

Mercy Hospital Fort Smith is a 336-bed acute care hospital with ~50,000 visits to its Emergency Department each year. Mercy engaged Qventus to improve its ED patient flow.

30%
decrease in LWBS rate

24 min
reduction in LOS

15 min
(20%) reduction in
door-to-doctor time

Results

Nearly 1,900 additional visits per year and a projected \$1.3 million of additional annual revenue & savings through increased capacity and LOS reduction.

Mercy now plans to make the Qventus program available to its network of 34+ hospitals

How Mercy Fort Smith Reduced Emergency Department LWBS Rate by 30%

Challenge

Reduce LWBS rate and LOS in the ED

Mercy Hospital Fort Smith is a 336-bed acute care hospital, part of the larger Mercy Health network of 45 hospitals across Arkansas, Kansas, Missouri, and Oklahoma.

The hospital's Emergency Department (ED) sees ~50,000 visits per year and acts as the front door of the hospital, responsible for ~60% to ~70% of admissions. Like many health systems across the country, Mercy Fort Smith has seen rising demand and crowding in emergency rooms. The emergency department at Mercy Fort Smith has always been central to the hospital's service to the community, its system-wide operations, its financial sustainability, and its brand at large.

"This is where our patients first experience us. It is so important to give a good experience in the emergency department."

DR. JEFF REAMES, CHAIR, EMERGENCY MEDICINE

Like many other leading hospitals around the country, Mercy Fort Smith embarked on an ambitious, hospital-wide strategic initiative to improve patient flow and productivity with clear engagement from its providers on the frontline. Specifically, a clear priority at Mercy Fort Smith was to optimize its ED operations, improve patient experience and help lower the number of frustrated patients that leave the emergency room, measured by its Left Without Being Seen (LWBS) rate.

After making some progress with different solutions, it was clear that to create a sizable, lasting change, they would have to target the many small inefficiencies in patient flow that still remained on the ED frontline.

Mercy understood that the current generation of analytics dashboard products were limited in helping them reach their vision. These dashboards were only useful if dedicated staff members spent time analyzing data, but most clinicians had no time to look at these dashboards in busy clinical environments. They needed a paradigm shift to make real behavioral change on the frontline.

Emergency Department status at Fort Smith

Showing the state of the emergency room on September 22 at 03:10 PM



Total Census



Recent Discharge Length of Stay



Expected patients will be discharged in the next hour



Expected patients will be admitted in the next hour

Status Counts

Waiting Room (6)



Triaged (10)



Roomed (16)



Pending Discharges (4)

