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Hospital at Home: Making Home the Focal Point for Care

How health systems can meet demand
for hospital-level in-home care

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Executive summary

Initiatives to deliver hospital-grade healthcare in the home have gained traction. "Hospital at home" has demonstrable value, and early trials and deployments have revealed a consumer preference for these programs. What will it take to scale? As in other industries, innovation in healthcare faces various obstacles. If hospital systems are to move forward, they will require a digital framework that can fully and securely operationalize the service by handling the complexity of integrating multiple data sources with staff, devices and patients.

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"Hospital at home" programs serve patients with conditions that caregivers can safely treat in a home environment. Although treatable at home, patients should meet the criteria for hospitalization to distinguish them from those enrolled in at-home health programs. "Whereas home health is associated with delivering hands-on nursing and medical supplies, hospital at home is more transformational, up to and including full-spectrum acute care in a hybrid virtual/in-person model that leverages technology to maximize the efficiency of the clinical workforce," said Atul Kaushal, NTT DATA Services Clinical Innovation Consulting Lead. "The model has been tested, and its time seems to have arrived."

Targeted medical services and domains for hospital-at-home initiatives include care management for advanced illnesses, primary care, oncology, behavioral health, chronic care, post-operative care and senior care, among others. Hospital at home typically aims to serve patients with conditions of low-to-moderate acuity.

Momentum in virtual care has increased amid the COVID-19 pandemic. The use of telehealth, for instance, a prerequisite for hospital at home, skyrocketed during the pandemic to 38 times more than its pre-pandemic baseline.[1] In 2021, more than a dozen providers, including the Mayo Clinic and Kaiser Permanente, formed a coalition to advocate for the extension of hospital-level care-at-home services beyond the ongoing public health emergency and other supportive policies.

A new model for value-based care

Many clinicians and staff are eager to engage in these programs, whether through house calls or remote care.

Hospital-at-home initiatives seem poised to break out. According to one study, patients who received such care had a 20% reduction in mortality, and acutely ill patients admitted to hospital-at-home programs through emergency departments were three times less likely to be admitted to the hospital within 30 days than usual care patients.[2] These programs also lead to fewer complications, which isn't surprising given the lower risk of infections in the home.

The model makes economic sense, too. "There's a tremendous cost associated with a person spending time in a hospital, in the in-patient setting," said Richard Swafford, Ph.D., NTT DATA Healthcare Solutions Director. "There's also an opportunity loss for lower acuity patients taking up a hospital bed when a higher, more acute patient should be in that bed." Hospital at home allows payers and the government (that is, Medicare) to avoid fixed costs associated with brick-and-mortar hospitals, and it can reduce the need to build new facilities. An aging population also points to the potential for revenue growth.

Finally, this model generates greater patient and clinician satisfaction. For medical staff and care coordinators, "Keeping patients at home can help nurses, doctors and care coordinators be much more resilient in their work due to the ease of use, accuracy and flexibility digital solutions provide. Hospital at home improves the work environment that has been so taxing for frontline healthcare workers," said Katie Sulkowski, NTT DATA Healthcare Innovation Consultant. Many clinicians and staff are eager to engage in these programs, whether through house calls or remote care.

Obstacles to home-based healthcare

Despite the positive value equation, hospital-at-home initiatives have yet to enter the mainstream. What's holding it back? Some inertia is regulatory, as implied in the efforts of the Mayo Clinic/Kaiser Permanente coalition. Then there are the organizational challenges posed by disruption, including staff challenges, altering the care dynamic, and concerns regarding staff and patient safety. Those willing to participate, for instance, will require additional training. Financially, it takes time for healthcare payment mechanisms to adjust to any new model.

One glaring obstacle for hospitals and health systems is the underlying complexity. Hospitals that deploy high-level care in the home resemble NASA in one respect. Like mission control, they must be tightly linked with their external modules — in this case, a growing number of at-home healthcare bundles.

For hospitals already invested in digital systems and applications, introducing another layer of complexity can seem daunting. Hospitals face the following challenges:

- Linking data of multiple types (such as clinical, payer, social, pharmacy and lab) with a range of users (clinicians and care coordinators) and locations
- Ingesting patient data and providing staff access to consoles, alerts and notifications
- Interacting with patients at home both digitally and through in-person care while meeting the quadruple aim of reduced costs and improved patient experiences, provider satisfaction and population health
- Achieving quality measures, including Centers for Medicare & Medicaid Services (CMS) Star Ratings, National Committee for Quality Assurance (NCQA) Healthcare Effectiveness Data and Information Set (HEDIS) and Agency for Healthcare Research and Quality (AHRQ) Consumer Assessment of Healthcare Providers and Systems (CAHPS) scores

These programs require robust connectivity among a network of digital technologies that securely collects and transmits data. That network also provides artificial intelligence (AI) and intelligent analytics around the data to inform a pathway for better outcomes and an operational model with best practices surrounding the patient, the care coordination team and the technology.

