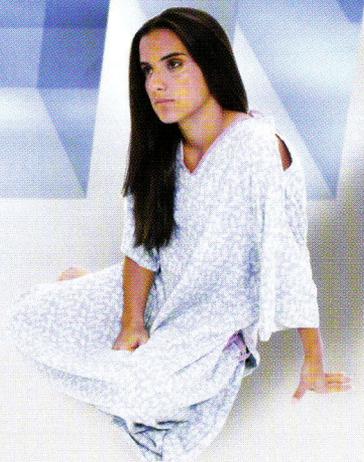




IMPROVING PATIENT THROUGHPUT

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IMPROVING PATIENT THROUGHPUT

FIVE WARNING SIGNS: Rec

There are five indications that your emergency department

1 EXCEEDING 85% CAPACITY
Research shows that if you exceed this on a consistent basis, you probably have throughput problems in your organization. ED lengths of stay appear to increase extensively when hospital occupancy levels exceed 90 percent.

2 TOO M
Physici possible the ED or for an offer from complica ghost beds you ha many contribute t

Emergency department overcrowding is virtually synonymous with patient throughput problems. Without any open beds for patients, hospital EDs invariably have long waits and crowded hallways and must frequently divert ambulances to other hospitals. But just because problems show up in the ED doesn't mean they start there—nor does it mean they end there. ED backups often create a cascade effect, with problems cropping up in other departments such as critical care telemetry, surgery and post-acute care.

Despite the enormous pressure it exerts on the ED, patient throughput is not so much an ED problem as it is a systemic one, caused by operational inefficiencies, inefficient processes, lacking or underutilized IT systems, and poor communication throughout the hospital. Looking at it only as a department-specific problem will invariably lead to short-term fixes and missed opportunities.

This foldout provides an overview of some of the major issues associated with patient throughput, examines common bottlenecks, and looks at what hospitals can do to improve patient throughput. We also include case studies that illustrate the real-life solutions of some hospitals.

METRICS: How Are You Tracking Patient Throughput?

Length of stay is not the only important metric in tracking patient throughput. Here are some other key numbers when tracking patient throughput in inpatient and ED settings.

ED

- Percent of patients that leave the ED without being seen
- Hours of ED diversion
- Average ED LOS
- Average ED LOS for admitted patients
- Average ED LOS for discharged patients
- Average lab turnaround time (order to result)
- Average diagnostic imaging turnaround time by key modality (order to first read)
- Average minutes from admission order written to patient placed in an inpatient bed
- Patient satisfaction scores

INPATIENT

- Length of stay for medical-surgical patients, hospital, physician, service, top volume DRGs
- Average patient admission and discharge time by nursing unit
- Avoidable days
- Percentage of patients that are outliers
- Inpatient bed utilization by hospital and nursing unit
- Average bed turnaround time



izing When You're in Trouble

not get patients in and out in a timely fashion:

1 MOST BEDS

"save" beds for the that may come into t just in case they suf- out how many such given time and how ance diversions.

3 EXCESSIVE WAIT TIMES

Studies show that reducing the number of admitted patients waiting in the ED for inpatient beds is associated with a decrease in the interval that treat-and-release patients spend in the ED.

4 HIGH NUMBER OF PATIENTS WHO LEAVE WITHOUT BEING SEEN

Communicating estimated wait times and the availability of immediate treatments for minor injuries or symptoms may increase the time patients are willing to wait and decrease a hospital's left-without-being-seen rate.

5 DISCHARGE POLICY NONEXISTENT OR IGNORED

Track discharge times and monitor how well staff adhere to your hospital's discharge policy. Inform physicians about how many patients they discharge after discharge hours.

Sources: Zimmerman, 2004; H&H research, 2006

SOLUTIONS: What's the Holdup?

