Strategy 4: Improving elective productivity and quality through improved theatre scheduling and management

‘It’s not satisfactory to say “it feels better”, “I think it’s better”, “it seems better”, establish factual data and measures’ (National Health Service. 2008 Delivering tomorrow’s improvement agenda for the NHS).

Introduction
The operating theatre is an integral component of the elective journey. They are usually the largest revenue generator, but also the largest cost centre for an organisation. The extent to which operating theatres are managed efficiently and effectively is a key issue in the overall use of hospital resources. Managers and clinicians face the challenges of meeting targets for elective surgery productivity, reducing waits for treatment and reducing cancellations, in an era of tight fiscal constraint.

Increasing demand for surgical services caused by an ageing population with more complex comorbidities must also feature in future planning. Access to elective surgical lists is often impacted by demand for acute surgery, resource limitation (for example staff or specific equipment) or bed block. Effective planning and management will improve services for patients, ensure optimum use of theatre capacity and resources, maximise operating theatre performance and avoid cancelled operations.

There is increasing utilisation of new methodologies to study and improve operating theatre scheduling and management. Initiatives such as the NHS’s Productive Operating Theatre (TPOT), ‘Lean’, or ‘Six Sigma’ methodologies can play a part in reducing cost, increasing productivity, teamwork and improving quality. Capacity planning, process control and modelling software borrowed from the disciplines of process and operations management can help streamline systems. In addition, the World Health Organisation Surgical Safety Checklist is another tool that can help DHBs improve safety and team working in the operating theatre environment.

Definition of the strategy
Efficient operating theatres are crucial to high-quality care. To meet and sustain targets, theatres must continuously find areas for improvement and invest in the right people and systems.

Benefits
Improved patient experience.
Improved staff satisfaction, engagement and morale.
Cost-effective use of resources.

**Critical success factors**

1. **Patient preparation**

   Patients who are well prepared for surgery and have realistic expectations of the process are more likely to attend for surgery, undergo less unnecessary testing, stay for a shorter length of time and are less likely to cancel on the day of surgery. Pre-assessment can identify and resolve medical issues prior to surgery. Complex case management can provide support for patients with multiple medical comorbidities or issues relating to their surgical episode.

   Patients appreciate pre-assessment, as it allows them to discuss their care and take part in preparation, education, consent and discharge planning procedures.

   Efficiency in day-of-surgery preparation and transportation can be improved by admitting all patients to a pre-operative preparation area. This can be integrated with the immediate pre-operative assessment and day-case recovery areas adjacent to theatres, to efficiently use space and skilled staff.

2. **Theatre scheduling**

   Surgeons, anaesthetists, managers and administrators must all be involved in decisions about the development and maintenance of the theatre schedule. In addition to improving communication with all parts of the team and reducing administrative burden, a number of strategies have been shown to produce sustainable optimal use of operating theatres, including:

   - increased use of all-day lists
   - booking according to surgeon time and anaesthetic type
   - smoothing the schedule to manage ward and ICU bed availability
   - scheduling acute theatre during the working day
   - pooling lists within specialities
   - coordinating surgeon and anaesthetist leave
   - creating stable theatre teams
   - developing a cyclical master schedule
   - realistically scheduling meetings, and professional and other commitments.

3. **Theatre lists**

   Operating theatre users contribute to efficient theatre utilisation through effective communication of theatre lists.

   The information provided on a theatre list should:

   - be accurate (reflecting correct patient details and detailing all procedures to be performed for each case)
   - be clear and easy to understand (and free from abbreviations, as this may cause confusion)
   - specify any equipment, prosthesis or specialised staff required
specify any relevant patient factors that would affect scheduling (for example alerts, allergies, infections and body mass index (BMI)); eliciting such information should be routine

specify the surgeon’s estimate of procedural time required, including anaesthetic time (data should be collected later, and estimated time replaced with statistical data); the surgeon should indicate variance from routine.

Templates should be used to standardise the content and format of theatre lists for both elective and non-scheduled (for example acute, trauma, or return-to–theatre) surgery.

4 Theatre list management

It is important that all lists not only begin and end at times agreed, but also that they provide opportunities for staff to take appropriate breaks. The advantages of this include the following.

Anaesthetists will have time to visit patients pre-operatively before the agreed start of the operating list.

Patients will be prepared for theatre in time.

It will be easier to match staff to workload in theatres and recovery units.

Staff can take meal breaks, reducing fatigue.

Less overtime will be needed.

A prompt start in the afternoon with less chance of overrun into the evening.

5 Turnover times and procedural delays

A major source of frustration and inefficiency in operating theatres is prolonged turnover times or procedural delays. There has been considerable research into the effect of delayed start times, which are most often caused by patient issues, but also because of surgeon lateness or a previous case or list has overrun. Concurrent activities outside of formal break time that delay the start of the next case, such as being on call, also potentially affect efficiency.

Turnover between cases can be improved by staff working to defined roles and activities during this period; however, these roles need not be exclusive. The surgeon being present before they are required, assisting with jobs other than surgery, has a positive effect on motivating the team and streamlining turnover times.

Procedural delays (for example delay in the availability of equipment, implants, staff or instruments) are most often due to incomplete or inaccurate communication. Short preoperative briefings using a standardised format have been shown to reduce unexpected delays and decrease the frequency of communication breakdowns.

The time that it takes to transfer patients, the time it takes to obtain extra equipment, or the time patients spend waiting at various points can be modelled by process-control software using real data. Systems can then be reconfigured (in terms of which operating lists are used when, and which theatres and staff are used for which functions, for example) to become more efficient.
6 Cancelling procedures

It is deeply distressing to a patient to have an operation postponed on the day of surgery. It is inconvenient for patients, their families, clinicians and staff, and economically wasteful both for the patient and DHBs. Late cancellations interrupt patient flow through operating theatres, and result in wasted resources. Many cancellations could be avoided through good pre-operative assessment, realistic scheduling of procedures, effective bed management and better communication between patient and hospital and between staff groups within the hospital.

Reducing cancelled operations should not be tackled in isolation, but should be seen in the context of the wider system, including elective and emergency admissions, bed occupancy levels and discharge planning. An audit process reviewing day-of-surgery cancellations, for example, may inform the wider context.

Risks

Patient may not be treated within a clinically appropriate timeframe.
Staff not engaged in the change process may feel alienated.
The organisation may face a financial risk.
Staff may be reluctant to let go of local custom and practice, and may be resistant to change.

Mitigation of risks

Establish clinically appropriate timeframes based on patient priority. Use ratio of time waiting versus clinically appropriate time as part of scheduling decisions.

Establish a communication strategy. Set up regular meetings to update staff and ensure their involvement. Arrange for key stakeholder champions to participate in the leadership for change.


References


