



How UMass Memorial Health Care Partnered with Amwell to Improve Operational Efficiencies within its Telestroke Network

Opportunity

UMass Memorial Health Care is the only designated Level I Trauma Center in Central Massachusetts. Ten years ago, the health system built a telestroke network to improve community hospital access to its neurologists for stroke care. This legacy telestroke program was built using 14 different communication systems, making it increasingly burdensome and impossible to expand. The telestroke workflow also required 21 steps, from start to finish, to complete a consult.

Solution

UMass Memorial partnered with Amwell to simplify its telestroke network by consolidating communication systems and eliminating and automating workflow steps. The health system also identified other programs in which it could utilize Amwell's technology to improve operational efficiencies, most notably its teleNICU program.

Result

Since partnering with Amwell on its telestroke network, UMass Memorial has:

- Conducted more than 1,000 telestroke consults in six months
- Decreased the number of communication systems from fourteen to four
- Reduced the number of steps required for consult by 38%
- Expanded Amwell's technology to its teleNICU program

1000+

Telestroke consults
in first 6 months

71%

Decrease in the number
of communication systems
used for telestroke

38%

Reduction in steps
required to conduct a
telestroke consult

Background

UMass Memorial Health Care, located in Worcester, is the largest healthcare system in Central Massachusetts and the clinical partner of UMass Medical School. With over 1,700 employed physicians and 14,000 employees, UMass Memorial is responsible for over one million lives across Central Massachusetts.

UMass Memorial is the only designated Level I Trauma Center in Central Massachusetts. With most of the state's other Level I Trauma Centers located within hospitals clustered in the Boston area, UMass Memorial is providing critical care to a large portion of the state.

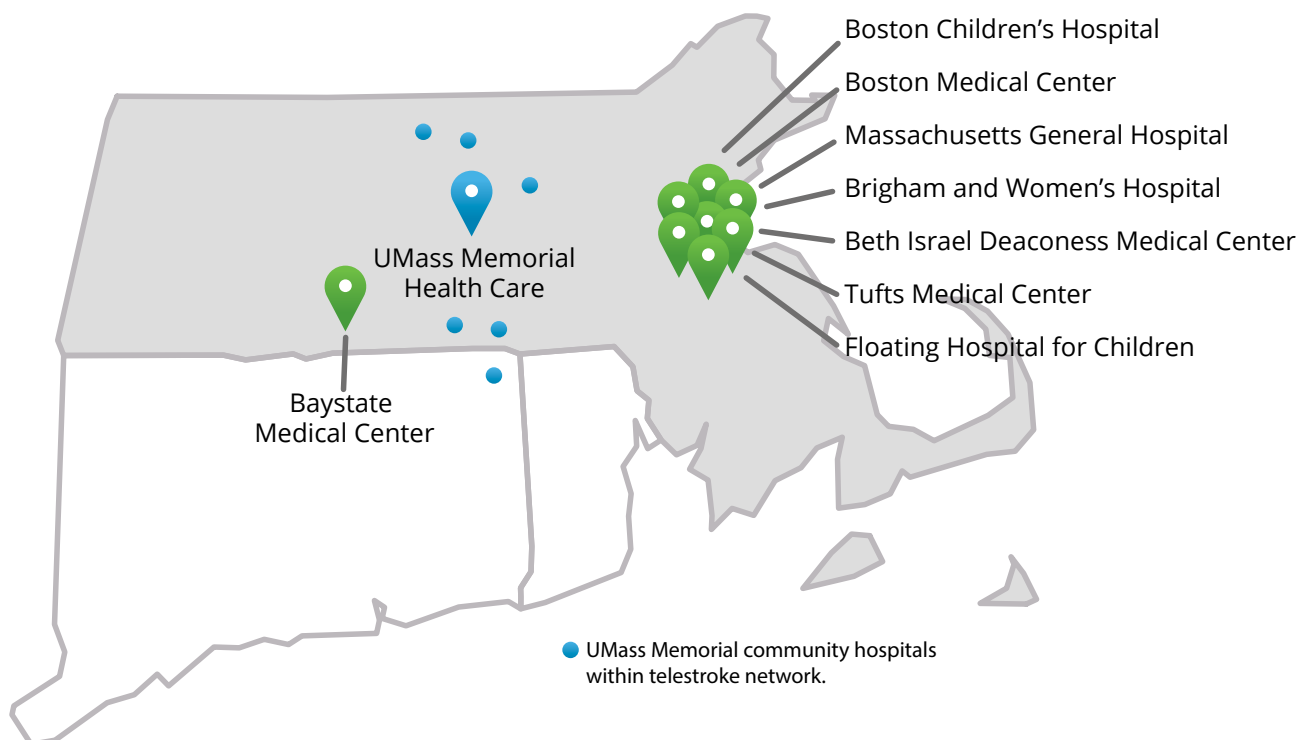
While the UMass Memorial Medical Center's three main campuses are centrally located in the state, and the health system's community hospitals extend its reach, access was still an issue—especially for stroke care. All the health system's neurology experts are in Worcester, which may be too far away for patients who need immediate intervention after a stroke.

