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Foreword

It is right that patients and communities should expect health services to be delivered safely, efficiently and effectively. When we published ‘Delivering for Health’ in October 2005 we recognised this and set out not only to improve health and improve the quality of healthcare but also to improve efficiency and increase productivity. By achieving this, the NHS will be able to offer more care to more patients with the resources available to the Service in Scotland.

In many cases the service a patient will receive will involve the Theatre Service, whether scheduled or unscheduled, and will range from highly complex to more routine activity. Such services are delivered by highly skilled healthcare professionals working together to provide high standards of patient care. While theatres form part of a complex system there is evidence that we can achieve further improvement on current performance.

The National Theatres Project Steering Group was set up with this in mind and has looked at how we can improve the patient experience and outcomes and also make better use of theatre resources. I am pleased therefore to introduce this first National Benchmarking Project report which focuses on the National Theatres Project.

The report will be valuable to Boards as they take forward implementation of ‘Delivering for Health’ and in the context of the Planned Care Improvement Programme. The Programme focuses on how Boards can achieve the necessary changes in service, while this report will provide the management tool to guide Boards’ improvement activities and help us achieve Best Value. We need to set ambitious goals, measure progress and deal with issues as they emerge. The setting up of a National Theatres Project Implementation Group will help. But Boards must also look at maximising their own contributions to achieving improved efficiency and increased productivity. I strongly support efforts by the NHS to improve performance in this way.

I appreciate how much is already being achieved in the delivery of Theatre Services and fully recognise that further improvement will only be achieved through the skills, continued drive, effort and teamwork of those involved. I am impressed that this work has been driven and developed by those engaged in delivering Theatre Services and I am very grateful to them for their time and commitment.

I look forward to seeing future reports of the National Benchmarking Project which will help us to identify further strategic and service-focused operational opportunities for efficiency and improvement.

Andy Kerr, MSP
Minister for Health and Community Care
1. Executive Summary

The objective of the National Theatres Project (NTP) is to appropriately treat more patients by using resources more productively and efficiently, thereby achieving Best Value for all. We believe this can by achieved through a process of continuous improvement and by focusing on:

<table>
<thead>
<tr>
<th>Comparability</th>
<th>a consistent approach to data collection and performance management for theatre services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency</td>
<td>managing this limited and expensive resource more efficiently</td>
</tr>
<tr>
<td>Quality</td>
<td>improving patient experience and health outcomes</td>
</tr>
</tbody>
</table>

Expenditure in 2004/05 on theatre services in Scotland was £375m. Around 587,000 procedures were undertaken of which 393,000 were elective, 333,000 were inpatients and 254,000 were day cases.

The theatre service in each Board provides surgical interventions ranging from highly specialised complex activity undertaken in teaching Boards to less specialised work taking place across all theatre services in scheduled and unscheduled theatre time. Emergency cases requiring immediate or urgent intervention within 6 or within 24 hours need a specific allocation of theatre resource either in the form of unscheduled time for a specific consultant in a dedicated emergency theatre, or depending on the time of admission, scheduled emergency time for urgent interventions. Where the intervention can take place days or weeks in advance then this can take place in a scheduled planned session.

These services are delivered by highly skilled healthcare professionals working collaboratively to provide safe, high standards of patient care. The teams include both qualified staff and learners with a wide range of experience and knowledge; medical staff, surgeons, anaesthetists, registered nurses, registered ODPs (Operating Department Practitioners), theatre support workers and other AHPs (Allied Health Professionals).

Within NHSScotland Boards the number of theatres ranges from 1 in island Boards to 50 or more in the larger teaching Board areas.

Currently theatre services are robustly regulated and supported by official bodies including NHS Quality Improvement Scotland (NHS QIS) and the Scottish Medical and Scientific Advisory Committee (SMASAC) which establish national standards and frameworks to audit performance.

