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Cost Savings Lessons from Operating Rooms of the Future

By Dan Krupka



Applying lessons learned in futuristic operating rooms can lead to improved processes and margins in operating rooms of the present. → →

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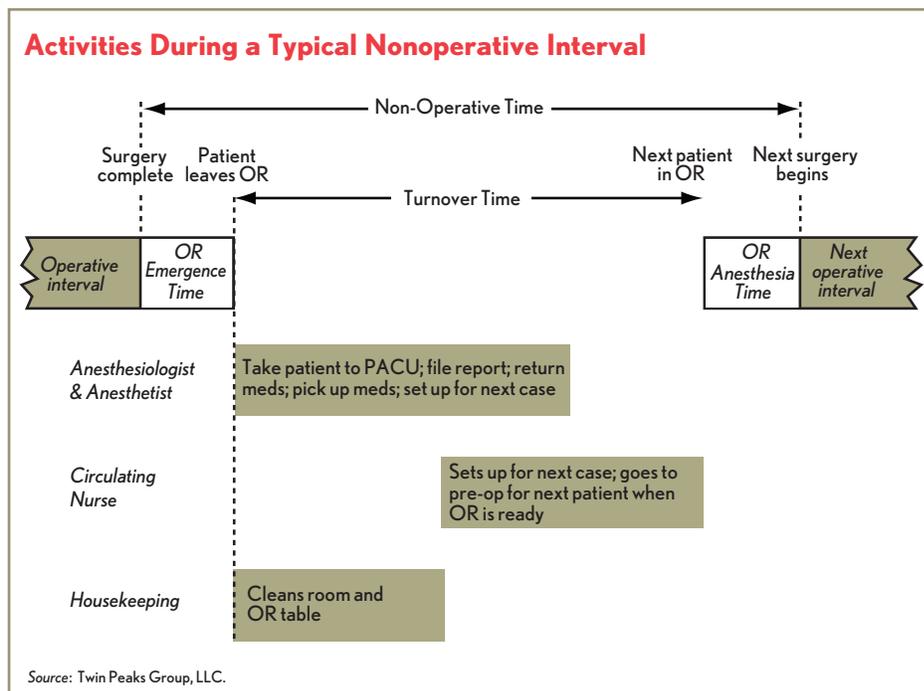
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When we think of operating rooms (ORs) of the future—operating suites used to explore novel technologies and procedures—we conjure up images of large, high-tech rooms full of sophisticated equipment, including imaging systems and robots as well as displays that present data and information from medical devices, cameras, data bases, picture archiving communications systems, and so on. Much attention has been paid to the technology that plays such a prominent role in these experiments. But, some of these programs, including several that have focused on patient flow logistics, also have taught us low-tech lessons about OR productivity that can be applied in most hospitals.

What we've learned is that by applying a handful of methods, it is possible to reduce nonoperative time enough to routinely schedule an additional short case or two. And the experiments have shown it is possible to do so without expending substantial resources. Since a short case generates about \$2,000 in incremental margin (Dexter, F., et al., *Anesthesia &*



Analgesia, Vol. 94, 2002), adding a case a day can generate an annual incremental margin of \$500,000 per OR. Now, it may not be possible to add a case every day, but even doing so two or three times a week will pump up the bottom line.

Even if your short-case volume is not growing, you may be able to apply the lessons and reduce your expenses. If you have several ORs devoted to short cases, it may be possible to increase overall OR productivity enough to allow you to close one of the rooms and redeploy the staff or avoid filling vacancies. If you add up the salaries and benefits of the staff associated with one OR—half an anesthesiologist, a CRNA, an OR nurse, and a surgical scrub—your annual expense savings will be close to \$500,000 (based on recent advertisements for CRNAs and government data for the other positions and on the assumption of benefits amounting to 30 percent of compensation).

What Makes These Savings Possible

The fundamental idea is simple. If you're performing a lot of short cases, say with an average operative time (from "ready

for surgical prep" to "surgery finish") of 60 minutes, and your nonoperative time (the remaining case time, including turnover time and anesthesia controlled time) is also 60 minutes or so, then by sufficiently shrinking the nonoperative time, you may be able to create enough time to routinely insert an additional case into the day's schedule—without incurring overtime expenses. It's important to stress "routinely" because it generally makes sense to squeeze in an extra short case and pay overtime, given the magnitude of the incremental margin.

How to Do It

The place to start is by reworking the routine during the nonoperative interval. To understand the concept, let's start with the exhibit above, which shows what typically goes on during the non-operative interval when general anesthesia is used. The figure shows that the members of the anesthesia team perform their duties together and, by force, serially. It also shows housekeeping working serially: Staff wait until the patient leaves the OR before starting to clean up.

