
Home
Sweet
Hospital

Be It Ever So Humble...

Exploring "Hospitals at Home" to manage health system pressures

Featuring Mary Jo Williamson, Jason Craig, and Dean Eide

A variety of pressures, including increased demand for inpatient services, fueled Mayo Clinic Health System's (MCHS') exploration of a new model for providing comprehensive care to patients from the comfort of their homes, freeing up resources in hospitals to manage COVID-19 patients and other pressures on the health system. In a presentation at AMGA's Innovation, Quality & Leadership Conference in September 2021, Chief Administrative Officer Mary Jo Williamson, Regional Chair for Administration Jason Craig, and Vice Chair for Administration Dean Eide shared their experience in developing Advanced Care at Home, an innovative approach that brings together technology and clinical expertise to provide care in a way that really puts the patient first.

When Demand Overcomes Capacity

MCHS is a large, community-based practice within a 120-mile radius of Mayo Clinic's academic medical center in Rochester, Minnesota. With a physical presence in more than 44 communities throughout southern Minnesota, western Wisconsin, and parts of northern Iowa, its facilities include large regional medical centers, 16 hospitals, 46 provider clinics, and a newly launched mobile health clinic. Its workforce of approximately 15,000 people includes over 1,000 physicians, 700 advanced practice providers, and 4,000 nurses serving about 600,000 patients annually, with more than 2.2 million in annual visits.

MCHS emerged from an acquisition strategy in the 1990s to better integrate care for the patient base in Rochester's geographic market. Mayo Clinic acquired community practices over the course of about two decades and ran them as independent sites for a number of years, but pivoted from that initial holding company model "to really get serious about an integrated approach for care across the Midwest," said Williamson.

As described by Craig, prior to 2017, the five hospitals within the Northwest Wisconsin region really "operated in more of a siloed mentality. While there was ongoing communication and coordination among those sites, there really wasn't a centralized structure or management approach that took an intentional action toward the coordination of those resources that allowed for effective patient throughput and flow throughout all of those sites." Late in 2017, the region began engaging in more intentional communication, collaboration, and coordination, which occurred in parallel with similar efforts throughout the rest of system.

"Our teams work hard to bring the knowledge and expertise of Mayo Clinic to their communities to ensure that our patients receive the same world-class care that Mayo Clinic delivers close to home," said Craig.

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CASE STUDY

Figure 1
Leveraging Existing Capacity

	2018 YTY Growth	2019 YTY Growth	2020 YTY Growth	2021 Annualized YTY Growth	Growth Since 2017
Admissions	3.49%	4.09%	-5.68%	5.3%	7.04%
Average Daily Census	5.84%	4.95%	.8%	3.0%	14.91%
Patient Days	5.86%	4.97%	.68%	1.9%	14.01%

Patients have access to a full spectrum of healthcare options, including more than 100 medical and surgical services and specialties, as well as access to Mayo Clinic in Rochester. Patients may be treated there or treated locally and co-managed with Rochester through virtual and digital technology. Practices have been organized into four separate regions, but with a single practice governance committee that oversees all the care provided.

Craig noted that those efforts created more of a cohesive patient throughput strategy for the bricks-and-mortar sites throughout his region and others in the Midwest. Among other things, it added capacity. While capacity was increasing, however, so was demand (see Figure 1). This led the MCHS to explore other options.

The system has a focus on healthcare transformation. "Things like ICU, telehealth, infectious disease, and others are all examples of how we work with novel care solutions to bring the best care possible," said Williamson. "We've really forced ourselves to think differently. We've moved away from a traditional optimization of a campus and instead are looking at that whole continuum of care. We've pivoted to more virtual and digital access across the board, which really helps us with this extension of our hospital work. And we've been innovating on new healthcare delivery models at all ends of the spectrum. But one of our biggest and earliest successes has been Advanced Care at Home."

Exploring Potential Benefits

Advanced Care at Home is designed to care for people who would be at the inpatient level of care in a hospital. "So, think of it in terms of what it is and what it's not," said Eide. "It's not a home health. It's not palliative. It's that inpatient level of care that would be equal to an inpatient level in a bricks-and-mortar facility. It's not an ICU level or a PC level, but it's the inpatient level."

