

# Hospital



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# MORE THAN TIME AND MONEY

## Defining Operating Room Efficiency

By Michael Greiling

Efficiency is typically defined within the restricted terms of time and money savings, even if time is often ultimately translated into its financial value. While it is certainly true that, in the current economic climate, health services are called upon to provide a more economically efficient service, I ask whether we need a broader definition of efficiency in the context of the operating room (OR), and a well-considered way of achieving it which has benefits for patients, healthcare professionals, the environment and health service budgets.

The OR is one of the most cost-intensive areas of a hospital and has been found to account for up to 40 percent of total hospital costs. It makes perfect sense that, in an era of reduced government budgets or reimbursements, hospital management need to make cost savings in this department. Whether a whole hospital runs economically or not can be determined to a large extent by the OR. The high financial outgoings are principally due to the cost of a set of critical requirements:

- Healthcare professionals involved in a procedure (one or two surgeons, operating room nurses, an anaesthetist and anaesthetic nurse plus other staff such as operating room technicians);
- Drugs;
- Sterilisation and use of instruments;
- Anaesthesia machinery;
- Room cleaning; and
- Drapes, gowns and surgical gloves.

Maximising the capacity of the OR is therefore a key factor in minimising cost: Ensuring each patient spends only the necessary amount of time in the OR and that time between procedures is minimised to enable its full use during the entire working day. Many studies have been devoted to improving the use of the OR by considering such options as administering anaesthesia in the induction room while the OR is being prepared or using certain planning methods for staff schedules to make best use of teams and rooms.

It goes without saying that clinical standards and patient safety must not be adversely affected by any efficiency measures. Our challenge is always to improve efficiency without compromising standards. For example, we may call a skin antiseptic efficient if it is effective against the widest possible range of

bacteria and viruses, easy to administer and long lasting. A surgical gown is efficient if it prevents microbial contamination of the surgical wound and protects the healthcare professional from the patient's pathogens as well as being comfortable and easy to work in. And so a broader definition of OR efficiency begins to emerge.

### Making the Right Choices in Terms of Efficiency

So what needs to be taken into consideration when choosing a piece of equipment or planning an OR staff schedule in order to make the right choice in terms of efficiency? In addition to patient safety and outcome, and financial rigour, there are still further elements that contribute to the efficiency of the OR.

A closer look at the studies in this field reveals other findings which play a role in OR efficiency. For example, a study recommending a parallel processing system which allows a surgical team to work on two patients simultaneously found that the system not only contributed to greater throughput of patients but also to a greater sense of team unity, and this led to a positive effect on stress management. This sense of increased team unity was brought about by the new parallel processing routine and the OR benefited in terms of significantly reduced turnover time. In this way, staff well-being and efficiency would appear to be contingent on one another.

Reduced stress among the OR staff, whether it is due to teamwork or less time spent on administration, must surely be implicated in improved outcomes for the patient, increased job satisfaction and lower staff turnover. Further efficiencies through the reduction of staff stress may be achieved by providing effective and easy to use equipment or simply

through allocating tasks for which a staff member has been trained and can perform well. Time saved does often mean financial saving – fewer empty periods in the OR or overtime payments when surgery over-runs the scheduled list. However, it also means a patient may be seen in a timely manner and fewer OR cancellations – better for both patients and for the morale of the surgical team.

Reducing time wasted in inefficiencies can be used more profitably for patient education or further training. These all contribute to the financial efficiency of a hospital but also to optimal treatment outcomes and a positive experience for patients and staff.

### Analyse Every Aspect of the OR

Such benefits for staff and patients alike can be brought about by looking carefully at each aspect of the OR and seeing where changes can be made. A change to a single-use custom procedure tray, for example, has shown benefits not only in the OR but also in improving the logistics of ordering and storing equipment. The tray can be customised to suit any given procedure, cutting down on the use of individual instruments, improving consistency of the items provided and allowing procurement to standardise procedures. At the same time, storage space is minimised, allowing less stock and faster access to stock when needed. A case study on custom procedure tray efficiency showed that time expenditure was reduced by 40 percent across the entire OR process, from ordering materials through to waste removal, and also showed that staff satisfaction increased. Overall, use of custom procedure trays led to greater theatre utilisation and provides a good illustration of how streamlining OR logistical processes both internally and externally can

be a potentially fruitful target for increasing efficiency as it has a positive impact on both time and on staff stress levels.

The value of initiatives designed to make the OR more efficient is being increasingly recognised by large organisations. Well-designed technologies are actively supported by organisations such as the Association for Perioperative Practice, which now supports the development of materials which lead to OR efficiency. The NHS in the UK supports in-

aging waste weight by nearly 90 percent, contributing significantly to carbon savings for the hospital Trust. Another UK hospital found that by reviewing its procedure for sterilising OR equipment, not only were cancellations of operations reduced, but the more efficient running of the sterilisation department resulted in a 33 percent reduction in equipment power, water and consumables consumption as well as in department lighting and heating costs. Buying

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novation in technologies and accelerates its use through the NHS Technology Adoption Centre. Training for people working in the OR in new technologies and pieces of equipment supports efficient use of new technologies or equipment and is also offered by some manufacturers. The US-based Association of periOperative Registered Nurses publishes competencies, which set standards and inform training needs.

In addition small innovations can also make a big impact on the bottom line. Adapting surgical equipment so that it is perfectly suited to its purpose, for example, can save time, reduce risk of infection and enable the surgeon and their team to carry out the procedure in a stress-free manner. For example, a drape with the required number of openings for multi-surgical interventions or a dressing tailored to suit a wound in a particular location on the body may be small adaptations but may make a sizeable impact on OR efficiency.

### Environmental Efficiencies

The activities of the OR and their efficiency also impact the environment and though the OR is necessarily resource intensive, there are ways in which environmental efficiencies can be achieved. Using technology wisely can reduce our carbon footprint rather than increase it. Using fit-for-purpose and well-designed instruments and equipment reduces wastage. One NHS Trust in Liverpool, UK, found that single-use procedure trays cut down waste by one bag per major operation and reduced total pack-

supplies that have been made with minimal environmental impact can make a significant contribution to OR efficiency. The industry continues to research further ways of promoting sustainability in the OR, such as seeking an alternative to inhaled anaesthetics that contribute to greenhouse gases or a commitment to recycling OR equipment where possible.

### Conclusion

In summary, the definition of OR efficiency needs to be broad. In using high-quality goods and services which save time, allowing healthcare professionals to focus on their areas of competency while maintaining clinical standards, we may find the increase in the numbers of surgical procedures, shorter hospital stays, reduced environmental impact, and streamlined organisational structures that are required to deliver against restricted budgets. Furthermore, it is key to the values of any health service that the OR efficiency we strive for should also be able to embrace greater healthcare professional satisfaction and optimal patient outcome.

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