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Archwilydd Cyffredinol Cymru
Auditor General for Wales

Operating Theatres: A Summary of Local Audit Findings



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SWYDDFA ARCHWILIO CYMRU



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Summary report

Background

- 1 Operating theatres play a central role in the modern NHS. Increasingly advanced technology is used in theatres to prevent, diagnose and treat disease through surgical interventions. Patients can be admitted as emergencies or from a waiting list (elective patients) and they are cared for by specialist teams of surgeons, anaesthetists, theatre nurses, operating department practitioners and others. **Exhibit 1** shows the main reasons why theatres are important to NHS Wales.

Exhibit 1 – The importance of operating theatres

High volume

Welsh NHS hospitals carried out nearly 470,000 surgical procedures in 2014-15.

High risk

By its very nature, surgery is a high risk aspect of healthcare. NHS bodies devote significant attention to minimising these risks and the World Health Organization has published guidance to reduce injuries and save lives.

High cost

Theatres are an expensive resource. The direct cost of operating theatre time has been calculated as £14 per theatre per minute.

High priority

Theatre services are important services in their own right but efficient theatres are a key factor in health bodies meeting their waiting times targets.

Note:

Data on the number of procedures in Wales was sourced from the NHS Wales Informatics Service's Patient Episode Database for Wales, 2014-15, and it covers total procedure episodes at Welsh providers, including inpatients and day cases. The cost of theatre time per minute was sourced from Information Services Division Scotland, **Statistical Release R142X**, 27 November 2012.

Source: Wales Audit Office

- 2 The operating theatre is just one part of the pathway that a patient takes when they need surgery. If health boards are to ensure that they make good use of theatres and that patients do not wait excessive times for surgery, all elements of the pathway shown in **Exhibit 2** need to run smoothly. The Welsh Government's Prudent Healthcare work has recognised the importance of this pathway running effectively, stating that 'prudence relies on a systems approach involving the whole of the patient pathway'.

Exhibit 2 – Theatres are just one component of the surgical care pathway



Note: This is a high-level representation of the patient pathway. Actual pathways differ between specialties and between health bodies.
Source: Wales Audit Office

- 3 As well as focusing on efficiency, productivity and expenditure, it is essential that health boards ensure surgical services are safe. The World Health Organization's **Surgical Safety Checklist** is a set of questions that surgical teams use to prevent adverse events and improve teamwork in theatres. The Welsh Government endorses the checklist and health boards are required to ensure the checklist is completed for every surgical patient¹.
- 4 The Auditor General reviewed operating theatres in each health board across Wales in 2011, and identified considerable scope to improve efficiency and productivity. That work highlighted problems with patients arriving for surgery without a fully completed preoperative assessment, problems finding beds for patients and operating sessions not being well utilised.
- 5 From early 2014 to late 2015, follow-up audit work was undertaken in six health boards². The follow-up work looked at progress against the recommendations made in each of the previous local audits and more generally, we considered the efficiency and productivity of theatres, the barriers to improvement and the approaches taken to improve safety. This report summarises the findings from our follow-up work, recognising that since the time of our audits, health boards have been working to address our local recommendations. **Appendix 1** sets out our methodology.
- 6 **The main conclusion from the follow-up audit work is that many theatres remain under-utilised and there are barriers to improvement along the entire patient pathway, not just within theatres. The focus on theatre efficiency and productivity has waned in Wales in recent years although positively there has been greater focus on surgical safety.**
- 7 We came to this conclusion because:
- a **The limited theatre data that exists suggests there is considerable scope to improve theatre utilisation, reduce late starts and minimise cancellations.** Whilst health boards found it difficult to provide the data we requested, we identified clear scope to improve theatre utilisation. Late starts are a good barometer for theatre productivity and we found that these were common occurrences across Wales. Finally, we found that the reasons for cancelled operations varied but nearly half of postponed procedures were because the patient had cancelled or did not attend their appointment.
 - b **The national and local focus on theatre efficiency and productivity has diminished in recent years.** There is no longer a national programme of theatre improvement in Wales, there has been a reduction in the extent to which national targets focus on theatres and the Welsh Government's Delivery Unit has stopped work on theatre improvement. The profile of theatres has waned within most health boards and NHS boards tend to receive little regular information on theatre performance.

1 National Patient Safety Agency, **WHO Surgical Safety Checklist: Patient safety alert update**, 26 January 2009.

2 We carried follow-up work at all health boards other than Powys. Our earliest follow-up work was carried out at Cwm Taf, Aneurin Bevan and Betsi Cadwaladr. We have updated the findings from our earliest work by asking these three health boards to provide us with up-to-date information on the progress they have made in implementing our recommendations.

- c **A number of factors can act as barriers to securing improvement in theatre performance.** We found concerns about the quality of theatre data and the way in which it is used, and we found that difficulties in finding a vacant bed are a frequent cause of inefficiency in theatre. Our staff survey suggested low staffing levels act as a barrier to improvement. Fragmented accountabilities of the surgery pathway can inhibit improvement in theatres, and we also identified important barriers within theatres that impact on efficiency and productivity.

- d **There is evidence of a positive safety culture in theatres with essential safety steps becoming more common, although such steps are not always carried out properly.** Our staff survey revealed positive views about the overall safety culture in theatres although when things do go wrong, we identified scope to improve the way lessons are learnt. The **Surgical Safety Checklist** is now widely used but is not always used in the best way and while team safety briefings are becoming more common, in many theatres they are not yet normal practice.

Recommendations

- 8 The table below sets out a number of recommendations to help support improvements in operating theatre arrangements. These are in addition to the recommendations already made to health boards in local audit reports:

Recommendations
<p>Governance and leadership</p> <p>National and local focus on theatre efficiency and productivity has diminished in recent years. There is no longer a national programme of theatre improvement and the National Theatre Managers' Group has no specific work programme or mandate from the Welsh Government.</p> <p>R1 The Welsh Government should introduce a national forum or work stream for improvement in theatre efficiency, productivity and safety. The new forum should take a strategic focus and have a clear relationship with the current National Theatre Managers' Group.</p>
<p>Fragmented accountabilities and insufficient ownership of problems along the entire surgery pathway can inhibit improvement in theatres. Health boards have not yet done enough to define clear lines of clinical and managerial accountability.</p> <p>R2 Health boards should ensure there is robust executive oversight and clinical leadership of the entire surgical pathway, with sufficient specific focus on operating theatres. These executives and clinical leaders should be empowered to troubleshoot problems wherever they arise in the pathway.</p>
<p>Patient safety</p> <p>The Five Steps to Safer Surgery is an important tool for improving safety and requires theatre teams to carry out the Surgical Safety Checklist and team safety briefings. The Surgical Safety Checklist is now widespread but is not always carried out in the best way. Team safety briefings are also becoming more common but in many theatres they are not yet normal practice.</p> <p>R3 Health boards should formally audit the Five Steps to Safer Surgery at least annually, whilst also carrying out spot check audits on randomly selected theatres throughout the year. The audits should aim to cover all theatres over a prescribed period of time and the results should be discussed at an appropriate committee of the board and should be used to promote and share good practice.</p>
<p>When things go wrong in theatre there can be harm to patients as well as significant financial implications for health boards. The Welsh Risk Pool Services (WRPS) was not able to provide details for the total cost of surgical litigation cases in Wales, although we recognise that analysis of these costs is complicated because the total annual cost can change considerably from one year to the next due to the impact of a small number of high-cost cases.</p> <p>R4 The WRPS and the Welsh Government should work together to ensure regular, thematic analysis of the costs and causes of litigation cases related to surgical services. This work should aim to identify themes, spread learning and prevent such issues in future.</p>

Recommendations

Theatre staff told us about a general lack of investment in theatre equipment leading to breakdowns and repairs for items such as operating tables and trolleys. Such breakdowns have an impact on efficiency and can also have implications for patient safety.

R5 Health boards should risk assess their current practices for renewing and replacing theatre equipment, to ensure patient safety is maintained.

Our staff survey results suggest low staffing levels act as a barrier to improvement in theatre. In some health boards, there are daily difficulties in ensuring sufficient cover for theatres by shuffling staff to work in different areas. Standards for theatre staffing are also used differently by different organisations.

R6 The Welsh Government and health boards should agree a formal approach to benchmarking staffing levels and skills in theatres. The data should then be used to inform a set of national and local actions, through the national theatre forum (discussed in R1), aimed at ensuring safe and sustainable staffing in theatres.

Data and information

There are inconsistencies in the collection and use of data, and local audits found that the lack of good-quality data can mean that health boards struggle to dispel myths about the real causes of inefficiency.

R7 Through the new national theatre forum (discussed in R1), the Welsh Government and health boards should agree a revised, standardised dataset of efficiency, productivity and safety of the surgical pathway that supports national performance management and comparison across all theatres as well as national learning and improvement. It is likely that the dataset would need to take the form of core measures that apply across all theatres, supplemented by some specialty specific metrics.

The boards of NHS bodies tend to receive little regular information on theatre performance, and there is wide variation in the approaches to collating and sharing information on theatre performance within health boards.

R8 Health boards should routinely report a rounded picture of theatre efficiency, productivity and safety to an appropriate committee of the board. These reports should consider metrics related to quality and safety, patient experience, patient outcomes, use of theatre time, start and finish times, turnaround times and cancellations.

Most health boards maintain an online, shared source of theatre performance information but it is not always clear whether theatre teams and managers are accessing and using this information. We found limited examples of theatre performance information being displayed within theatres.

R9 Health boards should ensure up-to-date performance and safety information is continuously visible within operating theatres. This should contribute to better staff engagement with the drive to improve performance and safety.

