The New Hospital at Home Movement:
Opportunity or Threat for Patient Care?

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Executive Summary

The new Hospital at Home (H@H) movement is an effort to allow permanent government funding for the treatment of acutely ill patients at home when they would normally be cared for in a hospital. It builds on the program, created by the Centers for Medicare and Medicaid Services (CMS) in response to the COVID-19 crisis, which waives certain Medicare patient care standards for in-home treatment.

Key Findings

- In December 2022, Congress approved the extension of the CMS waiver program through December 2024, despite the fact that public health crisis conditions have waned and that no data exist on the relative care quality and costs of in-patient hospital care versus H@H services.
- Under the current CMS program, Acute Hospital Care at Home (AHCaH), hospital physicians must approve patients for at-home care and hospitals must provide the array of lab, equipment, infusion and other services typically found in hospitals; but the program waives critical nursing care and safety standards, including 24/7 care by RNs. Rather hospitals must respond to in-home emergencies within a 30-minute window and may use paramedics rather than RNs for two daily in-person visits.
- H@H depends importantly on telemedicine and remote monitoring to replace in-person care.
- Despite the lower costs and requirements for H@H programs, CMS reimburses hospitals at the same rate that it does for inpatient care, including costly "facilities fees."
- The number of CMS-certified H@H programs is small but anticipated to grow considerably now that the CMS waiver program is in place through 2024 — an extension that H@H proponents are pushing to make permanent.

Policy Issues

- As an emergency program, CMS did not develop rules and procedures for H@H programs equal to those that currently cover acute-care hospitals. These include:
    - adequate standards, measurement tools, data collection, and monitoring and auditing processes to assess care quality and costs in H@H programs;
    - adequate rules for sharing the cost savings and adequate data reporting requirements to assess the real costs of H@H programs compared to hospital-based care.
- The lack of adequate CMS standards, data, and oversight systems for H@H programs provides incentives for financial interests to take advantage of taxpayer subsidies for private gain.
- Research is needed to assess the relative trade-offs of in-patient versus H@H care, including:
    - whether in-home care provided by paramedics, as allowed in the CMS H@H program, is equivalent to that provided by RNs, as is required in hospitals;
    - whether medical error rates in H@H programs are higher than in hospital-based settings, as some research currently finds;
    - whether telemedicine and remote diagnostics and monitoring can effectively substitute for in-person care;
    - whether current rules governing legal liability for patient care errors are sufficient when a patient is located at home and the lines between hospital and at-home care are blurred.
- Policies and regulations for H@H programs are needed to address the findings of scientific research.

Introduction

Hospital at Home (H@H) is an old idea that garnered widespread enthusiasm and use when the COVID-19 pandemic overwhelmed the capacity of many hospitals to meet the surge in patient demand. It refers to the practice of treating acutely ill patients in their homes when they would normally be admitted to a hospital. In response to hospitals' approaching full capacity, the Centers for Medicare and Medicaid Services (CMS) issued an emergency policy in 2020 that waived certain Medicare healthcare requirements and safety standards that normally apply to acute care hospitals, including the requirement that nursing services be provided on premises 24/7. CMS provided financial incentives for hospitals to adopt H@H programs by funding them at the same level as in-patient care — including equal payment of a full "facilities fee" — despite far lower costs for in-home care. Many hospitals adopted the program, and the waiver continued to be in effect as of December 2022, when it was extended until the end of 2024 under the 2022 Congressional omnibus government funding bill.

Congressional extension of the CMS program is one more step in making the waivers permanent — thereby allowing a substantial expansion of the treatment of seriously-ill patients in their homes — beyond the conditions of emergency public health crises. Hospitals, home health agencies, and financial actors are pouring money into H@H to secure first-mover advantage in a "hot market." Healthcare professionals, patient representatives, and healthcare unions are alarmed — arguing that the quality of care and patient safety at home cannot match that provided in hospitals.

Major proponents of H@H include the American Hospital Association (AHA) and some nonprofit and for-profit member hospitals, along with home health agencies often backed by venture capitalists (VC), hedge funds (HF), and private equity (PE) firms. They maintain that H@H can lower the costs of care while allowing patients to stay in the comfort of their homes, and they assume that advances in telemedicine and remote monitoring will provide adequate substitutes for the level of in-person care that hospitals provide. They cite research showing that patients prefer to stay in their homes whenever possible, that hospital providers want to free up beds for those who are most in need, and that payers want to reduce costs by covering services in the least acute setting possible (Pelizzari et al. 2022a). Not all patients with health conditions requiring

acute care prefer to be treated at home. One study found that 62 percent of patients declined to participate in Hospital at Home (Levine et al. 2022).

Critics argue that hospitals, home health agencies, and investors want to normalize Hospital at Home programs largely for financial gain; that new technologies are unproven and poor substitutes for in-person caregiving; and that H@H programs shift the burden of labor costs from hospitals to patients' families — while also using lower-skilled paramedics or emergency medical service (EMS) employees to replace RNs. The National Nurses United (NNU) union is leading a charge against this movement, arguing that it is part of a much broader effort to automate nursing and medical decision-making, with serious negative consequences for the quality of patient care, the costs borne by patients and their families, and the de-professionalization of health care (NNU 2022).

In sum, does the new H@H movement represent an opportunity for higher quality, cost-effective care of patients in their homes or a threat to care quality and a shift in care provision to patients' families and lower-skilled workers? The verdict is still out because the practice is so new, and data to clarify the links to care quality and costs does not yet exist.

