

## GE helps Gundersen Lutheran optimize design of new critical care hospital



With a new critical-care hospital in the planning stages, Gundersen Lutheran Health System in La Crosse, WI, had an opportunity to design a facility that could deliver high-quality care more efficiently than ever. With efficiencies in workflow and an intelligent space “hard-wired” into the design, the new facility would improve the patient experience, enhance staff satisfaction and increase patient care time for nursing.

Gundersen engaged GE Healthcare’s Hospital of the Future (HoF) practice to help design the new facility, planned for groundbreaking in late 2009. The goal was to design and optimize operations to reduce the cost of care.

### Clinical workflow analysis

To help Gundersen create the most efficient new facility possible, HoF employed lean-based principals and analysis that account for the interactions between detailed clinical workflow and future-state technology. HoF’s methodology treats the hospital as a complete system and accounts for interdependencies between departments and functions.

### PROJECT PROFILE

#### The facility

Gundersen Lutheran Health System is a physician-led, not-for-profit healthcare system caring for patients in 19 counties throughout western Wisconsin, northeastern Iowa and southeastern Minnesota.

#### The opportunity

Optimize the design of a new critical-care hospital to improve the patient experience, enhance staff satisfaction and make the best use of nursing resources.

#### The GE solution

To design the new facility, GE employed lean-based analysis and methods including:

- Observation of current primary-care delivery practices
- Secondary data analytics
- Identification of design and process improvement opportunities
- Proprietary simulation technology to test alternatives in a patient-safe environment

#### The results

Recommendations included:

- Designing new layouts to reduce staff travel time and improve patient flow
- Consolidating emergency and urgent care to share staff and improve efficiency
- Implementing workflow changes that reduce daily travel for RNs and CNAs by more than 40 percent
- Redefining staff roles to properly match resources with care demands



“The traditional approach is to put the building up and try to fit the operations to it, and that’s not very efficient,” says Jeff Rich, executive director of major projects and efficiency improvement with Gundersen. “We wanted to design the operations before developing the schematics and drawings with the architects.”

To create a new care delivery model for the new facility, HoF began by evaluating current care delivery processes in several areas, including a medical surgical unit, the emergency department, inpatient imaging, logistics and perioperative services.

Using data and observations, the team used a proprietary simulation technology to model and analyze:

- a variety of functional layouts
- operational capacities, including number of beds, modalities and supply centers
- future-state technologies and the potential impact on processes
- changes in clinical care delivery pathways
- operational plans such as staffing, activities, task requirements and shifts
- digital versus analog processes and cycle times
- predicted growth and changes in volume and case mix

“There are different shades of gray. Every decision you make involves tradeoffs,” says Rich. “Simulation helps us understand the complexities and predict the impacts of decisions we make.”

### Efficiency by design

HoF provided Gundersen with valuable insights for the design of its new critical-care hospital and for optimizing current operations to reduce the cost of care delivery.

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“The process gave us some direction on how to lay the building out to cut down on travel time for RNs and CNAs as well as improve patient flow,” says Rich. “The racetrack layout, which is a popular design, was the least efficient of the models we compared. The most efficient was a modified pod layout.”

Other insights for designing the new hospital included:

- consolidating emergency and urgent care to streamline triage and more efficiently share staff
- providing separate travel corridors and elevators for patients and for transport of supplies, materials and equipment, enabling more efficient deliveries
- locating the radiology department to serve inpatients efficiently, yet also provide easy access for the larger outpatient population

Based on findings from the HoF engagement, Gundersen is also implementing workflow improvements to the existing facility, many of which will carry over to the new facility.

For example, the HoF team helped identify workflow changes that reduce daily travel for RNs and CNAs by more than 40 percent. Through optimizing supply availability and storage locations, GE minimized “hunting and gathering” and increased the opportunity for more direct patient care time.

Analysis also found that RNs were spending 33 to 60 percent of their time on activities and tasks that did not require licensed personnel. As a result, certain tasks were shifted to more appropriate staff, enabling the same level of care at lower cost and providing more time for nurses to concentrate on core nursing accountabilities.

“With Hospital of the Future, you get an objective, third-party look at your processes, and you end up with data to help you make fact-based decisions,” says Rich. “They bring in a high level of expertise and a unique mix of clinical and industrial engineering skills. They do an extraordinary amount of work in a very short time.”

### Hospital of the Future – You only get one chance to get it right.

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For more information contact [gehealthcare.solutions@ge.com](mailto:gehealthcare.solutions@ge.com)

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