

Natividad Medical Center Improves Patient Throughput in the Emergency Department and Reduced Left Without Being Seen by 42%

Challenge

Reduce LWBS rate and LOS in the ED

Natividad Medical Center is a 172-bed acute care hospital located in Salinas, California owned and operated by Monterey County. Safety net hospitals like Natividad make up only 15 of California's more than 450 hospitals and health care systems yet provide 50% of all hospital care for California's 6.6 million uninsured. Additionally, these facilities train nearly half of all new doctors in the state.

The hospital's Emergency Department (ED) sees over 52,000 visits per year and acts as the front door of the hospital, responsible for 50% of admissions. The emergency department at Natividad has always been an integral part of the medical center's service to the community, its hospital-wide operations, its financial sustainability, and its brand at large.

“Our ED is the front door of our hospital. The vast majority of hospital inpatients are admitted from the ED. In the ED, we have our greatest opportunity to form a strong first impression that will carry through the patient's stay and lead to strong patient satisfaction metrics at time of discharge.”

DR. CRAIG WALLS, EMERGENCY DEPARTMENT MEDICAL DIRECTOR

Similar to many hospitals across the country, Natividad has recently seen rising patient volumes. Improvements in patient flow and throughput were needed to meet increased demand. To meet the surge in patients, Natividad began a strategic initiative in its ED to improve patient flow and productivity with strong engagement from its frontline providers and nurses. Specifically, a clear priority at Natividad was to optimize operations and lower the Left Without Being Seen (LWBS) rate and Length of Stay (LOS) times. 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.

Natividad Medical Center is a 172-bed acute care teaching hospital and Level II Trauma Center with over 52,000 visits to its Emergency Department each year.

Natividad engaged Qventus to improve its ED patient flow.

42%

decrease in LWBS rate

30 min

reduction in admitted pts LOS

10 min

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

Results

Nearly 850 additional visits per year and a projected \$425,000 of additional annual revenue through increased capacity.

Natividad now plans to make the Qventus solution available to other departments within the hospital.

ED leaders had always wanted to “look under the hood” and find the root causes behind recurring problems, but were not able to get much value from existing information technology infrastructure. The available reports and dashboards were limited and didn’t offer enough flexibility to truly analyze and diagnose operational issues. To gain the tools needed to make an innovative shift in thinking and create real behavioral change at the frontline, they partnered with Qventus.

Solution

Empower staff with curated data to change behavior on the frontline

Natividad engaged Qventus to optimize hospital operations through machine learning and real-time analytics, starting with patient flow in the ED.

Qventus allows hospital executives, managers, and frontline staff to prioritize behaviors in the moments that matter, helping individuals work in sync for hospital-wide efficiency. The system’s decisionOS combines machine learning and artificial intelligence to apply decision recipes to common problem areas in a hospital. This opens up carefully curated data to more staff members and directly delivers it when it’s time to take action.

Natividad uses Qventus to reduce ED LWBS and LOS through a real-time, software-based “Air Traffic Control” system, prescriptive nudges, and data analysis that make performance metrics and trends more transparent and actionable.

Data transparency and operational metric awareness

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

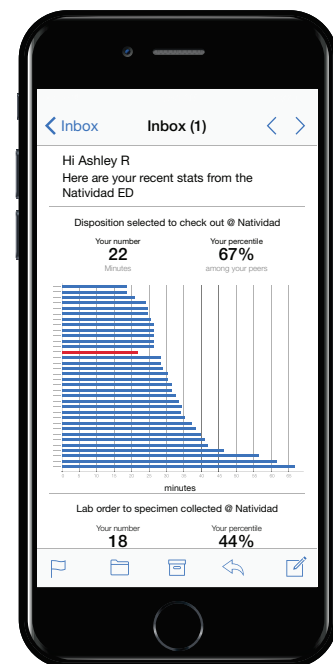
At Natividad, Qventus provides a daily timeliness and effectiveness report highlighting key operational metrics tied to quality measures was sent to both executives and frontline staff. While managers gained insight on the specific processes to focus their staff on from a day-to-day basis, executives were not only kept up to date of the ED’s operations, but could also follow up and add a layer of accountability when necessary.

In addition to the daily report, Qventus also provided the ability to attribute staff performance metrics, such as disposition to exit time, to specific individuals at the nurse and provider level. This individual feedback, which had never been seen by many of the staff before, gave managers useful data to recognize and reward high performers as well as identify opportunities for additional training.

