Providence was the first to encounter the COVID-19 pandemic's expansion to the United States. Providence’s focus immediately turned to preparing their hospitals for COVID-19 patient surge expansion and planning. While focused on the acute care setting, Providence leadership also wanted to develop a patient self-monitoring program as a tool to help manage patients outside of the usual brick and mortar setting. Developing and implementing home monitoring of COVID-19 patients was tasked to the telehealth team at Providence. Led by Dr. Hargobind S. Khurana, Medical Director of Telehealth Acute Care, and Sherene Schlegel, RN, Executive Director of Telehealth Clinical Operations at Providence, the team knew helping patients remain in their homes could preserve and free up critical health system resources at a time when capacity was predicted to be a significant issue. In a matter of days, the program was launched with about 50 patients enrolled.

Based on the information at that time, it was evident that a majority of the patients did not need to be hospitalized. Many patients were presenting to the Emergency Room due to fear and apprehension—the worried well. Others were presenting to the health care setting later than they should have and waiting for the disease to get worse before seeking help. It became clear early on that there was a need for a scalable solution. If a vast majority of COVID-19 positive patients could be monitored at home, then scalable solutions to support these patients needed to be rapidly implemented.

First, they attempted to use the existing EHR-integrated patient portal to gather self-reporting assessments from patients. However, they soon found that only 5% of COVID-19 related patients were responding to these assessments through the portal. The Providence team recognized that they needed much higher engagement from patients at home to allow their teams to meet the rising patient volumes. Ideally, they also needed (1) alerts that could be finely tuned to reduce alert fatigue on the team, and (2) effective population health dashboards to allow the nursing team to efficiently track and manage the statuses of so many patients.

Providence quickly pivoted and began a collaboration with Twistle, a digital care plan automation platform, to rapidly innovate and deploy COVID-19 monitoring pathways. “In just five days, Twistle was deployed, and two days later, Twistle was integrated with the EHR using Xealth, a digital health prescribing platform,” noted Schlegel. “Providence designed, tested and deployed COVID-19 monitoring pathways in Washington, Montana and Alaska, and continues to expand the deployment to Providence hospitals in Oregon and California,” Schlegel added, “Once deployed, this solution force multiplied the effectiveness of our nurses. While starting at a 1:15 ratio of nurses to patients before Twistle, a week after deploying, Providence reached a 1:65 ratio. As the team iterates on the pathways, and streamlines our internal processes, the project goal is now to support a ratio of 1:100,” Schlegel noted. Dr. Khurana added that, “Whenever a new technology solution is rapidly deployed, there are usually pockets of resistance. However, as doctors and nurses found how easy it was to use, resistance to this new solution evaporated.”

“We have continued to mature our COVID-19 pathways as we iterate on them almost every day, applying what we have learned from our frontline teams,” said Dr. Khurana. “We have also welcomed input from...”

ABOUT PROVIDENCE
Providence is a national, not-for-profit Catholic health system comprising a diverse family of organizations and driven by a belief that health is a human right. With 51 hospitals, 1,085 physician clinics, senior services, supportive housing and many other health and educational services, the health system and its partners employ more than 119,000 caregivers serving communities across seven states–Alaska, California, Montana, New Mexico, Oregon, Texas, and Washington, with system offices in Renton, WA and Irvine, CA. Learn about our vision of health for a better world at Providence.org.
the clinical team at Twistle, which has been working with other health systems on COVID-19 monitoring, and sharing ideas for effective patient management garnered from those frontlines,” Dr. Khurana added.

Providence’s COVID-19 pathways are triggered based on positive or presumptive positive patient encounters. Over 80% of patients testing positive or presumptive positive can be sent home with active, consistent monitoring. Patients are given a thermometer and pulse oximeter and the EHR triggers an automatic invitation to the COVID-19 care plan. Though Twistle can engage through many channels such as Providence’s patient facing app, Providence elected to engage patients through a text message with secure links to obtain the highest possible engagement. The secure link allows patients to review education, videos, and complete assessments. Patients are provided with subjective and objective input about their breathing, temperature, oxygen saturation, and their general well-being. The frequency, timing and content of the messages and reminders can be changed dynamically based on the patient’s status. Patients can even be nudged if a response is not collected.