The public needs to take note of this obscure but important issue. The composition of the coalition that successfully lobbied Congress to extend the waiver should send a warning sign. The Advanced Care at Home Coalition is led by Medically Home (a leading H@H provider backed by venture capital, private equity, and hedge funds) and includes among the largest for-profit and non-profit hospitals in the country. Recall that a similar private capital-backed coalition, innocuously named Physicians for Fair Coverage, led a $1.2 billion lobbying effort to defeat passage of legislation to ban surprise medical billing in 2019. While the No Surprises Act did pass and went into effect in January 2022, the legislation was considerably watered down due to PE-backed lobbying (Appelbaum and Batt 2020). Since then, legal challenges to the law have successfully watered it down even more (Liss 2022).

The Evolution of CMS-Certified Hospital at Home Programs

Experiments and research on providing acute care in the home date to the 1970s (Leff and Burton 1996), but the first US hospital-based model was developed in the mid-1990s by a researcher at Johns Hopkins medical school. Early examples included home visits by doctors, nurses, and other clinical staff at Johns Hopkins for patients who refused hospitalization or were at risk of adverse outcomes if they were hospitalized.

Current examples include Presbyterian Hospital in Albuquerque, New Mexico, and Mount Sinai Health System in New York City — programs that began years before the 2020 CMS waiver. Presbyterian began its carefully curated program in 2008 to serve select patients as part of its suite of at-home services that include home health, hospice, and primary care house calls. Its continued existence depends on its own insurance plans — with 90 percent of its patients covered by its Medicare Advantage (MA) plan and the remainder by its commercial insurance plan (Klein, Hostetter, and McCarthy 2016). Mount Sinai piloted a highly structured H@H program in 2014 through a grant funded by the CMS Innovation Center. After the CMS demonstration, Mount Sinai had to find alternative funding, and in 2017 established a joint venture with Contessa, formed in 2015 by a venture capital (VC) consortium, which provides operational support for H@H programs and negotiates with insurance plans for Medicare Advantage, other commercial, and managed Medicaid insurance contracts. Mount Sinai, thus, had the infrastructure in place to expand H@H services during the COVID-19 pandemic (AHA 2021; Reese 2021).

Other hospitals' efforts to establish the H@H model have been stymied by the lack of CMS reimbursement to providers for these services. The first step towards regulatory change in the wake of the pandemic was CMS' establishment in March 2020 of the Hospitals Without Walls program, which allowed hospitals to transfer patients to outside facilities such as rehabilitation hospitals, ambulatory surgery centers, hotels, and dormitories (Landi 2021a) and to use telehealth to deliver services to patients' homes (Jacobs and Eggbeer 2021).

The current CMS program, Acute Hospital Care at Home (AHCaH), launched in November 2020; and only CMS-certified hospitals can participate. Patients eligible for the program are limited to those seen in emergency departments (EDs) or those already admitted to inpatient wards. Hospitals must provide the array of services typically found in hospitals (such as pharmacy, diagnostics, infusion, respiratory care, food services, transport, medical equipment, therapy and rehabilitation, and care coordination). However, the at-home program waives critical nursing care and patient safety standards, including the requirement for around-the-clock nursing services. Instead, it requires hospitals to provide an on-demand remote audio connection to the home and a response team capability to treat in-home emergencies within a thirty-minute window. It also requires at least one daily remote check-in by a physician or advanced practice provider; at least two daily in-person visits by a paramedic, EMS, or an RN; and two sets of patient vitals taken each day (Clarke et al. 2021). (See the Appendix for a complete list).

The CMS waiver program is financially attractive to hospitals and other healthcare providers because reimbursements for the AHCaH are the same (at "parity") as those provided for inpatient facilities, including the facilities fee designed to cover hospital maintenance costs. While hospitals must provide some equipment to patients in their homes, those costs are far below those of brick-and-mortar facilities — allowing hospitals to potentially pocket the difference. CMS believed that it needed to provide "parity" funding for in-home and hospital-based care to help hospitals quickly set up in-home acute care programs during the coronavirus health emergency. Funding is primarily covered by Medicare because those age 65 and over have a higher relative rate of hospitalization. Commercial insurance covers those under age 65, and Medicaid, a smaller population of low-income people.

Hospital participation in the CMS program grew considerably. By October 2021, a year after CMS launched its waiver program, 186 hospitals across 33 states had implemented it, and a total of 1,878 patients had been treated. By early 2022, 210 hospitals in 91 health systems nationwide had been certified to provide in-home hospital care (Pifer 2022). By November 2022, 256 hospitals and 114 health systems were participating in Hospital at Home programs (Kacik and Devereaux 2022).

Many more hospitals were certified but did not implement programs due to several obstacles. And the number of new hospital waivers slowed substantially after an initial surge of interest;

only a small minority of eligible hospitals were certified by the end of 2022 (Donlan 2022b). Several obstacles to setting up effective H@H programs exist. These include high upfront costs, the ability to generate sufficient patient volume for cost-effectiveness, overcoming healthcare professionals' and patients' concerns over care quality and safety, securing an adequate supply of skilled professionals (especially during the COVID-19 and post-COVID public health crisis), and ensuring reliable telehealth and remote monitoring technologies (Gamble 2022; Pelizzari et al. 2022a; Reese 2021).

Uncertainty about the program's future funding also made many hospitals unwilling to make initial program investments (Clarke et al. 2021; Donlan 2022b; Gamble 2022). Given the two-year CMS waiver extension passed in December 2022, more hospitals are now likely to participate.

Home Health Agencies, Venture Capital, and Private Equity Enter the H@H Market Race

Providers other than hospitals would like a piece of the action. Home health agencies, increasingly backed by private equity owners and in partnership with venture capital health IT start-ups, claim they already have the infrastructure to partner with a hospital to provide care for acutely ill patients in their homes. And they say they can do it more cheaply. These agencies are clamoring to gain access to CMS funding for H@H services to add to their suite of home health, palliative care, and hospice offerings — a possibility that may strike fear in the hearts of patients. Currently, home health agencies can receive funding for H@H only if they contract to deliver those services with hospitals that are certified by CMS.