"There are areas that are geographically far away from our medical center," says Teresa Rincon, director of clinical operations and innovation, virtual medicine at UMass Memorial. "Far enough away that for a stroke, it could be the difference between having a quality of life issue or not."

UMass Memorial also had a bed capacity issue at its medical center, making it much more desirable to keep patients in a community setting. However, those community hospitals do not have the specialty services required to care for stroke patients.

To more effectively deliver stroke care to patients in need, UMass Memorial sought to project expert care from their main campuses to community hospitals, allowing patients timelier access to vital intervention.

Massachusetts Hospitals with a Level 1 Trauma Center



Opportunity: Replacing a home-grown, disparate telestroke network

UMass Memorial put its original telestroke network in place ten years ago, spanning seven locations across Central Massachusetts and Northern Connecticut. The home-grown network consisted of 14 disparate communication systems, pieced together to complete a video assessment and consultation for stroke. Not only was the network utilizing several different communication systems, it required 21 steps, from start to finish, to conduct a successful stroke consult.

“We had a lot of different moving parts and they did not flow very smoothly,” says David Smith, Associate Vice President of Virtual Medicine at UMass Memorial. “We were living on an outdated virtual desktop environment. We had to stay on versions of software that go back to 2007, and so we started running into compatibility issues and it really kept the program from growing.”

To troubleshoot the issues, UMass Memorial tried upgrading endpoints, which only seemed to exacerbate the compatibility issues.

“We did a fair amount of calls just related to performing the video assessment, and that’s a critical component of the telestroke consult,” says Smith. “If you can’t see the patient, there really isn’t a ton you can do. In some cases, we were looking at the only possibility being to divert, and we don’t want that.”

Selecting a telestroke technology partner

Due to the complexity of the home-grown network, UMass Memorial was in search of a solution that could simplify the workflow. The health system needed a technology partner that could leverage its major technology investments in Epic and Cisco, as well as support its non-Epic hospitals.

“Amwell met both those needs and provided a bridge between our Cisco and Epic infrastructure,” says Smith.

UMass Memorial selected Amwell for its telestroke network due to its:

- Streamlined telestroke workflow
- Integration with other communication systems, such as PACS imaging
- Incorporation of the NIHSS Stroke Scale within the workflow
- Device agnostic software

“These were all efficiency gains for us,” says Smith. “The Amwell platform allows us to leverage a variety of different devices for more than one clinical program or purpose.”

While UMass Memorial is currently utilizing Cisco-based video carts, they are in the process of replacing these carts with Amwell’s 210 [Telemedicine Carts](#).



**Amwell
210 Telemedicine Cart**

Solution: Revamping the telestroke network to increase operational efficiencies

After implementing Amwell technology, UMass Memorial could simplify the telestroke workflow and more efficiently assess and treat patients. Below is a summary of the newly improved workflow:

- A patient presents in the community hospital emergency department with signs of a possible stroke.
- The remote patient location immediately activates the telestroke protocol by contacting the 24x7x365 transfer and access center (TrAC).
- Utilizing the Amwell clinical portal's built-in workflow communication tools, cases entered into the system by a TrAC nurse are typically acknowledged by the neurologist within three minutes of notification.
- Once the neurologist accepts the case, they can begin their case review either through the mobile application or the browser-based portal.
- While the patient is in radiology and the cart is being readied, the neurologist consults via phone with the originating site provider regarding the need for a video assessment.
- CT images are retrieved directly within the Amwell case by the neurologists and reviewed without the need to look in an external PACS system.
- The neurologist connects via video as appropriate with the originating site through the Amwell portal and completes their examination and assessment of the patient.
- The consult note, including the NIHSS assessment, is documented directly into the Amwell workflow portal by the neurologist.
- The neurologist renders a recommendation on whether to administer tPA.
- If they do choose to administer tPA, the neurologist will stay on video and guide the originating site staff through the administration of the drug. They document the time it was administered, adverse events or anything else of note in the case notes.
- Once the case is completed, a copy of the consult report is e-faxed to the remote site and sent to Epic.
- The TrAC nurse monitoring the case then reviews the disposition to determine if the patient is being transferred to the UMass Memorial Medical Center.



