OR SCHEDULING

What makes a well-oiled scheduling system?

Which is better for OR scheduling—block, modified block, or first-come, first served?

It’s a common question, but there is no cut-and-dried answer. A great many issues must be weighed.

“The OR is like a wheel, and scheduling is the hub, but there are many spokes,” observes Mary Kay Schultz, RN, MA, an independent consultant based in Chicago. The schedule drives everything that happens in the OR, but the schedule in turn depends on many subsystems, such as staffing and the availability of supplies and equipment. All these systems have to work together for the OR to function effectively.

Good management is what makes the difference, not simply the model used. “Scheduling is only one piece,” she points out.

A scheduling system that isn’t well oiled can lead to bottlenecks, frustrating not only patients and families but physicians, staff, and other parts of the organization, such as the nursing units.

No matter what the method, sound decisions must be made about how time will be distributed and, if blocks are used, when and how they will be monitored, released, and especially reallocated.

“Scheduling is a dynamic process. The system must not only be designed that way but also maintained,” says Girard Senn, RN, MS, CNAA, an experienced OR manager and director of OR Benchmarks in Chicago. “Too often, blocks are thought to be granted in perpetuity or until retirement, whichever comes first.”

Most common method. Modified block seems to be the most-used method. In a benchmarking study last year by the University HealthSystems Consortium and OR Manager, block or modified block was the most common scheduling method for the 89 participants, including 54 academic medical centers and 36 community hospitals (see table) (September 1995 OR Manager).

Utilization was highest for those using block scheduling, followed by modified block and no block (see graph). The participants submitted detailed questionnaires about their operations using standardized definitions.

Little research. Other than that, little formal research on scheduling has been done, and much of that dates back to the 1960s and 1970s. Most of the articles describe experiences at individual institutions that haven’t been systematically evaluated. There are a number of articles on quality improvement projects on OR delays and cancellations, again in individual facilities.

“Frankly, I would be suspicious if there were research saying one method is the only way because in this environment and with the challenges in each institution, there is no one way,” says Schultz.

One of the few formal studies, published in 1989 and comparing two Veterans Administration Medical Centers, established the merits of a centralized scheduling system.

The centralized system entailed hiring an OR scheduling coordinator to book surgeries as well as to reserve patient beds. Block scheduling was used, with a 48-hour release for unreserved time. This system was tested against a decentralized block scheduling system, in which the chief resident for each specialty handled advance scheduling, and the OR did not receive the schedule until the day before cases were to be done.

Utilization rose from 68% to 77% in the facility where centralized scheduling was implemented but fell by 8% in the control hospital, which had a decentralized system similar to that previously used in the test hospital.

Another author, an industrial engineer from Turkey, observes in a recent article that health care is further behind than manufacturing was in the 1920s in using scientific methods for scheduling. He advocates elaborate mathematical modeling, with a computerized “expert system” that automatically plugs surgeries into the right slots. Though the approach may be of interest to management engineers

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and software developers, it’s not practical for the average manager.

**Pros and cons.** Each scheduling pattern has its pros and cons.

“First come, first served is great for specialties like ophthalmology and plastics because they can plan well in advance,” says Schultz. “But it kills the general surgeons who cannot plan so far ahead, and it’s tough for scheduling staff.”

Dr A might schedule his first case for 7:30, followed by Dr B at 9:30. But two days later, Dr A finds he also needs to operate at 1 pm, leaving him with a gap of more than three hours.

Block scheduling is more predictable. Specific surgeons or groups of surgeons are assigned one or more blocks of time each week in which their surgeries are scheduled. In a block system, Dr A schedules a case into his block at 7:30 am. A few days later, he can schedule another case to follow within the same block because that time is reserved for him. Problems can arise when Dr A does his third case of the morning in his block and it runs over, bumping into Dr B’s block, which begins at 1 pm, but this is a management issue.

In reality, pure block scheduling is rarely used because it is too rigid. There is no provision for releasing time before surgery so it can be given to other users.

More institutions employ modified block scheduling, which combines features of first come, first served and block formats. Major specialties and surgeons are assigned blocks, with some time left open for those who cannot schedule far in advance. In addition, unused block time is released at an agreed-upon point before surgery so the time can be filled by others.

**Driven by customers.** The decision on a scheduling model is driven by the OR’s surgeon customers, advises Gerry Biala, principal for surgical services at Ernst & Young in Chicago.

Among the considerations:

- **Organization of the medical staff.** Is there a department of surgery? What are the specialties? Often the discussion begins by distributing time first to specialties, then as needed to groups and individuals.

- **To what extent do surgeons work at different sites?** The number of sites they use influences the model they will prefer.

- **Referral patterns for the specialties.** How do the surgeons get their patients, and how far in advance can they schedule?

- **How consistent is utilization for the various specialties and individuals?** Will their utilization increase if they can book in blocks?

