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Altru Health System
Case Study

Using Remote Patient Monitoring to Reduce Hospital Readmissions

Altru Health System, Grand Forks, North Dakota

Driving down hospital readmissions is a passion for Altru Health System, which is based in Grand Forks, North Dakota and serves more than 200,000 residents in the upper Midwest.

Thanks to a data-driven remote patient monitoring (RPM) program using Life Care Solutions technology, the number of high-risk COPD patients who are readmitted has gone from 25.3% in 2015 to a current rate of 7.3%.

Altru is a physician-led, multi-specialty group practice with an acute care hospital, Level II trauma center, specialty hospital, more than two dozen Grand Forks and regional practice locations, and a large home care network. A Mayo Clinic Care Network member, the system is focused on advanced technology and is listed as one of the top five Most Wired® hospitals in the nation.[i]

Improving health and enriching life is Altru Health System's mission, and administrators believe that RPM can help accomplish it through close monitoring during periods of patient health instability, while simultaneously encouraging patient independence.

"Patients find value in knowing that someone is keeping an eye on them," says Michelle Earl, Patient Care Coordinator at Altru. "With the emphasis on getting patients discharged as quickly and safely as possible, we also can continue to watch their vitals for 30 days, which helps them feel like they are being cared for even after they're out of the hospital."

The team utilizes LifeStream Genesis tablets and Bluetooth low energy peripherals such as blood pressure monitors, pulse oximeters and scales. Additionally, LifeStream Web gives clinicians the ability to manage multiple patient populations at one time and is integrated into electronic medical records.

Monitoring COPD & CHF

"Our team mainly focuses on patients with chronic obstructive pulmonary disease (COPD) and chronic heart failure (CHF) diagnoses. We also have monitored patients for sepsis and diabetes," Earl says.

- **COPD Patients** – COPD educators identify patients who would benefit from RPM after their hospitalization, then get an order for a post-hospital home visit for a respiratory therapist to continue outpatient education as well as set up the system. Monitoring focuses on heart rate, blood pressure and oxygen saturation to identify concerning trends and intervene before symptoms advance. If that happens, Altru medical staff contacts the patient and assesses health over the phone. The clinician then decides if the patient needs to be seen by the provider.
- **CHF Patients** – After a patient is recommended for RPM, he or she receives training at home. The LifeStream peripheral equipment measures heart rate, blood pressure, oxygen levels and – most importantly – changes in weight, as fluid retention in the heart and lung areas can happen quickly. If weight increases, the clinician can reach out to the patient and get them in to see their primary care practitioner or visit the CHF Clinic, where a nurse practitioner manages medications and patient status.

The equipment generally remains in the home for 30 days, but if a patient is having medication adjustments, has inconsistent vitals or requests it, the equipment can stay longer.

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>
> – Michelle Earl, Patient Care Coordinator

RPM Patient Utilization

Year – # of Patients

2013. . . .27	2017. . . .116
2014. . . .62	2018. . . 215
2015. . . .25	2019. . . 432
2016. . . .68	

Michelle Earl (left), Patient Care Coordinator, and Sarah Rassier, Supervisor, Population Health

Program Growth

The RPM program began in 2013 in Altru's Home Health department with 15 monitors. In early 2016, the Cardiology department used grant dollars to purchase additional monitors and cover costs for home nurse visits and monitoring of CHF patients. In 2017, Altru's monitor count grew to 40 when the disease management team secured another grant for equipment and to cover costs for home nurse and respiratory therapist visits.

Altru's Population Health division oversees the program, which is now called the Post Hospital Home Visit program. The expectation is that a grant will soon allow for the purchase of 20 more monitors to focus on patients with sepsis. (See sidebar.) And as Altru expands the program, patients may be able to receive additional training or ask questions via video.

"It's wonderful to see collaboration across the organization," says Sarah Rassier, Supervisor, Population Health at Altru. "Our physicians have really embraced this and are willing to prescribe home health and the use of monitors for their patients. The discharge team does a great job recognizing patients who would benefit from it. We have a disease management educator who works diligently to make sure her patients with COPD exacerbations have orders for home visits. Our terrific CHF clinic staff keeps an eye out and puts in orders for their patients. This has been an overall team effort put forth to create success."

Free Service

"The first reaction we get from our patients is 'how much is this going to cost me?' And when we tell them 'nothing,' they say, 'What's the catch?' Most of our patients that utilize RPM are of Medicare age, and cost makes an impact on whether or not they would participate in this service," Earl says.

"Prevention is a key focus at Altru Health System. Our team is committed to improving our patients' state of health, and we feel that cost should not be a factor when considering RPM. Also, as an organization, we know that keeping patients well and at home will drive down health care costs," adds Earl.

"It's clear that as an organization, Altru's leadership team, IT team and clinical team all value the importance of RPM in reducing hospital readmissions," says Michelle Hirst, Director of Clinical Operations. "Because Altru continues to demonstrate its desire to expand its program to additional patient populations, we believe outcomes and patient experience also will improve."