Consultants to home health companies have argued their case from the payer side. In an article in Health Affairs, a group of such consultants argued that providing care for acutely ill patients via a home health agency costs $10,500 per episode compared to $17,500 for hospital-based acute care at home — given current CMS reimbursement rates (Pelizzari et al. 2022a). In an interview with Home Healthcare News, one of the authors said: "The payment rates for home health services are lower, and even when you layer on the additional services that would be needed for a home health agency to coordinate a home hospitalization — things like meals, a hospital bed, or other equipment — you still don't reach the larger cost of an acute inpatient DRG payment (CMS payment for hospital care based on patient's diagnosis). The cost differential we found between the top-down (hospital-based) and bottom-up (home health agency-based) approaches is driven by core differences in the way payment rates are set for home health versus inpatient services" (Famakinwa 2022a).

Other consultants have raised serious doubts about providing care to acutely ill patients through home health agencies. Kacik (2022) quotes the Vice President at Advis, a consulting company, remarking "Staffing is the No. 1 issue right now, and you can't just hire a home health agency to provide acute-level inpatient care without any additional training." The managing director at FTI Consulting also sees staffing issues as a barrier to the entry of home health agencies into care of acutely ill patients. She points out that, "The startup expenses are often more than anticipated.

The programs I have seen set up are so costly from the standpoint of staffing, equipment and the sheer burden of receiving calls from patients 24/7" (Kacik 2022).

The goal of home health agencies, private equity, and venture capital owners is to create a business model that provides a diversified array of patient services in the home — supported by health IT platforms that they also seek to own and develop. In this model, patients would become long-term "clients" and provide a secure revenue stream as they move from one set of needs to others. The newest twist is the emergency room at home. Some providers that offer acute care at home have begun to offer home-based emergency rooms at home. Using telehealth technologies, they triage patients before they leave their homes for the hospital and decide whether the patient needs to be seen by an ER doctor or can simply be treated at home (Agwunobi 2022; Famakinwa 2023). This bypasses one of the key safeguards in the CMS acute care at-home program. But H@H programs that are not directly funded by Medicare are not required to have patients seen in a hospital emergency room to determine their suitability for Hospital at Home.

The Hospital at Home model is at a very early stage, with only a few leading agencies and PE firms providing examples, as described below. The home health model lowers costs for agency providers by replacing RNs with EMSs with lower skill and wage levels and by relying heavily on health IT platforms to replace human monitoring with automated monitoring of patients. Some also worry that H@H programs are more vulnerable to fraudulent upcoding, diagnosing patients at inappropriately high severity levels, or other fraudulent billing practices due to incentives built into the reimbursement system or lack of adequate monitoring and enforcement mechanisms (NNU 2022).

Medicare Advantage (MA) plans are a targeted source of funding, especially by PE-owned agencies, because they can be used "flexibly" to cover a range of different services. MA plans are offered by commercial insurance companies under contract with CMS and are attractive to seniors because they include some additional or supplemental coverage that Medicare itself does not provide. Forty-eight percent of Medicare-eligible seniors now subscribe to these plans, up from 19 percent in 2007 (Freed et al. 2022). Inbound Health, the Hospital at Home model developed by Minneapolis-based Allina Health, focuses on the Medicare Advantage base of patients. Launched locally in 2020, it has received financing from VC firm Flare Capital Partners

to expand into three or four large markets in 2023 (Filbin 2022a). But this is still an exception. Despite their appeal to providers of these services, it will likely be some time before these plans cover H@H. Critics of Medicare Advantage plans argue that they are a hidden route to privatizing Medicare and that they create an incentive structure for payers to seek ways to cut costs to increase profits — potentially at the risk of undermining the quality of care. MA also costs the government more per patient than traditional Medicare (Biniek, Cubanski, Neuman 2021).

The confluence of these developments have led PE firms to buy out home health agencies and to partner with VC firms to acquire health IT companies and the manufacturers of devices for use in patients' homes. Equipment manufacturers and distributors expect demand for remote monitoring devices, especially those used for diagnostics, to continue to escalate. "Equipment designed for in-office use tends to be much more robust, whereas equipment for the home, especially around diagnostics, is designed around cost, convenience and simplicity," according to a spokesperson for medical equipment supplier Henry Schein Medical (Kacik 2022). Health IT, as well as the design and manufacture of equipment for remote monitoring of patients, have been very active areas for VC and PE focus, especially as the benefits of these new forms of health care became clear during the pandemic. These VC/PE-owned companies have thrown their weight behind the campaign to extend the CMS waiver program with its equal payments for care of patients requiring hospital-level services whether provided inpatient or in-home. The home health agencies and PE/VC owners would capture the reimbursements for facility maintenance as they are not passed on to patients' families who cover their own housing maintenance costs.

For example, AccentCare, owned by the private equity firm Advent International, has been engaged in exploring new technologies and ways of delivering home care since its acquisition of Seasons Hospice and Palliative Care, and is now expanding its Hospital at Home business. Prior to its PE takeover and before there was a CMS waiver program, AccentCare provided Hospital at Home services in conjunction with the University of California San Diego (UCSD). The joint venture of AccentCare and UCSD used a home health platform for treatment of patients from low to high acuity in their H@H program. Hospital at Home has several advantages, according to the Chief Medical Officer (CMO) of AccentCare. Cost is one of them, as it is less costly to treat patients at home than in a hospital. The other big advantage she reports is, "...that you can actually refer patients from a clinic. They don't even need to go to the emergency room." A

challenge for Hospital at Home is how to manage acute unscheduled health needs. AccentCare relies on venture capital (VC) owned Dispatch Health to address this need (Parker 2022).