Part 1

The limited theatre data that exists suggests there is considerable scope to improve theatre utilisation, reduce late starts and minimise cancellations



Health boards found it difficult to provide the theatre performance data we requested

- 1.1 As part of our follow-up work, we issued a data request so that we would be able to calculate a number of indicators related to the use of operating theatre time. We requested data for a two-month, retrospective period. Despite us asking for data which we would normally expect to be part of the routine performance management of theatres, health boards generally found it difficult to provide us with the information we asked for. The limitations in the scope and quality of theatre information are covered in more detail later in this report.
- 1.2 Two health boards were able to provide the full dataset whereas the other four health boards involved in our follow-ups did not provide sufficient data for us to be able to reliably calculate the overall utilisation of theatre time³. Problems included different hospitals within a health board taking different approaches to recording theatre data and difficulties in retrieving retrospective data from theatre systems without large, manual exercises.

Although there are limitations in the data, we identified clear scope to improve theatre utilisation in all health boards

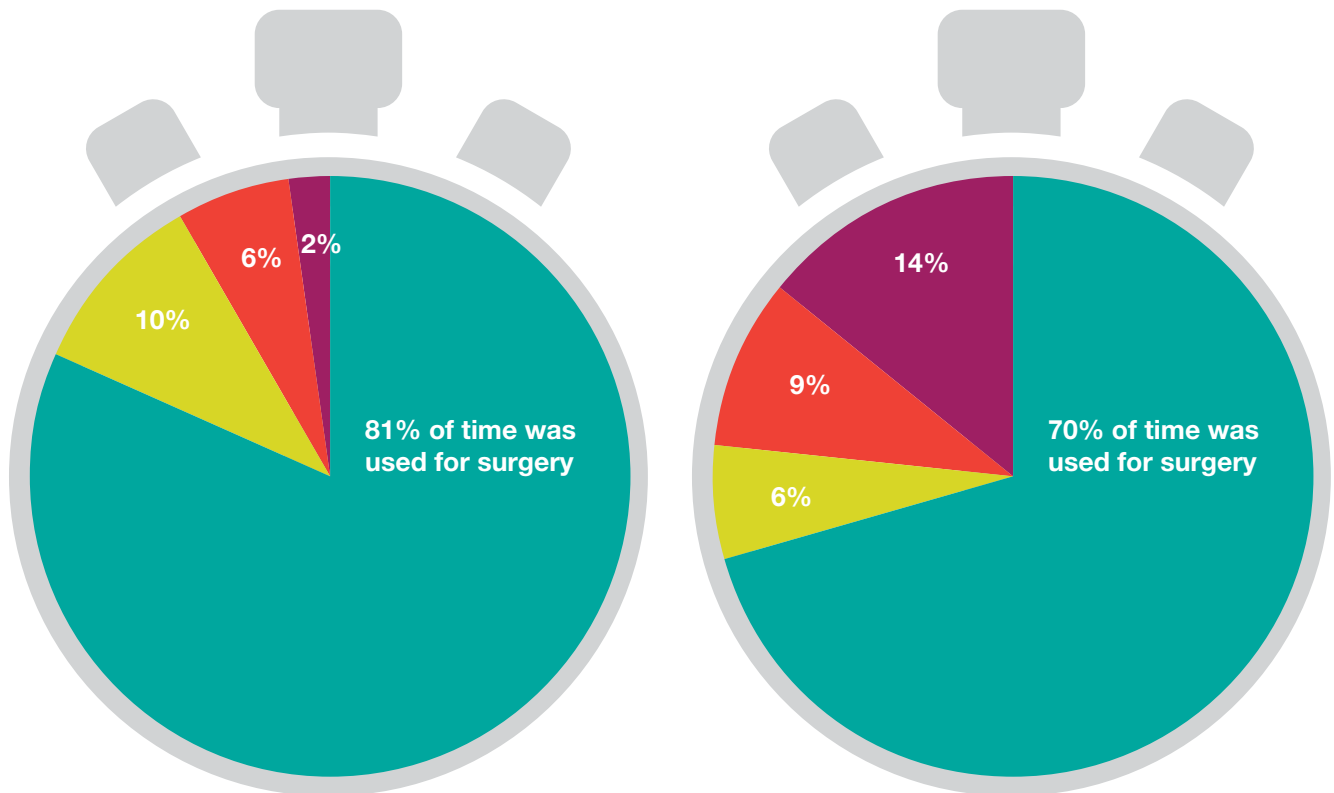
- 1.3 Operating theatres are an expensive commodity so it is important that health boards use their theatre time efficiently. Theatre time tends to be planned in the form of 'lists' of patients and each theatre typically has more than one list scheduled to take place each day. Each list is run by a specific surgeon who works within a particular surgical speciality.
- 1.4 Our work in all health boards identified clear scope to improve the 'utilisation' of theatres. Time can be lost when lists are cancelled, start late, finish early, or where there are delays between one patient leaving theatre and the next being brought in. The data we collected indicated that theatre utilisation can vary significantly between and within health boards. **Exhibit 3** shows data from Royal Gwent Hospital and Prince Charles Hospital. In Royal Gwent, 81 per cent of planned time was actually used for surgery whilst in Prince Charles Hospital, 70 per cent of the planned time was used. Across both hospitals during our audit's two-month sample period, more than 1,100 hours of planned theatre time was lost.

³ Cwm Taf and Aneurin Bevan provided the full dataset. The four health boards that were unable to provide the full dataset were Cardiff and Vale, Hywel Dda, Abertawe Bro Morgannwg and Betsi Cadwaladr. Whilst Cardiff and Vale did not provide sufficient data for us to calculate theatre utilisation, the health board does have good access to a considerable amount of data on theatre efficiency. At Abertawe Bro Morgannwg, the theatre systems had recently been unified across the organisation and as consistent data was not available across the east and west, we decided not to issue the formal data request.

Exhibit 3 – In the two hospitals shown below, 81 per cent and 70 per cent of the scheduled theatre time was used for surgery

Royal Gwent Hospital

Prince Charles Hospital



- Time lost through delays between patients
- Time lost through lists starting late and finishing early
- Time lost through cancelled lists

Source: Wales Audit Office

- 1.5 It can be beneficial for health boards to calculate and report the financial cost of lost theatre hours. This can raise awareness of the economic impacts of inefficiencies in theatres. The loss of 1,100 hours referred to above equates to a cost of more than £975,000⁴ over just two months. The annual cost of wasted theatre time is clearly significant across Wales although the data problems we describe earlier in this section prevented us from calculating the total figure.

Late starts are a good barometer for theatre productivity and are a common occurrence

- 1.6 If a theatre list begins late, it often has knock-on impacts for the rest of the day's surgery. Therefore, data on late starts can be thought of as a barometer for the productivity of theatres. During our fieldwork, the common causes of late starts were delays in finding surgical beds, problems aligning job plans of anaesthetists and surgeons to ensure they start work at the same time, clinicians arriving late for lists and bottlenecks caused by many patients being admitted at exactly the same time on the day of surgery. A theatre benchmarking exercise by the NHS Benchmarking Network⁵ across England and Wales found that, on average, 54 per cent of lists start late. The reasons given for late starts in the benchmarking exercise included availability of consultant surgeons and anaesthetists, competing demands on wards, availability of beds, and patient readiness.
- 1.7 There is no routine collection of standardised data across Wales in relation to late starts, partly because health boards use different definitions for 'late starts'. Some health boards begin to count lost time only once there has been a 15-minute delay while others begin counting straight away⁶. There are also some members of theatre teams who are opposed to using late starts as a measure of theatre performance. These staff argue that lists might run efficiently despite starting late and that some late starts are caused by doctors having other clinical commitments before surgery which overrun.

⁴ Using an estimated cost of £14 per theatre per minute, calculated by Information Services Division Scotland, **Statistical Release R142X**, 27 November 2012. We have not used the two-month sample period to extrapolate an annual cost because of the large variation in theatre performance that can occur each month due to seasonal pressures.

⁵ NHS Benchmarking Network, **Benchmarking Operating Theatres**, Report from 2014/15 Work Programme, May 2015. This benchmarking exercise involved 59 organisations across England plus four Welsh health boards.

⁶ The work of the Audit Commission in 2003 gave rise to an agreement in Wales for health bodies to collect standard information on late starts, with an agreed definition of lists being categorised as late after a delay of 15 minutes. Since 2013, health boards have not been required to submit the standardised data to the Welsh Government.

The reasons for cancelled operations are varied but nearly half of postponed procedures are because the patient cancelled or did not attend their appointment

- 1.8 When a health board cancels an operation, it can add to a patient's anxiety about their surgery and can cause extra disruption to their lives. Some cancelled operations are unavoidable, for example where a patient arrives at hospital but is not well enough to undergo surgery. Some cancellations cannot be prevented by health boards; for example, where the patient fails to attend the hospital on the day of surgery. Some other types of cancellation can be prevented by the health board, such as when a theatre list overruns and there is no time to carry out the last operation of the day, or where no beds are readily available because of high numbers of emergency admissions or delayed discharges.
- 1.9 When an operation is cancelled at short notice, it can cause inefficiencies in theatres as a result of needing to change the planned order of patients on the theatre list. This can cause a chain reaction of time delays in getting patients and equipment ready for each operation.
- 1.10 The Welsh Government collects data on elective admissions that are cancelled or postponed. During 2014-15, there were nearly 82,000 such cancellations and nearly 39,000 of these were as a result of patients cancelling or not turning up to their appointment.⁷
- 1.11 Our work found variation between health boards, and even within health boards, regarding the categorisation of reasons for cancellations. This has made it difficult to meaningfully compare performance across Wales. Nevertheless, the data which does exist indicates that the most common reason for cancelling operations at short notice was that no ward bed was available and therefore surgical patients could not be admitted to hospital. This reason accounted for 16 per cent of short-notice cancellations⁸. In 12 per cent of cases, cancellations were because the patient was ill and could not receive their operation, and in 11 per cent of cases, the patient failed to attend hospital.
- 1.12 Last-minute cancellations can be particularly frustrating and upsetting for patients. Sometimes these can be because the patient is not well enough to undergo a procedure but during 2014-15, more than 11,500 patients in Wales had their elective operations cancelled after they had been admitted to hospital for their surgery⁹. This represents five per cent of all elective patients.