What happens before and after surgery also must be considered.

“There are a lot of preoperative and postoperative issues,” Schultz points out. “Will elderly patients have to drive through the snow at 4 am to get to the hospital by 6 am for a 7:30 surgery?”

“What about laboratory and diagnostics, for example, patients needing needle localizations in radiology before coming to the OR?”

Insurance coverage is increasingly important, she adds. Concerned about their cost profiles, surgeons want to make sure the patient’s stay is no longer than necessary. Timing of surgery can have a bearing on how soon the patient can be released. If a hip surgery patient has surgery on Thursday, for example, and physical therapists are not available on weekends, the stay may be extended.

“Go with blocks for a full day if you can,” suggests Linda Groah, MS, CNOR, service director for surgery at Kaiser Permanente Medical Center, San Francisco. President of the Association of Operating Room Nurses, Groah presented a seminar on OR efficiency at the OR Under Managed Care conference in May in Chicago.

“Have blocks by surgeon, if possible, because every time you switch surgeons, you lose time.”
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What should release time be? An effective modified block system must include a process for assigning the blocks and reallocating them depending on utilization.

Though some ORs use a blanket release time, such as 48, 72, or 120 hours prior to surgery, a tailored approach may be better.

“Each specialty is different,” Schultz points out. Ophthalmology time might be able to be released days in advance because scheduling is so predictable, but general surgery does not have that luxury.

Lead times that are too short can encourage games like “phantom scheduling,” where a surgeon schedules dummy cases just to hold a time.

The most solid way to plan release time, Biala advises, is to capture scheduling dates through the OR’s management information system, then run profiles by surgeon and specialty to discern patterns. With this information, sit down with the surgical groups and determine what the times for release should be.

After studying release time carefully, Kaiser San Francisco decided on seven days.

“That means that if today is Thursday, and someone has not booked their time for next Thursday, it becomes open time,” Groah explains.

The organization tried 72 hours and 96 hours but found that wasn’t enough. Three days did not allow surgeons who wanted to use the unreserved time sufficient time to notify the patient and have the patient make arrangements.

“After we went to a full week, our utilization shot up dramatically by ten points,” she says. “The busy people have really benefited because they have more opportunity to get their cases in.”

A draft schedule is printed 72 hours in advance and distributed to the team leaders and charge nurses so they can plan staffing. They can also order any special supplies needed, cutting down on overnight shipping costs.

“Overflow room.” Another of Kaiser’s strategies is to have an “overflow room” that is not blocked and is available starting 48 hours in advance.

“That way, if we have a cancer patient who must be scheduled urgently or a visit

Block scheduling system gets high marks

How does an OR earn high marks for scheduling from surgeons?

Direct scheduling by computer, regular utilization reports, and strong leadership make the difference at North Carolina Baptist/Bowman Gray Medical Center in Winston-Salem.

The facility emerged as a “better performer” for physician satisfaction in the 1995 benchmarking study by the University HealthSystems Consortium.

Surgeons rated the center significantly better than average for:

• ease of scheduling cases
• efficiency and distribution of block time
• resolving of scheduling problems.

“We use full-block scheduling, but we do blocks differently than other ORs,” says Gary T. Green, who as administrative director, shares management of the ORs with the clinical director, Willa Abbott, RN.

The 753-bed Level 1 trauma center has an annual surgical volume of about 14,000 cases in the 21-room main OR. An additional 5,800 cases are done in the 7-OR outpatient surgery center.

The surgeons, almost all of whom are hospital based, can schedule online from computers in their division offices until the cut-off time at 1 pm the day before surgery. The outpatient center schedules in the same way but with a release time 72 hours before surgery. The system has been in place for six years.

The hospital, which has been using its own internally developed software program, is converting to a commercial OR information system to make a faster transition to intraoperative documentation. The division offices are linked with the OR in a local area network.

Services can schedule only within their own blocks, though they can look at the others. If they see unused time in another block, they can suggest they would like to use it if available.

“Surgeons are satisfied,” Green believes, “because they feel they control their block.”

Surgeons resolve among themselves within their specialties who will operate in what order and how much time they will need. The computer system provides data on average case lengths by service as a guide.

“The peer pressure seems to work,” says Green, who add more likely to be accurate in estimating their operating time when they must work out the differences among themselves than when they schedule by phone through the OR.

After the 1 pm release time, nursing coordinators for the surgical specialties work together to slot additional cases into unused block time.

As much as possible, service blocks are kept in one room for the day.

How blocks are reallocated. Close tracking of utilization means there are no surprises when it comes time to reassess time distribution.

Every 15 days, utilization reports are sent to the surgeons, the chiefs of the services, and the service coordinators in the OR.