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A patient remotely monitoring blood pressure.

Personal Connections

Rassier says the personal connection that is built with the Altru clinicians and the patients helps. "Patients learn to better manage their conditions, and we've seen a substantial reduction in readmission rates. Additionally, some patients say these connections help reduce anxiety."

"We had a patient who was having multiple hospital readmissions for COPD exacerbations. She was hospitalized 10 times prior to starting RPM in July 2017. We were able to keep her out of the hospital for six months after initiating RPM. She always said that it was such a comfort and had peace of mind knowing that her vitals were being monitored and she had someone to call anytime she had questions or concerns," Earl says.

"Having the ability to follow the patients from the hospital and continue their care at home is so valuable," she adds. "Of course, in an emergency we take immediate action. But we also monitor trends and get ahold of a primary care physician if we see an anomaly and consider changing medications or encouraging more physical activity. Patients know that the Altru healthcare professionals care about them and are never far away."

The Altru team also develops personal connections with the LifeStream team. The Clinical Support team ensures that the Altru clinicians have a deep understanding of LifeStream and know how to leverage the system to provide reports on readmissions, daily utilization, inventory management, equipment lists and locations, and number of patients monitored per month.

"Our focus on quality and providing the right tools in LifeStream to the clinical staff helps to keep the focus on the patient and makes those personal connections an important part of care delivery," says Chris Addison, Director of Engineering.

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>
> – Michelle Earl, Patient Care Coordinator

Best Practices

Rassier says she advises organizations starting an RPM Program to clearly define goals, so it's easier to measure and report outcomes. Other best practices include:

- **Get early leadership buy-in.** Enlist a champion to help others in your organization through program development and equipment purchase. Ensure your champion is invested in its success and is available to support other staff through the transition.
- **Look to medical staff.** Those who work with patients have excellent advice about how the program should work.
- **Start small.** Get familiar with one patient population before spreading too big. Develop a success story and circulate it, then consider expanding RPM to other areas.
- **Focus on measurement. Identify program goals, key performance indicators and metrics.** Program goals should align with strategic initiatives. Determine which measurements will be needed. As an example, you may have Key Performance Indicators for readmission rates, utilization rates or patient turns. Use Lifestream data to help tell that story, and work with other functional leaders to help socialize the message.
- **Follow the money.** Pay attention to grant criteria and benchmark those areas that are important to funders.
- **Be an extension of the technology team.** Provide feedback early and often to your technology partner. Leverage any opportunity to be involved in the product development cycle. A good partner will want to understand your challenges and help you figure out how to enhance the technology to help you solve problems.

Altru hopes to expand the program and train family practice residents to work with high-risk patients.

"This is where the future of healthcare is going. Our focus is keeping patients at home and providing more home-centered care," says Earl. "RPM plays such a key role in reducing our readmissions and creating a feeling of security to our patients. We are excited about the continued expansion of our RPM program."

A clinician using LifeStream Clinician Dashboard to remotely monitor patients.

Next Battle: Sepsis

After the RPM success in managing COPD and CHF, the Altru team is ready to attack sepsis, a systemic infection that can rapidly lead to tissue damage, organ failure, and death.[ii]

Sepsis has one of the highest readmission rates in hospitals across the United States. A January 2017 study found that sepsis accounted for more unplanned hospital readmissions than any other diagnosis. Sepsis patients also had the longest average length of stay and highest expenses.[iii]

Unfortunately, that's also the case at Altru. In 2018, 480 patients with a first hospitalization diagnosis of sepsis were treated at Altru, with 64 of them being readmitted. This equates to an overall sepsis readmission rate of 13.3 percent, one of the highest readmission rates at Altru in 2018.

Thanks to funds from a recent grant, 20 more LifeStream RPM kits with telemonitors, peripherals and thermometers are being purchased specifically to monitor sepsis patients for 30 days after they are discharged from the hospital. The team also plans to expand to utilize LifeStream Web for easier remote patient monitoring.

About Altru

Rated the number one hospital in North Dakota in 2019 by U.S. News and World Report, Altru Health System is now in its second century of serving the communities of northeastern North Dakota and northwestern Minnesota. As the region's largest private employer, Altru Health System is a team of more than 300 physicians and advanced practice providers and 3,800 staff. Altru Health System was the first member of the Mayo Clinic Care Network, extending Mayo Clinic knowledge and expertise to their patients.

[i] College of Healthcare Information Management Executives. https://chimecentral.org/chime-most-wired-2/. Accessed August 30, 2019

[ii] Center for Disease Control. https://www.cdc.gov/sepsis/what-is-sepsis.html. Accessed September 19, 2019

[iii] Mayr FB, Talisa VB, Balakumar V, Chang CCH, Fine M, Yende S. Proportion and Cost of Unplanned 30-Day Readmissions After Sepsis Compared With Other Medical Conditions [published online January 20, 2017]. JAMA. doi:10.1001/jama.2016.20468. https://www.managedhealthcareconnect.com/content/sepsis-accounts-higher-readmission-rates-compared-cms-measured-conditions