



How **Guthrie Clinic** resolved its nursing shortage, boosted patient satisfaction and netted savings

Integrating virtual nursing into its delivery model helped Guthrie Clinic transform a staffing challenge into an opportunity to innovate, optimize resources and improve care.

OVERVIEW

In April 2022, Guthrie Clinic launched its Pulse Center, a remote-patient monitoring hub that enabled it to onboard experienced nursing staff and eliminate its reliance on travel nurses. In just 18 months, Guthrie bolstered patient safety and engagement throughout its 13-county service area. Nurse satisfaction soared as a result, with turnover rates plummeting from [25% to 13%](#). In the center's first year, Guthrie saved [\\$7 million](#) in labor costs.

BACKGROUND

While labor challenges are a global concern for hospitals, rural institutions are particularly strained. Guthrie, a not-for-profit integrated health care system serving a

10,000-square-mile region across Pennsylvania and upstate New York, was no exception. Its clinical workforce [plunged by 43%](#) between April 2022 and April 2023, going from 172 full-time equivalents (FTEs) to 98 with many nurses leaving for traveling roles. With patients waiting for intensive care unit (ICU) beds and burnout rising among remaining staff, Guthrie leaders needed to reevaluate how to support both patients and caregivers.

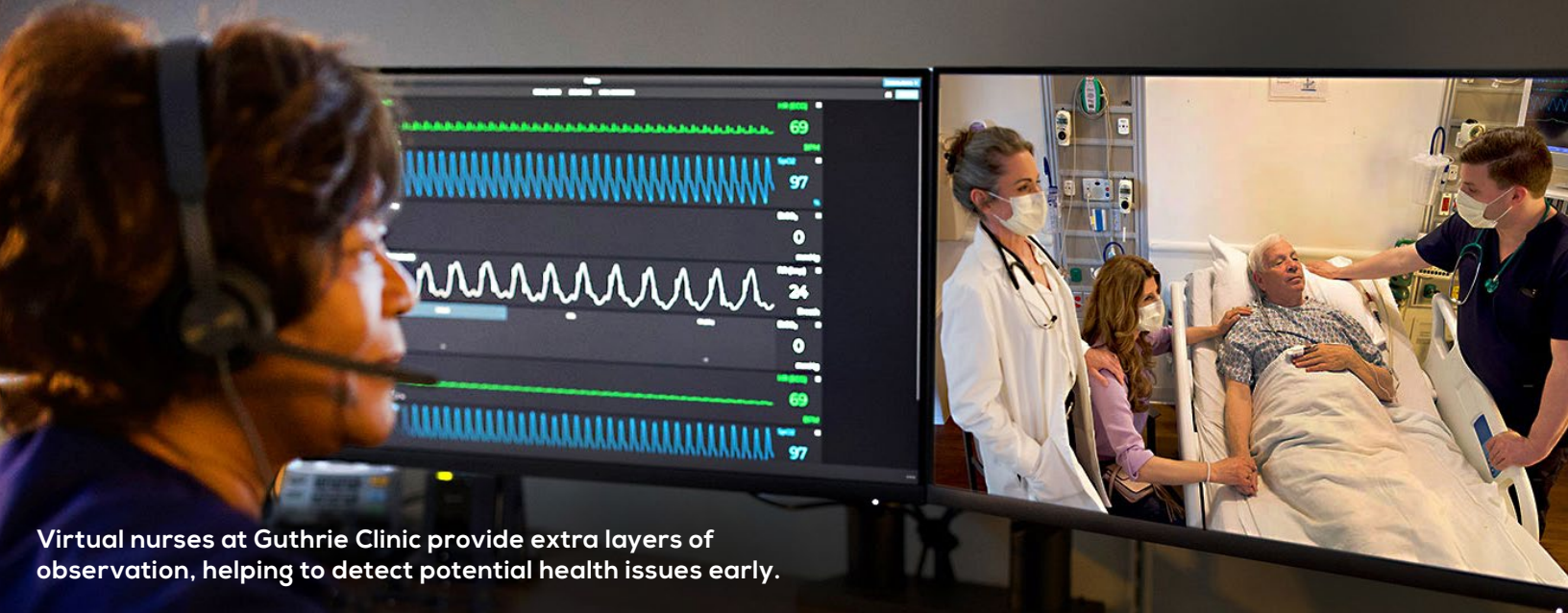
MAKING THE BUSINESS CASE

Seeking to standardize care delivery, nurse leaders analyzed systemwide lab and patient safety reports to optimize workflows and streamline processes. They found that by implementing a virtual care model, they could minimize inefficiencies, ensure more timely product deliveries and simplify time-consuming processes like data documentation.