Theatres are an integral part of a complex system and cannot be considered in isolation. Team working, both at a local level within the theatres environment, and at corporate/strategic level across the NHS organisation is fundamental to optimise the use of theatre services within the whole system.

Our findings from the work we have undertaken with those responsible for delivering theatre services indicate that we can further improve on current performance by implementation of the recommendations in this report.

We acknowledge the linkages to the work on the Planned Care Programme and the NHSScotland Orthopaedic Plan and have developed our project approach and recommendations in the context of this work.
National Theatres Project Findings:

1. Current available data suggests there is the potential to use theatre services more efficiently by faster throughput of patients resulting in shorter waiting times and reduced overtime costs. We believe there is scope nationally for an initial 10% increase in efficiency with the potential for up to a further 10% improvement. This would equate to a maximum theoretical national efficiency gain in the region of £35m. Additional variable costs would be incurred for any additional cases and the ability of the NHS to release any cost savings will depend on additional factors such as bed availability.

This projected improvement would vary from Board to Board and depend on their current efficiency. (Section 4 and Technical Appendix).

2. We found that the theatre services performance management information used and owned by frontline staff differs across Scotland (5.4,5.5).

Only around half of the Boards in Scotland have real-time systems for theatre information collection, and these do not fully capitalise on the benefits, with only some Boards using regular reporting as part of their performance frameworks. Few Boards regularly report theatre use back to individual session holders (5.6).

A transparent, comprehensive approach to performance management would enable Board Chief Executives and frontline staff to demonstrate proper stewardship of theatre services, provide a basis for developing and improving services, and support staff in their career development and accreditation.

3. NHS Boards do not describe theatre services consistently. For example, different definitions of the theatre session start and finish time are currently in use. There is strong support from the service for the adoption of standard definitions across Scotland. A basis of common principles and understanding will allow prompt identification of areas for improvement (5.2).

4. We found strong support for a balanced scorecard approach to managing performance in theatres. This is an inclusive performance management system that aligns and channels the energy, ability and specific know-how held by staff in the organisation towards achieving strategic goals. Balanced scorecards comprise a suite of measures across different domains (e.g. Finance, Efficiency, Quality) in order to provide a balanced overall view of performance. The practicalities and benefits of this approach have been successfully tested in two pilot sites (5.3).

The currently suggested scorecard measures for Patient/Quality aspects and the Future/Capability dimensions for theatres will need further testing for accuracy and reliability during implementation. These areas will need to be developed to fully reflect the Risk Assessment and Quality Assurance aspects of theatre services.

5. We found wide recognition that theatre services are part of wider planning issues but also found that theatre services are generally not integrated within NHS Boards planning (5.7).
**Executive Summary**

**National Theatres Project Recommendations:**

1. NHS Board Chief Executives’ Group set up a National Theatres Implementation Group (NTIG) to implement the recommendations of this report. NHS Boards to report progress on implementation as part of their Delivery Plans (5.1).

2. NHS Boards implement the newly developed National Theatres Glossary and Definitions from April 2007, with a shadow preparatory phase January to March 2007, to allow like-for-like comparisons for theatre services from Board level to specialty, team and individual clinician level (5.2).

3. NHS Boards adopt the balanced scorecard approach in the management of theatre services and report a set of mandatory measures on a six-monthly basis through NTIG (5.3). Full reporting should commence for the period 1st April to 30th September 2007 with a shadow period from 1st January 2007 to 31st March 2007. Broadly the mandatory measures would be:
   - **Cost:** opportunity cost of unused hours, comparative cost of theatre services
   - **Efficiency:** level of unutilised hours and associated causes, scheduled/unscheduled profile
   - **Patient/Quality:** delays, deaths, cancellations, re-admissions and risk management episodes
   - **Future/Capability:** quality, capture, and use of theatre information, and re-design.

   Reporting of the mandatory measures will be at Board level only, and primarily to support implementation of the findings and recommendations.