The assessments are automatically scored based on risk, and will trigger an alert to the care team if the results warrant follow-up. Providence worked with Twistle to tune the algorithms to make the Patient Status Tracker, a dashboard that monitors all patients, as efficient as possible.

LESSONS LEARNED FROM BEHIND THE FRONTLINE

1. **Focus on ways to keep patients in their homes.** The Providence program allows treatment for a vast majority of patients at home. This not only reduces exposure to others, but it also aids their recovery and reduces the cost of their care by eliminating expensive ER visits. Leveraging better, cheaper data collection and home diagnostic devices to collect data throughout the day can help.

2. **Provide the tools to collect data from patients remotely.** Providence Remote Self-Monitoring Program provided most patients with digital thermometers and pulse oximeters to collect, though the devices are optional. If needed, patients can access how-to-videos to understand how to use their devices properly.

3. **Every patient’s needs are different.** As some patients leave the program, new patients are entering it. Use a patient engagement system that can provide information and training delivered at the time each patient needs it. As their condition matures, the system needs to prompt them when it’s time to do something (i.e. take a measurement).

4. **Make sure your system provides a dashboard and notifications.** As patient volumes grow rapidly, Providence needs visibility to those whose symptoms have progressed to a level that requires additional engagement (i.e. a nurse call, a visit to the ER, or admission if justified).

5. **Ease of use is critical for patients, doctors and clinical staff.** In a perfect world, there would be plenty of time to properly train on new systems, but in the current environment, a system should be easy and intuitive to use immediately. It must be easy for patients of ages and tech literacy to engage.

6. **Capture information to maximize reimbursement and inform quality decisions.** As important as ever, every health system must pay attention to reimbursement for services. Having a way to capture time spent with patients provides both reimbursement as well as helpful metrics to improve care.

LONGER TERM

A. **Invest in telehealth capabilities.**

Build a telehealth infrastructure capable of utilizing remote doctors and specialists outside of the highest need area to augment clinical staff located on-site. The current pandemic has created focus and a sense of urgency that we did not have before.

B. **We know this will happen again.**

We need to share our experiences, find and collect meaningful data to publish, and educate others, and take the time to do a thorough review when we get past the crisis.

C. **Collaboration is key.**

To address challenges like the current pandemic, aligning with partners who put the patient first and are committed to help you meet your goals is as critical as the technology.
Twistle is a healthcare technology company that helps organizations deliver personalized care to patients in their homes by automating everything from routine communication to information gathering and education activities, saving time for care teams while improving outcomes. Twistle’s platform automatically checks in with patients and, based on their responses, guides them to a better outcome by delivering follow-up information, questions, and empathetic messages. Patients are connected to the care team through multi-channel engagement, including IVR, text messaging, and Twistle’s own intuitive mobile app.

Patients are reporting that they feel “connected” and “reassured” when using the Twistle platform, and they would “highly recommend it to others.”

As the ratio of nurses to patients grows, the distributed team of nurses using the Patient Status Trackers to collectively manage the patient population has grown. Nurses can change the status of a patient, and add notes if needed, to work efficiently as the team shifts around the clock.

While COVID-19 continues to challenge the dedicated staff at Providence, the patient self–monitoring program is helping focus limited resources on the patients who need it most.

ABOUT XEALTH
Xealth scales digital health programs, enabling clinicians to integrate, prescribe and monitor digital health tools for patients to drive engagement and utilization. Through the secure Xealth platform, clinicians can find and order the right digital health tools and programs for patients direct from the EHR workflow, send these digital health orders to the patient’s email or patient portal, and then monitor activity. Xealth spun out of Providence in 2017, and investors include Atrium Health, Cleveland Clinic, MemorialCare Innovation Fund, McKesson Ventures, Novartis, Philips, and ResMed as well as Providence Ventures, UPMc and the Froedtert and Medical College of Wisconsin Health Network.