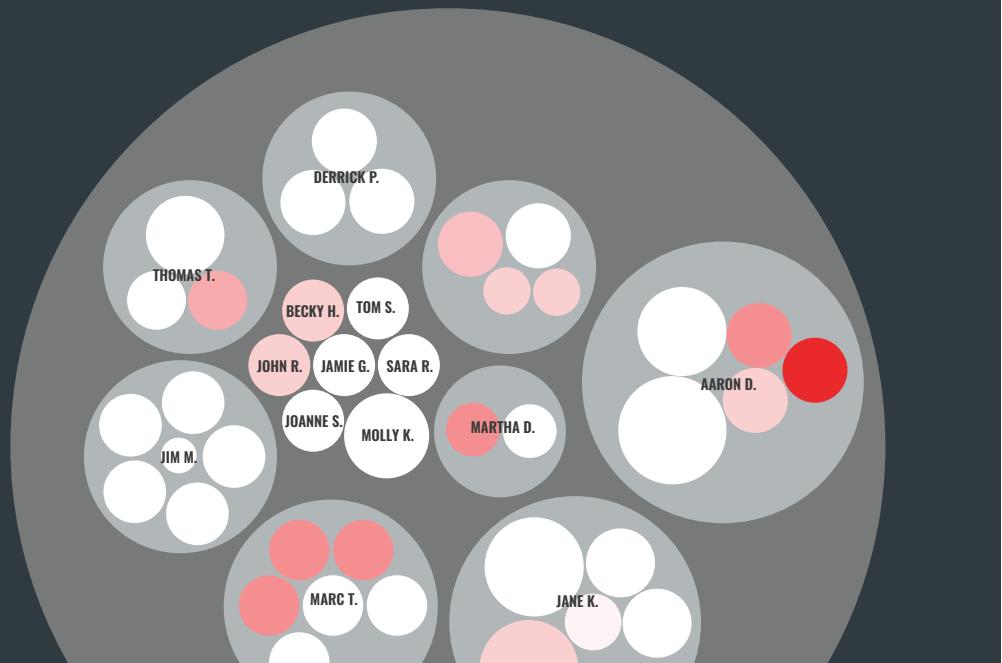


Pending Admits (5)



Recommendations

Surge expected, next 1-2 hrs. Right now: 16 recent arrivals, pending: 2 disch and 3 admits. ED, please reply with needs. - sent to Matthew R. a day ago (2 comments)



Qventus "air traffic control" dashboard

Solutions

Empower staff with curated data to change behavior on the frontline

Mercy Fort Smith engaged Qventus to optimize hospital operations, starting with patient flow in the ED.

Qventus' software lets hospital executives, managers, and frontline staff prioritize behaviors in the moments that matter, helping individuals work in sync for hospital-wide efficiency. The system's decisionOS applies machine learning and decision analysis to common problem areas in a hospital. Qventus' "air traffic control" platform provides access to a best practice collection of decision recipes. Each recipe constantly monitors metrics, predicts bottlenecks, and recommends countermeasures in real time, reducing cognitive load for frontline leaders. This opens up carefully curated, actionable insights to relevant staff members and directly delivers them when it's time to take action.

Mercy Fort Smith was able to make sustainable progress in addressing ED throughput by combining

specific decision recipes targeted towards reducing ED LWBS and LOS with a real-time ED status dashboard—as well as data analysis that made performance metrics and trends more transparent.

Virtual huddles

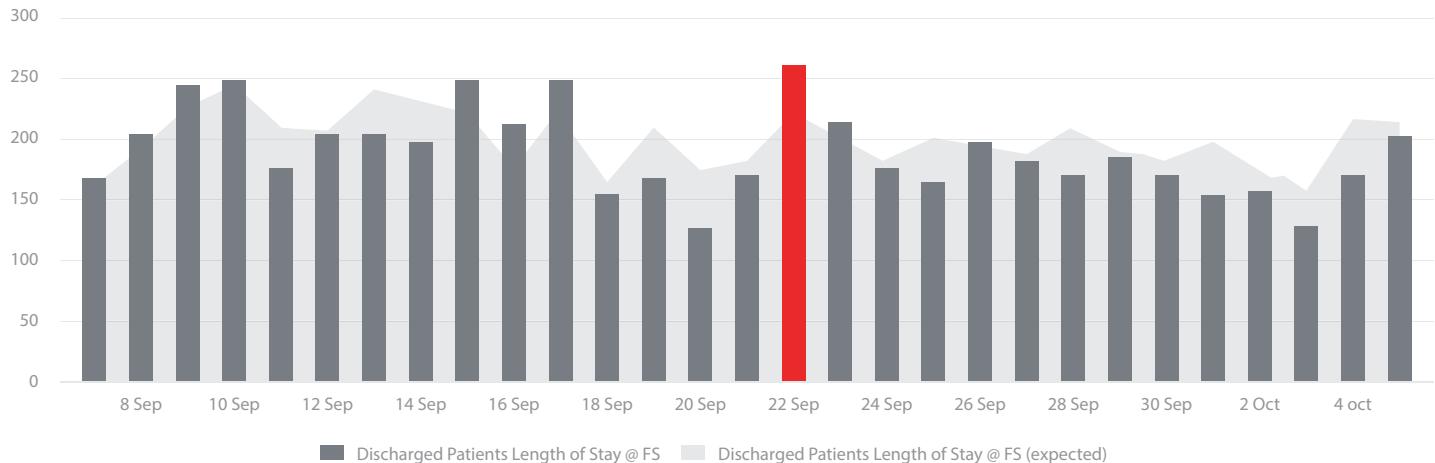
Mercy Fort Smith, like many hospitals around the country, invests a lot of time and effort into capacity planning to ensure optimal patient experience and efficiency, especially in the ED.

