasing contracts with a value of \$5,000 or less will receive one kind of review, while purchasing contracts with a greater value will receive a different level of review. You need to understand these policies so you can plan accordingly. Be sure to consider all contracts that might require special review. These could include employment agreements, contracts for the purchase or provision of important software and information technology systems, contracts with physicians, and other contracts with heightened regulatory risk or significant monetary exposure.

**Write comprehensive agreements that protect all parties involved.** Your hospital will likely have templates and standard contracts to use in a variety of situations. If not, make sure your agreements cover all of the fundamentals. Most agreements include these sections:

- Parties and Entities
- Effective Date
- Background Statement/Preamble
- Description of Goods and Services/Obligations of the Parties
- Term and Termination
- Payment Terms
- Representations and Warranties Generally
- Indemnification
- Non-Competition/Non-Solicitation
- Insurance
- Confidentiality of Patient Identifiable Information Generally
- HIPAA
- Proprietary Information
- Intellectual Property Issues
- Performance Standards
- Medicare Provisions Generally
- Certificate of Need Issues
- Fraud and Abuse Issues
- Stark Act
- Tax Exemption Issues
- Remedies

- Assignment
- Relationship of Parties
- Amendment
- Notices

One special note about performance standards: Make sure your agreements specify turnaround time for processing and delivery. Some suppliers are not used to same-day service, yet alone a delivery window of one to two hours. Given the demands of a hospital-at-home model, these performance requirements must be expressly stated.

**Start early.** It may take some time to negotiate the details of a contract and acquire signatures. Then the contract has to be approved by your hospital's legal department. It can take weeks, even months, to get this approval, so plan accordingly. Allow for at least six months before your anticipated launch date to get all of your vendor service agreements settled.

**Plan ahead to avoid amendments.** Consider both the dates and the amounts of contracts carefully and build in room for flexibility. For example, if you expect a cost to be in the ballpark of \$25,000, it's much less time-consuming to get \$50,000 approved upfront and avoid the risk of requiring an amendment for additional funds and a second legal review.

**Be specific when expressing terms.** Often, hospital service agreements are very clear about the obligations of the institution to pay invoices (net 30, 45, or 60 days, for example), but they neglect to specify an invoicing cadence that makes sense for their business requirements. At Mount Sinai, the HaH team learned that some vendors became delinquent in submitting invoices, making it difficult to manage expenses and financial reporting. As a result, the team established agreements to include specific language about invoicing schedules — ideally, invoice on 15th of the month following the contracted service (e.g., for services in May, invoice by June 15, no later than June 30).

**Prepare for some flexibility.** As you roll out a HaH implementation and experience the performance of your vendors and suppliers, be prepared to make some adjustments. For example, the HaH program at Mount Sinai launched with an external vendor to supply IV meds to patients. Unfortunately, the vendor's turnaround times could not accommodate the needs of the program. Eventually, the team arranged to work with the Mount Sinai inpatient pharmacy as an alternative, and now all of the IV meds are supplied by the hospital. The medications come unmixed, and the nurses mix them on site using guides prepared by the team. This change led to two other modifications — a lockbox and refrigerator had to be installed in the HAH program space, and a courier service was engaged to deliver medications to patient homes.

## Patient Consent Forms

Another important legal document you will need to have in your HaH toolkit is the Patient Consent Form. There are a number of challenges to implementing an effective informed consent process, all of which are compounded by the novelty of at-home care delivery. One major issue is that patients frequently do not understand the risks, benefits, and alternatives associated with a particular course of treatment or surgical procedure, even after signing a consent form. Clear and direct communication is absolutely crucial to avoiding confusion and adverse events.

As you develop the consent form for your HaH implementation, be aware of your local demographics and account for all necessary translations. At Mount Sinai, considering the catchment area of the HAH program, the team decided to make consents available in English and Spanish. Other Mount Sinai programs, serving different communities, also translate materials to simple Chinese.

According to The Joint Commission, an independent, not-for-profit organization that accredits and certifies nearly 21,000 health care organizations and programs in the United States, these are some steps you can take to improve your informed consent process:

- Make use of other tools — decision aids, interactive media, graphical tools and other aids — in addition to the consent form to enhance communication with patients and caregivers.
- Avoid medical jargon and communicate in clear, everyday language.
- Consider cultural norms when and adapt your communication materials and methods accordingly.
- If possible, use medical interpreter services for patients with limited health literacy and/or limited English proficiency.
- Use open-ended questions and encourage patients to ask questions.



#### LESSON LEARNED

Vendors will be excited to participate in an innovative model of care and as such will make every effort to accommodate the unique needs of a hospital at home program. However, it has been our experience that it will require creativity to establish the mechanism to obtain all services required. As an example, none of the mobile labs can process specimens in the quick turn-around time required for an acute illness episode. Our program was able to work internally with the in-patient lab to process our specimens in the required time. However, this necessitated either the outside vendor to collect and deliver the specimen or have this done by our own nurses.

## CHAPTER 6

### Development of Protocols

Care protocols are key to guiding clinicians and other team members in delivering acute care at home. Clear and well-developed protocols not only help ensure appropriate levels of care; they also encourage standardization and consistency among different providers. HaH protocols include policies and procedures, guidelines around different diagnoses, and typical workflows. Mount Sinai's HaH team has found the following protocols particularly valuable:

- ***A set of clinical exclusion criteria***  
Exclusion criteria lay out which patients won't do well at home because they are too high risk or need a more closely monitored setting. At HaH, the team continues to refine these guidelines annually based on the data, so that the program can maintain high levels of safety and while allowing as many patients as possible to receive HaH care.
- ***Clinical guidelines by diagnosis***  
Home based care patients typically have multiple conditions, and treatment must always be tailored to each individual. Nonetheless, diagnosis specific protocols serve as an important baseline for how to treat specific conditions. In addition, they create a strong foundation for measurement of outcomes and establishment of best practices. One important factor to consider as these protocols are developed is the experience of other hospital at home models and how they have adapted over time. Another is to engage the entire clinical team so that each member's perspective is incorporated.
- ***Office procedures and checklists***  
These administrative procedures include what are the tasks required to admit a patient, what is required in follow up days, and what is required in the event of an adverse event, among others. These should be created as checklists, if possible, or at least they should be as simple and algorithmic as possible, so they can be used easily by all staff and clinicians.

In our program, administrative assistants help drive these checklists. Clinicians call in to activate the process, and the administrative assistants work with the clinician through the procedural list. While it may feel natural for doctors or nurse practitioners to complete every task, maintaining role delineation helps to systematize office and clinical processes. Ultimately, this systematic approach allows a HaH program to focus not just on the care needs of patients in real time, but to develop the data needed to do quality improvement, making HaH care more efficient and effective in the medium and long term.

#### Adapting Protocols Over Time

Care protocols will change over time as the team's experience with HaH develops and staffing and vendor strategies evolve. With a small program and a stable group of clinicians, these changes can be communicated in person and documented in a secure place. As a program grows and clinicians and staff change, a more formal process for teaching the protocols to new people and then

keeping clinicians up to date will be required. In HaH, for example, Visiting Doctors may rotate through the program a few weeks during the year, with a few months between each weekly service. This makes it challenging to keep these clinicians current as protocols and processes change.

HaH has continued to experiment with different approaches, and as the program has matured, the pace of procedural change has slowed. Today, a central secured file storage application serves as a repository for all the written guidelines and provides a single place to find relevant protocols. That said, the team continues to work on keeping clinicians and staff up to date on changes as they occur. Therefore, the HaH project team leader sends out a regular email to all participating clinicians that reflect updates that come out of project meetings.



#### Lesson Learned

As with any clinical program, formal protocols need to be in place at the start. However, clinical leadership needs to recognize these will change over time as adaptations are made based on local circumstances. It is important to track these changes and update protocols on an ongoing basis making sure to date these as a means to track the evolution of your program as well as to assist with needed orientation as learners and part-time staff rotate through program.

## Section 3

# PERFORMANCE



## CHAPTER 7

### Screening

Finding the right patients for Hospital at Home programs requires balance, persistence, determination, and discretion. There are multiple factors that play into whether a patient is appropriate, and a robust screening process must take all of them into account. As with all other aspects of HaH, it is critical to maintain idealism while focusing on realities, constraints, and enablers. This is one of the most important parts of HaH and every program needs to dedicate significant resources to this.

#### Recruiting HaH Patients

Patient referrals in HaH will likely come from one of these sources:

- **Emergency Department (ED):** A hospital's ED will likely provide the largest number of potential patients for HaH admissions. As such, the HaH program must have a good working relationship with the department. HaH representatives will want to meet regularly with ED physicians, nurse practitioners (NPs), and physician extenders, such as physician assistants (PAs) and trainees, not only to raise awareness of mobile acute care and its benefits, but also to understand the workflows and culture of the department. One strategy the Mount Sinai team found very helpful was to hire existing ED staff on their off days to recruit patients for HaH. These "ED Champions" offer a number of advantages. They are known and respected by the physicians and other clinical staff in the ED, and they can proactively survey the patient population and identify potential candidates for the program. And when they're performing their usual ED work and not working for HaH, they are still more likely to suggest admissions.
- **Emergency Department (ED) After Hours:** Patients who arrive at the ED after HaH's regular 9AM to 5PM hours are placed in observation at the hospital overnight, receiving services as needed. They are then transitioned to home care in the morning if they are deemed eligible. This is sometimes called MACT@Nite, a reference to our previous name.
- **Ambulatory Settings:** Referrals from ambulatory settings can be another important source of patients for HaH, but the disposition of those patients can be markedly different depending on where they are at the time of the referral. Some ambulatory patients who are in their home have not recently been evaluated by their primary care physician, while others have been. And still others are in the outpatient clinic, located either on the hospital campus or at other access places in the community at the time of referral. The assessment process in each of those situations will be slightly different.
- **Offices of Primary Care Physicians/Specialists.** Primary care physicians are a critical source of care for older Americans. However, there is a trend for older adults to seek care from non-primary care specialists at a higher rate than in the recent past. The expanded use of subspecialists by the Medicare population is particularly striking among older

adults with multiple chronic illnesses. That makes both of these groups ideal referral sources for a HaH program, and your team members should cultivate relationships with these providers to better educate them on the benefits and parameters of HaH's home-based care.

