Patients backed up in the emergency department (ED). Ambulances on diversion. Patients “boarding” in the postanesthesia care unit (PACU). What does this have to do with the elective OR schedule?

A lot, as it turns out.

An elective surgical schedule that is heavy on some days and light on others can cause peaks and valleys in the demand for postoperative beds. This variability actually has a bigger impact on ED diversions than the random variability caused by emergencies.

For example, if an OR does a high volume of open-heart cases on Tuesday and Wednesday, those patients go to the ICU postoperatively. If the ICU is full, there is no room for emergency cases, and the ED might have to go on divert. Researcher Eugene Litvak, PhD, of Boston University has demonstrated that variability in the elective surgical caseload puts more strain on the system than random emergencies.

The Institute for Healthcare Improvement, Boston (IHI, www.ihi.org), has led a project to help hospitals address patient-flow issues by applying Dr Litvak’s findings. Speakers discussed the IHI project at the Managing Today’s OR Suite conference in October in Chicago. They also responded to OR managers’ questions. Speaking at the conference were Marilyn Rudolph, RN, BSN, MBA, a faculty member for the IHI project and vice president for patient improvement for VHA Pennsylvania, Pittsburgh, and Christy Dempsey, RN, BSN, CNOR, vice president for perioperative services at St John’s Regional Health Center, a Level I trauma center in Springfield, Mo. St John’s participated in the IHI project and has implemented some of Litvak’s findings, including an add-on OR for urgent and emergent cases (sidebar).

In an overstressed OR, an add-on room can reduce variability by separating the flow of urgent cases from elective ones.

Here are questions OR managers asked about managing patient flow.

**How do you get started with smoothing the flow of elective cases?**

Revising blocks is difficult enough as it is.

**Dempsey:** The first step is to be sure you have adequate policies and revise your blocks frequently. You can’t smooth the flow of cases, and you don’t know if you need an add-on room unless you are revising blocks regularly. This needs to be done about once every quarter, or once every 6 months at least, based on block utilization alone.

Then you need to make sure you have optimized the utilization of your blocks. Probably everybody has peak days in surgery at the beginning of the week so they can get their inpatients home by the weekend. If you are talking about smoothing the flow throughout the week or perhaps capping the number of total joints you do, say, on Tuesday and Wednesday, that will affect everybody’s block. Unless your surgeons are accustomed to having their blocks adjusted based on their utilization, this is going to be a huge change. If it’s routine to tweak blocks, this is going to be more acceptable.

**Rudolph:** I would add that all of these decisions must be based on data. I can’t stress enough the importance of good, clean data on block utilization. You will still be challenged, especially if you are making adjustments for the first time. Give the surgeons a chance to react to it. Then have your parameters and guidelines to guide your decisions.
We are doing our inpatient surgeries on Monday and Tuesday and our outpatients on Thursday and Friday. This can cause peaks in volume in the postop units. Yet we don’t want to move the inpatients to later in the week because ancillary services like physical therapy are not available on weekends. What can we do about this?

Rudolph: There are two choices.

First, if the hospital feels it can’t have ancillary services available 7 days a week, and they’re going to continue to schedule as they currently do, they need to designate more inpatient beds and staffing for those patients during the week. The second choice, which I advocate, is to try to smooth the surgery flow across the week and provide the ancillary services 7 days a week.

For your add-on room, what definitions do you use for urgent and emergent cases? How do you enforce this?

Dempsey: If you are going to have an add-on room, you have to have definitions for what can be done in that room. Our definitions are:

- emergent: threat to life or limb; done in next available OR
- priority: need an OR within 2 hours
- urgent: need an OR within 6 hours
- all other cases: can be done within 24 hours.

In addition, if a physician calls and needs to post a case for any other time frame, we write that on the schedule. For example, if a surgeon posts a case that needs to be done within 4 hours, and we have not been able to get the surgeon a room within 3 1/2 hours, that case becomes a priority and gets the next room available.

If anyone tries to game the system, that information is taken to our Perioperative Services Guidance Council. The council is chaired by the chairman of the Department of Surgery and the director of perioperative services. The members include 5 surgeons and all managers from perioperative services. It is a very strong committee that meets every 2 weeks. The council decides whether the case prioritization was appropriate. If it was not appropriate, as deemed by physician peers, the surgeon gets a letter, gets counseling, or at the extreme, loses privileges. We never have had to take away privileges for that reason.