Furthermore, Qventus has allowed administrative and clinical leaders to use data to drive high impact decisions within the department and hospital as a whole. For instance, “During the whole Patient Flow Committee meeting, Dr. Walls was pulling up different metrics in the deep dive analysis tool to diagnosis and determine root causes to issues we were discussing,” said Director of Case Management Marilyn Black.

Real-time data visualization

In order to increase visibility, Natividad installed a monitor in the department to provide all staff with a real-time view of the status of the ED, including relevant information on census, patient movements, and nursing assignments. This was especially useful for the charge nurse, whose primary responsibility is to expedite patient flow and throughput.



From the real-time Qventus dashboard, the charge nurse could easily monitor the functional capacity of the department as well as see where bottlenecks were occurring. This allows the charge nurse to prioritize and apply resources most effectively. For example, if functional capacity (census divided by the number of available beds) is high, the charge nurse can open up additional hallway beds if available and expedite the patient discharge process.

ED Director Connie Donovan said, “When I present relevant data, the staff respond and do a lot of self-correcting on their own. The functional capacity meter has been an amazing tool to drive actions within the ED. We are creating a sound foundation and platform for how we are using the numbers.”

Other departments within the hospital could also access this real-time visualization to view the current status of the ED and anticipate downstream effects to their areas.

Actionable ‘nudges’ for individual staff members

To help frontline care staff prioritize their attention when juggling a number of concurrent tasks, Qventus gave nurses actionable nudge to focus on actions that would directly impact patient flow. The system is able to predict issues before they occur and prescribe

Emergency Department status at Natividad

Showing the state of the emergency room on October 10 at 4:14 PM



Status Counts

Waiting Room (4)



Triaged (2)



Roomed (22)



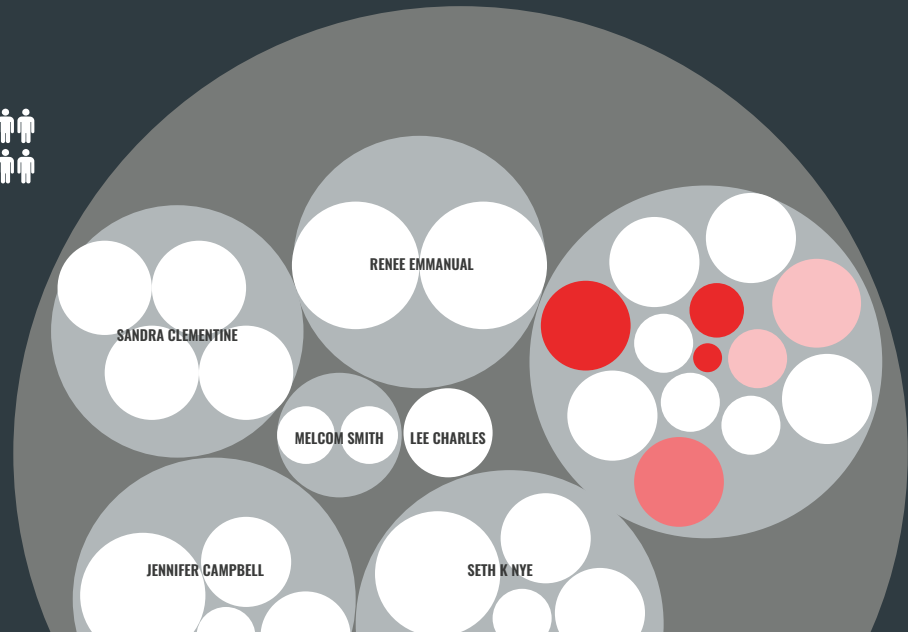
Pending Discharges (3)



Pending Admits

Recommendations

Ready for discharge - 46 mins - Hall 4,
"DENISE EMMELL-MELCHI"
- sent to Stanley Quan an hour ago



Qventus "air traffic control" dashboard

actions that should be immediately taken to get ahead of them. At Natividad, the nudges reached users through the real-time dashboard's decision feed, but they are also available through text messages or app notifications.

These proactive nudges targeted patient tasks that helped prevent flow bottlenecks before and as they happened. The real-time notifications might remind the nurses to discharge a patient that had waited unusually long to be checked out or notify them that a specific patient in the waiting room was delayed from being triaged.