- **Urgent Care Centers:** Urgent care centers are set up to assist patients with an illness or injury that does not appear to be life-threatening, but also can't wait until the next day or for a primary care doctor to see them. Clearly, such centers will see a number of patients with the conditions that qualify for a HaH admission, assuming a hospital operates urgent care centers or has relationships with urgent care chains. For example, Mount Sinai maintains three urgent care centers across New York City, making them valuable sources of referrals for Mount Sinai's Manhattan-based HaH program.

When communicating with these various stakeholders about HaH, it helps to have professionally produced marketing materials to explain the program and services. At the very least, you should have a simple trifold brochure, with appropriate translations, available to leave behind. More detailed brochures can provide information about the evidence base for HaH and other hospital-at-home services. And, finally, a PowerPoint presentation providing an overview of the program can be a useful tool when discussing referral strategies at team or community meetings attended by larger groups of people.

### Reluctance and Refusal

Despite research validating the effectiveness of HaH programs, there are several issues that may hamper patient recruitment efforts. Implementation team leaders should understand these challenges, and as needed, develop strategies to mitigate them. Here are three forces that may reduce your pool of potential HaH patients:

- **ED Provider Reluctance:** Even when they are educated about the benefits of HaH, ED physicians and providers, such as NPs and PAs, can be disinclined to admit patients to the program. Some of this is inherent to the frenetic nature of emergency rooms. A clinician's highest priority is rapid disposition of his or her patients, so anything perceived as a "speed bump" can fall out of favor quickly. In EDs that are increasingly overloaded, referral to HaH can actually slow things down and decrease ED throughput.

Another issue is that some ED providers lack experience with home-based medical care and erroneously think appropriate patients are too sick for HaH even though they meet all of the criteria for admission. As a result, they don't make referrals to the program.

- **Caregiver Reluctance:** Some caregivers welcome a full hospital admission because it gives them respite from the day-to-day rigors of coping with a seriously ill patient with multiple chronic conditions. For these caregivers, it's difficult to sell the idea of improved quality outcomes unless they can see that those outcomes will make their lives easier over the long term.

- **Patient Refusal:** Some patients, including some who are ideal candidates for home-based hospital care, will refuse admission to HaH. They may be uncomfortable about “strangers” being in their homes. They may learn about HaH after a full inpatient admission has been discussed, creating a hospital-leaning motion that’s difficult to overcome. Or they may believe, right or wrong, that they will fare better in a hospital environment. Regardless, it’s important for a HaH implementer to adjust its approach, messages, and timing to minimize these kinds of refusals.

Due to these reasons, and others, hospitals may be awash in patients in need of acute care, yet they may find it difficult to maintain a reasonable pipeline of candidates for HaH’s home-based care. The leadership team will need to take a hard look at realistic numbers and then develop strategies to recruit eligible patients to the program. For example, Mount Sinai initially calculated that it could bring 5 to 10 percent of its hospital’s annual admissions for eight core diagnoses (community acquired pneumonia, CHF, chronic obstructive lung disease/asthma, venous thromboembolism, urinary tract infection, diabetes, cellulitis, and dehydration) into HaH. The first phase of the implementation struggled to meet these numbers, requiring Mount Sinai to widen the intake funnel and experiment with creative recruitment approaches.



#### Lesson Learned

When Mount Sinai’s HaH team recognized that recruitment of patients was falling short of goals, they came up with an innovative solution — embedding a physician’s assistant (PA) trained to understand and promote the program in the Emergency Department. Basically, the PA served as a scout to identify strong candidates for HaH and help them understand the advantages of the program.

## CHAPTER 8

### Referrals and Intake

#### Evaluation

Having a pool of patients to consider for HaH is just the first step. Next comes the process of determining their eligibility. At least one HaH clinical team member must evaluate a patient before he or she can be admitted. In general, patients eligible for care in a HaH program are sick enough to require hospitalization but meet previously validated medical eligibility criteria to ensure that the program is safe and appropriate for them. As noted above, these inclusion criteria include a specific set of eight acute medical conditions that can be treated successfully via home-based care. These criteria do not exclude patients with multiple chronic conditions.

#### Observation at Home (ObsaH)

The Observation at Home (ObsaH) model is for patients who need further medical observation before discharge or admission to Hospital at Home (HaH). Patients are observed for a day in their home, receiving needed services and appropriate monitoring, and are then evaluated. Similar to observation units in hospitals, a decision must be made within 24 hours. Based on this assessment, the patient may then be formally admitted into HaH or be discharged.

There are numerous reasons people are typically admitted after ObsaH, including patients who still have lab work or imaging pending, and those with abnormalities identified by lab results that can be quickly reversed. There also is a list of medical conditions or exclusions that would preclude being admitted to HaH. For example, a reliable echocardiogram cannot be done at home, so patients who need that would typically be admitted to the hospital.

The way patients are accepted into ObsaH is similar to how they are accepted into a hospital observation unit. Factors considered include: the severity of the patient's medical condition; how far the lab workup has progressed; whether the patient is eligible for HaH and; if so, what level of HaH they need—ObsaH or HaH. If further lab work is called for, the physician or nurse practitioner (NP) needs to determine whether it can be done in the home and whether it can be completed in 24 hours.

Once patients are admitted to ObsaH, standard HaH procedure still applies. A registered nurse (RN) visits at night and a physician or NP visits the next day and makes the call whether to admit to HaH or discharge.

Patients who are discharged receive discharge instructions, any prescriptions or refills, and a 30-day follow-up.

Also, patients must live in a stable residence that meets their needs for safety, shelter, and basic utilities. And they must reside within a specified distance of the hospital offering the HaH program, which will vary depending on the region. Reasonable boundaries might be defined by a perimeter that is roughly a 30- to 60-minute commute from the hospital.

### Be Wary of Bed Bugs

In many areas, bed bugs may be a serious concern, so it is important to take necessary precautions. Ask if there have been any infestations in the last two to three months and, even if the answer is no, perform an inspection of the patient's bedding and furniture. Consider carrying a bed bug containment kit that contains a portable stool, sealable plastic bags, protective booties, coveralls, and extra shoes and clothes. Your state department of health website will have more information about controlling bedbugs and mitigating the risks of transporting them. The HaH social worker will be able to help the patient/family with fumigation services.

If the patient lives in senior housing (e.g., HUD section 202) with a social services coordinator, consider contacting that person for additional insights and information. These individuals generally know much about the patient's safety and how much support he or she receives from friends and family members. They also know about building-wide bed bug infestations.

### Inclusion and Exclusion Criteria

Specific inclusion and exclusion criteria are described below for Hospital at Home (not the Hospital at Home variants):

Administrative Inclusion/Exclusion Criteria	
Patient meets ALL of the following INCLUSION criteria:	Patient must meet ALL of the four inclusion criteria to be considered for treatment in HaH
1. Patient lives in the community	Patient must live in the community and not in a nursing home or shelter. If they live in a single room occupancy facility (SRO) they must have under 3 persons share a bathroom and the location of the bathroom must be

	accessible to the patient given their current functional status.
2. Patient lives in HaH catchment area	Patient must live within the predefined HaH geographic catchment area (determined by each HaH adopter) or be willing to stay with a friend or relative in the catchment area.
3. Meets age requirement	Patient must meet the age requirement for the HaH program. This will vary depending on the models adapted.
4. Meets insurance eligibility	Patient must meet the insurance eligibility of the program.
And does not meet ANY of the following exclusion criteria:	To remain eligible for HaH treatment, the patient must <b>not</b> meet ANY of the exclusion criteria. The presence of any single administrative exclusion criteria means the patient should be treated in the traditional acute hospital setting.
5. Homeless person	Exclude if the patient does not have his or her own home or apartment with fixed address and cannot go to a fixed address for the 30 days of the program.
6. Unsafe or inappropriate house	Exclude patient if the home lacks heating system, electricity, or telephone, or is structurally unsound or unsafe (see safety questionnaire) unless they can move to a place with those resources.
7. Active drug abuse	Because the HAH program cannot send a patient with known active drug abuse home with an IV, all active drug use patients are excluded.

8. Methadone program	Except patients on a weekly dose that has already been dispensed and is readily available at home, the expected stay in the acute portion of the program needs to be evaluated according to the methadone schedule.
9. Patient requiring around-the-clock (ATC) home health aide who does not already have one in place or cannot hire one immediately	Patients needing ATC care need to have that already established or hire immediately. The HaH program is unable to provide ATC custodial care.

### General inclusion/Exclusion Criteria for Hospitalization at Home (HaH)

10. Patient requires acute hospital admission for a HaH acceptable condition	Patient is judged by a physician or NP to require acute hospital admission for a HaH acceptable illness. That is, if there were no HaH program, the patient would be admitted to the hospital and not sent home from the ED, clinic, or physician office with outpatient treatment or outpatient treatment supplemented by usual home care services.
And does not meet ANY of the following exclusion criteria:	To remain eligible for HaH treatment, the patient must <u>not</u> meet ANY of the clinical exclusion criteria. The presence of any single exclusion criteria means the patient should be treated in the traditional acute hospital setting.
EXCLUSIONS FOR ANY OF THE TARGET DIAGNOSES:	
11. Patient requires critical care unit admission	Exclude patient if critical care unit admission is required.
12. Hypoxemia with oxygen saturation < 90% or PO <sub>2</sub> < 60 mm Hg uncorrected with < 6 liters per minute oxygen supplementation by nasal cannula	Exclude patient if the O <sub>2</sub> saturation is less than 90% or PO <sub>2</sub> < 60 on arterial blood gas after initial treatment and cannot be corrected with oxygen delivered by nasal cannula at a rate of ≤ 6 liters/minute.

