

HOSPITAL CHARACTERISTICS

## SINAI HEALTH SYSTEM

- ▶ Chicago, IL
- ▶ 431 beds
- ▶ www.sinai.org

Mount Sinai Hospital, a teaching, research and tertiary-care facility, provides health services to some of the neediest on Chicago's West Side, as well as patients from other parts of the city and the suburbs.

### S . T . E . E . E . P .



#### SAFE

Revised fast track for urgent care, standard order sets, and streamlined processes lead to quicker diagnosis and treatment and fewer people who LWOT.



#### EFFICIENT

Lots of changes throughout the hospital, from having hospitalists discharge patients earlier to cross-training ED nurses, has eliminated unnecessary steps and bottlenecks



#### TIMELY

In the past, it could take up to six months to change a process, Dr. Zun says. Now, an ED team meets one week to discuss a change, then initiates the new process the following week.

# SAFETY NET HOSPITAL IMPROVED FLOW

## The Problem

Emergency departments across the nation are being stretched as more Americans rely on them for primary care. ED patient visits climbed 36 percent between 1999 and 2006, according to the Centers for Disease Control's National Center for Health Statistics. As an

urban safety-net hospital, Mount Sinai faced an even tougher challenge. When nearby Bethany Hospital closed and Cook County Hospital, now Stroger Hospital, reduced services, the hospital saw ED visits spike 14 percent between February and June 2006. Mount Sinai now handles more than 58,000 ED visits a year.

## The Solution

Dedicated to providing the best urban medical care regardless of a patient's ability to pay, in 2005 Mount Sinai launched a system-wide effort to improve processes. As part of that initiative, the hospital's ED aimed to significantly reduce its lengthy patient wait times and its walk-out rate, which was 10 percent. The situation "was not congruent with our mission or our vision to be the national model of urban health care delivery," says Leslie Zun, MD, chair of Mount Sinai's emergency medicine department.

## Results

- » Left without treatment (LWOT) rate is 1.6 percent in 2009 versus 10 percent in 2005
- » Average throughput time fell to 4 hours and 2 minutes in first-quarter 2009 from 6.8 hours in first-quarter 2006
- » 53 percent of patients see a physician within 30 minutes of arrival in the ED

## Background

In many ways, the ED is the nerve center of Mount Sinai. With six out of 10 patients covered by Medicaid and another 13 percent uninsured, the vast majority of its patients arrive through the ED. Given its central role at the hospital, the ED department and hospital senior management wanted to achieve major, rather than incremental, improvements. A search of the medical literature turned up few best practices for ED throughput, but Dr. Zun identified some areas to target.

Working with an outside consultant, the hospital led a rapid redesign process. In six weeks, dozens of departments involved with the ED, from environmental services, interpreter services and laboratory to nursing, surgery and admitting, developed plans to change processes and interactions with the ED—and other departments. They presented the plans to facilitate ED throughput in one-to-two hour meetings with members of the ED staff, who commented on the plans and made their own recommendations. "Everyone was thinking about it and working on it," says Marty Schultz, director of laboratory services.

Importantly, the changes needed to be made with little to no additional expense. "We do it with a lot of ingenuity since we don't have a lot of resources," says Dr. Zun.

## TEAM MEMBERS

### **Leslie Zun, MD**

Chair of the Emergency Department

### **George Van Derlinde, RN**

Emergency Department Charge Nurse

### **Shurecca Baymon, RN**

Emergency Department Charge Nurse

### **Martha (Marty) Schultz**

Director of Laboratory Services

### **Thomas Vargish, MD**

Chairman of the Department of  
Surgery

## **Principles of Performance Excellence**

### **Patient Focus**

Mount Sinai started by setting out ambitious goals to dramatically improve the patient experience and satisfaction with its ED. The team focused on the big picture by examining the different parts, such as the time from decision to hospital admission to the time the patient reaches the hospital room. In some cases, Mount Sinai set aggressive targets for compressing these times by hours rather than minutes, such as time from arrival at the ED to a fast-track decision from 3.4 hours to 1.5 hours.

To start the overhaul, Dr. Zun diagrammed the ED process. Rather than redesign processes, then estimate how much time and effort could be saved, the redesign team started by estimating how long each step should take, drawing on input from radiology, housekeeping and a host of other hospital departments and services. Only then did the ED and departments begin working on ways to eliminate roadblocks, build new pathways and make other changes to reach the targeted times. “We got the line staff involved, the people who had to implement and live with the changes,” explains Dr. Zun.

To measure the progress, the hospital rolled out a new ED tracking system. The system tracks patients from when they enter the ED until they are treated and released or moved to a hospital room, with a focus on such key metrics as total wait time, time to see a physician and time waiting for a bed.