The provider perspective: staffing, training and satisfaction

UMass Memorial trained its neurologists on the new telestroke workflow during a one-hour, hands-on session. The training involved workflow review, simulation of an actual case, and app installation and configuration. All providers were also given a copy of the step-by-step workflow.

UMass Memorial also trained the bedside caregivers, which proved to be very simple. "Many of them commented 'Oh, this is so easy,'" says Smith. "When we replace the Cisco fleet with Amwell 210 carts we anticipate even more simplicity with that hardware."

The health system staffs its 24/7 telestroke program with 10 neurologists, each responsible for certain shifts throughout the week. The program administrator fills the shifts on a month-by-month basis, and updates the on-call calendar within the Amwell platform. The weekend shifts tend to be 12-24 hours shifts, while the weekday shifts are two 8-hour shifts—one during regular daytime hours and one at night—and then a couple

shorter shifts in the evening and early morning hours.

Overall, provider satisfaction with the updated workflow has been positive, as the workflow offers them more flexibility to engage with remote providers without being tethered to certain locations or fixed equipment.

“The app offers a layer of engagement that is completely new to us for direct patient care,” says Rincon. “Our neurologists love that they can access information and assign themselves to the case from the smartphone. Overall, they’re very satisfied with the product.”

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Telehealth Director, Clinical Operations
UMass Memorial Health Care

Because UMass Memorial is delivering stroke care to some hospitals that do not use Epic, the team has decided to keep the entire workflow contained within the Amwell platform.

“This provides a single workflow for our telestroke providers,” says Rincon. “Whether the telestroke consult is being provided to a patient at a UMass Memorial facility or outside our network, it’s the same workflow.”

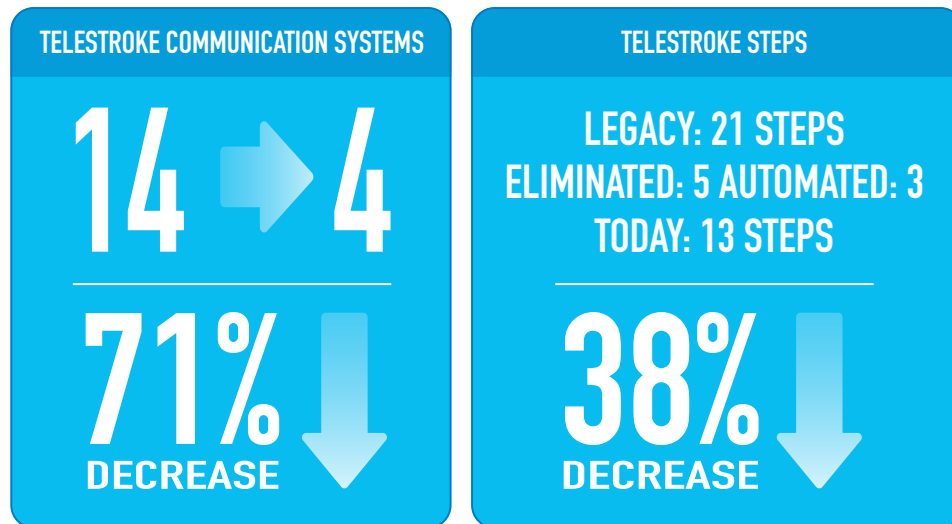
For all other programs utilizing Amwell technology, UMass Memorial plans to remain Epic-centric and have providers document directly into the Epic patient record.

Results: Creating an efficient telestroke workflow by eliminating inefficiencies

In the first six months of launching its new telestroke workflow, UMass Memorial completed more than 1,000 telestroke consults. While it's still too early for any shareable data results, the UMass Memorial telestroke team expects to see an improvement in door-to-needle time due to the streamlined workflow. The health system has seen an increase in thrombectomy rates, and with that, better outcomes.

"With the old system it was difficult to ascertain the time between notification and evaluation," says Smith. "With Amwell, we can now track several performance measures that were previously unavailable to us."

The original workflow for telestroke involved 21 steps and 14 different communication systems. With the new Amwell workflow, UMass Memorial has reduced the number of communication systems from 14 to 4—a 71% decrease. The health system has also reduced the steps needed to conduct a successful visit by 38% by eliminating five steps and automating three.



"Having a self-contained workflow eliminated the need to access multiple, different information systems and improved consult efficiency immensely," says Smith.

Looking ahead: Piloting teleNICU to improve infant care

As UMass Memorial continues to measure the impact the new telestroke workflow has on patient outcomes and internal efficiencies, the health system is searching for other programs that could benefit from the Amwell technology. As the only Level III NICU in the region, UMass Memorial's teleNICU program was an obvious choice. UMass Memorial is currently piloting its new teleNICU workflow beginning in five sites, with hopes of expanding it to more as they see positive results.