PitchBook, a research data and consulting firm, describes Dispatch Health as a "provider of on-demand mobile and virtual health care services intended to offer definitive and quality care. The company's services include mobile cars staffed with acute care clinicians, equipped with a CLIA-certified lab, medical equipment, medications, IVs, and wifi connectivity, enabling patients to opt for high-quality and low-cost care for a broad spectrum of diseases in their home or workplace." A major round of funding led by Tiger Global Management (an investment fund with VC, PE, and HF divisions) raised $200 million to expand the company's business to a hundred markets and make its services widely available. Humana, Oak HC/FT, Questa Capital, Alta Partners, and Echo Health Ventures also participated in the funding round (PitchBook Dispatch Health 2022).

The most recent entrant into the delivery of Hospital at Home is MedArrive, founded in December 2020 with $4.5 million in debt and equity, led by VC funds Kleiner Perkins and Define Ventures. In its latest funding round in January 2022, the company raised $32.8 million in venture funding from insurance company SCAN Health Plan, Leaps by Bayer, and VC fund Section 32. PitchBook describes MedArrive as a care management platform intended to seamlessly extend care services at home. The company says it wants to bridge the virtual care gap by connecting physician-led telemedicine with hands-on care from emergency medical service (EMS) employees, enabling healthcare providers to extend their services into the home, scale access to health care, and meaningfully reduce costs (PitchBook MedArrive 2022). The use of EMS workers likely reduces costs and increases profits, but the effects on care quality and patient safety are worrisome given the longstanding CMS requirement for certified RN staffing in hospitals.

In December 2022, MedArrive and Superior HealthPlan, a Texas insurance company that has capitated plans that serve 40,000 "dual eligibles" — poor elderly patients eligible for both Medicare and Medicaid — announced a partnership. In the words of the company's CEO, MedArrive will be going into some of the poorest and most vulnerable Texas communities. In cases where higher acuity care is needed, virtual care can be provided by "field providers" — EMS employees that connect patients with physician-led telemedicine services. Superior HealthPlan

expects the partnership to reduce emergency room visits by elderly patients with complex health problems. MedArrive hopes that this will be the first phase of a program that will extend to the millions of Medicaid members Superior HealthPlan has in the state (Filbin 2022b).

In some cases, hospitals and PE-owned home health agencies are pairing up to provide H@H services. For example, since the waiver program was implemented in November 2020, Advent International-owned AccentCare has worked with Baylor Scott and White Health (which includes Baylor University Hospital in Dallas), to develop a Hospital at Home program. And in the summer of 2022, AccentCare was working with Medically Home and Kaiser Permanente Georgia to use the waiver program to develop a H@H program. Medically Home is a recent venture capital and private equity-backed startup. AccentCare's CMO reports having "…actually learned an enormous amount about the different ways that you can actually supply this program." She also reports that there are pros and cons of doing Hospital at Home as a home health service versus partnering with a certified hospital as a waiver program. The challenge, according to the AccentCare CMO, is sustainability — having enough patients on a consistent basis to be financially secure. "I think an ideal model would be to have a home-based provider provide the Hospital at Home and have multiple hospitals [in a geographic area] referring into that" (Parker 2022).

Amedisys is a publicly-traded full-service home health agency that in 2021 acquired Contessa Health, founded in 2015 and already one of the largest H@H players in the country. Prior to its acquisition by Amedisys, Contessa was owned by a consortium of VC funds including Blue Venture Fund, Cigna Ventures, Health Velocity Capital, Highmark Health Ventures, and Martin Ventures. Contessa provides skilled nursing facility (SNF) at-home services as well as H@H in partnership with major nonprofit and for-profit hospital systems, including Ascension, CommonSpirit, Mount Sinai Health System, and Highmark Health. At the time of acquisition, the company had plans to expand to over 100 hospitals in 28 states (Landi 2021b). Amedisys now offers high-acuity at-home services in addition to home health, hospice, and personal care.

The vice president of M&A at Amedisys reports that private equity firms sense an opportunity here and have stepped up their activity in acquiring home health agencies. They have begun to expand the offerings of the home health agencies they own beyond more traditional home health services to care for more seriously ill patients. The competition from PE-owned

companies, some owned by PE firms that have not previously been active in healthcare, is welcome according to Amedisys because they drive up the enterprise value of all home health providers, including his agency (Famakinwa 2022a).

Medically Home: A Leading Investor-Backed H@H Platform

Medically Home was founded in 2016 and describes itself as launching "…the movement for decentralized care based on a need for a comprehensive care delivery system for patients with serious or complex illnesses" (Medically Home 2022a). It grew exponentially in just six years through a series of investments from venture capital, hedge funds, and private equity-backed companies as well as the VC subsidiaries of major non-profit hospitals.

Medically Home's health care management IT platform connects patients with caregivers and supports the remote monitoring of patients with high acuity illnesses by "…delivering patient-centered care through a virtual hospital model and enabling patients and their families to access a medical command center that provides centralized, on-demand acute medical care management from the comfort of their homes" (PitchBook Medically Home Profile 2022). Through its command center, doctors and nurses use technology to virtually assess patients that are being treated at home. They then work with community-based clinicians, frontline health workers, and technicians to dispatch required medications and services to the patient's home.

The company reports that it can deliver this turnkey model to a wide variety of providers treating patients with health conditions ranging from low to high acuity. Medically Home provides the clinical intellectual property, technology platform, and coordination of acute rapid response services. In sum, the company is a vendor that markets its model for providing acute care services at home to hospitals.