Craig noted key drivers and considerations the planning team considered when they began exploring Advanced Care at Home. First and foremost, Eide said, was an idea expressed by one physician leader: "We spend an unbelievable amount of time and effort trying to duplicate the patient's home in hospitals. Why don't we just use the patient's home?" That statement continues to be referenced by MCHS program leaders, physicians, and staff as they explain Advanced Care at Home, either to other staff or to patients. "It really does boil down this initiative to what's most important," said Craig, "and that is ensuring that patients are receiving high-quality inpatient care within their safest and most familiar setting."

Other benefits include:

- Eliminating the potential for hospital-acquired infections
- Decreasing the need for new facilities as demand increases
- Creating unique learning and use cases for MCHS teams

Regarding the last point, Craig noted three particular areas that would provide new and useful information. First, the extensive amount of remote monitoring needed for Advanced Care at Home could conceivably be applied in other settings where it is not currently in use. It also would create opportunities for use of wearable devices and the type of data they provide, potentially allowing for better predictive care. Second, specific care modules delivered within the patient's home could, in fact, be unique platforms that could be offered outside of the Advanced Care at Home setting. Finally, figuring out how to effectively deliver pharmaceutical care within the home setting could create additional opportunities, because pharmaceutical care is a persistent need in almost any setting.

Other Considerations

A variety of services are needed to safely provide hospital care within the home. Two key considerations

are staffing and equipment, which can be in-sourced (directly employed staff providing care in the patient's home) or outsourced (contracted relationships with service vendors). MCHS uses both approaches. Eide noted that in northwest Wisconsin, which leans rural, "we did a full analysis of what was needed to be brought into the home to provide care at an inpatient level. We really did a detailed analysis on what we could outsource. And then we also asked, what is our strength on the in-source?"

Ultimately, in-sourced services included some pharmacy, paramedics, infusion therapy, rehab, mobile diagnostics, and durable medical equipment. Outsourcing included things like medical meals, home technology, mobile diagnostics, and medical waste. Craig noted that in a more urban setting, there may be a larger number and variety of service providers available, creating more opportunities for outsourcing, but "the availability and stability of any vended or contracted services is really a key consideration as you determine which of those models to pursue."

Care at home requires equipment. Ready access to that equipment, as well as on-demand service and maintenance of that equipment in the home, requires the initial purchase of that equipment. "So, keep in mind," said Craig, "although this is certainly a platform-based operation, it does still require much of the hard-wired equipment that is required in a traditional hospital setting."

Geography also must be considered and factored into planning efforts. Said Craig, "We have to have ready access to those patients' homes, and those different vendors and suppliers also have to have that same type of accessibility."

The Mayo Clinic Gonda Building in downtown Rochester, Minnesota—the centerpiece of Mayo's integrated practice—was the largest building project in the Mayo Clinic's history and is located at the heart of the Rochester campus.

Finally, consider whether advanced in-home care fits within your overall system of care. Is there a very tight demand and compression within your system? "The big question," Craig said, "is have all of you optimized your current operations before evaluating the Advanced Care at Home opportunity?"

Based on the benefits and other considerations, MCHS "determined fairly quickly that this was a truly unique and innovative opportunity that we badly wanted to offer to our patients throughout Mayo Clinic."

Lessons Learned

MCHS uses a team-based approach to in-home care, and the teams must be completely integrated. Physician or nurse practitioner services are delivered via a centralized command center, which provides all the monitoring and all the physician-level medical guidance to the teams that interact with the patients in their home. Community paramedics facilitate transport from the facility to the home and ensure that that patient is set up in a very safe environment and then connected to the team. The in-home teams include nurse practitioners, home health nurses, and respiratory therapists, among others.