	Exclude patient if requires noninvasive positive pressure ventilation for respiratory distress.
13. Bronchodilator (nebulizer) treatments required every 2 hours or more frequently	Exclude patient if patient requires nebulizer treatments at an interval of every 2 hours or more frequently.
14. Arterial blood gas measurements required	Exclude patient if patient requires ongoing arterial blood gas measurements.
15. Acute illness requiring hospital admission independent of target diagnosis, except for Congestive Heart Failure (CHF), Chronic Obstructive Pulmonary Disease (COPD), Hypertension (HTN), hyperglycemia, asthma, deep venous thrombosis (DVT) and or community acquired pneumonia (CAP)	<p>Exclude patient if there is a concomitant acute illness that cannot be managed in the home (seizure/cerebrovascular accident-focal deficit).</p> <p>For example, a patient with CHF who also has gastrointestinal (GI) bleeding would be excluded because the patient would have been admitted for the GI bleed even if he or she didn't have CHF. However, a patient with CHF who also has one of the other conditions that can be treated in HaH, such as COPD or CAP, is not to be excluded.</p>
16. Associated with ischemic chest pain or other symptoms strongly suggestive of ischemia or myocardial infarction (MI)	Exclude patient if he or she is experiencing angina or ischemic-type chest pain with EKG evidence of ischemia or chest pain suggestive of ischemia of significant duration without ischemic EKG changes. If patient has negative troponins in emergency room and the chest pain is then not thought to be ischemic, the patient may be treated in HaH.
17. Hyperglycemia with ketoacidosis: serum ketones+, serum bicarbonate < 20 meq / L or pH < 7.30)	Exclude patient if he or she requires treatment for diabetic ketoacidosis (DKA).
18. Septic shock	Hypotension not restored (SBP > 90) by < 2-3 liters oral or intravenous replacement.

19. Hypotension: systolic blood pressure < 90 mm Hg (unless baseline)	Exclude patient if the systolic blood pressure is < 90 mm HG after treatment in the ED or clinic site and this blood pressure is not the patient's baseline blood pressure.
20. Dialysis-dependent patients	Exclude if patient goes out to a dialysis center and receives hemodialysis (i.e., home hemodialysis and peritoneal dialysis will be considered).
21. Expected terminal event, except for someone receiving palliative care as part of the HaH program (see below)	Exclude patient if it is planned or highly anticipated that he or she will die during his or her hospital stay unless the patient is receiving palliative care as part of the HaH program (see criteria below).
22. Associated with marked altered mental status	Exclude patient if he or she exhibits a marked altered mental status, unless a member of the HaH team suspects the cause is a treatable condition in the home.
23. Severe immunosuppression (AIDS, neutropenia, organ transplant with immunosuppressive therapy, chemotherapy or cytotoxic drug use, multiple myeloma, lymphoma)	Severe immunosuppression NOT automatically excluded. All of these cases need to be discussed with the corresponding inpatient or outpatient transplant or oncology team.
24. Patients needing acute or subacute rehab post-discharge from Hospital at Home	Due to insurance regulations where HaH is considered an outpatient program and patients are unable to go from outpatient to acute or subacute rehab in many insurance programs, patients needing them are excluded. (As insurance barriers change, this exclusion can be removed.)
25. Patient's only access is a central line	Patient must be treated with a peripheral, midline or port.
26. Discretionary judgment on the part of the medical provider	An otherwise eligible patient may be excluded for reasons not otherwise specified if the HaH provider believes that patient would be at significant risk.

<b>Diagnosis #1. Congestive Heart Failure (CHF) EXCLUSIONS in HaH:/Observation at Home (ObsaH)</b>	
27. Associated with hemodynamic instability	Exclude patients with hemodynamic instability, including severe arrhythmias, symptomatic bradycardia/tachycardia, HR < 40, and HR > 120.
28. Associated with known or suspected severe valvular disease of aortic or mitral valve	Exclude patient if CHF associated with aortic stenosis with valve area known to be in critical range or associated with gradient > 40 mm or severe mitral stenosis.  Echocardiogram need not be obtained solely to screen for severe valvular disease to exclude patient from HaH care if clinical suspicion is low.
29. Suspected pulmonary embolism and a CHF exacerbation at the same time	Exclude patient if he or she is suspected of having a pulmonary embolism and the diagnosis of pulmonary embolism cannot be excluded before admission.
<b>Diagnosis #2. Cellulitis EXCLUSIONS in HaH/ObsaH:</b>	
30. Associated with significant peripheral vascular disease, fasciitis, or osteomyelitis	Exclude patient if there is suspicion for conditions that may require significant inpatient diagnostic workup or surgical intervention, including necrotizing soft tissue infections, osteomyelitis, compartment syndrome, abscess, or extensive tissue damage possibly requiring grafting.
31. Orbital cellulitis	Exclude patient if cellulitis is in the orbital area.
<b>Diagnosis #3. Hyperglycemia (DM) EXCLUSIONS in HaH /ObsaH:</b>	
All exclusions under general	
<b>Diagnosis #4. Deep Vein Thrombosis (DVT) EXCLUSIONS/ Pulmonary Embolism (PE) EXCLUSIONS in HaH/Obs:</b>	
32. BMI > 40 kg/m <sup>2</sup> or weight > 120 kg	
33. Platelet count < 100 K	Or significant drop from baseline.

34. Uncontrolled HTN $\geq$ 200/120	Systolic $\geq$ 200 OR diastolic $\geq$ 120.
35. Elevated risk of bleeding: active peptic ulcer disease, recurrent and recent epistaxis, hemophilia or other bleeding disorder, varices	Patients are excluded that have an elevated risk of bleeding such as active peptic ulcer disease, hemophilia, or varices.
36. Active bleed: hematemesis, hematochezia, melena, gross hematuria	Patients are excluded if they have active bleed: hematemesis, hematochezia, melena, gross hematuria.
37. Surgery or spinal anesthesia within 7 days	Within 7 days prior to presentation to ED.
38. Limb-threatening thrombosis	
39. IVC filter placement planned	
40. Acute or decompensated hepatic failure	
41. Patient already on and compliant with anticoagulation	
42. End stage renal disease	
43. Thrombolysis /embolectomy needed	
44. CVA within one month or intracranial aneurysm	
45. Decompensated right heart failure	By echocardiogram or by exam: edema significantly above baseline, anasarca, and hepatomegaly. If patient is clinically stable and there is low suspicion for decompensated right heart failure, echocardiogram need not be obtained. Known history of Cor pulmonale or pulmonary hypertension should raise suspicion for

	possible decompensated right heart failure but are not themselves exclusion criteria.
<b>Diagnosis # 5. Urinary Tract Infection (UTI) EXCLUSIONS in HaH/Obs:</b>	
46. Obstruction not relieved by indwelling urinary catheter	Evidence of new hydronephrosis, ureteral obstruction on imaging requiring urgent intervention, concern for post-renal AKI that is not improving (note: do not need to wait for AKI to improve if obstruction seems to have been relieved).
47. Alternate source of infection	Exclude if the source of infection is unclear or if there are multiple sources of infection/sepsis.
<b>Diagnosis # 6. Asthma/COPD EXCLUSIONS in HaH/ObsaH</b>	
48. Intubation for respiratory failure in last 10 years	Patients excluded who have had intubation for respiratory failure in the last 10 years, unless clinically judged that patient can be managed at home.
49. Evidence of concomitant illness that requires a diagnostic work up or treatment that cannot be done at home	For example, cavitating lesion, cancer, tuberculosis.
<b>Diagnosis # 7. PNEUMONIA EXCLUSIONS in HaH/ObsaH</b>	
50. Concern for post-obstructive pneumonia	Exclude patients if there is a concern for post-obstructive pneumonia.
51. Evidence of concomitant illness that requires a diagnostic workup or treatment that cannot be done at home	For example, cavitating lesion, cancer, or tuberculosis.

**Observation at Home Inclusion Criteria**

Admitting for any condition that can be admitted to HaH but the expected LOS is 1 day — all inclusion and exclusion criteria for HaH general and specific Dx-related apply.

<b>Palliative Care Unit at Home Inclusion Criteria</b>	
Patients who meets hospice criteria but who has not elected hospice	See addendum for hospice criteria.
Meets inpatient criteria for any diagnosis that the <b>HaH</b> team feels they can safely treat at home	
Meets all administrative inclusion criteria and all general inclusion criteria	except: 14, 15, 17, 18, 19, 20, 21, 22
Patient/family agree to palliative Goals of Care and they wish to do a trial of a hospital treatment that the <b>HaH</b> team can provide at home	

<b>Hospital Averse at Home Inclusion Criteria</b>	
Meets all administrative inclusion criteria and all general inclusion criteria	except: 14, 15
Patient who declines ED or hospitalization	
<b>HaH</b> team feels that the patient would benefit from ED or actual hospitalization	
There is a second-choice treatment that can be provided in the home; clinical exclusion criteria above do not apply	
Patient agrees to treatment plan	
Additional tests/treatments/consultants are arranged as an outpatient	

<b>Rehab at Home (RaH) Inclusion Criteria</b>	
Patient meets ALL of the following INCLUSION criteria:	Patient must meet ALL of the four inclusion criteria to be considered for treatment in <b>RaH</b>

1. Patient discharged from inpatient hospital or ED	Patient must have been admitted and treated inpatient or evaluated in the ED prior to admission to RaH and be ready for discharge to RaH.
2. Patient requires sub-acute rehab services	Patient must have acquired a recent physical debility from an acute illness requiring intensive rehab (physical, occupational, and speech therapy) that would otherwise not improve with regular Medicare-funded home therapy services. A physical therapist must evaluate the patient in the hospital and judge that this level of rehab is indicated.
3. Patients must be able to participate <i>and</i> have the potential to benefit from home rehab	Patients must be able to attempt participation of at least 1 hour a day for 6 out of 7 seven days a week of therapy for at least a week <i>and</i> patients must have rehab potential: RaH clinicians judge that the patient has the ability to benefit and improve from their debility with RaH services.
Patient must have adequate home support to be safe for the program	RaH SW team will help patient/family obtain short term services if they are interested in the program and do not already have enough support

<b>RaH Exclusion Criteria</b>	
And does not meet ANY of the following exclusion criteria:	To remain eligible for <b>RaH</b> treatment, the patient must <b>not</b> meet ANY of the exclusion criteria. The presence of any single exclusion criteria means the patient is not appropriate for RaH
1. Patient's acute illness requires inpatient treatment or monitoring	Clinician can refuse RaH if clinician judges patient too acutely ill for transfer to home setting.
2. Dialysis-dependent patients	Exclude if patient is receiving hemodialysis and either:

	<p>a. Patient is unable to go to dialysis center consistently (due to debility/illness and lack of transportation).</p> <p>—or—</p> <p>b. Outpatient dialysis center is unable to accommodate 21 days of RaH scheduling (HD center must schedule patient for sessions later in the day to accommodate earlier-in-the-day therapy visits).</p>
3. Expected terminal event	Exclude patient if it is planned or highly anticipated that patient will die during his or her RaH stay. (These patients likely cannot participate or benefit from intensive RaH services and may be better served by hospice services).