⁷ A Welsh Government press release on 30 September 2015 stated there were 81,606 cancellations out of nearly 330,000 elective admissions. The number of cancellations due to patients cancelling or not turning up was 38,990.

⁸ These data were sourced from 14 hospitals across Wales through our data collection exercise.

⁹ These data were sourced from the Welsh Government's Efficiency and Productivity dataset, and include inpatients and day cases that were admitted and discharged without having their procedure.

- 1.13 The Welsh Government has set NHS Wales a target to reduce the disruption caused to patients' lives by cancelled or postponed operations. The target is to ensure that when a patient has their procedure postponed on more than one occasion, the health board must ensure they have their procedure within 14 days or at their earliest convenience. As at February 2015, the rolling 12-month performance showed that only 50 per cent of these patients across Wales had their procedure rescheduled within 14 days or at their earliest convenience.
- 1.14 It is clear, therefore, that cancelled operations are frequent and whilst health boards cannot prevent all cancellations, there is more they can do to plan their discharges to meet predicted daily demand, minimise avoidable cancellations and thereby improve theatre efficiency and productivity.

Part 2

The national and local focus on theatre efficiency and productivity has diminished in recent years



There is no longer a national programme of theatre improvement and there has never been an evaluation of its impact

- 2.1 The Transforming Theatres Programme (the Programme) was launched in 2009 by the National Leadership and Innovation Agency for Healthcare (NLIAH), working with 1000 Lives Plus and the Welsh Government’s Delivery and Support Unit.
- 2.2 The Programme aimed to change cultures and behaviours in operating theatres. Every health board was involved in the Programme which focused on changing practices in a specifically chosen pilot theatre in each organisation before spreading the learning to all theatres. The Programme had three high-impact principles as described in [Exhibit 4](#).

Exhibit 4 – The Programme had high-impact principles that focused on safety and quality, productivity and efficiency

High impact principles	Supporting measures
Patient safety and quality	The supporting measures were set out in the 1000 Lives publication Reducing Surgical Complications ¹⁰ . The measures include the percentage of patients that suffered an infection after surgery, the percentage of patients who had their body temperature regulated sufficiently during surgery, the frequency of theatre team safety briefings and a measure of whether surgical safety checklists were carried out properly.
Productivity	The then Delivery and Support Unit developed a Theatre Productivity Tool that was designed to give health boards the ability to better analyse their existing theatre productivity data. The unit analysed the data submitted by health boards, and provided reports back to the health boards. The key measure used in the tool concentrated on theatre turnaround times, ie the lost theatre time between patients on an operating list.
Efficiency	There were no specific efficiency measures other than a general ambition to secure ‘financial savings’ through using theatres more efficiently.

Source: The Transforming Theatres Programme

10 1000 Lives, [How to Guide: Reducing Surgical Complications](#)

- 2.3 The Programme's expenditure was approximately £20,000 each year and an additional amount of £100,000 was spent in purchasing the rights to use The Productive Operating Theatre (TPOT) training and service improvement package designed by the Institute for Innovation and Improvement in England.
- 2.4 When NLIAH ceased to exist on 31 March 2013, 1000 Lives Plus took responsibility for the Programme. Whilst the Programme never formally ceased, it has effectively ended because since 2013-14 it has had no dedicated funding and no longer carries out any proactive work¹¹. There has never been a formal evaluation of the Programme although **Exhibit 5** summarises the views expressed by NLIAH about the impacts of the Programme, that were contained in a legacy paper drafted at the time of the transfer to 1000 Lives Plus. However, these judgements have not been independently validated.

Exhibit 5 – The NLIAH claims the Programme had a number of positive impacts

Positive impacts of the Programme	Commentary/description
Delivery of human factors training in six health boards	Human factors refers to the factors that influence people and their behaviour. Training focused on improving understanding about why errors are made, improving the safety culture and teamwork.
Increased use of theatre team briefings	Team briefings or huddles are meetings where the theatre team gathers to discuss safety issues, either before or after an operating list. Use of these briefings is discussed in Part 4 of this report.
Improvement in theatre utilisation in Powys	The Programme claims to have contributed to improved utilisation in operating theatres at Brecon and Llandrindod Wells hospitals.
Improved links between theatre staff and preoperative assessment staff	The Programme claims that in most health boards, there have been improved relationships between the staff that work in operating theatres and the staff that work in preoperative assessment.
Cost reductions related to theatre stock in three health boards	At Cardiff and Vale, Aneurin Bevan and Powys health boards, there have been savings generated through better stock control in theatres.
A reduction in patient safety incidents since September 2010	Whilst the Programme notes a statistically significant reduction in the number of patient safety incidents in Welsh theatres since 2010, the reasons for this reduction are not explained.

Source: The Transforming Theatres Programme legacy paper at the time of transfer to 1000 Lives Plus

¹¹ The former programme lead is employed by Public Health Wales and receives occasional requests for assistance from individual health boards but there is no proactive initiative or campaign.

2.5 During our follow-up work, staff told us about some other positive impacts from the Programme, such as promoting better team working in operating theatres. However, in most health boards, the Programme struggled to spread impact beyond the pilot theatre.

There has been a reduction in the extent to which national targets focus on theatres

2.6 **Exhibit 6** shows that the targets and performance measures set for the NHS in Wales by the Welsh Government have gradually reduced their focus on operating theatres over the years. Indicators specific to theatre efficiency and productivity have now been discontinued. For the remaining surgery related indicators, the Welsh Government has reduced its level of scrutiny and monitors performance on a more informal basis.

Exhibit 6 – Change to national targets and measures relating to theatres

NHS Wales policy document	Details
Annual Operating Framework, 2009-10	Measures were included on rates of same-day surgery, operations cancelled at short notice and 'theatre utilisation' (specifically late starts/early finishes).
Annual Operating Framework, 2010-11	Measures were included on rates of same-day surgery, cancelled operations, late starts and early finishes. New measures were introduced on theatre turnaround times, operations carried out on the same day as admission and patients that were admitted but did not receive their planned operation.
NHS Wales Delivery Framework, 2011-12	The framework included Tier 1 measures covering day-case surgery, admission on the day of surgery and theatre turnaround times.
Improving Efficiency and Productivity within NHS Wales	The efficiency and productivity measures within this Welsh Government document include a focus on reducing theatre turnaround times, late starts, early finishes and cancelled operations. There is also a focus on increasing day surgery rates.
NHS Wales Annual Quality Framework, 2011-12	The framework includes an objective of implementing the Enhanced Recovery After Surgery programme. The framework also suggests supporting evidence areas for this objective which cover day-case surgery, theatre turnaround times and preoperative assessment for all planned surgery patients.

Exhibit 6 (continued) – Change to national targets and measures relating to theatres

NHS Wales policy document	Details
2012-13	There was no new delivery framework. Measures from 2011-12 were continued.
NHS Wales Delivery Framework 2013-14	The framework confirms that the previous target for short-stay surgery is dropped from Tier 1. A supporting measure related to theatre turnaround times is included.
2014-15	There was no new delivery framework. Measures from 2013-14 were continued.
2015-16 NHS Outcome Framework	The framework includes only one relevant measure: 'The percentage of patients who had their procedures postponed on more than one occasion for non-clinical reasons with less than eight days' notice and are subsequently carried out within 14 calendar days or at the patient's earliest convenience.'

Source: Wales Audit Office document review

The Welsh Government's Delivery Unit has stopped work on theatre improvement

- 2.7 Operating theatres was previously an area of considerable focus for the Welsh Government's Delivery and Support Unit, which became the Delivery Unit in April 2013. The Delivery Unit has a role in supporting NHS Wales in securing performance improvement. A particular focus of its predecessor organisation was to work with orthopaedic theatre teams to reduce the turnaround times between cases on operating lists.
- 2.8 The unit was also involved in the Programme through the design and use of its Theatre Productivity Tool, which was a tool that aimed to improve the presentation of theatre data to health boards. However, the overall function of the Delivery Unit has changed since 2013 and its work is now determined by the areas of focus within the Welsh Government's Tier 1 targets. Since the removal of theatre-related targets from Tier 1, the Delivery Unit has ceased its work on theatres.

- 2.9 At the time of drafting this report, the Welsh Government was in the early stages of developing a National Planned Care Programme. At the time of our audit, the Planned Care Programme did not involve any specific focus on operating theatres.

The profile of theatres within most health boards has waned, partly because they are struggling to balance the competing demands from emergency and elective patients

- 2.10 Since 2011, theatres have become a lower priority for most health boards. This is due, in part, to the reduced focus on operating theatres at a national level. Another factor has been the increased pressure being felt in hospital emergency departments and other unscheduled care services. We discuss these matters further at [paragraphs 3.8 to 3.11](#) but in summary, at the time of our local audit work we found that most health boards were often focusing more on managing emergency pressures and focusing less on managing planned care and operating theatres.
- 2.11 Our follow-up work also showed that all health boards are trying in some way to improve the performance of their operating theatres. Whilst some organisations are taking more comprehensive, structured approaches, others are carrying out more ad-hoc and small-scale improvement work.
- 2.12 Rather than just focusing solely on operating theatres, most health boards are now focusing more on the broader surgical pathway, to consider all of the issues that impact on surgical patients. This is because they recognise that efforts to improve theatre performance can often be frustrated by processes managed outside of the theatre team. However, in most health boards, we consider there to be insufficient specific focus on theatres as part of the wider surgical pathway approach. These issues are discussed further in [Part 3](#) of this report.
- 2.13 Whilst all health boards are engaged in the longstanding National Theatre Managers' Group, this group has no specific work programme and no formal mandate from the Welsh Government.