“We now set a threshold limit of 75% for utilization, which is patient-out to patient-out time. We do not count turnover time as part of this calculation,” says Green. Overall utilization in the main OR is 74%; when turnover time is included, utilization is 82%.

Block time is reallocated every six months in the main OR and quarterly in the outpatient surgery center.

The process is guided by an OR Steering Committee (not the OR Committee), which includes Abbott, the vice president for operations, the chief of the Division of Surgical Sciences, the anesthesia director, and the director of the outpatient surgery center.

Green, who came to Baptist/Bowman Gray seven years ago from the banking industry, was surprised to find that more ORs don’t use direct online scheduling by physicians. In meeting other OR directors, he also found it interesting that not many ORs, even the larger ones, have a business manager for surgery. He finds that, because he comes from outside health care, it often is easier for him to suggest new approaches.

He observes, “Because I am not a clinician, I can say, ‘I don’t know why other ORs aren’t using off-site scheduling, but why don’t we try it?’”
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iting professor, there is space available.” The overflow room is the seventh general surgery OR.

“This room has made a tremendous difference in our ability to get cases on the schedule and improved our utilization,” Groah says.

A political hot potato. Few issues in an OR are more sensitive than how much block time a surgeon or group must use to keep all of the time.

“You can’t minimize the politics,” Schultz cautions. A manager’s best ally is data. How often should blocks be reassessed?

It’s reasonable to review usage quarterly but actually to reallocate times every six months, Biala says.

“Some say they reallocate quarterly, but you need to give surgeons adequate notice that their schedule is going to change. It may take them 30 to 45 days to adjust their schedule to honor the new system.”

Most OR directors probably monitor utilization weekly so they see patterns developing.

He stresses, “It shouldn’t be a punitive system. It really means sitting down with the surgeons and saying, ‘How can we get the best utilization for your practice, for the other physicians, and for the whole OR?’”

What level of utilization should be expected for time to be kept?

“The rule of thumb is that it should be the same percentage as for the OR as a whole for elective prime time hours,” he says. Most ORs are shooting for 80% utilization.

At Kaiser San Francisco, block utilization is reviewed quarterly by the OR Committee.

“If a service is not using 70% of their time, they lose some of it,” Groah says. “We do change the blocks, and it makes a big difference.”

It’s important to consider block utilization as defined. Be clear about whether time used includes or excludes setup and cleanup time. If definitions aren’t clear, Schultz cautions, there will be finger-pointing about the data.

Biala believes utilization statistics should include not only the owner’s operating time but also cases booked into the block after the time is released. In other words, Dr X used only 60% of the block himself, but when other cases were slotted in, the block’s utilization rose to 80%. The total utilization should count in examining whether he keeps all of the block.

If utilization by a particular surgeon is low, it might be more acceptable to negotiate a longer release time, say five days rather than three, instead of taking block time away.

“Empower a single individual to oversee the guidelines for scheduling.”

Accuracy in scheduling. Regardless of the type of scheduling, the OR can’t function well if case times aren’t accurate. Computerized information systems have helped by collecting data on operating times. The scheduler can, for example, see exactly how much time Dr Y has taken to do his past five or ten hernia repairs.

But Senn says these systems still are in need of refinement.

“Many of the scheduling systems use an average of the last several cases performed, which means you could be wrong 50% of the time in assigning the time calculated by the system. This can be another source of complaints about scheduling inaccuracy.

It’s also true that the data will only be as good as the information in the system. Schultz tells of one client who allocated block time based on computerized data, only to have the surgeon “go ballistic.” The reason was that the system was set up to gather data only on the surgery times scheduled, not the times actually performed.

The scheduler also must have authority to act on the data. Statistics won’t do much good, Schultz points out, if the surgeon who wants to schedule a case can argue with the numbers by saying, “Oh, this case is different,” or “This patient is sicker.”

Role for a medical director? If management is key to making the schedule run smoothly, who should run it?

There’s been talk that medical directors of the OR will become more common as the need for efficiency climbs and more physicians, particularly anesthesiologists, are looking for positions.

“I thought it would snowball faster than it has,” Schultz observes. “I would say that in 90% of cases, it’s still nursing—hopefully in collaboration with the chief of surgery and chief of anesthesia for long-range planning and problem solving.”

Biala finds that the most effective ORs “empower a single individual to oversee the guidelines for scheduling and functioning of the OR.” Policies usually are written by an OR management group, then delegated to an individual to manage.

Physicians, both surgeons and anesthesiologists, as well as nurses can do well in this role, he believes.

More than their credentials, “it depends on their leadership skills and ability to demonstrate that they don’t have one interest at heart over the others.”

Challenges of managed care.

Managed care is adding to the challenges of scheduling.

Biala sees distribution of time becoming more complex as facilities struggle, not only to manage the time in their main ORs, but to make decisions about allocating surgeries among several surgical sites within a health system.

—Pat Patterson

References


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