The challenge for many ED managers around the country is that the tools used to manage capacity demand and supply are far too reactive in nature. And in order to sufficiently address a surge in ED demand, multiple departments need to work in sync to effectively serve the patients in the waiting room. Previously at Mercy Fort Smith, the ED manager would react to the first signs of a surge by picking up the phone and making time-consuming, repetitive calls to several functions.

To complicate the surge planning, the hospital's traditional communication models made it so that team decisions could only be made during structured meeting times in the form of daily in-person huddles

Discharged Patients Length of Stay at Fort Smith

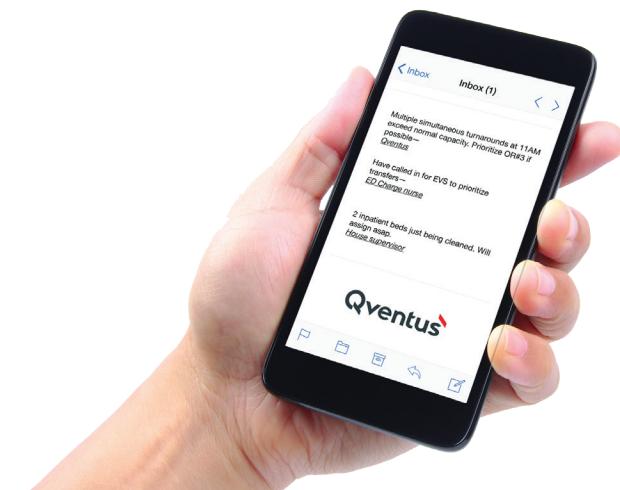
Average time from patient arrival in ED to departure from the ED (discharged patients only)(mental health patients excluded)



(without multiple phone calls and emails). With Qventus, algorithms predicted ED surges before they happened and sent an advance warning to catalyze an actionable conversation among key interdisciplinary staff members in the form of a virtual huddle chat room, allowing them to coordinate via text and address the surge in time.

In one instance, the COO, Nurse Manager, House Supervisor, and EVS were alerted in a chat room two hours before a surge. They quickly coordinated to expedite discharges and transfers, call in an additional nurse, open hallway beds, and send leads on rounds. "We went from 20 patients in the lobby to clearing it out in an hour or two," said Bobbie Lamb, ED Manager at Mercy Hospital Fort Smith. By the time the surge arrived, they were ready.

In another instance, Qventus provided a 3-hour notice for a surge warning. The ED was boarding 8 patients, but the alert gave them enough time to request and receive transfers to upstairs beds. The ED managed 168 patient visits with only a 3.5% LWBS rate for the day—nearly half its standard average.



Text message nudges for individual staff members

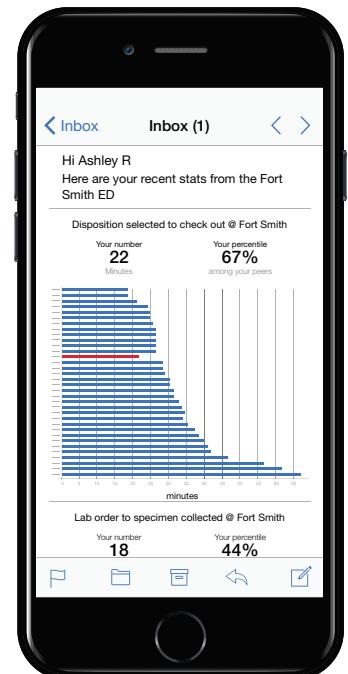
Frontline care staff needed to prioritize their attention when juggling many urgent projects, so Qventus gave nurses gentle text message nudges for priorities that would directly impact patient flow. A text might remind them to discharge a patient or notify them that a specific patient in the waiting room is at high risk for leaving without being seen (calculated based on their condition, acuity, personal profile, and waiting time).