After analyzing costs, staffing needs and tech options, Guthrie's nursing leaders proposed a centralized command center, consolidating on-site staff and hiring experienced virtual nurses and intensivists. The command center allows remote nurses to monitor patients visually using a software-based monitoring and analytics platform, cameras and two-way audio communication.

INITIAL IMPLEMENTATION

Guthrie designed the Pulse Center's command system around the concept of a care team; remote nurses are assigned specific patients to monitor and assist, making them a part of regular treatment workflows.



Virtual nurses at Guthrie Clinic provide extra layers of observation, helping to detect potential health issues early.

Due to immediate necessity, remote clinicians began monitoring critical care patients first, followed by those in med-surg units. Additionally, Guthrie hired intensivists to be available 24/7. A central location houses most of the team, with the exception of the intensivists. While Guthrie initially lacked visual communication between the virtual nurse and the bedside care team, it eventually installed TVs for face-to-face interactions that foster more personal connections among patients, bedside staff and virtual nurses.

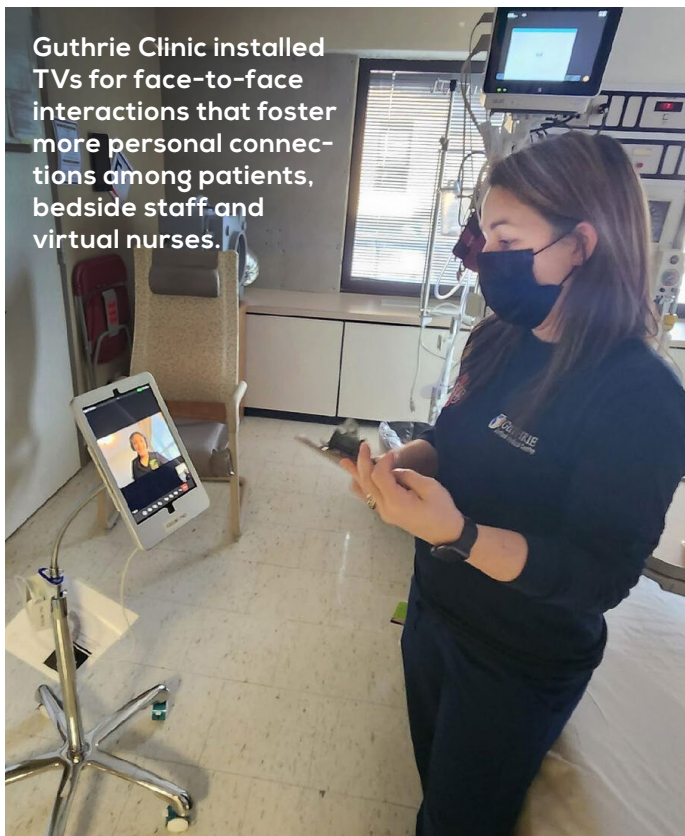
Under this model, Guthrie expands the reach of its bedside staff. Virtual nurses provide round-the-clock support and help with administrative tasks, allowing in-person nurses to concentrate on direct patient care. Remote nurses document patient histories, manage medications and update families about patient conditions. And because virtual nurses often have substantial experience, they can act as mentors for less experienced bedside nurses.

Virtual nurses also provide extra layers of observation, helping to detect potential health issues early. For example, a remote nurse, observing a patient's declining vitals, detected a pulmonary embolism early and quickly arranged for emergency care.

Guthrie, already an Epic customer, primarily used its electronic health record for documentation. It added camera capabilities from artificial intelligence (AI) company Artisight and the Sickbay Clinical Intelligence Platform from Medical Informatics Corp. to integrate real-time data from medical instruments. This helps to streamline documentation and expedite patient transfers.