4. NHS Boards implement systematic reporting at all levels for theatre services performance. This reporting will include the mandatory indicators as well as supplementary measures determined by local requirements, and should utilise a balanced scorecard approach within the context of existing or planned performance frameworks. In particular, Board level scorecards for reporting in the 2007/08 Accountability Review, and team and individual clinician level scorecards to support the 2007/08 appraisal and job planning process. By using national benchmarks, which can translate into local or personal figures, the service and training contribution of the individual can be recognised (5.7).

5. Agreed actions for improvement should be clearly incorporated within Boards’ corporate plans, operational plans, individual work plans, training plans and job descriptions as appropriate (5.7).

6. NHS Boards and the NTIG develop a Risk Management and Quality Assurance framework for theatre services during 2007/08 commencing with the initial measures suggested in this report (5.3).

7. The National Benchmarking Project Board undertake more work with respect to integrating theatres as part of the whole system in the areas of outpatients and radiology (5.8).

8. An overall national target of 10% efficiency improvement in theatres over two years be adopted by Boards in the context of any whole system constraints, and that Boards include this in their Delivery Plans from 1st April 2007. (N.B. efficiency can mean additional throughput for the same resource or less, or the same throughput through a reduced resource base.)

9. With respect to benchmarking theatre services on a national basis we recommend:
   - A national theatres scorecard is developed and implemented from 1st April 2008 (5.3).
   - Development of benchmarks for high volume individual procedures through National Specialty Advisers commences in 2007 (5.3).
Key Success Factors

Critical to success will be the meaningfulness and rigour of the reporting and accountability mechanism for theatre services. This must take place at all levels of theatre use and theatre management and ensure that any required actions for change are owned and understood by those teams or individuals responsible for delivering change. Where relevant, agreed actions can then be incorporated in the relevant operational or individual work plans/job plans or job descriptions.

We believe there is capacity in NHS Boards to implement the above recommendations but that there may be infrastructure costs for some Boards around the implementation of the Glossary and Definitions.

We believe the recommendations of the NTP must be underpinned by:

- strong leadership in theatre services
- the development and maintenance of a learning culture
- appropriate use of “fit for purpose” information technology.

The leaders of theatre services will need to create an environment in which improvement is viewed as a strategic priority, and is a core activity of all staff.
2. Strategic Overview

The management of theatre services does not sit in isolation and should be part of the NHS in Scotland’s overarching strategic plans and supporting operational plans. Theatre management therefore must be considered in short term (one year), medium term (two to four years) and long term (five years) planning horizons, and fully integrated with other planning objectives.

The strategy map below shows an overview of the strategic context of theatre management and the key factors required for effective delivery and sustained improvement. It is also critical that all these factors are aligned on a timely basis to achieve successful outcomes and to respond to dynamic change.

Management of theatres is ultimately the responsibility of each Health Board’s Chief Executive and Board, and will be supported by a framework encompassing the above components.
3. Project Principles, Objectives and Approach

The principal objective of the National Theatres Project is to increase annual throughput in theatres in Scotland and improve the patient experience and health outcomes in NHSScotland by using a comparative approach to performance management.

The National Theatres Project Steering Group undertook the following activities commencing in October 2004 in support of the above objective:

1. Scoping the benefits/practicalities for continuous improvement in theatre services
2. Reviewing currently available baseline data
3. Developing national definitions, glossary and data fields
4. Identifying outputs/outcomes for patient focus and clinical governance
5. Developing a system specification for a national IT package
6. Identifying material levers for change and efficiency improvement
7. Agreeing an action plan, timetable and ownership.

These actions were set out to achieve continuous improvement in theatres through the use and development of local and national infrastructures which:

- enable the identification of the cause and effect behind significant performance variances
- establish a common understanding of how change can be achieved
- establish pathways to achieve practical improvements.