Curated insights sent to the inbox

An analytics tool is only useful if staff members can act on the data. Qventus can send emails for key metrics to any staff member without requiring them to log in and sift through data.

For example, individuals can elect to receive automatic email alerts if there was an out-of-the-ordinary metric at the end of the day, such as an unusually high LOS in the ED.

A key to behavior change at Mercy was to arm staff members with awareness of their metrics, which drove ownership and a creative problem-solving mindset. For example, ED Director Bobbie Lamb's RN team received weekly emailed leaderboards



that ranked them on their disposition to exit time. They checked their scores regularly and the transparency motivated them to shorten their times. "This also helps us recognize our staff and reward high performers," said Lamb.

Data visualization

The visualization tool (above) is intuitive and fast. "I can trend the data and easily get what I wanted to see in 3 minutes in Qventus versus 3 hours prior to that. It used to be very time consuming, but now it's a matter of minutes," said Lamb.

Patented root cause algorithms explain what happens underneath the surface when a hospital's key metric is off the charts. For example, if a COO received an email alert about an extra-high-LOS day, Qventus would also run complex pattern recognition algorithms to pinpoint the bottleneck, such as a 40-minute backup in the lab or 2 specific doctors who had slow days.

The visualization tool and root cause systems also confirmed that the ED's Fast track rooms were vital to keeping LWBS spikes at bay, and so Mercy Fort Smith changed their Fast track hours to improve ED throughput.

Results

Mercy Fort Smith saw creative problem solving, efficient habit formation, and collaboration on the frontline and among interdisciplinary staff in just 5 months.

It created transparency and empowered staff members at every level to diagnose issues and take responsibility for unprecedented behavior change. At Mercy Fort Smith, this new approach fundamentally changed the executive-level management approach.

"My manager now reports numbers, rather than me asserting them. It's a night and day mindset change. She is an owner now."

ANDY CENICEROS, EXECUTIVE DIRECTOR OF IMAGING,
EMERGENCY MEDICINE

The hospital ED reached its goal: the average LWBS rate dropped 30%, shedding nearly 2 percentage

points using 18 months of data. The average LOS dropped 24 minutes (a 13% reduction), and their door-to-doc time shortened by 15 minutes (a 20% reduction). These improvements will provide an estimated 2,500 additional visits yearly, and a projected \$1.3 million in additional revenue.

Mercy plans to expand the successful deployment beyond the Mercy Fort Smith Emergency Department, making the program available to its entire network of 45 hospitals. It will also apply Qventus decision recipes to other areas of the hospital, from the OR to the ICU. Where process improvements in various departments may take months or years to see results, Qventus provides feedback loops in a matter of days or weeks. Mercy Fort Smith and the Mercy network at large look forward to fostering a new culture of innovation in healthcare.

About Qventus

Our mission is to simplify how healthcare operates, so that hospitals and caregivers can focus on delivering the best possible care to patients. We do this by building products that help healthcare organizations and their people adapt to the variability of the healthcare system and make the right decisions from the most complex data. We bring together a unique combination of academic backgrounds and professional experience. We've built companies, led hospital transformations and worked at some of the biggest tech firms in the world. We move quickly and listen. We always start with our users' needs and ask ourselves how we can help them better serve their patients. We build quickly and let the data speak to our results. The platform was awarded "Best in Show" by the 2016 Fierce Healthcare awards.