STAFFING DETAILS

Through the center, clinical leaders transitioned to a model with a registered nurse, licensed practical nurse and an aide for eight patients in med-surg departments. In its intensive care unit (ICU), bedside ratios are usually 1:1 or 1:2, while virtual nurses currently manage about 30 patients each. This virtual ratio might increase with the addition of risk scores. For med-surg units, the bedside ratio is typically 1:8, and virtual technicians or nurses aim to manage 30 patients each, with a goal to eventually handle 50 patients each. Guthrie



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Guthrie Clinic's Pulse Center comprises five departments: telesitter, virtual ICU, virtual med-surg, central telemetry and a transfer center.

implemented a team approach for med-surg care, and then layered virtual nursing on top, ensuring continuous support and guidance for the in-person team.

The Pulse Center comprises five departments: telesitter, virtual ICU, virtual med-surg, central telemetry and a transfer center. The telesitters were a preexisting component, while the other elements were newly integrated.

IMPACT

In the 18 months since implementing the Pulse Center, Guthrie eliminated its use of travel nurses, enhanced patient care through virtual nurse mentorship, improved safety metrics, broadened health care access via virtual care and boosted patient satisfaction scores.

- **Labor savings:** By eliminating traveling nurses, Guthrie saved more than \$7 million in annual labor. Without the program, Guthrie estimated needing 200 nurses; instead, they filled the roles with just 98 because of the virtual hub.
- **Nurse mentorship:** Veteran virtual nurses at the Pulse Center guided less experienced peers, enhancing their skills and the quality of patient care.
- **Nurse staffing flexibility:** Guthrie capitalized on the flexibility of remote roles, allowing for broader staff reallocation and reaching a wider applicant base. This approach retained valuable in-house expertise, making

Guthrie an attractive option for potential recruits. The versatility of remote positions also provided new options for experienced nurses nearing retirement who no longer wished to perform physical bedside care but still wanted to contribute their expertise.

- **Enhanced patient safety:** Guthrie [boosted its Leapfrog Hospital Safety Grade](#) from a C to a B and recorded declines in *Clostridioides difficile*, catheter-associated urinary tract infections and rates of central line-associated bloodstream infections across four hospitals.
- **Expanded patient access:** Virtual care notably enhanced patients' access to health care services.
- **Patient satisfaction:** Less time spent by nurses in the EMR has resulted in more time for hands-on care. There has been a "total minutes in patient chart per shift per nurse" drop from 150 minutes to 130 minutes – a substantial drop of 20 minutes per shift. Guthrie leaders cited higher Press Ganey scores and more satisfied patients and families.

FOCUSED SAFETY OUTCOMES

Virtual nurses communicate with the health care team using care prompts – specific sets of actions proven to help patients. These digital reminders from virtual nurses ensure that patients receive timely care, including scheduled medicine or turning patients to prevent bedsores.

The reports highlighted fewer risks related to patient falls, unmonitored beds and noncompliance with health protocols. Clinical supervision added a layer of oversight, helping health care providers to consistently follow established care guidelines. As a result:

- **Fall hazards** for high-risk patients were mitigated via virtual monitoring.
- **Continuous monitoring** minimized harm risks from unwatched beds.
- **Immediate data monitoring** allowed for swift identification of any changes in patient conditions.

CHALLENGES

Initially, staff voiced concerns about being monitored and leaders wondered how patients might react to virtual care. “There were a lot of nursing questions like, ‘Are you watching me? Am I going to be disciplined if I do something wrong?’” said Deb Raupers, R.N., executive vice president and chief nurse executive, in an American Organization for Nursing Leadership [focus group session](#). “We helped everybody to understand that it’s a live feed. There were no recordings. That really helped, because [staff] know that there’s nothing there to look back on.”

To further address concerns and gain support, Guthrie incorporated internal staff in the rollout, avoided using temporary staff for backfill and asked critical care nurses to help design the virtual system.

