caregility
Connecting Care Everywhere

CASE STUDY

# UMass Memorial Health Improves Patient Safety, Reduces Labor Costs with Virtual Observation

How one health system is taking its telehealth platform beyond the ICU to enable remote video monitoring across the enterprise

## ABOUT UMASS MEMORIAL HEALTH

UMass Memorial Health is the largest health system in central Massachusetts and the clinical partner of UMass Chan Medical School. The multi-campus health system leads the region in cutting-edge medical technology and innovative diagnostic and treatment options. UMass Memorial is the only adult Level I Trauma Center and Level III Neonatal ICU in central MA. The health system's experienced caregivers are experts in behavioral health, cancer, cardiology, children and women's services, heart and vascular care, neurology, pulmonology, surgery, and more.

## THE CHALLENGE

### Taking Telehealth Beyond the ICU

In 2019, UMass Memorial Health faced a challenge that impacts almost every U.S. health system. The nursing leadership team was looking for a way to support leaner staffing models while continuing to successfully deliver on quality and patient safety initiatives such as fall prevention. Achieving this while controlling costs was imperative.

UMass Memorial Health

**LICENSED BEDS**
1,000+

**EMPLOYEES**
16,000 caregivers
1,703 Physicians
3,166 RNs

**ANNUAL PATIENT ENCOUNTERS**
49,000+ discharges
220,000+ ED visits
1.5M+ outpatients

Specifically, UMass Memorial was interested in identifying a telehealth platform to enable new virtual patient monitoring use cases across its multiple locations. With a successful tele-ICU program under its belt, UMass Memorial trusted virtual care as a reliable means to streamline workflows for clinical staff in high acuity settings. Leadership now wanted to expand the health system's telehealth footprint to include virtual observation outside the ICU but, for years, had struggled to find a cost-effective way to do so.

In early 2020, as UMass Memorial was working with Caregility to upgrade tele-ICU endpoints that were approaching end-of-life, the health system encountered an unanticipated challenge of epidemic proportions. Little did they know that experience would put them on the path to remote monitoring enablement.

> "We saw a massive savings opportunity from a resource perspective in the ability to stream constant patient observation."
>
> **— David Smith**
> Associate VP of Virtual Medicine
> UMass Memorial Health

## THE CAREGILITY SOLUTION

### Moving from Pandemic to Pilot to Production with Virtual Observation

When COVID-19 hit, UMass Memorial scrambled to provide telehealth solutions to support virtual inpatient and ambulatory visits. Resources were scarce. After vetting available solutions, the health system opted to acquire 100 of Caregility's new APS250 mobile telehealth carts to support the pandemic response. "COVID presented an opportunity to introduce Caregility as more than just a tele-ICU solution," said David Smith, Associate VP of Virtual Medicine at UMass Memorial.

That validation point revealed an affordable path forward for broader inpatient observation. Once the COVID surge abated, the health system began exploring ways to redeploy telehealth carts for remote monitoring in new inpatient settings using Caregility's iObserver application. iObserver allows care teams to remotely observe up to 12 patients on a single screen with two-way audio and video support through the HIPAA-compliant Caregility Cloud™ platform.

In September 2020, the companies launched a virtual observation pilot program to transition one-on-one patient sitting to a tele-sitting model. Caregility worked closely with UMass Memorial nursing informatics and IT teams to optimize system performance and tailor feature functionality.

The health system employed a limited hub-and-spoke model, with virtual patient monitoring deployed at three campuses. Virtual sitters stationed at the observation hub monitor patients in multiples of six while serving as backup on an additional six patients. “Having two sets of eyes on every bed has been very effective for us,” said Smith. “That helps us ensure coverage during breaks and when sitters are actively engaging individuals.”

By January 2021 the tele-sitter program was deemed successful, and the pilot rolled into a full-scale operation with a desire to ramp up quickly. The initial scope included 15 to 20 telehealth carts for tele-sitting. With an average of between 50 and 60 one-on-one in-person patient observation scenarios taking place on UMass Memorial campuses on any given day, the desire is to scale the new virtual observation program to a 50-bed threshold.