## Admission

If a HaH team member concludes that a patient qualifies for an admission, he or she must designate the proper admission category: Hospitalization at Home, Palliative Care Unit at Home or Hospital-averse at Home (e.g., due to patient refusal to go to ED or be hospitalized), or Observation at Home. A full description of these admission categories can be found in Chapter 2, The HaH Platform.

A full acute admission triggers a cascade of events involving a number of stakeholders. Here are the key activities that take place:

1. **Informed Consent.** The accepted patient and caregiver must be oriented to HaH. A team member delivers a folder with program literature and verbally provides a full explanation of the program, its objectives, capabilities, and limitations. He or she also confirms the patient's address and phone number. This counseling and the patient and/or a family member's acceptance constitute informed consent of the patient to participate in the HaH program and must be documented in the patient's medical record.
2. **Notification and Final Preadmission Activities.** The admitting provider alerts the HaH Administrative Assistant (AA) who runs the check list with the provider. The admitting provider is responsible for contacting the primary team and bed board to obtain/give pertinent information for the admission. At the same time, the admitting provider must determine if further testing is necessary prior to ED discharge and, if so, place the appropriate order in the EMR system. Finally, he or she must determine a time and method for patient transport to home and communicate this information to the program AA and the emergency department RN or PA. The admitting provider must also document that the patient has been approached and has been accepted into the program and any

pertinent details such as leaving the IV in place, how to reach the HaH office and time patient is expected to leave the location they were admitted from.

3. **ED Discharge and HaH Admission.** The admitting provider from the HaH team writes an admission note, indicating that the patient is being admitted to HaH and writes admission orders, including specific instructions for infusion and wound care if needed. He or she then notifies the ED RN or the ED PA of patient discharge, noting the status of the infusion. Depending on the system in place, the ED provider writes an ED discharge order, or potentially the HaH provider can do this order. Finally, the patient signs the ED discharge summary paperwork, which is given to the ED RN or the ED PA.
4. **Medical Orders and Ancillary Services.** The admitting provider inputs the medical orders, which includes acute care orders and consult, medications, and other treatments. Prescriptions for medications are electronically prescribed to the hospital pharmacy and picked up by the program staff. Prescriptions for durable medical equipment are then printed and given to the HaH program AA. In New York State, because of transporting regulations, any controlled medication must be prescribed to the patient's local pharmacy for the family to pick up or for the pharmacy to deliver to the home. Finally, the provider orders any necessary home labs and imaging for the following day and routes those orders to the AA.
5. **Transport and Transition.** When not already at his or her residence, a HaH or ObsaH patient is transported home from the hospital usually in an ambulance, but on some occasions, the patient is stable enough to travel with a car service, usually accompanied by a family member or caregiver. Usually a nurse meets the patient in his or her home within a few hours, providing appropriate medications, supplies and equipment and staying as long as medically necessary. On some occasions, when the patient is discharged later in the day and is stable and does not have any medications orders for same day, a same day visit is not needed.



#### Lesson Learned

As the program evolved, the admission process had to be modified multiple times to adapt to new circumstances and protocols. While the original exclusion criteria list was very strict, time showed that under the right circumstances it was possible to care for more acutely ill patients safely at home. With the exception of the hard exclusions discussed, determining the appropriateness for home admission became mostly a matter of clinical judgment. This allowed the program to expand beyond the initially targeted diagnoses and patient population.

## CHAPTER 9

### HaH Home Visits

After admission and transport home, the patient receives a series of visits from a HaH provider team, as well as from third-party vendors that partner with the HaH team. A general overview of the home visit schedule is shown below.

Sample Schedule of Home Visits					
Time	Monday Day of Admission	Tuesday Home Visits Day #1	Wednesday Home Visits Day #2	Thursday Home Visits Day #3	Friday Day of Discharge
7 am – 12 pm	Admission by MD and/or NP in the ED, transport home	RN Physician or Nurse Practitioner	RN Physician or Nurse Practitioner	RN Physician or Nurse Practitioner	RN Physician or Nurse Practitioner
12 pm – 7 pm	Registered Nurse (RN)	Physical Therapist	Social Worker	Physical Therapist	
Additional Visits as Needed					
		2nd RN visit if needed Laboratory Technician X-Ray/EKG Tech	2nd RN visit if needed	2nd RN visit if needed Laboratory Technician X-Ray/EKG Tech	

#### Equipment to Bring on Home Visits

What equipment providers bring to patient home visits is important, so it's recommended that a policy and procedure be developed. In general, the following equipment should be carried by physicians, nurse practitioners and registered nurses making house calls as part of a HaH implementation:

The medical bag needs 3 compartments – a clean compartment, a “dirty” compartment – for stethoscope, blood pressure cuff, etc., and a personal compartment for the provider's phone/money. Also, any paper forms containing any personal information need to be in a locked folder.

#### Infection control:

- Alcohol based hand sanitizer
- Liquid hand soap

- Paper towels
- Medical approved wipes for cleaning equipment between patients
- Bleach containing wipes for cleaning equipment that may be contaminated with c diff
- Gloves

**Standard:**

- Adhesive tape
- Adhesive bandages (sterile)
- Alcohol prep pads
- Bandage scissors
- Cotton tipped applicators (sterile)
- Disposable skin marker (single patient use)
- Flashlight
- Gauze pads (sterile)
- Masks (surgical and N95 respirator)
- Otoscope and ophthalmoscope
- Safety lancet devices
- Sphygmomanometer (various cuff sizes)
- Stethoscope
- Syringes with Safety Lock (5 cc, 21 x 1 ½', 1cc 27 x ½" and insulin)
- Paper towels
- Pulse oximeter
- Measuring paper tape
- Tympanic Thermometer
- Touch screen tablet
- Booties for provider

**Nursing only:**

## Anaphylaxis Kit:

- Epinephrine ampule 1mg/ml
- Syringe: 3cc, 22G 1 ½

**Intravenous Kit:**

- Extension set
- Catheters (24G, 22G and 20G)
- Gauze wrap
- Tubing
- Saline Flushes (10ml)
- Start kit
- Syringes (10ml)

**Specimen Collection Kit:**

- Blood specimen tubes (yellow, blue and purple tops)
- Blood culture bottles (aerobic and anaerobic)
- Culture swabs (nasopharyngeal and wound)
- Intermittent catheter kit
- Labels
- Midstream collection kit
- Vacutainer leur-lock access device
- Butterfly needle (25G and 23G)
- Tourniquet
- Specimen cups (sterile)
- Specimen bag

**As needed:**

- Incentive Spirometer
- Medication boxes
- Peak flow meter
- Staple Removal Kit
- Suture Removal Kit
- Scale

- Contact precautions kit:
- Face Shield
- Gown
- Oral thermometer with covers
- Sphygmomanometer

## Daily Home Visits

The HaH program includes daily visits (or more often if needed) from a HaH nurse and a HaH provider (a nurse practitioner or physician), although the provider visit can be done by video visit (see Video Visits) for select cases. Duration and frequency of home visits are determined by the patient's needs and clinical judgment. During these visits, providers check vital signs, assess the patient, administer medications, and order additional tests (X-Ray, EKG, etc.), services, other equipment or physical therapy as required. They will also educate the patient and his or her family/caregiver on the treatment plan and procedures, so they will be prepared to care for themselves upon discharge.

Other visits may come from the extended HaH team. Physical, occupational and speech therapists, and laboratory technicians may visit patients' homes as needed. A HaH social worker is also available to coordinate care and develop a follow-up plan. The social worker plays a key role in discharge planning, determining if caregiver training or other support is needed, making referrals to home care agencies and/or appropriate community-based support organizations, and arranging for follow-up appointments or tests.

## Discharge Visits

Discharge and care transition planning occurs throughout the admission, and discharge is assessed based on the patient's readiness using the same criteria and guidelines for hospital inpatients. Patients are always informed of their transition to other care or full discharge from HaH at least one day before it happens. As in any acute-care setting, patients may also elect to discharge themselves from HaH at any time, though the program has yet to experience this situation and it is considered highly unlikely.

On the day of transition to the post-acute phase or discharge, patients are given necessary prescriptions, and the social worker, working with support staff, arranges follow-up appointments for physicians or diagnostic studies. Patients and caregivers are counseled on signs and symptoms of disease recurrence or exacerbation, given phone numbers to use if questions or problems arise, and provided with information on medication administration and side effects.

To ensure a smooth transition, physicians communicate with primary care providers and other medical caregivers via email, telephone, dictation, and linked electronic health record when possible. A formal discharge summary should be entered into the medical record and minimally

include the date of admission, medications and treatments used, and the overall status of the patient at discharge. The HaH team will be available for 30 days post discharge for any issues that arise, and physicians will be available to the patient 24/7 for 30 days after discharge in case of emergencies or health concerns.