Inefficient processes, slow or drawn-out decision-making, slow turnaround times for tests, problems with facility design (for example, if labs and radiology are located far away), a culture that is not conducive to service, and information technology that is not used appropriately or is underutilized are just some of the reasons that patient throughput gets bogged down. Here are some solutions:

■ INPATIENT/GENERAL

- Create standing orders to common complaints. For example, specific hospital protocols can be followed for chest pain.
- Rethink the 24-hour cycle of care. Many hospitals assess patients and plan for their care in 24-hour cycles, with physicians rounding once a day. Move to a more frequent cycle: for example, eight-hour increments for surgery; two- to-four-hour increments for critical care. This will better allow doctors to adjust the treatment plan and move patients quickly.
- Use hospitalists and intensivists. Since they are on-site, hospitalists and intensivists can monitor patients and adjust care on a more frequent basis, freeing up beds quickly as patients improve.
- Create a patient throughput center. Several years ago, Ingalls Health System, a 424-bed hospital in Harvey, Ill., made a big splash when it created an admissions and discharge center that helped it dramatically cut its LOS. The area is used to stage patients with orders for direct admission but who cannot be admitted because a bed is not available. The admissions and discharge center is placed in a converted office area on the first floor next to the hospital's admitting department and preadmission testing center. There, staff assess patients and initiate care, and patients complete the necessary paperwork.
- Hire or create a bed czar. This individual is in charge of bed management and can speed the patient admitting and discharge process, as well as coordinate multiple departments to ensure rapid bed turnaround time. The bed czar usually has the authority to cancel elective procedures, make decisions regarding patient transfers and initiate hospital diversion.
- Invest in an enterprisewide bed management system. Among other things, these systems display key indicators and patient capacity status in real time, analyze patient status and bed status, and provide alerts to users.
- Align culture with service. Hospital staff that is aware of and cares about service and patient satisfaction will work to improve patient flow.

■ EMERGENCY DEPARTMENT

- Look at identifying patients based on acuity rather than triage, then create separate process streams for the two groups: high-acuity patients go to an ED bay for care, while low-acuity patients go to a separate area.
- Keep low-acuity patients upright rather than on a gurney or in a bed. Have patients sit for a consultation with a doctor/nurse, provide limited tests, then discharge them.

■ CRITICAL CARE

- Institute bedside registration.
- Designate a charge nurse whose sole duty is to coordinate patient flow.
- Create an observation unit.
- Create an MD triage/treatment area.

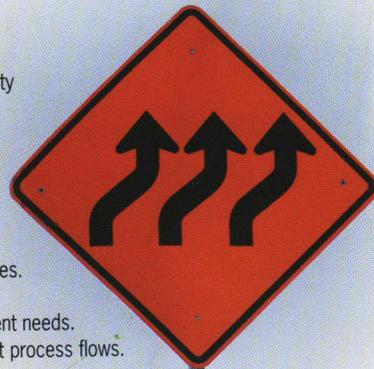
■ INTENSIVE CARE UNIT

- Use evidence-based protocols.
- Educate nursing team on infection sources.
- Generate daily goal sheets.
- Align physicians and nurses around patient needs.
- Use clinical team to evaluate and correct process flows.
- Simplify processes.

■ POST-ACUTE DISCHARGE

- Get case managers involved up front. Otherwise, patient discharges can be delayed as the care team struggles to coordinate post-acute services.
- Use electronic discharge planning software. This can help hospital staff relay post-acute service needs to community nursing homes and home health agencies and track responses.
- Create a discharge lounge.

Sources: HFMA, 2006; QHR, 2006; Sg2, 2006; H&H research and interviews, 2006



DOLLARS & SENSE: Improving the ED by way of the ICU

A new study by researchers at Oregon Health & Science University, Portland, found that having more ICU beds decreased hospital diversions and increased revenue. With more ICU capacity, the hospital was able to accept more patients who arrived by ambulance. In turn, those patients brought in additional revenues of \$175,000 per month, or a 10 percent increase. The study analyzed adult, nontrauma patients arriving by ambulance during 2002 and 2003. Of the 43,000 patients seen at the OHSU ED, 8,000 arrived by ambulance. During the study period, staffed ICU beds increased from 47 to 67, resulting in a two-thirds decrease in ambulance diversion hours.