NHS boards tend to receive little regular information on theatre performance although theatres data is reported to a range of other groups and committees

- 2.14 When information about theatre performance is widely shared within an organisation, this can have the effect of putting theatre issues under the spotlight and facilitating learning and improvement.
- 2.15 Our work found that health boards are taking varied approaches to collating and sharing information on theatre performance within their internal structures. The NHS Benchmarking Network exercise found that 90 per cent of participating organisations had a theatre dashboard that summarised key theatre performance information. Of the four participating organisations in Wales, all four had a theatre dashboard. We found that most health boards maintain an online, shared source of theatre performance information but it is not always clear whether theatre teams and managers are accessing and using this information.
- 2.16 Most health boards hold monthly or weekly meetings to discuss theatre performance. These tend to be operational meetings involving a range of staff including theatre managers, team leaders and clinicians. Arrangements to ensure theatre performance is discussed at higher-level corporate groups and committees vary considerably across Wales. At some organisations, this is ad hoc whilst other health boards have quarterly or six-weekly updates to senior committees or the executive team.
- 2.17 Boards of NHS bodies should ideally be sighted of how effectively operating theatres in their organisations are performing. In March and July 2015, we reviewed the integrated performance reports that had gone to the most recent board meetings in each of the health boards. [Exhibit 7](#) shows that whilst all boards received information on referral-to-treatment waiting times and cancelled operations, information on the use of theatre time was not widespread.

Exhibit 7 – Most boards do not receive any data on the use of theatre time although all receive data on waiting times and cancellations

Performance measures	Aneurin Bevan	Abertawe Bro Morgannwg	Betsi Cadwaladr	Cardiff and Vale	Cwm Taf	Hywel Dda
Waiting times for surgery	✓	✓	✓	✓	✓	✓
Theatre utilisation				✓		
Late starts/early finishes		✓			✓	
Cancelled sessions			✓		✓	
Turnaround times					✓	
Cancelled operations	✓	✓	✓	✓	✓	✓
Reasons for cancellations					✓	
Short-stay surgery rates		✓	✓			
Day-of-surgery admission		✓	✓		✓	

Source: Wales Audit Office review of Board performance reports in March and July 2015

Part 3

A number of factors can act as barriers to securing improvement in theatre performance



Most health boards are taking action to improve their theatre information but concerns persist about the quality of data and the way in which it is used

- 3.1 When the Audit Commission¹² reviewed operating theatres across Wales and England in 2002, it said that many theatre information systems were unreliable in terms of data quality, resulting in managers sometimes being unaware of how well their theatres are performing.
- 3.2 Our audits across Wales in 2011 found that some health boards needed to strengthen their performance management processes by standardising their theatre systems, deciding on metrics that give a more rounded picture of theatre performance and by improving the use of data to drive improvement.
- 3.3 In our follow-up work, we found that in most NHS bodies, theatre data was being used to a certain extent to promote improvement and many health boards were in the early stages of taking actions to improve their theatre data. Such actions included developing performance dashboards and efforts to standardise theatre information within health boards. However, different theatre information systems are used across Wales, and staff frequently told us that poor-quality and poor use of theatre data are key barriers to improving performance in Wales.
- 3.4 Our work revealed inconsistencies in the collection and use of theatres data within individual health boards. We found that the lack of good data meant that health boards can struggle to dispel myths about the real causes of theatre inefficiency. In interviews, we were told that clinical staff sometimes have doubts about the validity of existing theatre data, which is detrimental when trying to engage staff in the drive to improve theatre efficiency. We were also told that because existing data is often not used routinely, there is limited impetus to improve the validity of existing data.
- 3.5 Health boards continue to have difficulties in ensuring they have a rounded picture of theatre performance and comparisons across health boards is rare. As shown in [Appendix 2](#) and [Exhibit 6](#), there are numerous metrics and targets that can be used to measure efficiency in theatres. However, there is large variation across Wales in the use of these metrics, and in our interviews, staff told us about many objections and complications in relation to the metrics that health boards currently use. We recognise that no single measure of theatre performance is perfect when used on its own. A standard set of metrics has previously been developed in Wales but the use of these metrics has now ceased. The key is to develop a revised, standardised group of metrics that can allow comparison with other organisations and provide a rounded, broad picture of performance. The lack of standard theatre metrics is not isolated to Wales as highlighted in the NHS Benchmarking Network project which concluded that theatre 'utilisation does not have a standard national definition and is subject to much variation in local data collection'.

¹² Audit Commission, [Operating theatres: A bulletin for health bodies](#), 2002

- 3.6 There may be scope for organisations to learn from one another in relation to collating and sharing theatre information. For example, Betsi Cadwaladr has an interactive spreadsheet (see [Appendix 3](#)) that is user friendly, accessible by all relevant staff, and covers a wide range of performance indicators at various levels of detail including health board level, specialty level and individual clinician level. Extracts from the spreadsheet are used to inform discussions of theatre performance within the health board. Cardiff and Vale University Health Board is also using theatre data in a positive way. The health board's new theatre system provides improved access to performance information, which is particularly focused on utilisation. Live information is available as well as trend data and the use of charts and scorecards enables management and staff to quickly identify achievement and issues.
- 3.7 Improving the data and understanding of theatre capacity in NHS Wales could secure efficiencies. Whilst our follow-up work did not look at the extent of spare operating capacity in Wales, our interviews suggest there is likely to be unused capacity. Discussions with Powys Teaching Health Board suggest its theatres have capacity to take on day surgical care of patients from other Welsh health boards and therefore minimise the cost of waiting list initiatives at weekends. Better, more forward-looking data on theatre capacity that is shared between health bodies, could improve the identification and use of spare capacity.

Difficulties in finding a vacant bed are a frequent cause of inefficiency for theatres although NHS bodies are trying to minimise these difficulties by increasing the rate of day surgery

- 3.8 Problems related to the availability of beds are a frequent barrier to the smooth running of operating theatres, and a common cause of cancelled operations. Health boards have the difficult job of balancing competing demands for their hospital beds from emergency patients and elective patients. At times of increased emergency demand, health boards often have to choose to prioritise emergency patients over elective patients. This can cause short-notice cancellations of operations and disruption to planned theatre lists.
- 3.9 During our follow-up work, staff frequently told us about the demoralising impact of not being able to run theatres efficiently because of problems with bed availability. In our survey, problems with the availability of beds was the second most commonly¹³ mentioned factor when we asked staff to tell us what the priorities should be for improving theatre performance. While most comments were about the availability of ward beds, we were also commonly told about problems with recovery beds and critical care beds. [Exhibit 8](#) summarises some of the views expressed by staff regarding bed availability.

¹³ When we asked staff for their views on what should be the priorities for improving theatre performance, the most commonly mentioned issue was the need to increase staffing levels.

Exhibit 8 – When asked about how to improve theatre efficiency, many staff talked about issues with beds, bed management and patient flow



Source: Wales Audit Office staff survey

- 3.10 The work of Welsh Risk Pool Services (WRPS) on surgical pathways has highlighted problems with surgical bed availability. In 2013-14, WRPS said that 'post-operative bed availability' was cited by staff as a reason for the cancellation of elective surgical procedures in all but two health boards¹⁴. The report said pressure for beds was so intense at some health boards that 'cancer cases were being cancelled, although every effort was made to undertake the procedure as soon as possible'.
- 3.11 The WRPS also commented on common problems with surgical beds being used for non-surgical patients. This approach to 'outlying' medical patients in surgical beds causes a number of difficulties. Medical patients outlied into surgical beds often do not receive frequent reviews from the medical teams, and this can cause delays in their discharge. When patients are located in beds not intended for their speciality, this can also mean extra work is required to keep track of them and ensure they receive appropriate care.
- 3.12 One way that health boards try to improve surgical bed availability is by admitting patients on the day of their surgery, rather than the night before. This prevents beds being occupied unnecessarily. The rate of day-of-surgery admission has increased gradually in Wales from 62 per cent in 2010-11 to 66 per cent in 2014-15¹⁵.
- 3.13 Another way in which health boards try to improve the use of their beds is by ensuring that whenever it is clinically appropriate, patients are admitted, have their surgery and are discharged on the same day. So called 'day surgery' can be good for patients because it means they can return home more quickly, with less disruption to their daily lives, than an overnight stay in hospital would involve. Patients are also less likely to pick up a healthcare-associated infection if they stay in hospital for a shorter time.
- 3.14 Increasing rates of day surgery is also beneficial to health boards because it can be more cost-effective than inpatient treatment. It can free up beds for other patients and can increase the throughput or number of patients that have surgery and therefore help to reduce waiting times.
- 3.15 Day surgery is now possible for a wider range of procedures because of developments in surgical and anaesthetic techniques. Day surgery performance has improved in all health boards since 2008-09 and in 2014-15, only two health boards were not meeting the Welsh Government's historic day surgery rate target of 80 per cent¹⁶.