Medically Home's investors include a number of independent VC firms as well as the VC subsidiaries of major healthcare corporations — Cardinal Health, Mayo Clinic, and Kaiser Permanente — each of which has invested over $100 million in the new venture. Cardinal Health is a major logistics firm and distributor of pharmaceuticals and medical and laboratory products. Nonprofit providers include Mayo Clinic, a national nonprofit leader in serious or complex medical care and Kaiser Permanente, a leading nonprofit healthcare and health insurance plan (Medically Home 2020, 2021a, 2022b, 2022c). Baxter International (backed by VC and HF Third

Point funds) as well as Global Medical Response (GMR), owned by PE firms KKR and Ardian, became major investors in January 2022, with each investing $110 million (PitchBook Medically Home Profile 2022).

Medically Home's investors are also suppliers and clients in its ecosystem. Cardinal Health has launched a new home supply chain network, Velocare, which will help Medically Home address the logistics of getting products and equipment into patients' homes round the clock on short notice — a key challenge when caring for high-risk, acutely ill people. Medically Home expects its partnership with Velocare to enable it to expand its H@H program (Famakinwa 2022b).

Its clients include Kaiser Permanente and Mayo Clinic, which are also investors, as well as Cleveland Clinic, Tufts Medical Center, Atrius Health, and South Shore Hospital. Kaiser Permanente took steps in 2021-22 to consolidate all its home health offerings into Care at Home at Kaiser Permanente. Care at Home services include home healthcare, palliative care, hospice care, Hospital at Home, and a number of other services useful in Hospital at Home. These other services include "lab at home", a virtual nursing center, and durable medical equipment. In the view of Angel Vargas, who leads Care at Home, "…the hospital can no longer be the future of the healthcare system." That role is moving to the home (Famakinwa 2022c). Medically Home reported that by 2022, it had treated more than 7,000 patients using the company's platform and ecosystem (Muoio 2022).

One of the organizations in Medically Home's ecosystem is not like the others. Every other organization is a major healthcare provider except KKR-owned Global Medical Response (GMR). Why is a company known primarily for its air ambulance services providing financial support to Medically Home, and what is its role in the H@H provider network? Recent legislation that bans surprise medical bills provides an answer: The ban applies to air ambulance operators as well as health care providers. As a result, a key element of GMR's business model — charging excessive out-of-network bills — is no longer relevant. PE-owned air ambulances were charging $48,000 per ride according to a Brookings Institute study (Adler, Hannick, and Lee 2020). But this source of profit is no longer available. The CMS waiver opens up a new opportunity for GMR. With the well-known shortage of home health workers hampering the expansion of H@H services, GMR is aiming to deploy its workforce of 30,000 EMS employees into this arena (Donlan 2022a).

Debating the Future: Does H@H Save Costs and Improve Patient Care?

Whether Hospital at Home services should continue to be compensated in the post-COVID environment — and compensated at parity with inpatient care — is the key issue in the current debates over the program's future. To what extent do the benefits to patients outweigh the costs to them and to taxpayers?

Current advocates of H@H would like the payment of facility fees to become permanent. Critics point out that payment of the facility fee for near non-existent facility expenses in H@H programs means that hospitals can pocket the cost savings rather than lowering the costs to patients and insurers. The evidence on cost savings is mixed at best, and there is a risk that they are overstated (Taylor and Golding 2021; Goosens, Vemer and Rutten-van Mòlken 202). Critics are also skeptical that H@H programs result in cost savings for Medicare and Medicaid because in-home providers charge the same facility fees as hospitals (Kacik and Devereaux 2022; NNU 2022).

The idea that H@H can achieve substantial cost savings relies primarily on whether a hospital has the resource base to develop a program in the first place and, in turn, whether it can achieve sufficient patient volumes to sustain it. Leaders of the H@H program at Mount Sinai emphasized the large upfront costs and lead time needed to develop the infrastructure, the electronic health record (EHR) system, the healthcare staffing protocols, and the expertise to deliver care. Michael Dalton, vice president of a similar program in Cleveland, the MetroHealth System, emphasized the challenges: "I would liken this to a marathon that you are running at almost a 400- to 800-meter clip," and because it requires an entirely new set of policies, "That is something you should not underestimate" (Reese 2021).

The question of sufficient patient volumes to sustain a program was the subject of research by Pelizzari and colleagues (2022a). They found that only about 5 percent of Medicare discharges from hospital care would be eligible for Hospital at Home — only about 15 discharges per week for a 1,000-bed hospital. Smaller hospitals have far lower patient discharge rates to make a H@H

program cost-effective. Rural hospitals lack the necessary broadband access and require healthcare professionals to drive long distances to reach patients' homes (Pifer 2022). This suggests that only large, metropolitan hospital systems will be able to take advantage of H@H programs, even though small community or rural hospitals may be most in need of these savings. To date, the leading H@H programs have been developed by large and highly resourced for-profit systems or non-profit medical centers. Moreover, Hospital at Home programs may have sufficient volume during a public health crisis, but otherwise, many hospitals currently have unfilled beds and so view H@H programs as increasing costs while decreasing revenues.

One way to increase patient volumes is a proposal favored by H@H providers and advocates to waive the current requirement that an ER physician must clear patients for admission to at-home services. If CMS were to allow home health agencies to use doctors on their own payroll to determine admissions, it would create incentives to admit patients for H@H services who are not acutely ill — to inflate patient volumes and provider profit margins. Moreover, selecting the 'right patients' for treatment at home — not too sick but sick enough — is a non-trivial task that has received considerable research attention (Leff and Burton 1996), but for which no reliable standards or diagnostics have yet been set. This lack of clear standards would make it even more difficult to untangle whether or not providers are admitting appropriate patients or inflating their margins — whether intentionally or not. Given the evidence that upcoding occurs on average more frequently in Medicare Advantage than in traditional Medicare (Biniek, Cubanski, Neuman 2021), the lack of standards for H@H patient selection may exacerbate this problem

Recent studies of cost savings from H@H programs range from 20 percent (Reese 2021) to 40 percent (Brigham and Women's Hospital in Boston, Levine et al. 2020). But these findings are not generalizable as they are based entirely on single case studies of highly structured programs involving small samples of very carefully selected patients. For example, the study of Brigham and Women's program examined 91 adults who were admitted to the hospital's ED and randomly assigned to the hospital vs home for treatment.