“I run the numbers monthly to report to our CEO, who is a strong proponent of tele-sitting and remote monitoring,” said Smith. “We average about 12,000 patient interventions a month across three observation stations that are staffed 24/7. Most of those interventions involve patients getting out of bed, tugging lines, or being disoriented or agitated. Fall prevention is one of our key quality and safety initiatives across the entire organization, so we place a lot of emphasis on that.”

The health system reserves a pool of in-use and overflow telehealth carts for the tele-sitting program, with the remaining systems used in the tele-ICU, PICU, and tele-NICU. The Level III NICU uses the platform for infant resuscitation, with remote staff offering guidance to the bedside team through a tele-mentoring program. UMass Memorial also uses Caregility applications on iPads for MyChart video integration at the patient bedside. Telehealth solutions also support the health system’s suicide screening program, with plans to expand to tele-stroke support as well.

## THE RESULTS

### Virtual Observation Reduces Labor Costs, Improves Efficiency and Patient Safety

"The UMass Memorial virtual observation program has earned overwhelming support from nursing leadership and is viewed as a major success," noted Smith. "We have not experienced any adverse events as a result of having a telehealth cart versus an individual in the patient room."

Benefits of UMass Memorial's virtual observation implementation include:

+ Substantial ROI from labor pool cost savings
+ Improved patient safety and staff efficiency
+ Proven to be as effective as one-to-one observation
+ Observation ratios are steadily increasing to maximize capacity for each observation tech

UMass Memorial's Senior Systems Analyst, Maria Ayik, concedes that there was some hesitation among staff early on. "iObserver proved to be effective and the Caregility team won over the nursing leadership group, who initially thought it wasn't going to work for them. We now have no hesitation in renewing."

"What tells me it is a success is when staff members ask for additional carts," said Smith. "They really do depend on virtual observation support 24/7/365!"

> "The day we started using it, it was a 24/7 have-to-have solution. From the CEO down, we see iObserver as a huge win and are impressed with how this evolved to where it's at today."
>
> **—David Smith**
> Associate VP of Virtual Medicine
> UMass Memorial Health

## FUTURE PLANS

### Creating the Tech-Enabled Health System of the Future

UMass Memorial is now in the planning phase for two new facilities, including a new 72-bed inpatient subacute hospital and a new "digital hub." The digital hub will serve as the epicenter of all the health system's digital service lines. Observation techs will then migrate to that location, taking virtual patient monitoring 100% remote.

"Remote patient observation will be a core function when we launch our digital hub in the coming months," Smith elaborated. "All new patient rooms are being designed with the ability to provide this service."

The health system is also exploring new directions they may want to take as part of their "Health System of the Future" strategy. That will likely include AI, wireless sensors, and smart infusion pumps to create more of a digital experience for caregivers and patients, where every room is tech-enabled.

> "As we design new clinical spaces, we're proceeding with telehealth solutions integrated into the care setting. Next-gen will be every bed, every room - either on the wall or attached to the TV. That will become the standard level of care going forward."
>
> **— David Smith**
> Associate VP of Virtual Medicine
> UMass Memorial Health

## ADVICE FOR OTHERS

### Best Practices When Standing Up Virtual Observation

Ayik and Smith largely credit UMass Memorial's success with virtual patient monitoring to up-front due diligence.

"We worked with Caregility to evaluate key functional issues early on," said Ayik. "That included network testing within rooms to see where dead spots were and floor analysis to see which rooms might pose issues. Identifying those at the get-go really helped. Our goal was to keep carts wireless due to the benefit of mobility and limited access to network jacks. As we future proof things based on what we learned, we'll likely use a combo of making more wired networks available and optimizing wireless."

The executives also encourage other healthcare organizations to consider the horsepower needed to drive 12 concurrent telehealth sessions. UMass Memorial worked with Caregility to deliver lower definition options for video feeds where it made sense to dial down bandwidth consumption. They also acknowledge the logistical component of managing a telehealth fleet. Off-site operations can reduce visibility into available units and limit the ability to quickly swap endpoints if needed when no fleet management solution is in place. Ayik and Smith advise peers to consider resources and processes for tracking inventory and servicing devices during planning.

Smith also recommends that healthcare organizations "don't go full throttle out of the gate. If you're implementing a new program, pilot and then scale up. Market the benefit to patients, share the outcomes with stakeholders, and allow nursing to have a strong voice."