¹⁴ Welsh Risk Pool Services, **Assessment of surgical pathways: Report to chief executives**, 2013-14

¹⁵ This data was taken from the Welsh Government Efficiency and Productivity Measures

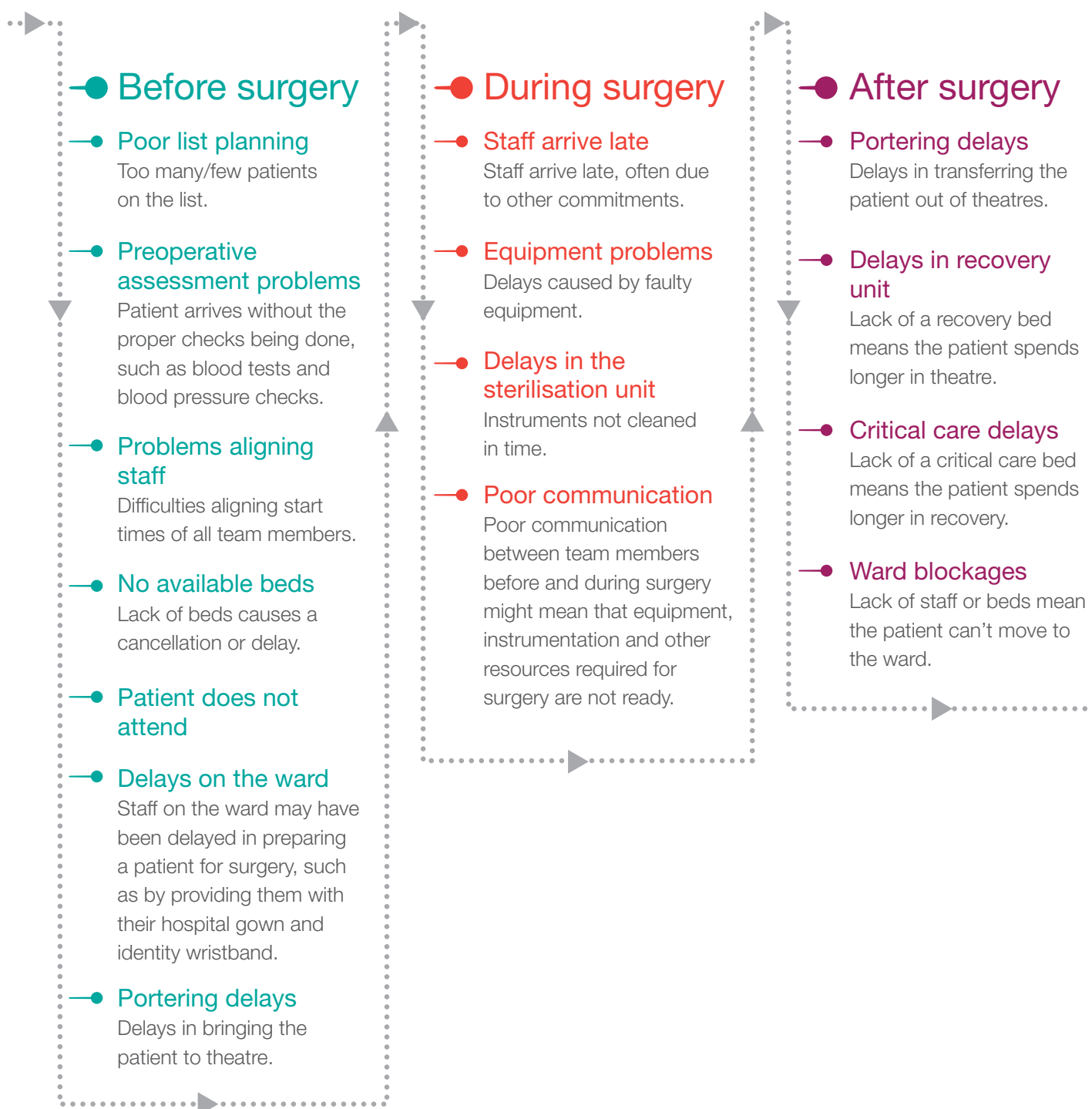
¹⁶ The target is based on a basket of 50 procedures that can have been deemed appropriate for day surgery.

Fragmented accountabilities and insufficient ownership of problems along the entire surgery pathway can inhibit improvement in theatres

- 3.16 **Exhibit 2** shows that theatres is just one component of the surgical care pathway. If problems occur at any point during the pathway, this can have impacts on surgical efficiency because it can disrupt the flow of patients through theatres.
- 3.17 We found that theatre efficiency in Wales is being affected by a range of problems that occur before, during and after surgery, as described in **Exhibit 9**.
- 3.18 There is scope for greater ownership of the problems across the whole surgical pathway. Developing more genuinely shared ownership of theatre improvement is a critical factor if operating theatre performance is going to improve.
- 3.19 We found that responsibilities and accountabilities for addressing the barriers along the surgical care pathway are often fragmented. It can be difficult to hold staff to account for theatre performance because this performance is heavily dependent on issues outside of a person's remit. For example, theatre managers often do not have sufficient seniority or a specific responsibility to tackle problems in parts of the pathway outside theatres. Theatre managers are also rarely accountable for the performance of surgeons and anaesthetists, the performance of which is a key determinant of theatre performance. Similarly, it can be difficult to measure the performance of surgeons because the effectiveness of their operating lists depends on many external factors, such as the availability of surgical beds.
- 3.20 In general, we found that health boards have not done enough to define clear lines of clinical and managerial accountability across the whole surgical pathway to ensure a strong approach to management across medical staff, nursing staff and managerial staff. There also needs to be clear and regular executive oversight and involvement across the surgical pathway to smooth out any accountability issues and to drive improvement. The NHS Benchmarking Network exercise showed that 82 per cent of participating organisations have a clinical director responsible for theatres. In Wales, five out of the seven health boards have appointed such a clinical director.

Exhibit 9 – Theatre efficiency is affected by issues before, during and after surgery

The exhibit describes examples of the main problems we were made aware of during our fieldwork that impact on theatre efficiency and productivity. The results of these problems are poorly planned theatre lists, delayed starts, cancellations, delays during operations and delays between operations. In the absence of good-quality data, it was not possible to give a picture of the frequency of these issues and the variation in severity of these issues across Wales.



Source: Wales Audit Office

Our staff survey results suggest low staffing levels act as a barrier to improvement

- 3.21 Whilst it was beyond the scope of the follow-up audits to undertake a detailed examination of theatre staffing levels, our survey results did highlight a number of concerns about staffing. When we asked staff about what the top priorities should be to improve theatre efficiency, the most common answer was related to the need to increase staffing levels. Forty-four per cent of respondents to our survey agreed or strongly agreed with the statement 'The level of workload is excessive' and 22 per cent disagreed or strongly disagreed.
- 3.22 In some of our follow-up reviews, we highlighted specific issues about staffing levels such as the need for better succession planning in theatre teams, shortages of staff on the wards causing delays in patients being ready for surgery, short staffing in theatre recovery areas and lack of availability of anaesthetists and porters. The WRPS also noted difficulties in ensuring adequate staffing in 2013-14.
- 3.23 Staff in some health boards told us about daily difficulties in ensuring sufficient cover for theatres by shuffling staff to work in different areas. We also heard views that the standards for staffing set out by the Association of Perioperative Practice are applied differently by different organisations, with some health boards setting their staffing at levels over and above that required by the standards¹⁷. We were also told about problems with recruitment due to a shortage of qualified theatre staff in Wales.

There are important barriers within theatres that are impacting on efficiency and productivity

- 3.24 As well as identifying a range of barriers external to theatres, our work highlighted barriers within theatres. The first barrier relates to the poor planning of operating lists. Problems included unrealistically high or low numbers of operations being booked onto a list, a lack of involvement from clinical staff in the planning of lists and late finalisation of lists making it difficult to ensure there will be sufficient staff and resources on the day of surgery.
- 3.25 Poor planning of clinical commitments for surgeons and anaesthetists is also a common cause of late starts to theatre lists. Through the staff survey and interviews, we were told about difficulties in ensuring lists start on time because of the delayed arrival of surgeons and anaesthetists. These staff are commonly delayed because they have a clinic or another task to perform before arriving in theatres. The main solution to such issues is better planning of clinical commitments and if necessary, revision to theatre start times to ensure all staff are present and ready to start at the same time.

¹⁷ The Association of Perioperative Practice told us that their staffing standards were updated in 2014 and that the standards aim to be a guide for best practice in theatres to ensure the right skills are in the right place at the right time.

- 3.26 Another internal barrier to securing theatre efficiency is in relation to theatre equipment and supplies. Staff told us about a general lack of investment in theatre equipment leading to breakdowns and repairs for items such as operating tables and trolleys. We were also told that in some cases, there is not enough equipment available, which means equipment has to be shared between different teams and can cause waiting and delays. There can also be further inefficiencies when there are delays in the sterilisation process for surgical instruments. Finally, we were told about delays and inefficiencies caused by poor storage of theatre equipment and supplies, which results in theatre staff spending valuable time searching for necessary equipment.
- 3.27 The final internal barrier related to problems with communication and morale. Issues included poor communication between members of the theatre team about the order of patients on a list or about the equipment and other resources required for a list. Staff in some health boards also told us about a lack of forums for teams to get together to discuss issues. Our follow-up work also highlighted issues related to poor morale with only 21 per cent of respondents to our survey agreeing or strongly agreeing with the statement 'morale is high in the operating theatre'.