Source: Oregon Health & Science University, 2006



AMBULANCE DIVERSIONS: A Growing Phenomenon

When hospitals are bursting at the seams, they have no choice but to divert ambulances. Over the past several years, more hospitals have had to divert more ambulances more often. The reasons are varied, but a lack of beds to admit patients is high among them. According to research by Sg2, a Skokie, Ill., health care research and consulting firm, in 2003, hospital EDs spent 3 percent of their time in diversion status. Among California hospitals the prob-

lem has grown exponentially: University of California, Los Angeles researchers found that ambulance diversions at Los Angeles County hospitals more than tripled between 1998 and 2004. And many of these diversions were likely caused by sheer lack of beds.

Centers for Disease Control and Prevention researchers found that:

56.5% of hospital EDs divert ambulances when they lack appropriate inpatient beds

54% when there are a high number of ED visits

20% when there is a complexity of ED cases

Even when hospitals know the problem exists, they can't always capture its nuances or plan for it. A 2004 survey by the American Hospital Association found that inpatient occu-

pancy rates captured at midnight failed to reflect the volume fluctuations by day and time of day and illustrates the difficulty of anticipating and responding to changes in demand.

Sources: American College of Emergency Physicians, 2006; American Hospital Association, 2004; AONE, 2006; Sg2, 2006; H&HN research, 2006

BOTTLENECKS: Why Do They Happen?

Regardless of where in the hospital they occur, bottlenecks in patient throughput likely come from three sources:

1.

Care Processes

Variation, redundant steps, unclear communication and a lack of definition all lead to inefficient operations.

3.

Information Technology

IT is not a solution to patient throughput unless it's used appropriately. For example, data that's not readily available to those who need it will slow down the care process.

2.

Facility Design

Long distances between ancillary departments impacts the timeliness of test results and, by extension, patient throughput.

Sources: H&HN interviews, 2006

IT SOLUTIONS: IT solutions to patient throughput

DIGITAL RADIOGRAPHY, in which X-ray images are directly captured and stored digitally, has the potential to improve patient cycle time and maximize staff efficiency. Compared with traditional X-ray, digital radiography captures better images, uses less radiation and eliminates the costs associated with film and processes. However, the systems are not inexpensive—up to twice the cost of conventional radiology systems—and any cost savings come from reengineering workflow rather than the systems themselves. In general, the success of digital radiography to improve patient throughput depends on the hospital's technical infrastructure (for example, PACS is necessary to deploy digital radiography), refining operational processes and staffing, physician buy-in, and training.

DIGITAL RADIOGRAPHY: TIME/STAFF SAVINGS

EXAM TYPE	CONVENTIONAL	DIGITAL RADIOGRAPHY
Chest	30 minutes	10 minutes
IVP	30-45 minutes	15-30 minutes
Bone Density	60-90 minutes	30 minutes
NUMBER OF STAFF		
Technologist	4	1
Darkroom	1	0
Transporter	1	0
Total	6	1

POINT-OF-CARE TESTING can dramatically improve efficiency, quality and patient safety. However, though test costs are lower, quality assurance is often an issue. Staff must be educated and well-trained, and data connectivity is essential so that test results are available to clinicians. After Evanston (Ill.) Northwestern Healthcare instituted point-of-care MRSA screening for all incoming patients, they reduced bloodstream infections by 60 percent and respiratory infections by 40 percent. Research shows the direct cost of bloodstream infections is about \$1,500 per day per patient, and a bloodstream infection can add 10 to 20 days to a patient's length of stay. A 60 percent decrease for a hospital with 20,000 annual discharges and a 5 percent infection rate would lead to savings of nearly \$1 million annually in bloodstream infections alone.