A balanced scorecard approach was adopted as this is an inclusive methodology that aligns and channels the energy, ability and specific know-how held by staff in the organisation towards achieving strategic goals. Balanced scorecards comprise a suite of measures across different domains (e.g. Finance, Efficiency, Quality) in order to provide a balanced overall view of performance.

Principles of the balanced scorecard

- a strategic management and measurement system that links strategic objectives to comprehensive indicators
- a unified, integrated set of indicators that measure key activities and processes at the core of an organisation’s operational environment
- takes into account a combination of “hard” financial measures and “soft” quantifiable operational measures
- these can include: patient, internal, and innovation and learning perspectives
- using the different categories provides a rounded balanced scorecard that reflects organisation performance more accurately
- helps managers focus on their mission
- helps motivate staff to achieve the strategic objectives
4. Project Work Undertaken

Work undertaken to date encompasses:

- a review of existing nationally held data
- development of a national Glossary and Definitions
- agreement of the data points required to support the management of theatre services
- piloting a balanced scorecard implementation
- an assessment of Board theatre information and management capability.

Existing National Data

Some national information is available (principally from the Scottish Health Service Costs Book), but provides insufficient detail. Moreover it is unavailable in anything near real-time and requires ad hoc analysis. Combining cost data with activity data has allowed a number of high-level national metrics to be derived which illustrate the variability in performance across Boards.

<table>
<thead>
<tr>
<th>Case-Mix Adjusted Throughput per Theatre</th>
<th>Number of Theatres</th>
<th>Theatre Hours Used per Week</th>
<th>Percentage Utilisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argyll and Clyde</td>
<td>990</td>
<td>985</td>
<td>24</td>
</tr>
<tr>
<td>Ayrshire and Arran</td>
<td>1,259</td>
<td>1,239</td>
<td>22</td>
</tr>
<tr>
<td>Borders</td>
<td>1,027</td>
<td>1,050</td>
<td>6</td>
</tr>
<tr>
<td>Dumfries and Galloway</td>
<td>946</td>
<td>878</td>
<td>9</td>
</tr>
<tr>
<td>Fife</td>
<td>931</td>
<td>1,069</td>
<td>21</td>
</tr>
<tr>
<td>Forth Valley</td>
<td>987</td>
<td>943</td>
<td>15</td>
</tr>
<tr>
<td>Grampian</td>
<td>1,816</td>
<td>1,699</td>
<td>25</td>
</tr>
<tr>
<td>Greater Glasgow</td>
<td>1,400</td>
<td>1,181</td>
<td>73</td>
</tr>
<tr>
<td>Highland</td>
<td>1,427</td>
<td>1,655</td>
<td>12</td>
</tr>
<tr>
<td>Lanarkshire</td>
<td>1,159</td>
<td>1,187</td>
<td>27</td>
</tr>
<tr>
<td>Lothian</td>
<td>1,242</td>
<td>1,344</td>
<td>50</td>
</tr>
<tr>
<td>Orkney</td>
<td>625</td>
<td>625</td>
<td>1</td>
</tr>
<tr>
<td>Shetland</td>
<td>364</td>
<td>467</td>
<td>2</td>
</tr>
<tr>
<td>Tayside</td>
<td>1,035</td>
<td>1,019</td>
<td>29</td>
</tr>
<tr>
<td>Western Isles</td>
<td>1,562</td>
<td>1,562</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,234</td>
<td>1,206</td>
<td>316</td>
</tr>
</tbody>
</table>

Note: the percentage utilisation is based on an assumed 41 hours per week – the Audit Commission definition of a well-used suite of seven theatres servicing both elective and non-elective demand.
National Theatre Glossary and Definitions

A draft Glossary and Definitions has been produced in conjunction with the Service. Where there was already agreement from existing national bodies on specific definitions, these were incorporated. Where no such agreement existed, definitions were agreed by a wide group of theatre services users and where necessary amended following consultation (national events and Board visits).