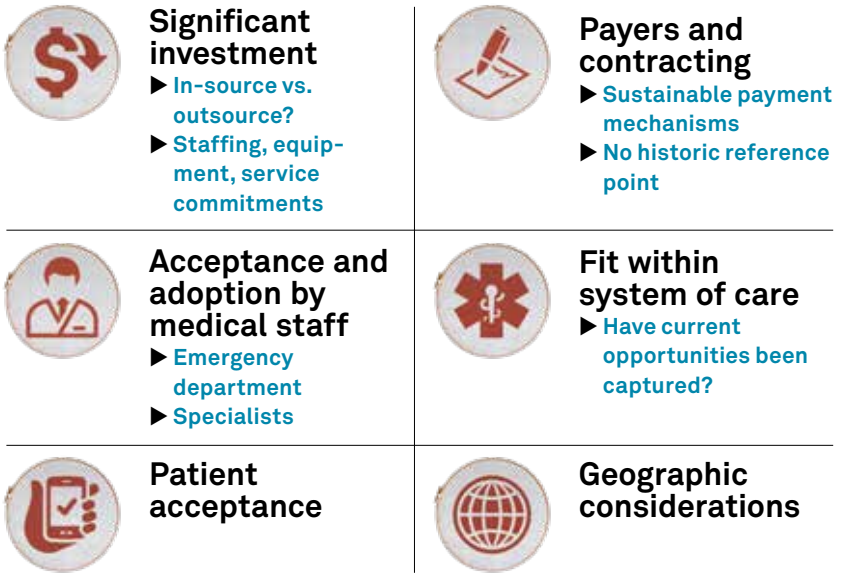
Remote biometric monitoring is used for the typical things monitored in an inpatient setting, such as heart rate and blood pressure. This data goes to the command center, which has a very robust dashboard to monitor the different patients. That information also is included in the integrated electronic health record and is visible to all providers involved in that patient's individual care. In all, said Craig, there are "18 different supply chain elements that all have to come together in perfect unison to deliver that care to the patient within their home."

Care is provided 24/7, with scheduled in-person and virtual interactions throughout the day. Virtual interactions occur on a set schedule via iPad. That system also provides a way for patients to connect with the command center as needed. These services also are available through a duplicate cellular system, but the focus is on Wi-Fi.

At the time of the presentation, Craig noted, the MCHS in-home care model had been operating for about

Figure 2

Launch Experience: What Are You Getting Into?



a year and a half. One of the key lessons learned during that time is that implementing advanced in-home care requires significant investment in time, attention, and money.

Training and good communication are key. Patients and medical staff must be well informed to ensure a safe and high-quality care experience in the home. MCHS had a very wide-ranging team devoted to the launch of the initiative, and a considerable amount of effort went into ensuring acceptance and adoption by the medical staff. Craig considers training emergency department staff an important initial step. "So many of the admissions originate within that emergency department," he said. "We wanted to have widespread communication, understanding, and education among emergency department personnel so that we could seamlessly introduce the service and have coordinated messaging to the patients."

In addition to **education** provided to patients while they were in the hospital, MCHS engaged in a large-scale public affairs and public communication effort to provide more community awareness of the safety and efficacy of the Advanced Care at Home model. Craig noted that they "found there really is an ongoing need. While there was a considerable increase in that activity at the launch, it continues to be a need—and a persistent need—as we continue to offer those services to patients."

As well, it's important to ensure a level of **financial sustainability** within the model that will allow offering the at-home services in a stable and reliable manner. "What we found very early on," said Craig, "is that state-based contracting regulations really come into play. As you evaluate this opportunity for your organization, you will want to have a lot of engagement with the contracted payers that are out there."

When MCHS introduced it, the at-home care model was new, and not all payers were familiar with it. "There were some who were quite enthusiastic and some who were a little skeptical about the acceptance and ability to launch, ability to implement, and ability to execute on the promises of the program," said Craig. "I think it's certainly safe to say at this point, about a year after launch, we now are seeing a significant shift in any of those payers who were a bit reluctant—they're very enthusiastic about learning more about the program, seeing some of the results from the program, and really getting a better understanding of what the true care benefits are to those patients."