> "You have to have a plan around the technology," said Lisa Esch, NTT DATA Healthcare Provider Business Head of Industry Solutions. "How do you staff it? How do you deliver it? How do you monitor it? What happens if something goes wrong? There's a complexity to this that simply doesn't exist when you're taking care of patients in the hospital."

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The requirements for a scalable framework that delivers predictive data analytics have grown over the past quarter-century, making a do-it-yourself approach no longer feasible. Outsourcing is a reasonable solution to these challenges. For medically related device and connectivity issues, third-party providers like Best Buy Health have relevant expertise with installing and managing technology in the home.

NTT DATA goes a step further. Our Hospital at Home leverages a simple and integrated digital system and model that enables at-home care technologies to work seamlessly with the hospital. The solution provides three essential support functions: a command center, acute rapid response and clinical innovation.

Command center

Acting as mission control, this function connects and supports patients and clinicians in the delivery of effective care. The command center provides intelligent management of remote devices (such as dispensers, wearables and telemetry), as well as in-patient and home-care services, while enabling care team members to communicate, regardless of location. It uses analytics and AI to predict future needs and drive improvements. The function can also identify patients at the point of admission who are eligible for at-home care based on a complex AI algorithm.

Acute rapid response

This function collects and transmits data so care teams can provide accurate, real-time care through remote means to improve patient outcomes. It provides information management (alerts and notifications), support for audio and video capabilities, mechanisms for addressing connectivity issues, privacy and security management, tech installation and support partnerships, and patient/clinician engagement applications. Also included are tools for assessing patients in home settings to determine eligibility to remain in the home.

Clinical innovation

Opportunities to advance remote-care delivery capabilities will grow. Our solution can interface with the platforms and applications of today while anticipating the use of advanced robotics and automation, augmented and virtual reality tools, remote imaging to support portable imaging options, smart beds and other advanced in-home monitoring technologies, and analytics and AI to drive deeper insights.

The solution, which leverages health systems and patient-generated information, acts as a foundation for managing patient and care team engagement. It collects patient data beyond the electronic health record, provides portal access for clinical staff, manages remote devices and AI resources, enables patient access for communication and tracking, and delivers alerts and notifications related to patient events. By leveraging a holistic approach to patient care in the home, our solution helps health systems move more effectively to a hospital-at-home strategy that ultimately drives improved patient outcomes, enhanced patient satisfaction and reduced cost.

Conclusion

Patient needs are driving the shift to care-at-home programs. As the home becomes the focal point of care, treatment becomes more cost-effective, accessible and better for the patient. Successful hospital-at-home programs, however, first need the appropriate resources, roles, organizational culture and reimbursement models.

To address this market shift, hospital at home requires a careful blending of technical and medical competencies. "There's a technical and data infrastructure. There's a workforce infrastructure. There's all the data coming back to the system from the remote monitoring devices," said NTT DATA's Atul Kaushal. "Doing this correctly requires thinking through a myriad of details and mastering new workflows to deliver the quality care at home that your patients require. The benefits of getting it right are higher efficiency, lower cost, and increased quality and satisfaction scores — all while maintaining clinical outcomes. And the good news is that this is not 'far-future innovation'; it's achievable with today's technology for those health systems that are willing, or need, to take the next steps toward what is an inevitable shift in the paradigm of acute care delivery."

Let's get started

If your hospital is thinking of launching or extending this hospital-at-home service, pay close attention to connectivity, governance and the operational model at scale. By deploying satellite branches within patient homes, you can create a distributed healthcare network. The trust built within your hospital's walls needs to translate to the patient's home.

You need a partner to help roadmap your model, including your assets, culture, values, doctors, staff and the patients you serve. Working with a partner who understands connectivity at scale and can be a trusted services provider who deeply understands medical data, workflows and the healthcare industry can help you successfully make home the focal point of care. Visit our Insights page to learn more about hospital at home and the future of healthcare.

Sources

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2. The Value Initiative. "Creating Value by Bringing Hospital Care Home." American Hospital Association. December 2020. https://www.aha.org/system/files/media/file/2020/12/issue-brief-creating-value-by-bringing-hospital-care-home_0.pdf

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