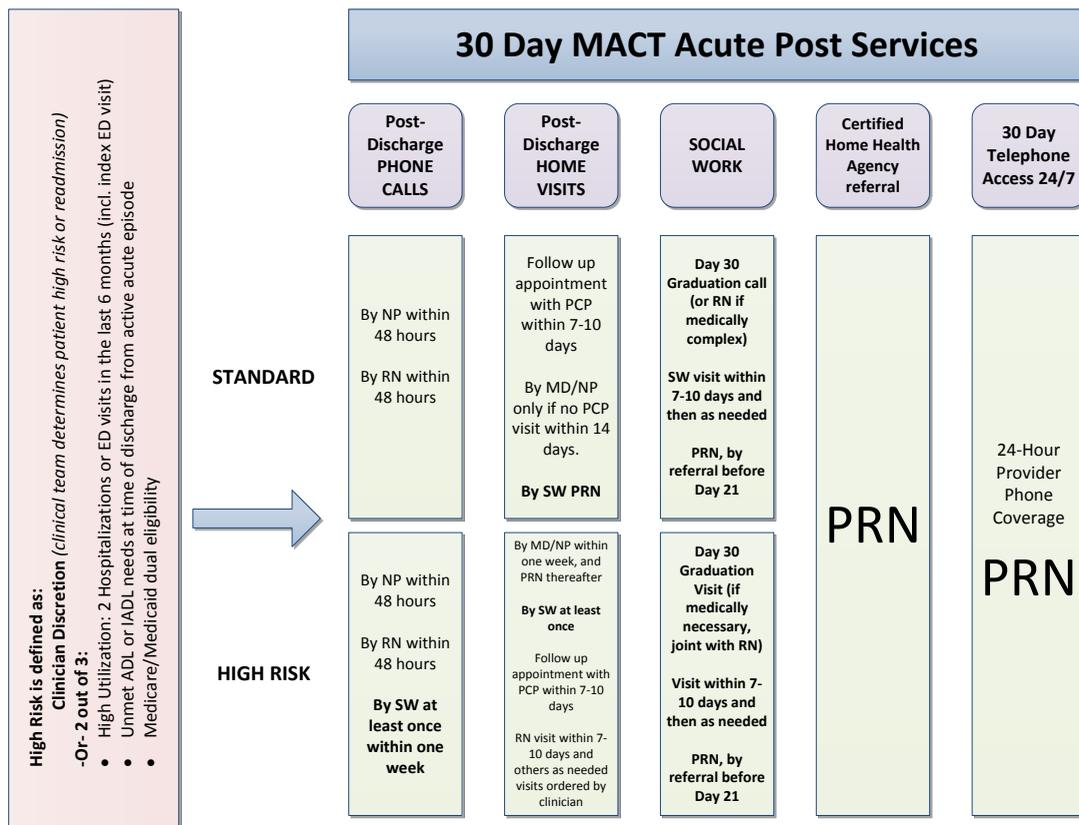
### Weekends/Holidays

Because Hospital at Home is a true acute-care situation, patients continue to receive the same level of care as they would in a traditional hospital, even on weekends and holidays. That means visits from the RN and the NP/MD team continues as usual, though new patients are typically not admitted on weekends.

Depending on your staffing model, the availability of social workers and administrative staff may be compromised on weekends, as well. This can make weekend visits more challenging for staff, as they take on the responsibility of making calls to coordinate all aspects of treatment. Durable medical equipment and medications are also more difficult to access on the weekends, so nurse practitioners and physicians should coordinate access to these ahead of time if possible. Urgent home visits may take place on weekends, wherein HaH staff will follow the procedures detailed in Urgent Visit section.

### Post-discharge Visit

Once a patient is discharged, HaH will continue to be available to patients 24/7 for 30 days in case of any emergencies, health concerns, or other issues. Services available during this period will vary based on the specific needs of the patient and include a provider visit, social work visit(s) to ensure family and caregiver supports are in place along with linkages to community services, and referral for home health care. HaH will continue to keep in contact with the patient's primary care providers during the transition to ensure that the patient is receiving proper treatment until it is feasible for all care to be completely taken over by his or her primary providers. The diagram below shows a typical arrangement for standard and high-risk post-discharge services:



### Video Visits

Most HaH programs will find it useful and efficient to offer video visits to make it easier for providers to connect with and evaluate patients remotely. When choosing a platform, you'll need to look for a HIPPA-compliant technology. At Mount Sinai, the HaH team selected the VSee telehealth platform, after first piloting a different platform. VSee provides secure health communications for any clinical workflow and is available on PC, Mac, iPhone, iPad, Android devices. Video visits are especially helpful for nurses who want to consult with the HaH physician or nurse practitioner on non-urgent issues presented by relatively stable patients. Video can also be an invaluable tool for paramedics who visit patients and need a consult with the physician on record. In this situation, the on-site paramedics can talk out loud as they evaluate the patient, allowing the physician to hear and then make an informed decision about whether the patient should remain in the home or be transported to the hospital (see box: Community Paramedicine Intervention).

## Urgent Home Visits

In case of an emergency or urgent medical need, patients have access to HaH staff 24/7. There is always a nurse practitioner or physician on call. Urgent-care calls that come in during regular clinical hours, generally 8:30 to 4:30, Monday through Friday, come to the HaH nurse practitioner. If the NP is already on a patient call, then a registered nurse should be available as backup. After 4:30 and on weekends, calls should be directed to a call center, which can then notify the on-call provider.

Triage of urgent-care calls is an important process. The HaH team member taking the call must determine if the patient requires a home or video visit from the clinical team or further escalation, usually to the ED. Providers should use their best judgment and follow previously delineated procedures when treating their patient during an urgent home visit and refer them to other specialty treatment if care cannot be adequately delivered in the home. If the situation becomes too acute for HaH staff to handle, the provider should call an ambulance to transport the patient to the ED associated with the program and verbally hand off the patient to the ED provider.

### Community Paramedicine Intervention

A physician should be available 24 hours a day, 7 days a week to address any concerns the patient has over the phone. The ability to perform urgent, time-sensitive, in-home assessments will be critical to determine if the patient requires a change in management or a transfer to the hospital. The ability to assess patients without activating traditional EMS services will aid in the success of the HaH model to avoid unnecessary hospitalization or emergency room visits during the HaH episode.

The use of community para-medicine is governed by states and local municipalities. In New York, Mount Sinai was able to develop an innovative program that worked for the patients in their catchment area. Collaborating with REMSCO — Regional Emergency Medical Services of New York City — the HaH team was able to create a new classification of certification — called “telemedicine doctor certification” — that allows MDs to be certified to direct a paramedic in the care of a patient with whom the MD has a previous relationship. Each of the MDs on the Mount Sinai HaH team completed the certification process.

Within this model, a community paramedicine intervention is as follows: The on-call physician activates the paramedic response when he or she decides that the patient requires urgent attention. The paramedics are dispatched from a private EMS company outside of the 911 system. Paramedics visit the patient at home without immediately transporting him or her to the hospital. With the help of videoconferencing/telemedicine technology, paramedics participate in real-time consultation with the HaH physician in order to make a collective and informed decision as to the appropriate course of action. In this model, the paramedic will take direction from the HaH physician to administer medications and treatment to help with patient symptoms and disease without transport to the hospital, unless deemed necessary.

## Adverse Events

To date, no federal standards require states to operate adverse event reporting systems. However, 26 states and the District of Columbia have reporting systems that collect information from hospitals and other facilities about adverse medical events resulting in patient death or serious harm. If your hospital or health system is located in one of these states, you will want to integrate a reasonable adverse event reporting system into your HaH program. Should an adverse event occur, whether a fall, medication error, or an escalation of care, the provider should initiate an Adverse Event form. In the Mount Sinai HaH program, the project coordinator maintains these forms and forwards them to the Clinical Director or designee for follow-up with a HaH Steering Committee member, who reviews these events. Morbidity and mortality (M&M) conferences can then be used with select adverse events to educate the clinical team.

## Scheduling

At the end of each day, the clinical team meets to review patients and then plan the schedule for the next day. This sign out is attended by the NP and MD, so that the overnight on call MD has an update on all active patients.

## The Importance of Communication

Since HaH is a team-based approach to care, it is crucial to ensure frequent communication and open discussion of shared data. The HaH program will evolve over time, and regular meetings geared toward open information exchange and brainstorming play an important role in helping leadership and members of the team see what's working, what's not working, and make necessary adjustments.

At Mount Sinai, the HaH clinical team met once a week during the first year of its rollout, but then decreased the meetings to twice per month, with leadership meetings on the alternating weeks as well. During the launch phase, two of the weekly meetings each month focused on clinical reviews, operational issues, and research (data collection and analysis). During those sessions, active and discharged cases were reviewed to spur group learning and promote quality control. Leadership meetings focused on budgetary issues, sustainability, enrollment challenges, and other challenges faced by an innovation.

It is also important to prioritize communications with the ED staff and to understand the demands of their jobs. Consistency engaging ED physicians, nurses, and staff helps them see the benefits of diverting patients from the hospital to home and makes them powerful advocates for HaH within the health system. Outreach to non-ED social workers, case managers, and physicians, as well as local urgent care clinics and ambulatory practices, can also help spread the word.

The Mount Sinai HaH program uses interdisciplinary huddles to share important pertinent information about patients and to provide and maintain continuity of care. Huddles are coordinated and led by the attending physician with participation from the nurse manager, nurse practitioner, staff nurse, social worker, and physical therapist.

What follows is a typical huddle schedule:

Huddle Type	When It Occurs	Duration	Structure
<b>Monday Morning Huddle</b>	Monday mornings at 8:30 a.m.	1 hour	Interdisciplinary team updates and discusses patients evaluated over the weekend, including urgent calls, urgent visits, escalations, adverse events, and deaths
<b>Daily morning Huddle</b>	Daily at 8:40 a.m.	20 mins	Interdisciplinary team members briefly review all patient visits, changes in conditions, calls, new admissions, and potential admissions, specifically covering: <ul style="list-style-type: none"> <li>• Admissions done by Admitting Provider – 5 minutes</li> <li>• Home visits done by MD/NP for RaH or HaH – 5 minutes</li> <li>• RaH updates on progress &amp; expected discharge – 3 minutes</li> <li>• Urgent calls or visit updates by Office provider or Nurse – 3 minutes</li> <li>• Social Work updates – 3 minutes</li> <li>• Wrap up including next day assignment, Box updates by Nurse Manager - 1 minute</li> </ul>



#### Lesson Learned

Hospital admission capacity is highly dependent on the number of staff and number of beds available. For the HaH program on the other hand, staff workload and program capacity are intertwined. Predicting HaH capacity requires a complex equation involving multiple components such as current census, staffing, patient acuity, expected discharges, geography, and complexity of the home visit. As a program gets to a larger size, patient enrollment can happen simultaneously from multiple sites. Hence, it is important to keep track of all the components required to determine the admission capacity. A clinical nurse manager is responsible for overseeing staffing and determining capacity for admissions. The nurse manager coordinates daily staff scheduling and assignments.