The COVID-19 pandemic also helped bring attention to the idea of caring for people in the home. MCHS has been able reach agreement with payers to provide that necessary financially sustainable approach going forward, but Craig noted, "there are a lot of state-based nuances that you will want to thoroughly review and investigate."

Obviously, **staffing** is also a concern, but it turned out to be an opportunity that appealed to existing staff in the MCHS Northwest Wisconsin Region. They pursued an in-sourced staffing model, which required more of the traditional recruitment ramp-up and expansion of staff.

Craig said that the Advanced Care at Home model has a tight connection to the organization's mission and purpose. "There was a very clear understanding and connection from our staff as to how this type of service best meets those patients' needs and provides a unique service offering for the communities and the patient populations that we serve. So, I think without question, at the outset, there was quite a bit

of appeal to being involved in a very significant endeavor, a new type of service offering. And some of the appeal of being part of something that we see is cementing a long-term legacy within our care model."

As a result, a significant number of existing staff within other parts of the organization immediately expressed interest in these new roles, and MCHS was able to ramp up the workforce fairly quickly—far faster than the approach within traditional hospital operations, according to Craig.

Further, MCHS has found staff in the program are very satisfied with the work, leading to a high retention rate. Eide attributes this to the intimate nature of the service. "They go into the person's home, they see where the threats are, they see what's going on, and they work from a holistic approach. They're providing care and meeting the family members and pets. All of that is becoming part of this experience when they're providing care in the home, and virtually as well. So, I think that connection is special."

As well, he noted that, when someone is in the hospital, the focus is often on when discharge will occur. In the at-home model, "you have the gift of time, plus the intimacy of being in the home and being able to see how the patient is functioning in that environment. I feel it's pretty powerful for the staff to be a part of that process because it's a privilege to be able to be caring for a person in their home environment."

Patient selection is also extremely important. Craig explained, "It's assumed at launch that you would choose low-complexity patients who would be kind of an easy fit for this type of model. We actually took a bit of a different approach and wanted to initially select some more complex patients to really demonstrate the effectiveness of this model in delivering care safely within the setting. That actually engendered additional investor trust and credibility among our medical staff and among patients as we shared those stories more broadly through our communication pathways."

The availability of at-home care has had a profound effect on patients. For example, the first patient in the Advanced Care at Home program, in keeping with the approach of selecting more complex patients, had several medical comorbidities and had been in and out of the hospital many times throughout the previous calendar year. A treatment team and treatment plan, including several different services and medications, were put in place. When at-home care was offered and explained, the patient "wept with happiness," said Craig. "Patients don't want to be in the hospital. They don't choose to go there. That's not their place preference."

"We've had rooms full of family members who have wept with happiness as well," he said. "All of us have seen that anxiety-inducing experience for family members. When their loved one is admitted to the hospital for either a medical or surgical condition, it induces anxiety for all family members." Care at home saves family members the travel to and from the hospital, as well as the need to coordinate layers of communication with other family members. Most important, however, is the effect on the patient. "The supportive element of those family members being there in the home with those patients—it can't be underestimated."

Of course, having the program in place before the rise of COVID-19 was a huge benefit. "COVID surges have a profound impact on hospital throughput and availability," said Craig. "Having Advanced Care at Home as an additional avenue for beds in the communities that we serve has really provided a very meaningful decompression on demand for our inpatient beds throughout the course of the pandemic."

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—Dean Eide

One unexpected aspect of the program has been its effect on MCHS conversations with legislators and others about expanding broadband to rural communities. As noted previously, virtual communications and remote monitoring primarily rely on access to Wi-Fi. In some rural communities, however, such connections are poor or entirely unavailable. Craig noted, "Our experience within this program is highlighting the fact that if these pieces are in place, we stand a better chance of being able to scale the program. It has led to some really good added momentum to those efforts throughout the state, and I think it highlights so much of the good that can come from those infrastructure improvements in our underserved and rural areas. So, we've certainly added our voice to those discussions and have been fairly active in promoting how valuable those additions in those communities can be long term." GPJ

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