



## Automating Coordination of Care with Operational Control Center

*Rapid population growth in middle Tennessee combined with hospital closures in rural regions and a need for specialized care only offered by Vanderbilt, led to concerns with capacity management within Vanderbilt University Adult Hospital (VUAH). Specifically, increased demand for services in key operational areas such as diagnostic imaging created bottlenecks with patients moving through the hospital and led to frequent dissatisfaction. This triggered a response to discover a viable solution to identify apparent inefficiencies in diagnostic imaging, inpatient discharge, the emergency department (ED), the operating room, and the post-anesthesia care unit (PACU).*

### CHALLENGE

High capacity in Vanderbilt University Adult Hospital (VUAH) congested key service areas, resulting in extended patient admission stays and reduced hospital throughput

### SOLUTION

Develop integration within eStar to display metrics on patient movement and project this data on visually engaging dashboards, enabling hospital staff to easily identify inefficiencies, collaborate, and better manage bed capacity

### OUTCOMES

Enhanced interdisciplinary communication and coordination, decreased congestion in critical service areas such as radiology, optimized room turn around for environmental services (EVS), and improvements in post-acute care transitions

Methods were needed to track patient flow and to streamline throughput in the hospital. Enhanced throughput could effectively work to reduce inpatient stays and potentially open more bed space.

Teams examined how to best utilize real-time metrics of patient movement, from admission to discharge, and display this data on dashboards. The centralized data would allow staff to monitor and identify inefficiencies and make informed decisions to improve throughput. The goal was to enhance discharge planning and address bottlenecks in areas including radiology, transport, EVS, the Transfer Center, bed planning, procedural, PACU, the ED, and the lab.

During the technical build and implementation, hardware and software teams focused on creating digital assets such as custom dashboards, metrics, models, reports, work queues, and alerts to improve efficiency.

To deliver the finished product, they married new features and dashboards within eStar, Vanderbilt's electronic health record, with Vanderbilt's in-house capabilities, which included advanced data visualization and analytics.

Representatives from different specialties can gather in the VUAH Operational Control Center (OCC) and analyze the rich data displayed on the visually captivating dashboards, making real-time decisions in a collaborative environment. The dashboards cover a wide array of data. For example, dashboards help with systemwide capacity management by reflecting ED census, Transfer Center information, upcoming admits, and medically ready discharges by unit. Radiology information shows orders to be scheduled, current status, transport request turnaround, and current times for imaging.

The OCC was launched within six months of its initial development and proved to be immediately beneficial during the height of the

“The focus at VUMC is patient safety, with having the right patient in the right place to receive the best care for their condition. The OCC allows for a 10,000-foot view of patient flow through the hospital which facilitates patient flow, while improving systems of safety and efficiency from the entry point to discharge from VUMC.”

—Liza Weavind, MBBCh., MMHC, FCCM

COVID-19 pandemic, when rural hospitals were at capacity and demand for Vanderbilt's unique capabilities was at an all-time high. Team members in the OCC were able to make more educated decisions about accepting transferred patients based on the real-time data displayed in the OCC.

Though the original intent of the work of IT and operational teams was clear—improve throughput to maximize bed capacity in the hospital—ever-increasing demand for care at Vanderbilt continues to make that objective difficult. Nevertheless, the launch of the OCC resulted in several positive outcomes:

- Enhanced interdisciplinary communication and coordination
- Decreased congestion in critical service areas
- Optimized room turnaround for EVS
- Improved post-acute care transitions