## CHAPTER 10

### Rehabilitation at Home (RaH)

#### Overview

Although the HaH program focuses primarily on acute admissions, it can also include Rehabilitation at Home (RaH) services to augment its core offering. The RaH program focuses on providing skilled nursing and sub-acute rehabilitation services in a patient's home for diagnoses such as a limb injury, including fracture requiring rehabilitation services, and debility from infections or cardiac diseases requiring physical therapy (PT) and/or occupational therapy (OT) services. This is sometimes referred to as subacute rehab at home

Much like the same level of services offered at a subacute care facility, RAH provide:

- Physician oversight and home visits within 48 hours of admission and as needed thereafter
- Nursing visits as needed for treatments and IV medication administration
- Social work visits weekly
- PT visits six times per week
- OT visits as needed
- Speech therapy visits as needed
- 24/7 availability for entire 30-60 day episode, depending on payor

#### Referrals

Referrals to RAH are generally made through rehabilitation service providers or social workers during hospitalization as part of discharge planning. Patients qualify for RAH if the following criteria are met:

1. The inpatient team decides the patient will benefit from sub-acute rehabilitation services.
2. Patient's needs can be addressed by the program's definition of rehab care. The program structured at Mount Sinai was based on the Medicare definition of subacute rehabilitation.
3. Patients reside in the geographic catchment area defined by the program.

4. Patients have compatible insurance. Currently, Medicare does not have a payment mechanism for RaH. The Mount Sinai program is the first to try this approach and plans to apply for a Medicare payment model that would include a RaH benefit.
5. Patient has sufficient care to be managed safely in the home setting

## Visits

RaH provides services for approximately 14 days based on the treatment plan and goal achievement. The program offers emergent medical assessment and treatment in the home for an entire 30-60 day period, based on payor, to address transitional care issues that may have arisen and for linkages to community resources. If a patient needs further treatment, he or she can be referred to appropriate community service providers or high-risk clinics.

The cornerstone of the RAH program is the involvement of a PT who develops a plan of care that promotes movement, reduces pain, restores function, and prevents disability. The PT works with the patient, family members, caregivers, and other health care providers to ensure the goals of the plan of care are met and the patient outcomes are optimal. Patients in the RAH program generally receive one or two hours of therapy per day, and can be a combination of physical, occupational, and speech therapy.

A general overview of the RAH home visit schedule is shown below. It should be noted that the schedule is for illustration purposes only. The actual number of visits per day and disciplines involved will vary based on a patient's individual needs.

Sample Schedule of Home Visits					
Time	Monday Day of Admission	Tuesday Home Visits Day #1	Wednesday Home Visits Day #2	Thursday Home Visits Day #3	Friday Day of Discharge
7 am – 12 pm	Admission orders by MD prior to discharge, discharge home	Physical Therapist (PT)	PT	RN Occupational Therapist (OT)	PT
12 pm – 7 pm		Physician OT	OT	Social Worker PT	OT
Additional Visits as Needed					
		Speech Therapist	Lab Tech X-Ray/EKG Tech	Speech Therapist	Lab Tech X-Ray/EKG Tech

## Telehealth

The provider will conduct weekly video visits to those RaH patients whose condition is otherwise stable and whose needs are being met by other team members. It is the goal of provider oversight to remain involved with the RAH patient, but at a lower acuity. Other team members (RN, SW) may follow up telephonically with the RAH patient and make home visits as necessitated by emerging needs.



### Lesson Learned

Almost immediately following a one-hour in-service to social workers and case managers, referrals to the program were received. This program was clearly filling a need for an alternative to the traditional brick and mortar nursing home where sub-acute rehabilitation is typically offered. And unlike HaH, this innovation was quickly embraced by not only social work and case management staff, but the rehab staff as well, who also were a source of referrals. This burgeoning program had the secondary benefit of spreading the word about the entire program, which ultimately increased referrals to HaH.

## CHAPTER 11

### HaH and RaH Plus: Post-acute

Continuity of care is critical following an acute episode, whether in the hospital or at home. The 7-10 day period following discharge (from a traditional hospital stay and from hospital at home) can be precarious for patients, especially those who don't have significant family or social supports and lack financial resources. The various types of HaH care can provide a 30-day "Plus" period (based on payor) to ensure patients' needs continue to be met following discharge. Depending on each patient's specific needs during that follow-up period, HaH clinicians may also arrange for additional care to ensure the patient's longer-term stability. The goal is for the patient/family to know they are still in the program and can call for any medical issue as to avoid any unnecessary ED visits or hospitalizations.

Social workers are the lead in this "Plus" period and will do a home visit, and associated assessment, either during the acute episode or very soon after discharge. They let patients know that they are still "in the program"—even though acute treatment is over—and can reach out if they have other needs or concerns they want to talk about. These visits particularly address psycho-social issues (e.g., depression and anxiety) and connect patients to other clinicians or home-based agencies that can follow up on ongoing needs. For example, HaH social workers may help set up needed community transportation or pharmacy-delivered medications. They may address anxiety and/or confidence issues around the care plan. Patients may also be connected to the Mount Sinai Resource, Entitlement and Advocacy Program (REAP) office to handle entitlement and related concerns (e.g., SNAP benefits) that can't generally be addressed completely in the 30-day follow-up period.

In addition to the home assessment, there are often several phone check-ins during the Plus period (sometime multiple calls in a day) to reinforce the discharge care plan and ensure the patient continues to have what he or she needs so they can recover at home. Social workers also seek to build health literacy around a patient's condition(s) and activate patients to take needed steps to manage their own care. In New York City, the workload for social workers in the Plus phase includes several check-in phone calls and between one and four home visits/day. Notes are routed to ensure that all team members have access to the entire patient's history.

At end of 30 days, the Plus period comes to an end with a "graduation" phone call. This reinforces the plans for the patient going forward. Where indicated, the HaH social worker will do a warm hand off to home care or other programs that will provide ongoing care. In similar fashion, the Hospital at Home physician will transfer the patient back to the primary care doctor.

## RaH — Plus

There is an analogous process for patients in the RaH-Plus, though with a few differences. After the acute RaH period the patients may need to be referred to a Certified Home Health Agency for home care or other services they may need and that may still be reimbursed by Medicare, or if applicable Medicaid. CHHA may also be brought in to do an assessment about what kinds of longer-term home care or PT may be needed. ReHab at Home social workers help to manage this process during the Plus period and may also facilitate needed home modifications, including grab bars and other bathroom changes.

## CHAPTER 12

### Other Models

As a hospital considers a HaH implementation, questions of scale and scope may need to be addressed relatively quickly, depending on the volume of eligible patients or the demand for the at-home delivery model. For example, in certain geographies with ideal patient demographics, it may be possible to have enough patients admitted to the acute at-home intervention that the program achieves long-term sustainability. In other areas, it may be necessary to augment the HaH offering to ensure enough patients enter the system.

Either way, once an acute service line is built and a highly functioning team is in place, organizations can consider introducing additional “arms” or program components, to prop up the core offering and to offer more value to patients and their families. The list below provides some of the pillars you could build beneath the Hospitalization at Home canopy. These are just examples — the exact nature of these components will vary slightly based on your hospital’s specialties and focus areas.

#### Surgical

In this Hospitalization at Home variation, you need to have access to surgeries that require a patient to stay hospitalized after a surgery is completed, either for pain control or general monitoring. The ideal surgeries would be those performed in outpatient operating rooms or ambulatory surgical centers, before admitting the patients to post-op stays in their homes. One caveat here is that in fee-for-service payment models, Medicare is very explicit about what procedures must be performed in inpatient versus outpatient operating rooms, while most commercial or Medicare Advantage plans don’t have these restrictions. There are benefits that balance this payment challenge — most notably that outpatient surgeries are less costly and that, because they are scheduled, providers in both the surgical centers and on the HaH team generally know exactly when and where their patients will be when it’s time to deliver service.

The maturity of telemedicine technologies makes this type of offering completely realistic. Surgeons, consulting with the attending internal medicine physician, can perform video visits to ensure continuity of care, while other necessary providers would be available for pain control or other critical procedures. Otherwise, patients would receive visits from a standard HaH team and would enjoy the same length of stay, approximately three to four days.

#### Early Discharge

Another Hospitalization at Home variant involves patients who are admitted in a traditional hospital setting but who could complete their stay at home. Such patients would need at least two additional days in the hospital, and they would need a specific plan that requires hospital-level care that could be delivered in the home. For example, someone who needs twice-a-day antibiotics for a three-day course or someone who only requires once-a-day antibiotics but needs

blood drawn in the morning to determine the proper dose each day — these would be ideal candidates. In these cases, the patient would be discharged early from the traditional hospital setting to complete the remainder of their stay at home under the umbrella of Hospital at Home. For this approach, hospital inpatients who require continued hospital-level care are “transferred” to the HaH “unit” for ongoing care in an early-discharge model. This is similar to how hospital inpatients transfer from, for example, an intensive care unit to a standard unit. This was not a program that has been initiated at Mount Sinai at the time of this writing.

## Pediatric

A pediatric extension might not be appropriate for your Hospital at Home program, but it might be if you meet certain criteria. Just as you would with a standard acute Hospital at Home program, you should assess the types of cases that come into your hospital. Do you always have five beds filled with jaundiced children? Or do you routinely treat children with cellulitis or dehydration? If so, you might consider starting with one or two of these conditions and then expanding over time. You will also need to consider a number of other important questions:

- Are you taking babies or just children ages three to four plus?
- Are you taking healthy kids who become ill, chronically ill kids, or both? Because Hospital at Home obligates a parent or guardian to be home with the child, workplace issues can arise in which a parent can't stay home without jeopardizing his or her job. Chronically ill kids are often out of school anyway and therefore have a care support system in place, possibly making this population a more attractive starting point for a Hospital at Home program.
- Do you have pediatricians and pediatric nurse practitioners on staff already? What about other providers? Do you need pediatric-trained nurses, or can you get by with generally trained nurses who often have a solid baseline of knowledge and skills in all areas?

