



Allina Health, one of the largest not for profit health systems in the U.S., serves Minnesota's Twin Cities, Minneapolis and St. Paul, as well as the surrounding area and part of neighboring Wisconsin, with top-flight quaternary services. Its 12 hospitals performed more than 86,000 surgical procedures in 2021. Its flagship, 652-bed Abbott-Northwestern Hospital in Minneapolis, has 36 operating rooms including five robotic rooms. Those ORs are used by over 130 surgeons, of whom ~30% are employed by Allina Health and ~70% are in independent practice. Allina adopted AI-powered OR scheduling software from Qventus as part of a larger organizational initiative to minimize variability in all areas and optimize resource use. In the first three months of use, Allina has added more than three additional cases to each OR per month.

Background:

- 12 hospitals
- 1,800 staffed beds
- \$4.5 billion net operating revenue (2021)
- 100,000 inpatient hospital admissions
- 36 ORs and 5 surgical robots at flagship hospital

Challenges:

- Improve OR utilization
- Match resources (e.g. surgical robots and intra-operative MRIs) with surgeon needs
- Eliminate antiquated manual scheduling processes
- Improve satisfaction for surgeons, staff, and patients

EHR:

- Epic

Qventus Solutions:

- Perioperative

Challenges

Like every health system, Allina Health relies on surgical procedures as a core financial driver. In 2018, as part of an overall health system initiative to improve patient flow and increase capacity, Allina sought to optimize its surgical services by minimizing variability in every aspect of the process, from determining the appropriateness of surgery, to the surgeries themselves, to the operations of the post-anesthesia care unit. The leadership expected that with improved consistency, Allina could increase surgical volumes overall—in particular, the volume of cases using its surgical robotic capabilities—and explore new market opportunities that its existing inefficiencies wouldn't allow.

A key part of reimagining surgical services was creating a systemwide surgery scheduling policy to fill OR time more effectively. Planning around the Covid-19 pandemic took its toll on the predictability of surgical volumes and temporarily reduced the urgency of this part of the project. However, it became clear going into a somewhat more normal 2022 that surgeons' assigned block times were not being used at anything like full capacity.

At the same time, surgeons looking for slots outside their assigned block times, as well as newer surgeons seeking to establish enough volume to justify a block assignment, were hampered by manual scheduling processes that hadn't changed in 30 years. Those processes also frustrated the schedulers, leading to low job satisfaction.

"We knew automation had to be the next step in our journey."

William Evans Vice President for Surgical Services and Orthopedics, Allina Health



Change Process

The first step was to achieve buy-in from all key leaders by delineating the existing problems and the potential rewards of addressing them. Evans took the case for automation first to the perioperative services director and the scheduling manager. Once they were on board, the next stop was the hospital president, who would make the funding decision, and then the rest of the executive team and the surgeon advisory group. All agreed that a new approach was needed.

To begin the formal approval process for purchasing a solution, Evans lined up the IT department and its resources. “Once I had already gotten the groundswell from all of the frontline users, it was not a question of whether we were going to do it, but when and how.” Over about six months, Evans and the IT team identified Qventus as Allina’s best option.

Qventus Automation

The Qventus Perioperative Solution automates every step of the scheduling process and eliminates the manual processes that cause scheduling bottlenecks and mismatches. Its AI-powered software combines pattern recognition and predictive capabilities with principles of behavioral science to address all of Allina’s most serious scheduling problems:

Improving block time utilization. The system uses past data to learn the practice patterns of block time holders, and can predict, up to a month in advance, when a surgeon will ultimately not use block or time within a block. (Each scheduled procedure adds to the system’s knowledge base and increases its accuracy over time.) When the system identifies a slot with a high probability of going unused, it sends an automated “nudge” to the surgeon’s scheduler, requesting a release of the slot. To incentivize the release, the nudge includes a calculation of how much the release will improve the surgeon’s block utilization rate.

Accommodating requests for time outside block. The Qventus TimeFinder product can accept multiple parameters for a time request—day, time, type of room and any special equipment needed, duration of procedure—and quickly give a surgeon’s scheduler a list of available slots that most closely fit the criteria. The clinic scheduler can book the time and submit the case request information with a few clicks.

Proactively filling unused slots. Under a manual process, unused slots are often filled with the first available procedure, rather than the most appropriate one. The Qventus Perioperative Solution’s Available Time Outreach product analyzes the characteristics of available slots and matches them with surgeons’ predicted needs, and then offers each one via email to the surgeon who’s most likely to use it and also represents the highest value to Allina Health. The scheduler can accept or decline with a few clicks. If they decline, the system automatically moves to the next most likely candidate.

Allina Health phased in the system over several months at Abbott Northwestern, starting with its robotic surgeons, who Evans says had been most vocal in their complaints about access issues. The second phase included all block holders, and the third phase represented all surgeons who had privileges at the hospital but did not hold block time. The organization chose to make usage of the system voluntary rather than mandatory, and positioned it as a tool to help the surgeons, even though its use will also enable Allina Health to optimize and grow its surgical services.

“Once I had already gotten the groundswell from all of the frontline users, it was not a question of whether we were going to do it, but when and how.”

William Evans Vice President for Surgical Services and Orthopedics, Allina Health

Results

Uptake was rapid: within the first three months, all of the hospital's key surgeons—more than 130—were preferentially booking their cases through Qventus. The system liberated 132 hours of OR capacity in its first three months of full operations. After 3 months, Allina Health is seeing the following results:

Growth

3.5

additional cases
per OR per month

33+

cases per month
added via ML-driven
automations

Utilization

100+

hours of block
released early
per month

49%

utilization of released
OR block time

Efficiency

97%

OR requests through
Qventus accepted

79%

of time requests filled
in under 60 mins

Robotics

36%

increase in robot
utilization

3x

increase in robotic
case volume

Based on results so far at Abbott Northwestern, Evans looks forward to rolling out the system to Allina Health's other hospitals.

User Response

Evans says schedulers at both ends—the hospital and the surgical practice—have welcomed the new system. “We had significant scheduler turnover before, and now people are really engaged,” he says. “They love having a cool cutting-edge tool that makes their jobs easier.”

Surgeons are delighted with the quick response time, which improves their patients' experience by often allowing their surgery to be scheduled during their office visit. The system also allows schedulers to easily find and book rooms with specialized resources like intra-operative MRI.

Lessons Learned

Evans shares these lessons from Allina Health's deployment of the Qventus Perioperative Solution:

- Engage surgeons and scheduling staff early
- Meet with clinic teams frequently
- Phase the implementation
- Listen to the experts
- Mandate cautiously
- Don't underestimate pre-work
- 10% increased OR efficiency is possible