More generally, how cost savings should be or will be shared has been a subject of discussion among care providers. The practitioner magazine, Modern Healthcare, reports that half the health system executives they interviewed said, "... they weren't sure if they would charge insurers facility fees" (Kacik 2022). On the one hand, hospitals need to be reimbursed for the

upfront costs of building out the infrastructure to care for acutely ill patients in their homes. On the other hand, critics argue that it is egregious for hospitals to tack on a facility fee of roughly $1,000 on every patient bill for H@H services.

While providing more acute care in patients' homes has the potential to lower healthcare costs and may help patients recover more quickly, the cost-benefit analysis appears to hinge on billing and reimbursement strategies. As the lead physician for Mayo Clinic's Advanced Care at Home notes, "There is a cost to bring the technology to a patient's home, set up transportation and the right staffing model, but there is also huge cost savings due to the fact there is no billion-dollar hospital, laundry, electricity, cleaning costs and other overhead (Kacik 2022)." Whether lower costs will lead to lower prices for patients and payers — Medicare, Medicaid, and private insurers — is an open question.

Some physicians believe they have a moral obligation to share the cost savings with patients and payers. Dr. Nathan Starr, the Director of Home Services for Intermountain Homecare notes, "We fundamentally believe in not just preventing readmissions to reduce costs, but investing in a cheaper model of care to produce cost savings that should be shared by more than the health system." Others believe that cost savings will be driven by fewer readmissions and better outcomes so that billing payers will not necessarily change (Kacik 2022).

Beyond the issue of shared savings is the larger question of whether the quality of care in H@H programs is equal to that of inpatient settings. Many doctors have been reluctant to discharge acutely ill patients to be cared for in their homes because they are especially worried about the quality of clinical care provided there (Pifer 2022; Kacik and Devereaux 2022). An early meta-analysis of Hospital at Home programs found positive patient satisfaction and lower mortality and readmission rates (as well as cost savings), but again, the studies were based on small samples of patients in carefully curated programs (Caplan et al 2012). More recent studies have found higher patient satisfaction as well as lower lengths of stay, readmission rates, and visits to the ED. But they are also based on single cases of well-developed and resourced programs by industry leaders, such as Presbyterian in Albuquerque (Klein, Hostetter, and McCarthy 2016) and Mount Sinai in NYC (Federman et al. 2018). These programs have a decade of experience using tightly structured programs with carefully selected patients and physician and nursing oversight.

These studies pre-date the CMS program and did not examine the costs of the bundled programs.

More general evidence on clinical outcomes and the cost of the Acute Care at Home program to Medicare and Medicaid is still lacking. An early study of 1,878 patients covered by the CMS Hospital at Home program in its first year found that 7.14 percent were sent to the hospital for in-patient care, and there were eight unexpected mortalities (0.43 percent). For this carefully selected group of patients and a closely monitored set of ACHaH programs, the numbers do not seem alarming. However, the sample is too small to draw clinical comparisons (Clarke et al. 2021). CMS lacks meaningful cost and care quality data for its waiver and Hospital at Home program.

Quality experts and nursing organizations cite a lack of data as the reason they are unwilling to declare Hospital at Home a safe alternative to in-hospital care. The Emergency Care Research Institute (ECRI), an independent nonprofit that tracks healthcare safety and quality, cites a lack of peer-reviewed research on Hospital at Home health outcomes for its reluctance to take an official stance on these programs. And limited outcome data have led private insurers generally to be hesitant to reimburse Hospital at Home care (Kacik and Devereaux 2022; Perna 2022). Moreover, advocates rarely mention that clinical outcomes for patients cared for in their homes were not better than for those admitted to the hospital (also no worse as they did not differ), or that pain control was worse for patients receiving care at home.

A recent study of home infusion therapy points up some of the risks. Home infusion is currently available for administering cancer drugs and antibiotics intravenously, and is one of the services that H@H includes. There is always a risk of central line bloodstream infections associated with infusion therapies, infections that can cause death. In the hospital, patients are monitored by highly skilled nurses with formal training in infection prevention and surveillance. But interviews with nurses providing surveillance of infusion therapies at home found that many reported no formal training (Oladapo-Shittu, Hannum, et al. 2023). The study involved a small number of interviews, but it highlighted safety risks of performing this therapy in the home.

A number of factors suggest that H@H may not deliver care quality comparable to that of hospitals. First, in case an emergency situation develops suddenly, RNs are immediately available to respond in a hospital, whereas the CMS H@H program only requires emergency response

within thirty minutes, after which a patient may need to be transported to a hospital, which leads to a further delay in receiving emergency care. CMS also only requires an initial physician exam, with two daily on-site follow-ups performed by a paramedic, EMS, or RN. And while the CMS program requires many services provided in hospitals (such as lab, radiology, and respiratory services), these are not immediately available in homes, leading to delay times in services that may put patients at risk.

More generally, the interdisciplinary and holistic care provided collectively by hospital-based professional teams is not available for patients at home. And the H@H model contradicts substantial research over three decades documenting that higher RN staffing levels lead to lower patient problems (bed sores, infections, and falls) as well as lower readmission levels and mortality rates. (Cox et al. 2015; Dzikowicz et al. 2020; Griffiths et al. 2018; Needleman 2017; Shang et al. 2019; and Shekelle 2013). Home-based patients also face higher medication errors, compared to those in hospitals, especially infusion errors, which lead to higher ED or hospital readmissions (Baker et al. 2022; Mann et al. 2018).