Part 4

There is evidence of a positive safety culture in theatres with essential safety steps becoming more common, although such steps are not always carried out properly

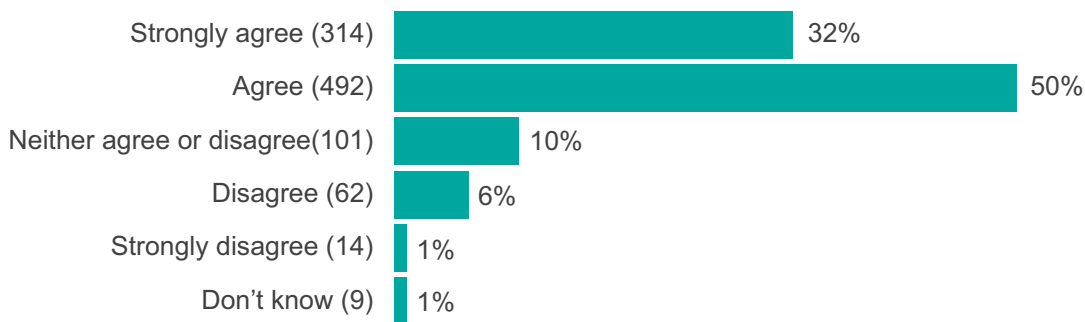


Our staff survey revealed positive views about the overall safety culture in theatres

4.1 By their nature, surgical procedures are often high risk and so there should never be any compromise on patient safety in theatres. Our survey of theatre staff, surgeons and anaesthetists showed generally positive views from staff about the overall safety culture in operating theatres. Exhibit 10 shows that the vast majority of staff (82 per cent) who responded to our survey said patient safety is constantly reinforced in theatres. Whilst only seven per cent disagreed with this statement, this means that 76 staff surveyed felt that patient safety was not being constantly reinforced¹⁸. We have made health boards aware of these data through our local reports.

Exhibit 10 – Staff had positive overall views about safety in theatres

Patient safety is constantly reinforced as the priority in this theatre



Source: Wales Audit Office survey of theatre staff

¹⁸ The number of staff that disagreed or strongly disagreed with the statement 'patient safety is constantly reinforced as the priority in this theatres' was 18 at Cardiff and Vale (out of 136 responses from staff), 16 at Abertawe Bro Morgannwg (out of 182 responses), 16 at Betsi Cadwaladr (out of 158 responses), 15 at Cwm Taf (out of 241 responses), 10 at Hywel Dda (out of 139 responses) and 1 at Aneurin Bevan (out of 145 responses).

- 4.2 The vast majority of staff that responded to our survey said they would feel safe if they were a surgical patient in the hospital where they work. Seventy-four per cent of staff agreed or strongly agreed with the statement 'I would feel safe being treated here as a patient', six per cent disagreed and two per cent strongly disagreed.
- 4.3 Another positive aspect of safety in operating theatres is the long-term practice of health boards peer reviewing other organisations' safety levels. Quality Assessment Document (Quad) audits have been carried out for many years and represent a good arrangement for health boards to get external views on theatre safety.

Incidents, litigation and complaints show that things can, and do, go wrong in theatres and scope exists to improve the way lessons are learnt from such events

- 4.4 When something goes wrong in operating theatres, it is important that staff report the incident to ensure that lessons are learnt. Between 2011 and 2013, there were typically 129 patient safety incidents reported in Welsh operating theatres every month although the monthly average reduced to 118 in 2014¹⁹. The reduction in 2014 may suggest that theatres are getting safer but alternatively it may suggest a problem with the incident-reporting mechanism, such as growing reluctance of staff to report things that go wrong. The results of our survey of theatre staff suggest a general willingness to report incidents with 74 per cent of respondents agreeing or strongly agreeing that error reporting is encouraged in their theatre.
- 4.5 Never events are serious safety incidents that should not occur if the appropriate preventative measures have been taken. A core list of never events has been adopted in Wales²⁰ that includes the following types of incident related to surgery:
- a **wrong site surgery:** for example, a patient had an operation on their right eye when it should have been performed on their left eye;
 - b **wrong implant/prosthesis:** for example, if the wrong type of hip replacement was placed in the patient who then requires further surgery to correct the error; and
 - c **retained foreign object post procedure:** for example, a patient is stitched up after their operation and is later found to have a swab or needle unintentionally left inside their wound.

¹⁹ The data on incidents were sourced from the National Reporting and Learning System.

²⁰ www.england.nhs.uk/wp-content/uploads/2013/12/nev-ev-list-1314-clar.pdf

- 4.6 In 2014-15, there were 10 never events in Wales and nine of these were surgical incidents. Six of the incidents were due to a swab or other foreign object being retained in the patient's body after surgery, two were due to a wrong implant or prosthesis being inserted into the body and one was due to wrong site surgery where the wrong hernia was removed. All health boards except Powys reported a never event in that year²¹.
- 4.7 Our survey revealed that there is further scope to improve the way that health boards learn from things that go wrong. Only 47 per cent of respondents agreed or strongly agreed that the information from error reporting is actually used to make patient care safer.
- 4.8 When things go wrong in theatre, as well as the harm that can be caused to patients, there can also be significant financial implications for health boards. The WRPS was not able to fulfil our request for the total cost of surgical litigation cases in Wales. However, the WRPS has analysed the themes from past litigation cases in Wales in relation to surgical patients. The themes include poor record keeping, failures in processes to ensure the patient has given informed consent to have their procedure, problems with communication between staff, issues with the supervision of junior doctors, swabs and instruments being retained in the patient's body after surgery, errors in anaesthesia and organs being nicked accidentally during surgery.
- 4.9 The Board of Community Health Councils in Wales dealt with 96 complaints from the public about surgical services in 2013-14. Whilst 87 of these complaints related to waiting times for surgery, six complaints were about poor communication between the health board and the patient and three complaints were about clinical practice.

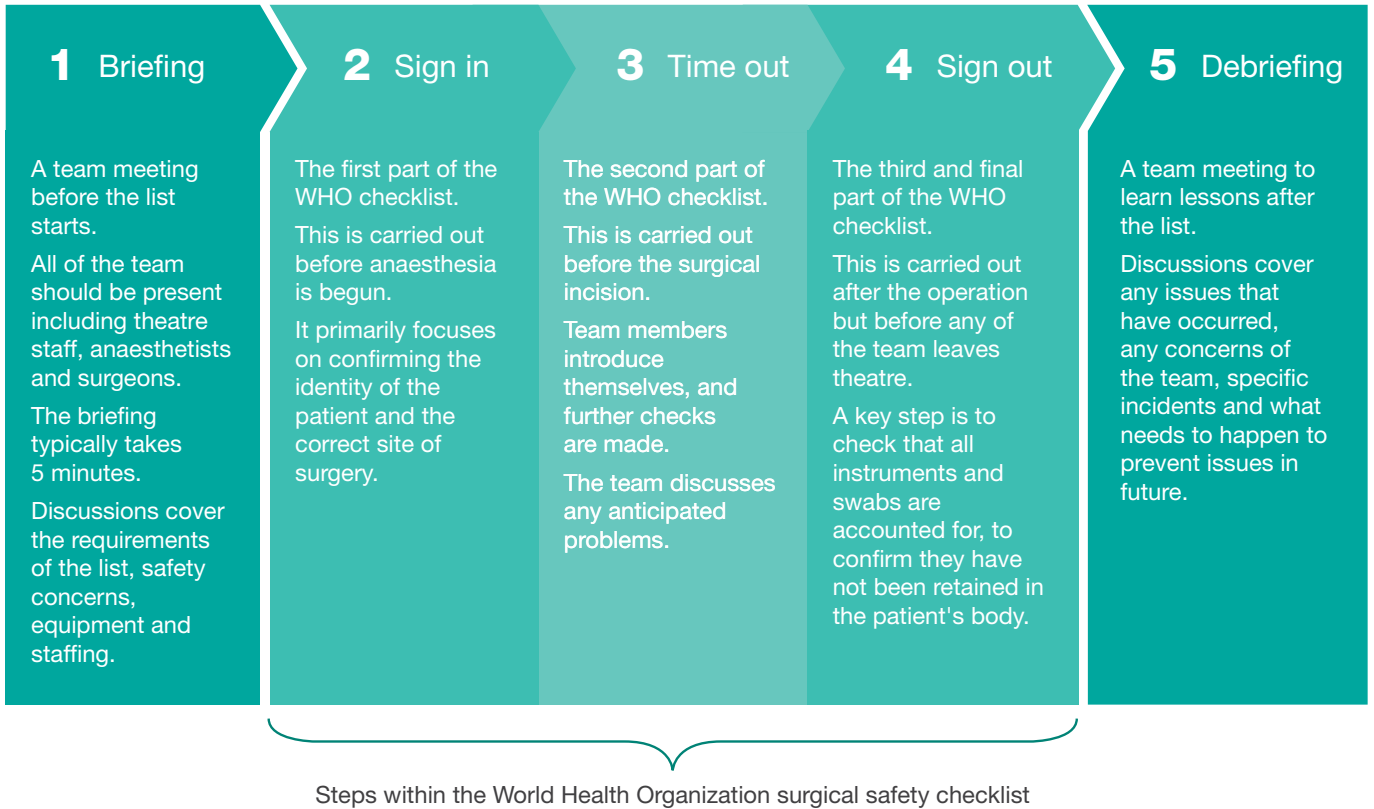
The Surgical Safety Checklist is now widely used but is not always used in the best way

- 4.10 The National Patient Safety Agency's **Five Steps to Safer Surgery**, shown in **Exhibit 11**, and the 1000 Lives document, **Reducing Surgical Complications**²², recommend that theatre teams should carry out a safety briefing before each list (step 1). Then, for every patient on the list, teams should carry out the World Health Organization **Surgical Safety Checklist** (steps 2, 3 and 4), then teams should finish the list with a debriefing session (step 5).