## Oncology

Oncology may not a separate service line but an opportunity to expand diagnoses under regular HaH by reaching out to your hospital's oncology practice for more patients. For example, at many institutions, chemo patients who return to the hospital for treatment of dehydration due to nausea and vomiting often visit a short-duration unit set up specifically to rehydrate oncology patients. Sometimes, these patients need more and must be readmitted. They are ideal candidates for Hospitalization at Home because of the care required — they have a lot of specialized ports and access, with specialized IVs. The HaH nurses might need new training on those specialized ports, but once in place, they could effectively deliver care to oncology patients, who get the benefits of not traveling and receiving care in the comfort of their homes.

Another opportunity might be patients who are undergoing a stem cell transplant, which is a long process requiring treatment eight hours a day for 21 consecutive days. A Hospitalization at Home intervention could be ideal for these patients, though there are some special considerations. If a patient reacts negatively to an infusion, a nurse might need to stay in the home all day, and this might be prohibitive from a cost point of view. Also, states have different regulations regulating

stem cell transplants. In some, because the stem cell material is considered a blood product, infusions of this sort can't be done in the home. You should investigate local laws and regulations before considering an oncology extension of Hospitalization at Home.

## Urgent ED

Though the emergency department is a great source of patients for the Hospitalization at Home program, it would be better for most patients — and better from a healthcare cost perspective — if the ED could be avoided altogether. A Hospitalization at Home program could be well-positioned to target these cases, as long as certain interventions, such as emergency CT scans or surgical consults, are not required. Consider, as an example, a patient who visits his or her primary care physician and is diagnosed with pneumonia after receiving an X-ray in the PCP's office. Instead of sending this patient to the hospital ED, he or she could be admitted to HaH, bypassing the ED altogether.

Hospitals that already have a mobile ED in place would be a good fit for this kind of extension. A mobile ED could be a single vehicle or a fleet that can carry a fully functioning emergency department to a hospital experiencing high demand or to a disaster site. Most mobile ED units come equipped with critical care beds, an operating room, a portable field laboratory, digital X-ray and sonography systems and a pharmaceutical cache, making it easy for them to address the interventions that fall beyond the scope of Hospital at Home. Afterward, however, they can refer eligible patients to a HaH partner so patients can receive any longer-term care needs in their home.



### Lesson Learned

We were surprised to learn of the interest in HaH from various departments in the hospital, either for a complete substitute for hospital care (oncology) or for an early discharge intervention (post-op). Because of this experience the team was able to cast a wider net throughout the health system. This will require specialized training for providers and nursing such as was done for our pediatric pilot as well as our early discharge surgery program.



## Section 4

# Moving Forward



## CHAPTER 13

### Using Metrics to Build Your Program

Measuring results and communicating clearly are critical for the successful implementation of HaH. CEOs and other executives at health care systems, hospitals, and insurance companies need to see evidence that the program is delivering on the value proposition of higher patient/caregiver satisfaction and better health outcomes at lower costs. That will require rigorous data collection, measurement, and analysis.

Specific data is also needed to understand what is working well, and what aspects of the program may need to be adapted to improve results. A systematic and thorough plan for data collection is also important to engage leadership and obtain buy-in for HaH from leadership in the ED and throughout the hospital or health system. Engagement and buy-in is also essential from outside the hospital setting, including targeted communications to the external community from which potential HaH patients will be drawn.

#### Getting Started

##### Tracking Patients

To get started, devise a patient numbering system that allows you to track individual patients over time. Mount Sinai's HaH program used three numbering components in order to easily monitor a patient's admissions to the program:

1. Medical record number (or a de-identified patient ID) to identify individual patients and monitor the number of times an individual was admitted to MACT
2. Bundle identification number to identify each "case" or 30-day payment bundle, regardless of the number of (re-)admissions to HaH within that bundle
3. Episode number to count the number of new admissions or episodes of care within a bundle and monitor the number of times a patient was readmitted to HaH within 30 days of discharge from a prior HaH episode

It is possible to identify individual cases using the medical record number and the date of admission. However, dates can sometimes be subject to discrepancies between spreadsheets or databases. Having a numbering system that identifies individual cases (regardless of whether the case belongs to a new patient) is preferable because it eliminates the likelihood of such discrepancies.

##### Selecting Variables

Next, you must decide on which indicators you need to include in your data collection system. A common way of organizing these indicators and showing their relationship to a program is in a logical framework, often called a logframe. A logframe organizes indicators into inputs, activities, outputs, outcomes, and impacts.

Inputs are the resources needed to implement a program. Activities are processes that take place during the implementation of a program. Outputs are indicators that can be measured immediately as a program is being implemented. Outcomes are the direct results of your program on its participants. Lastly, impacts are the broader, more far-reaching results of your program. The figure below shows a sample logframe for HaH.

Inputs	Activities	Outputs	Outcomes	Impacts
<ul style="list-style-type: none"> <li>• Human Resources (e.g. MDs, NPs, RNs)</li> <li>• Payer contracts and/or seed funding</li> <li>• Vendor contracts</li> <li>• Medical supplies</li> </ul>	<ul style="list-style-type: none"> <li>• Train staff in care model</li> <li>• Query EMR to find potential patients</li> <li>• Screen patients for eligibility</li> <li>• Provide acute medical care to enrolled patients</li> </ul>	<ul style="list-style-type: none"> <li>• Acceptance rate among eligible patients offered HaH</li> <li>• Number of patients enrolled</li> <li>• Average number of trained clinician visits per HaH admission</li> </ul>	<ul style="list-style-type: none"> <li>• Decreased average length of stay</li> <li>• Decreased nosocomial infection rate</li> <li>• Decreased rate of incident pressure ulcers</li> <li>• Decreased hospital readmission rate</li> <li>• Decreased ED visit rate</li> <li>• Decreased mortality rate</li> </ul>	<ul style="list-style-type: none"> <li>• Decreased spending on acute medical care</li> <li>• Increased satisfaction with acute medical care</li> </ul>

In order to measure the indicators found in the output, outcome and impact sections of the logframe, we must consider what data sources are available.

## Available Data Sources

### Electronic Medical Records

Electronic medical records hold an abundance of data on the course of a patient's care, including process measures and outcomes. Depending on the format in which they were entered, data from medical records can be pulled into a database by using chart queries or chart abstraction.

Chart queries are reports that can be downloaded from the electronic medical record system. Once they have been programmed, either by a user or a system administrator, data can be pulled from the system in a specified format at the click of a button. A limitation of chart queries is that they can only output data that has been entered in a structured format. If information has been entered in an unstructured format, like a clinical note, the most reliable way to put it in a format amenable to quantitative analysis is through chart abstraction.

During chart abstraction, a trained staff member with a medical background will review the medical records of patients in the HaH program. This data collection method can be time consuming, but it is the best way to obtain data for quantitative analysis from qualitative clinical notes. It is also particularly useful when a judgement needs to be made about what is relevant and what is not. For example, if the use of chemical restraints is a variable of interest, then running a

query for all patients administered medications like antipsychotics and benzodiazepines will cause us to over-count the number of cases of chemical restraint use. Instead, it is preferable for a staff member to review the chart, and based on available clinical documentation, use his or her judgement to determine whether the drug was being used for the purpose of restraining a patient. In addition, if only paper medical records are available, chart abstraction may be the only way to obtain useable data from them.

Examples of data that may be collected from electronic medical records are:

- Admitting diagnosis
- Comorbidities
- Basic demographics (e.g., age, gender, race/ethnicity)
- Length of stay
- Physical and chemical restraint use
- Incident (new) delirium
- Incident (new) nosocomial infection
- Incident (new) pressure ulcers
- Falls
- Discharge disposition
- Post-HaH follow-up with primary care physician
- Escalations, ED visits, and inpatient hospital admissions
- Mortality

In addition, for RaH, it is recommended that data on functional status (e.g., ambulation, transferring) be abstracted or queried from the medical records created by physical therapists at baseline and discharge to observe the change in the patient's status.

### **Surveys**

Surveys enable the collection of data that would not be available in the patient's medical record. Data collected via survey may include:

- Reasons for choosing/refusing HaH
- Satisfaction with medical care
- Pain management

- Socioeconomic demographics (e.g., income level, education)
- Self-reported general health status
- Cognitive status
- Living arrangement (e.g., who lives in the home, type of housing)
- Functional status (e.g., level of independence in activities of daily living)
- Healthcare utilization

To avoid bias in response to questions about satisfaction with medical care, survey interviews are conducted by members of an independent data collection team not related to the patient's clinical care.

### **Semi-Structured Interviews**

In contrast to the quantitative analysis that can be done with structured chart review data and survey data, qualitative data comes in the form of text, and has the ability to provide a nuanced understanding of a topic. In a semi-structured interview, an interviewer uses an interview guide comprised of open-ended questions to frame an audio-recorded discussion of that topic. The interviewer is not required to follow the order of the questions in the interview guide—if the participant begins discussing matters that occur later in the interview guide, the interviewer can skip ahead and then later circle back. Also, the interviewer uses probes, or follow-up questions, to facilitate the provision of rich, qualitative data.

Later, the audio-recorded interview is transcribed, and the transcript is coded. Coding is the process of categorizing excerpts of the transcript thematically. A widely accepted practice is to continue interviewing new participants until the data reach thematic saturation, a state in which no more new themes are appearing, and new interviews are yielding no new information about those themes.

The Mount Sinai HaH program's qualitative research centered on patients and/or their proxies' satisfaction with the recently completed home hospitalization. To facilitate a candid discussion about the patient and/or proxy's experience with HaH, interviews were conducted by members of an independent data collection team not related to the patient's clinical care.

### **Administrative Records**

Administrative records comprise a broad category that can encompass anything from enrollment records to insurance claims. When implementing a HaH program, administrative records are particularly useful for understanding the flow of recruitment and for calculating the average cost of a patient's care. Keeping systematic enrollment records, including reasons for ineligibility and refusal, enables you to optimize your program's recruitment process. For that reason, it is recommended that patients be tracked from the moment they appear on the list of potentially eligible patients at the emergency department. In addition, calculating the average cost of care may help to demonstrate to executives, policymakers and other stakeholders that it is worthwhile to invest in HaH. These cost calculations require administrative data sources like vendor invoices and insurance claims.