The effectiveness of telemedicine and remote monitoring as substitutes for in-person care is also an unproven concept. While research shows that the COVID-19 crisis has led patients to become more accepting of telehealth as a substitute for in-person meetings, technology may not be able to replace a person with the training and skills to treat patients requiring acute care. Moreover, after nearly two decades of failures at implementing effective integrated electronic medical records systems, it is not self-evident that hospitals and health IT companies will do better with telemedicine for Hospital at Home.

In sum, research clearly shows that the quality of care depends importantly on the level of skilled healthcare professionals who provide it. Meeting staffing needs, however, is perhaps the most critical need for healthcare providers post-pandemic. While the CMS requirements state that on-site visits may be performed by RNs or paramedics, the difficulty recruiting RNs may lead to a norm in which RNs continue to be employed in hospitals (a CMS requirement), but are replaced by paramedics or EMS employees in at-home programs because they allow this substitution. Moreover, the CMS reimbursement formula that pays H@H services at the hospital inpatient rate may create perverse incentives for hospitals to skimp on labor costs in their H@H programs by utilizing lower-paid labor, such as paramedics or EMS employees rather than RNs.

Alternatively, lack of staffing may mean that patients and families absorb the labor costs of care. Moreover, while emotionally committed to providing necessary care, family members may lack the skills needed to adequately provide it. Hospitals in effect may outsource labor costs to patients' families, all in the name of providing the comforts of home to patients. The result may be higher profits and lower costs for hospitals while patients receive lower quality care at home.

Another unexplored issue is who should bear the legal responsibility for medical errors or liabilities if patients become more seriously ill or suffer injuries or fatalities at home? Will hospitals assume responsibility or will patients' families feel they are to blame? Once patients are treated in the context of their homes, the responsibility for medical liabilities becomes exceptionally blurred (Simon 2022).

The rush to embrace Hospital at Home has broader implications for the US Healthcare System, a point emphasized in a 2022 report by National Nurses United (NNU), the largest union of RNs in the US and a strong critic of H@H programs. The report explains how H@H is part of a much broader movement to automate "...nursing and medical decision making, reducing people to a list of symptoms which are then interpreted by technology that is racially and ethnically biased and often excludes relevant details about an individual patient. The hospital industry uses this automated approach to justify reducing the number of licensed healthcare professionals providing patient care and then profits from the reduced labor costs" (NNU 2022). The COVID-19 health crisis has allowed the industry to accelerate the normalization of automated care in the name of overcrowded hospitals and patients' desire to be served at home. The NNU report also notes the program was approved under the Trump administration outside of normal rulemaking and without careful public evaluation or evidence to justify waiving federal law.

Lobbying Congress to Move Healthcare Home

Two coalitions of for-profit, non-profit, and investor-backed providers have formed since the pandemic began to lobby Congress to loosen regulatory restrictions on home health care, including Hospital at Home. Both coalitions would like Congress to preserve "regulatory flexibilities" in CMS' Hospital at Home program — code for waiving some requirements to qualify to care for acutely ill patients and allowing parity in payments for care in the hospital and in the home. These provider coalitions are pushing to extend the waiver program permanently.

Medically Home, Kaiser Permanente, and Mayo Clinic launched the Advanced Care at Home Coalition (ACH Coalition) to push Congress to make the CMS waiver program permanent. It advocates extending the "...flexibilities for advanced care services at home beyond the duration of the COVID-19 Public Health Emergency." While it agrees that regulators should establish guardrails, it wants them to allow providers and their vendors, including notably Medically Home, to develop their own models (Medically Home 2021b; Jercich 2021). In the longer run, the coalition sees the key to moving forward as having the CMS Innovation Center enable testing and approval to establish a variety of models for caring for acutely ill patients at home. As of December 2022, it counted 15 member organizations, primarily medical centers and major hospital systems. Included are Adventist Health, ChristianaCare, Geisinger Health, Integris, Johns Hopkins Medicine, Michigan Medicine at the University of Michigan, Novant Health, ProMedica, Sharp Rees-Stealy Medical Group, UNC Health, and UnityPoint Health (ACH Coalition 2022).

In the meantime, Amazon teamed up with two national non-profit healthcare systems, Intermountain Health and Ascension, to form "Moving Health Home" (MHH) which bills itself as "an alliance to advance home-based care policy." As of December 2022, MHH included 22 hospital and home care agency members, with a preponderance of the latter. Its goals are to reduce CMS regulations so that more clinical care, from primary care to hospital-level treatment, can be delivered at home. It advocates for "permanent flexibility to transfer or treat patients in home-based settings" and "increasing access to home-based care services through pushing the boundaries of the definition of clinical site." MHH also sees greater access to funding through

Medicare Advantage programs and "the creation of a post-acute care benefit that would serve as a home-based alternative for skilled nursing facility care" (Moving Health Home 2022).

To date, Congress has been reluctant to extend the waiver permanently because of the lack of scientifically generated cost and efficacy data and the small sample sizes of patients in the CMS-monitored program noted above.

Conclusion and Policy Implications

Just as the practice of charging out-of-network surprise medical bills caught the public and lawmakers by surprise, the new Hospital at Home movement appears to be on the same trajectory. In the urgency to deal with overcrowded hospitals during the COVID-19 emergency, CMS made a temporary change to its funding rules and patient care standards. But the ongoing efforts to make H@H the new norm for acutely-ill patients raises a number of serious concerns, including care quality, patient safety, de-professionalization of the workforce, costs versus benefits, cost-sharing, and the need for an effective bureaucratic infrastructure to oversee H@H programs and enforce quality standards.