Root cause analysis

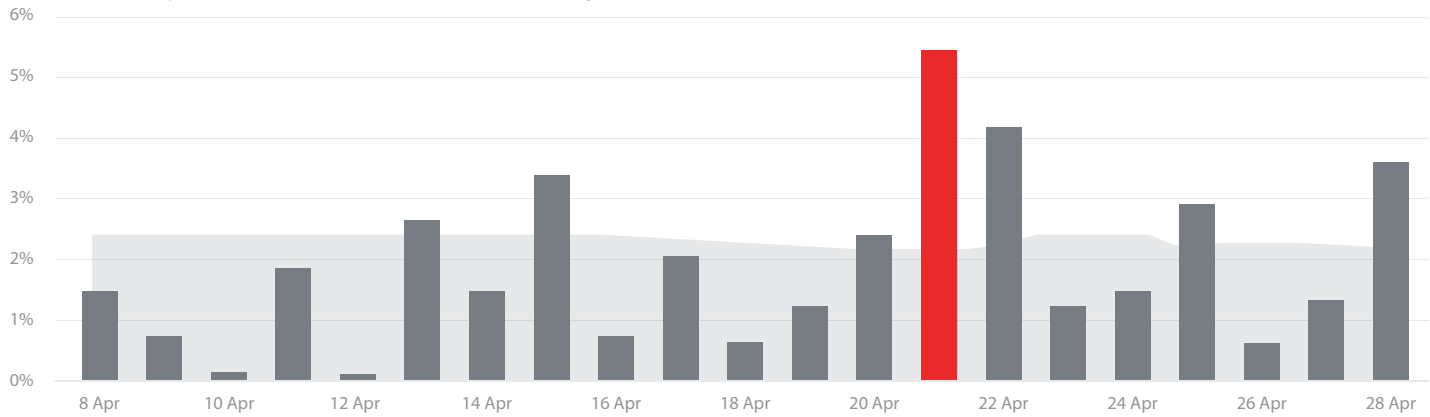
The visualization tool is intuitive and fast, and guides staff to explore different metrics and arrive at the root cause of issues. "It's exciting to get to see 'under the hood' now. After seeing us do really well as a department in three super busy days we had recently, it got me thinking about how and why we were able to perform so well on those days and other busy days. We seem to get more efficient when things are humming. Why do we slow down and perform inefficiently when things slow down in the department? I'm interested in finding out and we have the tools to do that now," said Dr. Walls.

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 were used to test various process changes within the ED. For example, Laboratory and Radiology Manager Heidi Riggerbach used the deep dive tool to confirm that assigning a dedicated phlebotomist to the ED during certain busy times led to significantly faster lab specimen collection and turnaround times, which improved ED throughput.

Percent of Patients Who LWBS at Natividad

Percent of patients who LWBS (leave without being seen)



Results

- Average LWBS rate dropped 42%, shedding 1.6 percentage points using 18 months of data
- Average admitted patients LOS dropped 30 minutes, an 8% reduction
- Door-to-doc time shortened by 10 minutes, a 20% reduction
- Provide an estimated 850 additional visits yearly with a projected \$425,000 in additional revenue.

Natividad experienced creative problem solving, efficient prioritization and collaboration on the frontline, and significantly improved patient flow and throughput in just 3 months.

It created transparency and empowered staff members at every level to diagnose issues and take responsibility for unprecedented behavior change. At Natividad, this new approach fundamentally changed the decision-making process among hospital leaders.

The Natividad ED reached its goal: the average LWBS rate dropped 42%, shedding 1.6 percentage points using 18 months of data. The average admitted patients LOS dropped 30 minutes (an 8% reduction), and their door-to-doc time shortened by 10 minutes (a 20% reduction). These improvements will provide an estimated 850 additional visits yearly, and a projected \$425,000 in additional revenue.

“Qventus has transformed our leadership discussions of patient flow through the department from anecdotal hearsay to objective, contemporaneous data-driven analysis.”

DR. CRAIG WALLS, EMERGENCY DEPARTMENT MEDICAL DIRECTOR

Natividad plans to expand the successful program beyond the Emergency Department. They will explore ways to make the product available to other areas of the hospital, including applying Qventus decision recipes to Inpatient flow. 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. Natividad looks forward to continuing to foster 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.