**Other Considerations**

To truly demonstrate the effectiveness of HaH, it is necessary to compare patients who were hospitalized at home to a comparable group that was hospitalized in an institutional setting. Because HaH has been so widely studied, Mount Sinai's HaH program took an observational approach, following a group of control patients who were eligible for HaH but who, for a variety of reasons, received inpatient hospital care instead. There are many alternatives to this approach, including randomization (the gold standard), quasi-experimental designs, and statistical matching techniques.

Lastly, depending on the purpose of the data collection as well as other factors, these activities may be subject to federal regulation. Please contact the institutional review board (IRB) at your institution for assistance determining whether your data collection, analysis and dissemination activities meet the definition of human subjects research.

## CHAPTER 14

### Readiness Assessment

How do you know if your health care system or hospital is ready to start a HaH program?

While there is no single checklist that covers all variables, there are a few indicators that greatly increase the chances of success. They include:

**A willing and well-run Emergency Department (ED).** As noted in Chapter 2, the traditional HaH platform begins in the ED as a choice for a majority of patients with certain specific conditions who prefer to receive care at home. That's one of the main reasons it is nearly impossible for a health care provider apart from a hospital or health system to implement a traditional HaH program. It is also why finding a champion in the ED is critical to building the team necessary to support a HaH implementation.

That said, the one variant of HaH that does not require a direct link to the ED is a stand-alone Rehab at Home program, which offers a home-based alternative to post-hospitalization admission to a rehabilitation or skilled nursing facility (see Chapter 2 and Chapter 10).

**A hospital that is usually full.** If your health system or hospital typically has empty beds it is trying to fill, it is less likely to be receptive to a program that offers patients ready for hospital admission the option of receiving care at home. However, if your hospital or health system is already full, the HaH program will enable your hospital or system to treat more people without having to find additional high-cost, inpatient beds. Similarly, a rehabilitation or skilled nursing facility also may want to consider a Subacute Rehab at Home version of the HaH model if it is usually full.

**A hospital that is considering new construction.** The HaH program has the potential to significantly reduce capital costs for hospitals and health systems contemplating expansion. As Dr. Bruce Leff noted in *Harvard Business Review*, a single hospital bed in the U.S. costs about \$2 million to capitalize (Leff, 2015). So, if a HAH program can divert 50, 100, or more patients to a home care model, it could reduce or eliminate hundreds of millions of dollars in costly new construction.

**An existing medical house calls program.** It may not be essential, but it is certainly very helpful to have doctors and nurse practitioners on staff who are comfortable providing care in a home setting. Having both a medical house calls program and a HaH program can create synergies between the two programs, particularly in scheduling. As found in *Health Affairs*, Lesley Cryer, Scott B. Shannon, and Melanie Van Amsterdam of Presbyterian Health Care Services in New Mexico and Bruce Leff stated: "Health care systems with existing house call programs will probably find that the infrastructure and knowledge they already have in place will make launching Hospital at Home more seamless. Having both programs in place not only benefits patients but also enables flexible staffing of nurses and physicians to meet those programs' varying demands."

As the authors of that *Health Affairs* article noted, however, the lack of a medical house calls program is not a barrier to adopting the HaH model. Presbyterian Health Care Services implemented a successful Hospital at Home model first and then developed and implemented a complementary medical house calls program “to prevent additional avoidable hospitalizations and to provide ongoing care in the home for high-cost older adults with complex chronic illnesses. The institutional learning gained from planning and implementing Hospital at Home allowed for the rapid deployment of a house call program,” the authors wrote.

**Established home health-care delivery capabilities.** Experience with and capacity for delivering a range of home-based health care services — from skilled nursing and rehabilitative therapies to counseling and hospice care — also provides a strong foundation on which to build a HaH program.

**Familiarity with services available in the community.** Provider partners and associated vendors who can deliver equipment and services such as home X-ray, phlebotomy, ultrasound, durable medical equipment, and physical and occupational therapy can greatly increase the ease of implementing HaH. Due to the scheduling demands associated with a HAH program, it is essential to have reliable provider partners and associated vendors with a proven record of providing quality service in a timely manner. Building on existing linkages and capacity is key. If a Durable Medical Equipment (DME) company does not currently have the ability to meet the delivery time the HaH program needs, it would have to be interested enough in contracting for the work to make the necessary operational changes required.

**The capacity to create a new, integrated electronic health record.** Implementing HaH requires capacity for electronic data collection and analysis. Unfortunately, most current electronic health records are built on platforms dedicated to either hospital services or community-based services. A HaH program will require the ability to build a new hybrid record. In chapter 4, Setting Up the Electronic Medical Record System, this topic is discussed in more detail.

**A HaH champion.** Having a respected senior clinician and/or administrator who can navigate the hospital or health care system and make the case in an articulate manner in a variety of settings, from the Board Room to the elevator, increases the chance of key stakeholders taking notice and considering adaptation of HaH. This individual or individuals will need to lead the charge and commit considerable time in laying out the benefits of the model and negotiating the key elements.

**A supportive organizational culture.** Does your hospital or health system view itself as being innovative and entrepreneurial, open to implementing new evidence-based models of care? Adopting a HaH program is a challenging and potentially transformative endeavor. Support from the CEO and other leadership is crucial to sustaining the resources and organizational momentum needed to make HaH a success.

## The Benefits of a Business Plan

Once you determine that your organization has the infrastructure, people, and culture to potentially support a HaH program, the next step is to prepare a business plan. It should include such factors as the demographics, insurance, geography, and costs involved in setting up a HaH

program. These are critical pieces of information to help you determine if you have a sufficient base of patients with one of the targeted conditions eligible for HaH support who meet all of the program criteria. Among the elements to consider are:

**A large volume of admissions for conditions that meet the HaH criteria.** As noted in Chapter 2, HaH is offered as an option to those presenting specific conditions shown to respond safely and well to home-based acute care: cellulitis, COPD/Asthma, community acquired pneumonia, CHF, deep venous thrombophlebitis/PE, diabetes, dehydration, urinary tract infections, and others. If there are not a sizeable number of patients presenting with those conditions in your ED, it is unlikely your institution or organization will realize the benefits the HaH program has the potential to offer.

**A supportive payment model.** There is currently no Medicare payment mechanism for a HaH approach to acute home care. “In fee-for-service Medicare, the economic imperative for many health systems is to fill hospital beds to generate revenue,” wrote Cryer, Shannon, Van Amsterdam, and Leff in *Health Affairs*. However, with support from the CMS Innovation Center, HaH is now testing a hospital at home approach to inform a possible 30-day bundled payment model. For now, health systems and hospitals operating under a capitated payment system, an Accountable Care Organization, Medicare Advantage, or a single-payer system such as the U.S. Department of Veterans Affairs’ Veterans Health Administration have population health incentives that make them more likely to consider a HAH program.

In 2014, The Center for Medicare and Medicaid Innovation (CMMI) of the Center for Medicare and Medicaid Services (CMS) awarded a Health Care Innovation Award to the Icahn School of Medicine at Mount Sinai to demonstrate the clinical effectiveness of a new model of HaH, one which combines traditional HaH services with a 30-day post-acute period of home-based transitional care, and to develop a new payment method for it in fee-for-service Medicare. In September 2017, the Physician-Focused Payment Technical Advisory Committee (PTAC) unanimously recommended to the Secretary of Health and Human Services full implementation of an alternative payment model for HaH based on data from the Mount Sinai HaH program.

**A manageable number of insurers.** Contracting with insurers who cover most of your HaH - eligible patients is one of the keys to scaling a program quickly. Your business plan should include a breakdown of the insurance plans your patients currently have. If an overwhelming majority of patients are on one insurance plan, logically you would want to contract with that company for payment, allowing you to scale a program quickly. But if the insurance your patients have is fairly evenly split between different insurers, you will need to negotiate with most of them, which means growth likely will be much slower.

**Where patients live.** If patients are traveling two hours to get to your ED, delivering HaH services to them will not be feasible. A sizeable percentage of your ED patients must live in close enough proximity to have services delivered. Also, you should know how many of your ED patients are coming from nursing homes, since nursing homes are not part of the HaH program.

**Market size.** When Mount Sinai tracked and analyzed admissions data from its ED, it found that it had a large number of people—about 15,000 in 2015—with one of the eight original diagnoses covered by HaH. However once patients were screened out due to exclusion criteria such as dialysis, lives in a nursing home, is not safe at home, lives too far away, or were admitted on weekends, only 5-15 percent of total admissions with targeted diagnoses were actually eligible for HaH. Determining if a potential adopted has a sufficient base for a HaH program needs to consider all inclusion and exclusion factors.

**Startup costs.** Just like any new business, there will be startup costs. You will need to hire and train members of the team — provider, RN, SW, etc. — in order to launch. And on the first day, it is unlikely you will reach capacity and have the number of patients needed to cover salary and other costs.

Today, the HaH program is available to any hospital or health system looking for an innovative, rigorously tested model that can improve the quality of care delivered to patients. With that said no two hospitals — and no two communities — are the same, which means no two HaH implementations will be exactly the same. The information provided in this manual should be seen as general guidance and descriptions of best practices, not as an inviolable script that must be followed to the letter. In fact, pursuing a HaH implementation will require tremendous flexibility, creative thinking, institutional commitment, and a consensus building among a number of stakeholders with conflicting interests and concerns. With a commitment to resources, the right clinical and administrative team in place, and a healthy dose of collaboration, it is possible to deliver home-based hospital care that improves the quality of patients' lives and the bottom line of health care costs.



#### Lesson Learned

The New York City market proved to be an anomaly from the previously reported consent rates over the 20-year history of data from the other HaH markets. Unlike in rural markets, commuting to visit a loved one in the hospital is not so problematic given the public transportation infrastructure and the proximity of the hospital to the catchment area in NYC. Additionally, most New Yorkers reside in apartments which may not be conducive to setting up a hospital in the home. These, along with a few other reasons for refusals, were an unexpected barrier to achieving admission projections. Other health systems need to consider the particulars of the geography they serve.



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