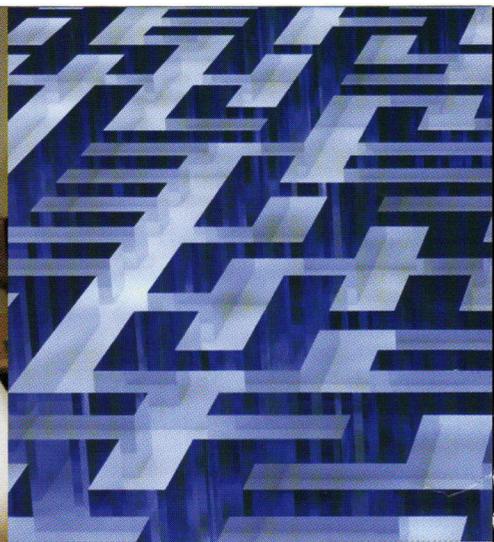
Sources: Sg2, 2006; H&HN research, 2006



HOW WE DID IT: This gatefold was produced by researching published studies and articles, and conducting interviews with hospital and industry executives.

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CASE STUDY: Sacred Heart Medical Center, Spokane, Wash.

In 2003, Sacred Heart Medical Center in Spokane, Wash., had a severe ED diversion problem. They totaled 31 days (744 hours or 62 hours per month) on diversion for the year and lost \$3 million that year. So the hospital decided to do an operational assessment of the ED and ancillary departments to get at the core of the issue. However, they quickly realized that to solve the ED problems they would have to address problems throughout the organization.

WHAT THEY DID:

1. Thoroughly examined all processes. Studied the ED from admission to inpatient; and on the inpatient side, from before a patient was admitted to discharge. "Initially we were most concerned about ED, but we quickly realized we couldn't solve the ED problem without solving other problems," says Sharon Herschman, R.N., director of patient care systems.

2. Identified key performance indicators that affect throughput: How long does patient wait in ED before getting to a bed? How long before a doctor sees him or her? How long before a bed is identified? The hospital worked with Empath consultants and found more than 2,000 processes that needed to be fixed. "Little things, such as whether there were scheduled meals and breaks, or change of shift," Herschman says.

3. Created new processes, expectations and systems to measure those indicators. Partnered with the IT staff to design 30-40 IT modules to support the new processes.

4. Made significant changes in the ED even as it was being remodeled and staff

were being let go. They:

- a. began to "fast track" patients
- b. created a centralized triage area
- c. hired/developed a triage nurse
- d. moved to team-based care, a process in which the ED is broken into smaller units and each operates as a mini-ED. The charge nurse functions like an air traffic controller.

5. Created a census action plan computer module. The module collects and analyzes real-time data to rank the hospital's patient census status and gives a list of activities assistant nurse managers must execute. "We used to have bed board meetings three times a day for 20 minutes each," Herschman says. "But after we developed the status board, supervisors for all the 17 units now update their information electronically every hour—it takes about two minutes, and that information is real time."

6. Defined backup systems for high-census protocols. For example, a unit might need 30 minutes of help, but often no one was available. One solution was to create "buddy units" in which units are assigned to help each other out.

THE RESULTS:

- Went from 744 hours on diversion for the year to 21 hours for the year. The drop for the process improvement period (July 2003 through July 2004) was even more dramatic: from 1,000+ hours on diversion for the time period, to 21 hours.
- Decreased time between arrival and first exam, from 82 minutes to 24 minutes.
- Increased patient volume by 30 percent.
- Reduced ED length of stay from 295 minutes to 166 minutes.
- In 2005, had a net profit of \$22 million (up from a loss of \$3 million in 2003). Sacred Heart estimates it lost \$8 million in potential revenue from ambulance diversion. After the process changes, it captured approximately \$7.75 million by decreasing diversions.