We’ve talked to hospitals all over the country about this, and there seem to be 2 common obstacles:

- The OR committee is not strong and does not meet often enough.
- The OR is not revising the blocks often enough.

What metrics do you use to monitor the utilization and outcomes for the add-on room?

Dempsey: We look at the utilization of that room the same way that we look at block utilization in general. Utilization of the add-on room is about 60%, which allows for flexibility. We define block utilization as the case time within the blocks (patient in to patient out of the room plus turnover time) divided by the available block time. We generally revise the blocks about every 4 months. We also look at overtime; the number of rooms we need at 3, 5, 7, and 11 pm; the surgical volume; and our throughput during the business part of the day.

Our overtime in the OR is 2.8%, which is low. Our volume has grown, and our overtime continues to stay low. And we run only half the rooms after 3 pm that we were running 2 years ago. So those things help us know we are successful.

When you have a room set aside for add-ons, how do you make sure you have staff who are competent for the kinds of cases that are going to be assigned to that room?

Dempsey: We trade those people out based on the cases we get for the add-on room. For example, if you get a craniotomy for the add-on room, you trade the staff that was assigned to that room for the expert staff in other rooms. Also, in our hospital, because we are a trauma center, we have core competencies everyone has to maintain.
Q What do you do about anesthesia services for the add-on room? If the room is not utilized as much as the other rooms, do anesthesiologists want to be assigned there?

Dempsey: No. But they have seen their overall throughput go up, too. If there are not enough add-on cases to put in that room, we look for a surgeon who has relatively short cases and move some of his cases to that room. That way, he can use 2 rooms, do cases back to back, and finish sooner.

Q We have orthopedic surgeons who continually want to do cases in the evening after office hours. An add-on room would not help this. What do you suggest?

Dempsey: We had the same problem. We found that despite having an add-on room, which is fairly well utilized at around 60%, we still had trouble getting hip fracture cases done because those physicians needed to be in the office during the day. No matter what we tried, they were still putting those cases on after their office hours. So we said, “We are going to organize their madness. We are going to give them a block from 5 to 9 pm for hip fractures.” So we staff it, and anesthesia staffs it. That way, the patients are not in the hospital an extra day, and we can get the cases done.

Rudolph: That increases the predictability—knowing the staffing needs so you are not scrambling or paying overtime.

Q In our hospital, we have times when the PACU is backed up because of lack of staff in the ICU and postop cardiac ICU. Then when a trauma patient comes in, there is no place to send them. Our problem is not enough nurses rather than a shortage of beds. How do you address this?

Rudolph: If you don’t have enough RNs to staff these units, then that is your capacity. Your true capacity is only as good as your staffing. You might want to look at how you are scheduling patients for the OR. You probably have historical information on this. You might find, for example, that your surgical volume ranges from 4 cases to 12 cases a day. Reducing this variation might help relieve the pressure.

Q Sometimes when we have capacity problems, the postsurgical floor gets medical patients, or vice versa. This is a dissatisfier for staff. How do you address this?

Rudolph: We recommend that medical patients have medical beds, and surgical patients have surgical beds. Understanding the demands for those patient populations is key. We need to do a better job of looking at historical information to understand what the demand is going to be. Once you better identify your demand, you can start working to manage the demand. For example, you could look at smoothing your surgical flow so you can appropriately place surgical patients into surgery beds.

Dempsey: This is one of the exercises we did in the IHI collaborative. You probably will find that your medical caseload is more predictable than your elective surgical volume, which is why it is so important to smooth the elective surgical flow.

For more on the IHI project and patient-flow research, see the November 2003 and December 2004 OR Manager.
Implementing an add-on room

An add-on OR has enabled St John’s Regional Health Center in Springfield, Mo, to manage a growing volume while keeping overtime low, allowing surgeons to get more cases done and reducing the number of add-on cases running late in the evening.

The 866-bed Level I trauma center has:
- 28 ORs (22 main OR; 6 outpatient)
- 26,000+ cases annually
- 145 surgeons.

St John’s began using an add-on room for urgent and emergent cases in 2002.

As a result:
- Surgical case volume increased by 5.1% between 7:30 am and 1:30 pm.
- Need for ORs at 3, 5, 7, and 11 pm decreased by 45%.
- Overtime was reduced. Current overtime percentage is 2.8%.
- Surgeon revenue increased by 4.6%.
- Nursing units are better able to predict staffing needs.
- Patient, physician, and staff satisfaction increased.

To read how St John’s implemented the add-on room, see the November 2003 OR Manager, p 12.