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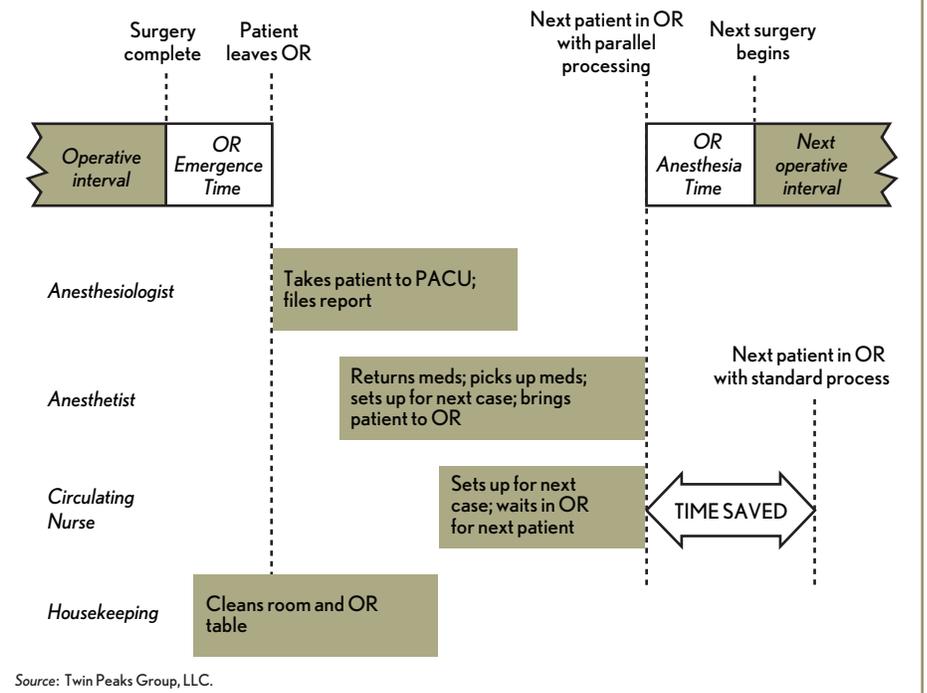
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By contrast, consider what happens when some duties are reassigned and parallel processing is introduced. As shown in the exhibit at right, the members of the anesthesia team divide up their responsibilities; as a result, they are able to perform them in parallel. With some of the time freed up, the anesthetist is now assigned responsibility for bringing the patient to the OR, relieving the circulating nurse of that responsibility. Finally, notice that housekeeping starts its work while the patient is still in the OR—but only after the dressings have been applied. That represents more parallel processing, and the early start allows the room setup by the circulator and scrub tech to be initiated earlier. A considerable chunk of non-operative time is saved—perhaps about 10 minutes.

Unfortunately, a savings of 10 minutes per case, while substantial, is not likely to free up enough time to add a case. What else can be done without incurring any additional expense? It should be evident to anyone who has worked in the perioperative system that the exhibits represent ideal situations. Typically, one or more delays mar the process: Housekeeping does not show up on time; instruments are missing and must be tracked down before the setup is complete; the patient is delayed in the preoperative area owing to a missing consent form or because the results from a lab test have not arrived.

Occasionally, however, all goes like clockwork, allowing a reference point for the ideal non-operative time to be established. The difference between the ideal time and the average nonoperative time represents the price you're paying for all those delays. So the next step on the journey to reduce nonoperative is clear: Set up a program to systematically eliminate the delays. This is not easy. It will require a lot of patience, and it will be difficult to pull off without a good perioperative informa-

Activities During the Nonoperative Interval when Responsibilities Have Been Reallocated and Parallel Processing Introduced



tion system. Such a system will record important time stamps associated with the activities shown in the exhibit above and will permit recording the reasons for the delay. Elimination of the delays could further reduce the nonoperative time by 10 to 15 minutes. In addition, it will make life easier for all involved.

When the time savings reaches 20 to 25 minutes, it may be possible to routinely add a case to the schedule. And, this can be achieved at no cost: partly by process redesign and partly by process improvement. Any further reduction, however, will require some capital expenditure.

The third step on the journey to increased OR throughput—and the least expensive among those requiring some additional resources—consists of introducing a patient transport system based on mobile OR tables or exchangeable OR table tops. By eliminating the need to (a) transfer patients on or off the OR table and (b) clean and prepare the OR table while it is in the OR, such a

system can shave an additional 10 minutes off the nonoperative time.

Be Ready

By adding in the patient transport system, nonoperative time drops from a typical starting point of 60 to 70 minutes to somewhere in the neighborhood of 35 to 40 minutes—generally enough time to routinely add a short case and reap the financial benefits. But remember where the value of all this work originates. You need to be certain of a growing caseload or confident that you will be able to manage the closure of an OR in the face of resistance from surgeons.

By demonstrating how time can be shaved off nonoperative time, ORs of the future are showing us the way to healthier margins. ☺

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