### **Managing Organizational Variability**

Mount Sinai made reducing ED throughput a major rallying point for the entire hospital. Virtually every department and employee group revised some of their work processes as part of the initiative. The hospital also offered bonuses to administrators as an added incentive if the ED reached key improvement milestones.

One major effort, involving a number of departments, centered on improving bed management. The lack of open beds was a major contributor to high ED throughput. “One day, I was told there were no available beds,” says Dr. Zun. “I walked the floors and counted 38 open beds.”

To improve availability, the hospital moved up its discharge time for its hospitalists to 11 am and encouraged affiliated physicians to aim for that time as well. The surgery and radiology departments teamed up to speed the release of trauma patients, who are the biggest consumers of surgery beds. Each morning, the surgery department compiles a list of recent trauma patients for radiology, prioritizes reading those patients’ reports to ensure there are no issues and then the patients can be discharged.

Mount Sinai also added a bed resource coordinator who works with housekeeping to prioritize which beds to clean for ED and other patients. The coordinator relays information to the admissions staff, who had previously relied on busy floor nurses to notify them of available beds. To formalize the process, the hospital developed bed alert protocols.

More recently, phlebotomists began carrying handheld devices to make the blood

testing process more efficient, and in turn, speed discharges. Rather than receiving a list of patients and tests each morning, phlebotomists stay on the floors until all of the tests are done. Using the handheld, phlebotomists are able to match barcodes to orders and then a machine automatically prints specimen labels.

### **Reducing Process Variability**

Drawing on evidence-based medicine, Mount Sinai created standardized ED order sets and pathways. To cope with large influxes of patients, the ED also created surge protocols that go into effect when more than 10 patients are waiting.

The ED created standing orders for triage nurses and shortened the triage process. Changes included in-room registration, stocking more medication in the ED, and ensuring carts with equipment and supplies are closer to the staff and readily available. Mount Sinai also cross-trained ED nurses to do respiratory care, transport, arterial blood gases and EKGs.

Similarly, the hospital revamped its fast-track patient flow to include in-room registration, then moving patients to the waiting room to await test results. To handle the new flow, the ED added a pediatrician, nurse and extra exam room for urgent care patients.

A number of departments worked on making processes more consistent and efficient. Since all ED and other specimens are sent to the lab via a pneumatic system, the hospital held training for nurses and lab techs on how to use the system and proper labeling to ensure the equipment could read and record the specimens.

Physicians, too, faced a number of new protocols and standards. Mount Sinai established a 30-minute limit for consulting physicians to respond to an ED request. Similarly, admitting physicians have 30 minutes to respond to a call about one of their patients in the ED or the patient will be reassigned to the doctor on call. General surgery consults have to be conducted by senior residents rather than medical students. And psychiatry evaluations must be completed in 1.5 hours.

Physicians welcomed the changes, says Thomas Vargish, MD, chairman of the surgery department. “We looked at where are the things we can do better and where our performance could be more efficient. Some of our surgeons were frustrated we couldn’t get (trauma) patients discharged faster,” he says. “It’s been a physician satisfier and it’s better patient care.”

### **Patient Focus**

Much of Mount Sinai’s efforts revolved around eliminating the time patients spend waiting—for test results, discharge orders and the like. Although lab tests for ED have always been stat, the hospital began using a bright pink label to distinguish ED lab tests versus white labels for other departments. To streamline operations, the information systems liaison for the lab department built an electronic monitor so hematology, chemistry and the blood bank could each see which of their orders is requested, stat and pending.

The ED also expanded the number of point of care tests it did rather than sending specimens to the lab, including cardiac markers and a basic metabolic panel. For fast-track patients, they also do some urine analysis.

## **Continual Improvement**

Encouraged by its success, Mount Sinai aspires to do even better. When it embarked on its change program, the ED set a throughput goal of 3 hours—less than half of its throughput at the time. From its current average of roughly 4 hours, it continues to chip away at that target. In addition, the ED has set a goal of 75 percent of patients seeing a physician within 30 minutes of their arrival, up dramatically from its current 53 percent.

The ED staff sees improvement as part of its job now. “We are very big on pilots, on quick trials,” Dr. Zun says. “We might try a new triage process or other process. Sometimes they work, sometimes we have to try something different.”

Mount Sinai also has begun to sort its measurement data to focus on outliers for specific diagnosis-related groups. The hospital noticed, for example, that its inpatient throughput for chest pain was one day longer than the mean number of length of stay days. “It all starts with how the ED treats someone who comes in with chest pain,” explains Dr. Zun.

So the ED created a new order set for chest pain that calls for blood tests followed by stress tests for all chest-pain patients. Before, Mount Sinai would first admit a patient with chest pain, then do a stress test, which might not happen for eight to 10 hours after the patient arrived at the hospital. Because of the ED and other changes, hospital LOS for chest pain patients dropped by 1.5 days from late 2008 to mid-2009.