Innovative Theatre Scheduling Model Leads to Increased Surgery Capacity

Accenture uses Lean Six Sigma tools and techniques to help the University Hospitals of Leicester NHS Trust optimise ENT theatre scheduling and reduce capacity.

Client Background

The University Hospitals of Leicester NHS Trust (UHL) is one of the biggest and busiest NHS trusts in England, providing a range of services for around one million residents.

The Ear Nose & Throat (ENT) Service is a surgical specialty, with 8 consultant surgeons and supporting workforce, located within the Trust’s Planned Care Division. The ENT 2012/13 commissioned delivery plan for Elective and Day Case Procedures (Adults & Paediatrics) is 3751 cases. In January 2013 the service was under-performing against this overall activity target.

Business Challenge

Throughout 2011/12 and 2012/13 scheduled ENT theatre cases were frequently cancelled (average x12 cases per week) in response to emergency activity demand in other specialties. In performance terms this led to:

- An average theatre session utilisation rate of 50-60% i.e. significantly below the 77% national average utilisation rate (Audit Commission).
- An 18 week waiting list 'backlog' of NHS Consultant-led Referral to Treatment (RTT) waiting time breaches.

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A reactive ‘fire-fighting’ approach to waiting list management, impacting upon the coordination of pre-assessment screening of patients and subsequent theatre scheduling with associated resourcing requirements.

In order to recover ‘lost’ cases additional theatre lists were scheduled, often at a weekend resulting in premium pay costs higher than budgeted pay costs to the value of 420k per annum.

The University Hospitals of Leicester NHS Trust (UHL) therefore faced a specific concern with regards to

- An average theatre under-utilisation rate of less than 70%, by the Ear, Nose & Throat (ENT) Service, in spite of its high activity demand.

- A significant number of patients waiting beyond the operational tolerance (10%) of the RTT 18 week admitted pathway i.e. ‘backlog’.

- A service overspend against the pay budget.

Maximising ENT theatre capacity and increasing theatre session efficiency was therefore recognised as a critical enabler for improving quality of care by meeting surgical activity demand, achieving optimum service delivery and eradicating the waiting list ‘backlog’.

How Accenture Helped

Accenture assisted UHL in meeting its capacity and demand challenge by initially undertaking a diagnostic analysis of ENT elective patient pathways. Accenture then proposed the implementation of a two phase project approach to improve theatre scheduling processes.

In Phase 1, using Lean Six Sigma methodology the Accenture project team:

- Conducted extensive interviews with ENT surgeons, clinical and operational staff.

- Completed work shadowing activity within the operating theatre setting.

- Assisted in the creation of a high level process map of the ‘end to end’ theatre scheduling pathway.

- Quantifying the ‘as is’ situation.

- Quantifying the ‘root causes and issues’.

- Identified capacity-releasing opportunities and key constraints/operational issues. Phase 1 key findings were.

- The average scheduled list must increase by 3 cases per session to help meet waiting list.

- Around 40% of elective ENT operations are accounted for by 3 procedures.

- Around 34% of patients had a turnaround time greater than 12mins (impact of 10hrs. per month).

- Around 18% of patients scheduled ‘first on the list’ experienced a late start by approximately 38 mins or more (impact of 3hrs. per week).

- Theatre schedules are not built around actual clinician team operating times (impact of 13hrs per week).

Phase 1 capacity releasing benefits were identified:

- Reduction of assigned theatre capacity by 16 hrs i.e. x4 theatre operating sessions per week.

- Premium pay cost avoidance by accommodating an average 67 cases per week within 80hrs/20 sessions theatre capacity per week.

- Reduction of operating costs by eliminating the root causes of late starts.

- Mitigation of the risk of financial penalties associated with waiting list breaches.

- Cash releasing value of £420k (full year effect). Phase 1 proposals were.

- Help design and implement a theatre scheduling tool to support decision making.
• Help define theatre scheduling process improvements to enhance pathway efficiency.

• Align consultant job plans with demand and theatre session start and finish times.

In Phase 2 Accenture used a project based approach to help design and develop an ENT theatre scheduling tool (excel based) and implement "Lean" and "Smart" ENT theatre lists.

In support of qualitative feedback Accenture deployed Lean Six Sigma methodology & tools to conduct a ‘to be’ process assessment, ‘End-to-End’ value chain analysis, significance testing and a Failure Mode and Effects Analysis (FMEA) to prioritise and mitigate potential risks associated with the identified constraints and issues.

Supporting guidance was provided in relation to bed capacity requirements, pre-operative screening capacity, post-operative flow issues to alleviate 'bottlenecks', and the re-assessment of day surgery theatre capacity currently assigned to the ENT Service.

In-depth analysis of constraints impacting upon theatre and list utilisation (5 Why’s process) led to further diagnosis and proposals for mitigation or resolution of operational process issues.

Alignment to owners (using a Responsible, Accountable, Consulted, Informed [RACI] process) for resolution/mitigation of constraints and issues were subsequently agreed with Clinical, Operational and Management leads.

Accenture supported the Waiting List Coordinators to use the scheduling tool to:

• Schedule theatre cases using accurate procedure times.

• Schedule theatre sessions according to surgeon capacity.

• Schedule theatre cases as clearly prioritised.

• Align 6 week notice of planned absence of surgeon.

• Undertake earlier review of scheduled session with the respective surgeon.

• Review procedure (average) times in response to changes in clinical practice and new techniques adjusting the scheduling tool accordingly.

• Review activity demand and capacity weekly.

High Performance Delivered

Accenture’s solution helped deliver 16hrs+ theatre capacity release per week (i.e. average 5 sessions per week), as a result of improved decision-making and effective theatre scheduling demonstrating that:

• 'Out-of-hours' activity previously undertaken could be delivered within regular lists/times.

• Optimum theatre utilisation rates (85%+) could be achieved and activity delivery improved.

• Premium pay cost avoidance can be achieved.

• Staff experience is enhanced as a result of improved planning and performance against the RTT waiting list 'backlog'.

UHL were able to demonstrate that this project contributed to an improved patient experience as a result of earlier notice of date of surgery achieved by scheduling to a 6 week rolling plan.

The Trust is confident that they can also reduce the proportion of patient-initiated cancellations because of advance notification of their date of surgery. This in turn upholds one of the key aims highlighted in the Trust's Strategic Direction (2012-2017) namely to 'Provide safe, high quality, patient-centred healthcare, improving the patient experience and encouraging 'patients to choose us for their planned care'.

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