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Improving Patient Safety with Remote Monitoring

With the help of Intel® technologies, Wachter's NOVA solution has helped Montage Health cut costs, improve patient satisfaction, and reduce falls by 30 percent

wachter healthcare**solutions** NOVA

Community Hospital
of the Monterey Peninsula
Montage Health

"Working with Intel allows Wachter to stay on the cutting edge of technology. It also provides confidence to our customers that they are buying powerful and reliable healthcare technology."

—Matt Tyler, Director of IoT at
Wachter Healthcare Solutions

To reduce the number of patient falls and improve overall patient safety, many healthcare facilities employ observation assistants, or patient sitters, who monitor at-risk patients from their bedsides. In addition to being time- and resource-intensive, this approach leads to staffing challenges when certified nursing assistants (CNAs) and other staff are repeatedly pulled off the floor, leaving nurses burdened with additional responsibilities.

To address these challenges, Community Hospital of the Monterey Peninsula, a Montage Health hospital, augmented existing in-person patient monitoring with a HIPAA-compliant virtual patient observation solution from Wachter Healthcare Solutions, a brand of the operational technology systems integrator Wachter Inc. The turnkey Nursing Observation and Virtual Assistant (NOVA) solution allows trained technicians to monitor up to 12 patients at once from a remote monitoring station, providing a virtual window into the condition and status of patients, and freeing nursing staff to focus on other clinical responsibilities.

With its open architecture—featuring IoT gateways, workstations, and servers powered by Intel® processors—NOVA can be implemented easily and scaled to help any healthcare system optimize patient care. For Community Hospital of the Monterey Peninsula, which deployed NOVA in the midst of the COVID-19 pandemic, the remote monitoring solution has already reduced patient falls by 30 percent, increased patient satisfaction, and lowered staffing costs.[1]

High costs, staffing issues drive shift to remote monitoring

Before deploying NOVA, Community Hospital of the Monterey Peninsula would assign CNAs to sit in at-risk patients' rooms 24/7 to prevent falls, medical device tampering, and other incidents that could lead to injury and add time and cost to hospital stays. Such traditional patient monitoring solutions are expensive, and they created staffing issues for the hospital, which struggled to meet all the requests for 1:1 patient sitters.

The COVID-19 pandemic exacerbated the hospital's challenges. Like other healthcare facilities during the pandemic, the 258-bed hospital struggled with a shortage of supplies, personal protective equipment (PPE), and staff. To reduce the risk of spreading infection, only a primary nurse and a primary physician were allowed into rooms with COVID-19 patients, eliminating the option of in-person patient monitoring.

As a less costly and more efficient alternative to in-person monitoring, Montage Health decided to deploy a virtual monitoring tool at the hospital. After evaluating multiple competitive solutions, Montage Health selected Wachter Healthcare Solutions, which designs, installs, and maintains patient observation technologies to improve patient safety and staff utilization at hospitals, psychiatric centers, and surgical centers.

NOVA provides a reliable connection between patients and staff

Community Hospital of the Monterey Peninsula deployed NOVA primarily in telemetry units, where patients are under constant electronic monitoring, as well as in the COVID-19 unit and emergency department overflow rooms.

NOVA integrated easily with the hospital's existing infrastructure and with electronic medical records (EMRs) across multiple clinical environments. Wachter provided implementation support, including helping to develop hospital policies and protocols, define roles and responsibilities, and establish acuity measures. After gaining early buy-in from staff, Wachter trained administrators, nursing staff, and remote technicians on using NOVA.

As shown in Figure 1, each equipped room at the hospital features mobile carts outfitted with high-definition cameras that provide 360-degree views, as well as pan, tilt, zoom, and night vision capabilities. Wachter offers a second fixed model that is compliant with standards from the Joint Commission and is commonly used in emergency departments and behavioral health units because it is tamper resistant and ligature resistant, meaning there are no points of attachment that could lead to self-harm or loss of life. In addition to wireless and wired carts, Wachter offers a portable wall-mount unit and fixed ceiling cameras.

Each in-room cart supports two-way audio and video in multiple languages, enabling communication in patients' native languages and providing audio and visual options to those with hearing and visual impairments. The carts connect via Wi-Fi to an IoT gateway powered by an Intel Atom® processor. The gateway provides enterprise-grade security, easy manageability, and connectivity to a data center powered by Intel® Xeon® processor-based servers, where patient information and documentation are stored in a HIPAA-compliant manner at a centralized database.

Wachter trained hospital personnel to remotely observe up to 12 patients simultaneously via the remote workstation, which is powered by an Intel® Core™ i7 processor. Remote technicians can chart on the patients and view video of patients on the customizable observation screen, and technicians can speak with patients as needed, including redirecting them to avoid dangerous or unwanted behavior. Alarms set off by the monitoring technicians alert staff to emergent situations that require immediate bedside attention.