LESSONS LEARNED

Guthrie’s nursing leaders advise other health care organizations to consider the following when implementing similar solutions:

- **Involve bedside staff in program design:** Direct engagement with bedside staff matters, because they intimately understand the daily operations and challenges.
- **Celebrate early successes:** Demonstrating the value of a new initiative helps to secure staff buy-in.
- **Embrace modern tech:** Affordable technology is readily available and AI advancements can help teams evolve. “Care models have to change,” said Terri Coutts, R.N.-BC, vice president and chief digital information officer at the clinic. Coutts suggests evaluating the return on investment of these tools



Terri Coutts, R.N.-BC, vice president and chief digital information officer at Guthrie Clinic, notes that it is important to evaluate the return on investment of digital technologies that can extend the reach of nurses.

now, since the technology will continue to advance rapidly with AI.

- **Involve front-line staff in making decisions:** Their involvement ensures more practical and well-informed decisions for better patient care.
- **Foster team environments:** A supportive team atmosphere boosts both patient care quality and staff satisfaction.
- **Engage leadership:** Leaders who actively support staff needs by continuously refining workflows, being open to feedback and implementing new solutions can significantly influence program success.
- **Define virtual nursing clearly:** Assign distinct roles and responsibilities to avoid confusion and errors.

NEXT STEPS

Guthrie now uses the Pulse Center as a transfer center to coordinate and streamline patient transfers between facilities or care levels. Leaders plan to expand virtual care, encompassing online registration, pharmacy management and virtual support for community hospitals, including consultations. It also has an initiative in place to provide virtual care for home settings. This effort is part of Guthrie’s five-year strategy, with the focus on foundational developments the first year. Eventually, leaders hope to reach patients nationwide.

LEARN MORE. For more examples of health systems using virtual models to improve care delivery, listen to the American Hospital Association webinar, [“Solving for Staffing Challenges with Flexible, Virtual Care Models.”](#)

FOR MORE INFORMATION VISIT:

- [Guthrie Presentation at Healthcare Partnership Network, September 2023](#)
- [Becker's Health IT: Guthrie Clinic's virtual nursing saves \\$7M in labor costs](#)
- [AHA webinar: Solving for Staffing Challenges with Flexible, Virtual Care Models](#)
- [AHA/AONL webinar: Braving the New World of Virtual Care](#)

ABOUT GUTHRIE CLINIC:

Guthrie is a not-for-profit, integrated health care system designed to offer patients a full-spectrum of health services incorporating primary care, complex specialty care, behavioral health services, surgical services, inpatient care, durable medical equipment services, home health, long-term care, palliative care and hospice care. Our integrated approach creates a better experience for our patients and is working to decrease the cost of the delivery of health care.

We serve a large population of people over a wide geographic area. Regardless of how patients enter the Guthrie system, our electronic health record, enables our specialists and primary care physicians to actively collaborate – literally and virtually – to coordinate patient care. Our robust electronic health record enables Guthrie physicians and clinicians to quickly gain a comprehensive understanding of patients' health needs and our patient portal, eGuthrie, allows patients to access their health information easily on a computer, tablet or smart phone.

ABOUT SICKBAY & MEDICAL INFORMATICS CORP.

Sickbay™ is an FDA-cleared platform providing hospitals with the only vendor-neutral, integrated patient monitoring solution in healthcare. Sickbay consolidates disparate sourced, time-sequenced patient monitoring data with an average of 25 milliseconds per patient. Sickbay drives cost-effective patient monitoring and powers analytics by providing instantaneous and persisted physiological data to clinicians, researchers, and algorithm developers. Viewing data consolidated in Sickbay on any laptop or mobile device, on wallboards, and in on-prem or remote command centers enables clinicians to deliver the best possible care to patients throughout the hospital.

Medical Informatics Corp. (MIC) partners with health systems to deliver pragmatic, effective, and innovative patient monitoring solutions following MIC's Patient Monitoring Maturity Model. ("PM3") Visit our website, www.sickbay.com, for insights on transforming patient monitoring within your hospital.

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MIC's Sickbay platform is powered by Intel Xeon Scalable Processors, Optane, Python and BigDL libraries to support a balanced architecture with built-in acceleration and advanced security to help pave the way for the virtual care healthcare revolution and AI innovation.