²¹ There were three surgical never events at Abertawe Bro Morgannwg, two at Cardiff and Vale, and one at each of Aneurin Bevan, Betsi Cadwaladr, Cwm Taf and Hywel Dda.

²² 1000 Lives, **How to Guide: Reducing Surgical Complications**

Exhibit 11 – The Five Steps to Safer Surgery



Source: Adapted from the National Patient Safety Agency, **How to Guide: Five Steps to Safer Surgery**, December 2010

- 4.11 The NHS Benchmarking Network's data suggest that 97 per cent of participating organisations in England and Wales comply with the **Five Steps to Safer Surgery**. In Wales, two out of the three health boards that responded to this question in the benchmarking exercise said they complied with the five steps.
- 4.12 The **Surgical Safety Checklist**²³ is a set of 19 questions that surgical teams use to prevent adverse events and improve teamwork and communication in theatres. **Exhibit 12** shows the version of the checklist that was adapted for use in Wales and England by the National Patient Safety Agency.

Exhibit 12 – The Surgical Safety Checklist

WHO Surgical Safety Checklist
(adapted for England and Wales)

National Patient Safety Agency
National Reporting and Learning Service

SIGN IN (To be read out loud)
Before induction of anaesthesia

- Has the patient confirmed his/her identity, site, procedure and consent? Yes
- Is the surgical site marked? Yes/not applicable
- Is the anaesthesia machine and medication check complete? Yes
- Does the patient have a:
 - Known allergy? No Yes
 - Difficult airway/respiration risk? No Yes, and equipment/assistance available
 - Risk of >500ml blood loss (2ml/kg in children)? No Yes, and adequate IV access/fluids planned

PATIENT DETAILS

Last name: _____
 First name: _____
 Date of birth: _____
 NHS Number: _____
 Procedure: _____

TIME OUT (To be read out loud)
Before start of surgical intervention
for example, skin incision

- Have all team members introduced themselves by name and role? Yes
- Surgeon, Anaesthetist and Registered Practitioner verbally confirm:
 - What is the patient's name?
 - What procedure, site and position are planned?
- Anticipated critical events:
 - Surgeon:
 - How much blood loss is anticipated?
 - Are there any specific equipment requirements or special investigations?
 - Are there any critical or unexpected steps you want the team to know about?
 - Anaesthetist:
 - Are there any patient specific concerns?
 - What is the patient's ASA grade?
 - What monitoring equipment and other specific levels of support are required, for example blood?
 - Nurse/ODP:
 - Has the sterility of the instrumentation been confirmed (including indicator results)?
 - Are there any equipment issues or concerns?
- Has the surgical site infection (SSI) bundle been undertaken? Yes/not applicable
 - Antibiotic prophylaxis within the last 60 minutes
 - Patient warming
 - Hair removal
 - Glycaemic control
- Has VTE prophylaxis been undertaken? Yes/not applicable
- Is essential imaging displayed? Yes/not applicable

SIGN OUT (To be read out loud)
Before any member of the team leaves the operating room

- Registered Practitioner verbally confirms with the team:
 - Has the name of the procedure been recorded?
 - Has it been confirmed that instruments, swabs and sharp counts are complete (or not applicable)?
 - Have the specimens been labelled (including patient name)?
 - Have any equipment problems been identified that need to be addressed?
- Surgeon, Anaesthetist and Registered Practitioner:
 - What are the key concerns for recovery and management of this patient?

This checklist contains the core content for England and Wales

www.npsa.nhs.uk/nrls

Source: National Patient Safety Agency, Patient safety alert, 26 January 2009

23 This became mandatory in Wales in February 2010.

- 4.13 In January 2013, the then Chief Executive of NHS Wales announced 100 per cent compliance with the checklist.²⁴ The English and Welsh organisations participating in the recent NHS Benchmarking Network's exercise reported 96 per cent compliance with the checklist. In our survey, 86 per cent of staff agreed or strongly agreed that 'staff undertake surgical checklists before every theatre case'.
- 4.14 Completing the checklist is not enough in itself to ensure patient safety. The checklist is designed as a communication aid and aims to improve the culture of teamwork in theatres. For the checklist to work properly, it needs to be carried out in a particular way. Ideally, there needs to be quiet in the theatre so that the entire team, including surgeons and anaesthetists, can stop what they are doing and take an active part in discussing the checklist questions out loud.
- 4.15 We found that use of the checklist varies by theatre. In some theatres, theatre practitioners or nurses complete the checklist without the surgeon or anaesthetist being present. We were also told that when only part of the team is involved in the checklist, the ongoing work of the remaining team members can disturb the important conversation about the checklist. Our work also found examples where some of the checklist questions were skipped. [Exhibit 13](#) shows a snapshot of some of the views of theatre staff from Wales about the use of the checklist in operating theatres.

Exhibit 13 – Theatre staff told us a mix of positive and negative things about the checklist even within the same health board



Source: Wales Audit Office survey of theatre staff

- 4.16 It is good practice for health boards to regularly audit their use of the checklist to ensure it is being carried out properly. The National Patient Safety Agency²⁵ states that 'Whilst compliance may be measured by sourcing evidence that the checklist was used, organisations will need to assure themselves that all team members are present and contribute to essential communications at each step.' Our work found that whilst most theatres audit the use of the checklist by doing retrospective reviews of the paperwork, fewer theatres carry out regular observations of the checklist in real time. We did find two examples where health boards were carrying out covert audits to check whether the checklist was being used properly.

Team safety briefings are becoming more common but in many theatres they are not yet normal practice

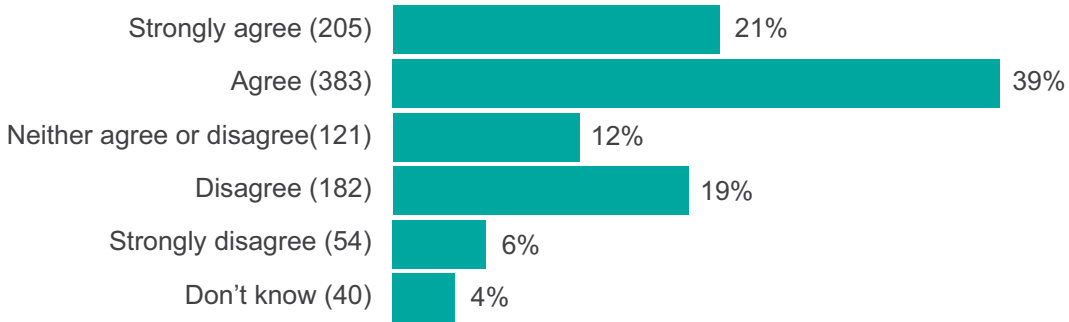
- 4.17 The NHS Institute for Innovation and Improvement²⁶ in England states that 'when briefing and debriefing are used alongside the checklist, there is greater impact on team performance and safety, with the additional benefit of reductions in delays, smoother running of lists and improved safety climate.'
- 4.18 There was a clear sense from the staff we interviewed that safety briefings are becoming more commonly used in Wales. **Exhibit 14** shows that 60 per cent of respondents to our survey said they agreed or strongly agreed that briefings always happen before surgical procedures.

²⁵ National Patient Safety Agency, **How to Guide: Five Steps to Safer Surgery**, December 2010

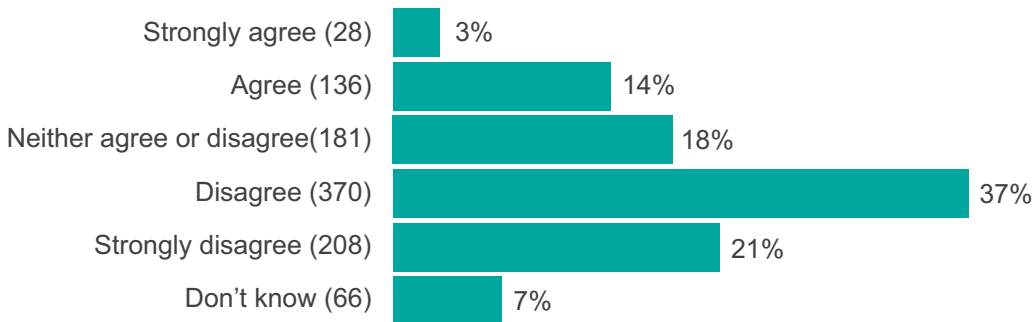
²⁶ NHS Institute for Innovation and Improvement, **The productive operating theatre**, November 2010

Exhibit 14 – Safety briefings are becoming more common before surgery but are rarely carried out after operating lists

Briefing theatre personnel before a surgical procedure always happens



Debriefings following shifts or lists are common in this operating theatre



Source: Wales Audit Office survey of theatre staff

4.19 Our findings on debriefings were less encouraging. Just 17 per cent of our survey respondents agreed or strongly agreed that debriefings always happen after surgery. Staff frequently told us that there is not enough time at the end of a list to carry out a debriefing because doctors have to leave to fulfil other clinical commitments, or because lists have overrun and therefore theatre staff shifts have already ended. Patient Safety First²⁷, a campaign run by the National Patient Safety Agency, NHS Institute for Innovation and Improvement and the Health Foundation, states that some theatres have succeeded in implementing debriefings by carrying out the meeting during the closure of the wound.

27 Patient Safety First, *The how to guide for reducing harm in perioperative care*, 2009

Appendices

Appendix 1 - Methodology

Appendix 2 - Metrics used to measure theatre performance

Appendix 3 - An example of theatre data being used effectively



Appendix 1 - Methodology

The table below summarises the methods we used in delivering our follow-up work across Wales.