Beyond a handful of carefully curated case examples, no systematic evidence exists that H@H services to the acutely ill yield better patient care or lower costs compared to the current hospital-based system. No evidence exists that a widespread shift to H@H programs will improve the overall US healthcare system. In addition, CMS has established no system to adequately collect data and monitor and enforce care quality and patient safety in the home at the level that currently exists for hospital-based settings. This is especially problematic because some emerging research finds home-based patients face higher medication errors, especially infusion errors, which lead to higher hospital readmissions or emergency room visits.

Given the ongoing national shortage of registered nurses, doctors, and other healthcare professionals, the temptation will be even greater for H@H programs to substitute lower-skilled paramedics, EMS workers, and other homecare workers for healthcare professionals on a more permanent basis. Yet, the existing scholarly research has demonstrated that higher levels of RN bedside care or higher nurse/patient ratios lead to significantly better patient outcomes — as measured by fewer patient problems (bed sores, infections, and falls) and lower hospital readmission and mortality rates. Research has also shown the importance of multidisciplinary team-based care, which is difficult or impossible to provide to patients in hundreds of dispersed residential locations in a metro area or region.

Related to the issue of the de-professionalization of health care is the emotional burden placed on family members — who without the ongoing availability of skilled staff may feel obliged to fill

in the gap while worrying about their capabilities to do so. H@H programs are likely to shift the often-hidden labor costs to patients' families, or patients at home alone with only remote access to help.

In addition, the effectiveness of H@H programs — their care quality and cost savings — depends importantly on the effectiveness of telemedicine and remote monitoring as substitutes for in-person care. Despite current enthusiasm for telehealth solutions, practitioner experience and academic studies document more than two decades of uneven and often failed implementation of electronic medical records systems — even with the help of massive government subsidies to for-profit corporations. We should not be overly confident of the optimistic claims of health IT advocates. While Americans have become more accepting of telehealth for minor check-ups and appointments, no serious research exists to demonstrate that telemedicine and automated monitoring can replace a person with the training and skills to treat patients requiring acute care. Nor does the government collect the kind of data needed to test this question.

The debate over Hospital at Home also needs to be considered in the broader framework of the US healthcare system and its current deficiencies and inequalities. Beyond care quality, patient safety, and the deprofessionalization of health care, is the question of who benefits from the cost savings? CMS has no standards in place to require H@H providers to share the cost savings with payers, patients, or their families. Past experience with providers sharing cost savings is not promising. For example, in the Medicare Advantage program offered by commercial insurers, several recent investigative reports have found that these plans have overcharged taxpayers millions of dollars by aggressively coding patients as sicker than they actually were (Schulte and Hacker 2022). The New York Times found that eight of the 10 largest MA insurers, controlling two-thirds of the market, had overcharged Medicare, according to federal audits (Abelson and Sanger-Katz 2022). And a Senate investigation found that MA plans engaged in widespread deceptive and predatory marketing practices targeted at seniors (U.S. Senate Committee on Finance 2022).

Similarly, investigative reports by the Wall Street Journal in 2022 (Mathews, McGinty, and Evans 2022) revealed that nonprofit hospitals were failing to provide adequate charity care and were favoring expansion into wealthy suburbs rather than poorer communities. Between January 2022, when the No Surprises Act took effect, and January 2023, major hospital systems filed

lawsuits challenging the act. Private equity firms have been found extracting millions from hospital systems, nursing homes, and other healthcare providers, and have settled millions of dollars in false claims lawsuits for overcharging Medicare and Medicaid.

Without safeguards in place, the incentives in the current H@H reimbursement system coupled with the lack of monitoring and enforcement capabilities create great concern that hospitals, home health agencies, and financial actors such as private equity and venture capital firms will pocket the cost savings of H@H. Patients, families, and taxpayers will bear the costs.

Given the troubling questions and concerns about the widespread implementation of H@H programs without clearly defined standards of care and mechanisms for data collection, monitoring, and auditing of systems, Congress and the CMS need to establish a research program to identify best practice programs and measure their outcomes through rigorous research protocols. The research must include an assessment of the skill requirements for quality patient care at home and in hospital settings. Based on this research, appropriate skills and training standards should be developed, and CMS grants provided for upgrading the skills of the US healthcare workforce.

This research can serve to establish minimum standards for H@H programs and be used as a basis for certifying or recertifying hospital participation. At the same time, CMS also should use this research to develop adequate data collection requirements and procedures for monitoring and auditing H@H programs.

Appendix

CMS Requirements for Acute Hospital Care at Home Waiver Approval

CMS certified hospitals must:
Provide the following services: Pharmacy, Infusion, Respiratory care including oxygen delivery, Diagnostics (labs, radiology), Transportation, Food services (including meal availability as needed by the patient), Durable Medical Equipment, Physical, Occupational, and Speech Therapy; Social Work and Care Coordination
Physician or advanced practice provider must evaluate each patient daily, which can be remote after the initial in-person History and Physical Exam performed in the hospital or ED.
Monitor with at least two sets of patient vitals daily
Provide at least two in-person daily visits by RN or MIH/CP. If both in-person visits performed by MIH/CP, additional daily remote RN visit to develop a nursing plan.
Provide immediate, on-demand remote audio connection with an AHCaH team member who can immediately connect the appropriate RN or MD.
Provide in-home appropriate emergency personnel response to a patient's home within 30 minutes, if needed.
Allow only patients in an ED or inpatient hospital to participate.
Develop or use patient selection criteria.
Agree to voluntarily provide volume, escalation rate, and unanticipated mortality to CMS.
Establish a local safety committee (like Mortality and Morbidity team) to review reported metrics.
Use an accepted patient leveling process to ensure patients require an acute level of care.

Notes: Abbreviations: APP = advanced practice provider; MIH/CP = Mobile Integrated Healthcare–Community Paramedicine; AHCaH = acute hospital care at home; CMS = U.S. Centers for Medicare & Medicaid Services. Source: Clarke et al. 2021

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