NOVA features a variety of additional tools aimed at quality improvement, fall prevention, and performance improvement initiatives. Reporting and auditing tools are available to identify what took place during a given event or shift. NOVA also provides live data and automatic notifications to help the remote technician identify patient risk and use patient acuity tracking. NOVA's Intervention Event Tracker provides definable acuity thresholds, an at-a-glance color and quantity indicator of alarms and redirects, and a summary of the time and type of redirects performed.

Wachter staffs the NOVA team with nurses and other HIPAA-certified technicians who provide 24/7 support to the hospital through the Network Operations Center help desk, helping to ensure that the hospital is able to provide quality patient care efficiently and without prolonged interruption. Wachter also maintains open lines of communication and conducts regular meetings to identify any clinical issues and to obtain feedback to improve its services and solutions.
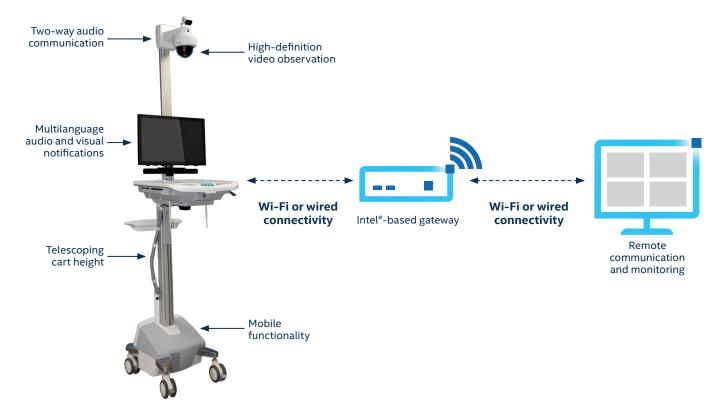

Two-way audio communication

High-definition video observation

Multilanguage audio and visual notifications

Telescoping cart height

Mobile functionality

Wi-Fi or wired connectivity

Intel®-based gateway

Wi-Fi or wired connectivity

Remote communication and monitoring

Figure 1: NOVA provides end-to-end remote patient monitoring.

"In our COVID-19 unit, admission assessments were done via NOVA without having to go into the room, and physician consults were performed via two-way video. The physicians loved it. NOVA personalized a very difficult situation where patients had been feeling isolated. Now they're able to communicate face-to-face with other personnel, while at the same time we are able to contain infection rates."

—Faith Merriam, Director of Nursing, Community Hospital of the Monterey Peninsula

Remote monitoring enhances patient safety

Community Hospital of the Monterey Peninsula reported significant benefits from deploying the NOVA remote monitoring solution, including:

- A 30% reduction in the number of patient falls over a five-month period[1]
- A significant reduction in the number of 1:1 observation hours, leading to lower staffing costs[1]
- Improved patient satisfaction due to increased interactions during virtual rounding[1]
- Accelerated staff response times with the help of an alarm system[1]
- Improved staff safety by helping to reduce COVID-19 transmission risk[1]

Initially, the hospital's staff was hesitant about using cameras to monitor patients instead of observing patients in person, but after Wachter's training sessions and seeing the positive patient response, hospital staff reported high levels of satisfaction. "Everyone has found NOVA very easy to use," said Faith Merriam, the hospital's Director of Nursing. "The staff has become extremely comfortable with NOVA and trusting of its benefits to patients."

Patients in the COVID-19 unit who initially felt isolated because of the safety measures that limited in-person interactions also found that NOVA provided much-needed opportunities to communicate regularly with the remote technician, in addition to their assigned nurse and doctor. Upon discharge, one hospital patient wrote a letter stating that he was sad to leave because of his many positive interactions with the technician.

NOVA key capabilities

- Using one of six patient monitoring assets, one remote technician can watch up to 12 patients
- Two-way audio allows for the remote technician to conduct conversations with the patient and redirect them to safety, helping to prevent falls and other negative outcomes
- NOVA can populate foreign language phrases both audibly and visually to help patients with visual or hearing impairments
- Infrared illumination allows the remote technician to see in low-light and no-light situations without having overhead light on in the patient's room
- Data collected from the remote technician during normal charting allows multiple departments to pull analytical reports and information critical to making changes and developing protocols

Protecting patients and improving workflows

With the NOVA remote monitoring solution, hospitals and other healthcare facilities can observe multiple patients at once, without the high cost of 1:1 patient sitters. The customizable system provides real-time communication in each patient's native language, measurable and customizable auditing and reporting tools, and seamless data integration across multiple clinical systems. At Community Hospital of the Monterey Peninsula, NOVA has reduced costly patient falls by 30 percent,[1] in addition to increasing patient satisfaction and reducing staffing costs and workflow burdens on nurses.

Learn more

Learn more about NOVA and Wachter Healthcare Solutions ›

For details on Intel® healthcare technologies, visit intel.com/healthcare ›