Method	Details
Scoping and research	<p>We carried out desk-based research on the current standards and expectations related to the quality and efficiency of operating theatres.</p> <p>Wherever possible, we have used sources of existing data, including information from the NHS Benchmarking Network, the National Reporting and Learning System, the Welsh Government and the NHS Wales Informatics Service.</p>
Self-assessments	Health boards completed self-assessments to provide an update on the extent of progress they have made in implementing the recommendations from our previous reviews of operating theatres.
Document and data request	We requested that health boards provide us with specific data on the utilisation of planned theatre time, during a two-month sample period. We also requested a range of documents and data related to the quality and safety of operating services.
Interviews	<p>We carried out interviews with select members of staff which typically included executives with responsibility for theatres, operating theatre managers, clinical leads for theatres/surgical services and staff involved in delivering surgical services.</p> <p>We also interviewed representatives from the Welsh Government, the Delivery Unit and the Transforming Theatres Programme.</p>
Staff survey	We carried out a survey of theatre staff, surgeons and anaesthetists. The survey asked for opinions on efficiency, safety and quality of operating theatres. We received 1,001 responses from across Wales.

Appendix 2 - Metrics used to measure theatre performance

The table below highlights the wide range of metrics that can potentially be used to measure theatre performance. The table also discusses some of the findings from our fieldwork in Wales in relation to the complications faced by organisations in using theatre metrics.

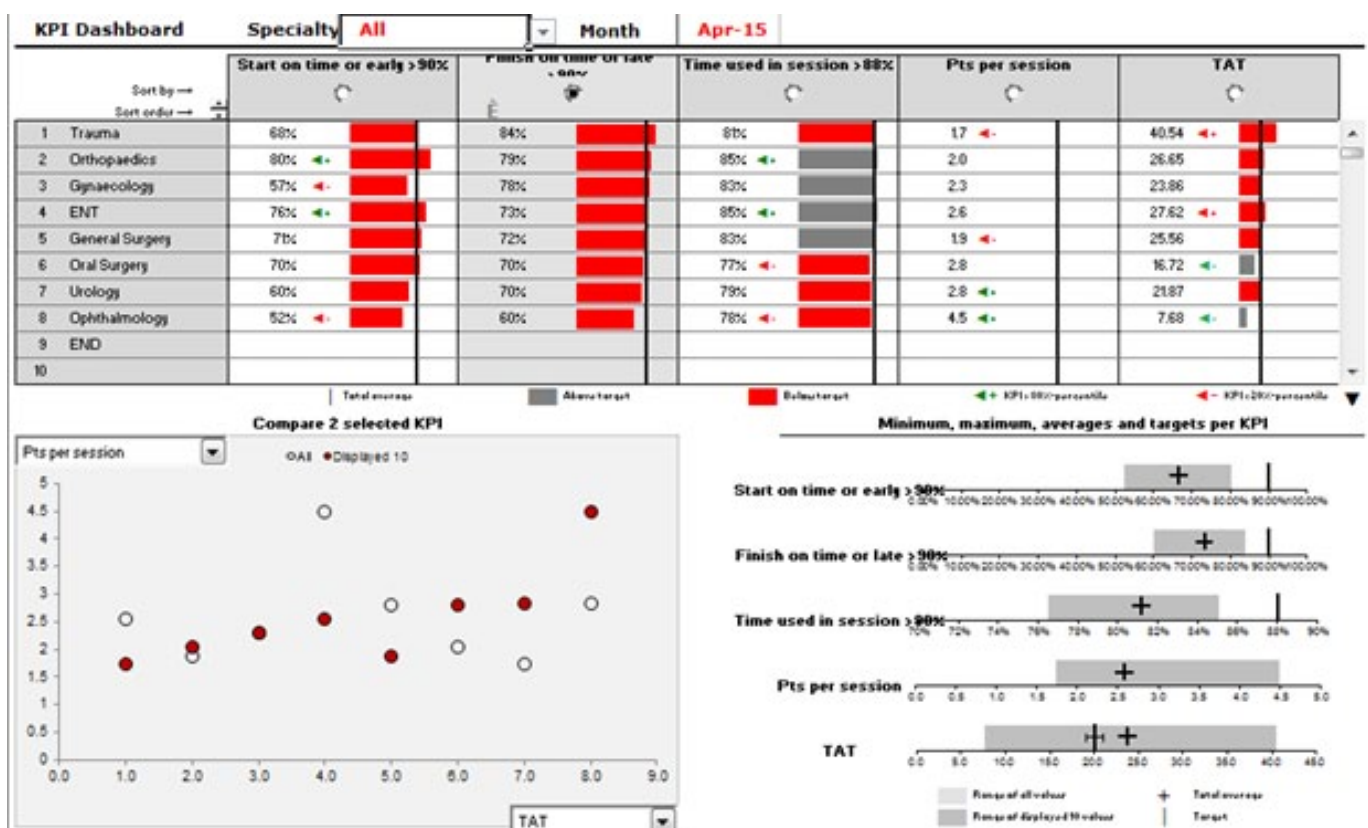
Metric	Details and complications
End utilisation	<p>This Wales Audit Office and Audit Commission have used this indicator in previous audits.</p> <p>It attempts to be a comprehensive measure of how theatre time is used, taking into account time lost through late starts, early finishes, cancellations and gaps between patients.</p> <p>The metric can be difficult to interpret. One objection to the measure is that theatres with overrunning lists can appear more efficient than they really are.</p> <p>Few health boards appear to be using this indicator although Cardiff and Vale uses a similar indicator of utilisation that considers planned theatre times, start and end times and gaps between patients.</p> <p>We requested data to allow us to calculate end utilisation but four of the health boards could not provide the data or could only provide unreliable data.</p>
Planned hours utilisation	<p>Most health boards are able to measure planned hours utilisation, which compares the time actually used for theatre lists and the time originally planned for those lists.</p> <p>One objection to this metric is that it does not consider the time lost through cancelled lists.</p>
Late starts and early finishes	<p>Late starts can be thought of as a cultural barometer in theatres. If lists start late, this can often be an indicator that lists will be poorly organised and inefficient.</p> <p>The definition of late starts varies between health boards. Some health boards do not consider a session to have started late if it starts within 15 minutes of the scheduled start time.</p> <p>Some organisations measure the percentage of lists that start late and/or finish early, whilst other organisations measure the number of minutes lost through late starts and early finishes.</p> <p>One objection to these measures is that, with the exception of the list starting late, the remainder of the list might run efficiently. Some lists also start late because doctors have other commitments to fulfil before their lists begin (although in the latter case, health boards should seek to amend the planned timings of clinicians' various commitments to ensure prompt start to theatre lists).</p>

Metric	Details and complications
Lost sessions	<p>This metric considers the number of operating sessions that were cancelled.</p> <p>There can be inconsistencies in the way this metric is calculated consistently. For example, if a session is cancelled by one surgeon but a different surgeon is brought in as a replacement, there can be variations in the way that these data are treated.</p>
Sessions at weekends and as part of waiting list initiatives	<p>Some organisations measure the amount of surgery they carry out at weekends or as part of waiting list initiatives.</p> <p>High levels of such activity may suggest unnecessary expenditure when theatre capacity during the normal working week may be poorly utilised.</p>
Cost of lost theatre time	<p>Some organisations choose to quantify the cost of lost theatre time although this appears rare in Wales.</p> <p>By reporting a figure on the cost of this lost time, there can be greater transparency and greater awareness of the economic impact of inefficiencies.</p> <p>There are mixed views on the benefits of calculating the cost of lost theatre time. Some staff told us that some time loss is unavoidable and it would be unfair to include this in the calculation of costs.</p>
Booking efficiency	<p>One health board is carrying out detailed monitoring of the extent to which its operating lists are booked in advance.</p> <p>Cardiff and Vale University Health Board is measuring at six weeks, four weeks and two weeks, the percentage of its planned theatre time is booked up with planned operations.</p> <p>This approach attempts to ensure theatre time is robustly planned.</p>
Cancellations	<p>Data on operations cancelled at short notice is reported to the Welsh Government.</p> <p>Our work found that there is variation across Wales, between health boards and even within health boards, in the way that the reasons for cancellations are categorised. This has made it impossible to robustly compare performance across Wales.</p>

Metric	Details and complications
Turnaround times	<p>Turnaround times refer to the time between one patient having their operation and the next person having theirs. There are differing views across Wales in the timing points for measuring turnaround times. For example, some staff believe turnaround times should consider the time between one patient leaving theatre and the next person entering theatre, whilst others believe it should consider the time between a patient leaving theatre and the next person entering the anaesthetic room.</p> <p>The Delivery Unit focused on turnaround times in its work on orthopaedic theatres but there has been more limited use of this measure in other specialties.</p>
Numbers of cases on lists	<p>Some organisations are attempting to increase their theatre throughput by monitoring and managing the number of patients on each operating list.</p> <p>Some organisations are using historical statistics that have recorded the typical operating times for particular procedures, carried out by particular surgeons.</p> <p>There can be objections to these metrics because it can be argued that they encourage teams to rush their surgery and this can reduce safety levels. The Delivery Unit believes these metrics can be used appropriately when based on knowledge of the timings of procedures for individual surgeons.</p>

Appendix 3 - An example of theatre data being used effectively

The interactive theatres spreadsheet at Betsi Cadwaladr University Health Board promotes comparisons between specialties and allows trend analysis. The spreadsheet was developed following involvement from the Delivery Unit and is designed to be user friendly, accessible by all relevant staff and it covers a wide range of performance indicators at various levels of detail including health board level, specialty level and individual clinician level. Extracts from this spreadsheet are used to inform discussions of theatre performance within the health board. We do not have any evidence of whether or not this approach has contributed to an improvement in performance.



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