This draft has been progressed through the National Clinical Dataset Development Programme Board and has been subject to a full formal consultation process with a view to implementation in 2007.

We propose that the best way to describe theatre service activity is to define the locus and the hospital site in which OPCS4 (or SNOMED 3 in the future) coded procedures take place. Four loci have been identified:

1) Operating theatre
2) Satellite theatre
3) Specialist areas – cardiology, radiology, endoscopy suites
4) Other – wards/ITU/A&E/outpatients.

Data Points

A National Data Points Day was held in August 2005 with stakeholders from across the Service to determine the information required in order to manage theatres effectively. A theatre services balanced scorecard which covers strategic and operational indicators was produced from the output of the day. This scorecard has been subsequently refined and further developed with a focus on patient outcomes and clinical governance matters with a wide range of Service input from across Scotland.

Scorecard Pilots

Following development of the balanced scorecard, two pilot implementations tested:

- The use of the balanced scorecard to monitor and manage continuous improvement in theatres
- Accountability and responsibility structures to achieve ownership and control of theatre capacity and improvement in theatre services.

The reports enclosed in the Technical Appendix were used to support this process. The key findings from the pilot projects were:

- Theatres represent one aspect of the patient pathway. Decisions in related parts of the system have a major impact on the ability of theatres to perform effectively. Planning of theatre activities must be undertaken in the context of wider corporate planning activities.
- It is possible for individual theatre management teams to identify poor utilisation of resources, but without recognition of accountability at both senior managerial and individual clinician level, it is impossible to effect significant change.
- The Glossary and Definitions were deemed to be vital in the support of effective clinical governance as well as effective corporate governance in theatres.
- In order to measure and report performance effectively real-time systems are required.
- The comparative information provided an evidence base for issues around efficiency and performance which in some cases had hitherto been anecdotal.
- Staff understanding of objectives and transparency around the use of information was fundamental to the effectiveness of the process.
- In order to complete the profile of theatre management, it is necessary to have access to data which is not readily measured by a theatres IT system, e.g. complaints, risk management episodes and patient satisfaction levels.
- In one Board, staff found the pilot activities and reporting useful in their concurrent implementation of a new Theatres Management System, and also advised that the suggested measures would be useful in their day-to-day work.
**Capability Scoping**

During March to July 2006 visits were made to all mainland Health Boards. The purpose of these was to:

- carry out a detailed assessment of currently available local theatres information
- evaluate existing theatres system implementations
- validate and assess nationally collected theatres data
- seek Board input to the National Theatres Project and balanced scorecard development
- communicate the purpose and objectives of the National Theatres Project to Health Boards and interested staff.

The key findings of the capability scoping are detailed below:

- There are issues over the quality of the nationally collected theatres information published in the Cost Book. Concerns primarily relate to consistency of definitions and lack of liaison with Finance over sourcing and validation of the figures produced.

- Boards across Scotland are moving towards real-time theatres information capture via a variety of Theatre Management Systems, with several Boards implementing systems in recent months. There are however still a number of mainland and island Boards which do not yet have systems. Six different commercial products are currently in use as well as several in-house applications.

- There are big differences in the nature and level of theatres performance reporting between Boards. This can vary from Boards where regular performance reporting is not undertaken, to Boards where reports covering a range of key indicators are circulated widely around theatre users and managers. Reporting typically covers: utilisation, cancelled sessions, patient cancellations, theatre activity, over-runs, under-runs, and late starts. Few Boards report theatre services activity at the level of the individual.

- Few differences were found between the proposed Glossary and Definitions and current Board practice. The two main exceptions being list finish time and operating time. Much of the dataset required to generate the scorecard is readily available from existing Theatre Management Systems.

- Use of theatres information to support capacity planning and operations management varies widely between Boards, often constrained by the theatres information available, and often restricted to *ad hoc* analyses for specific purposes. The need to improve capability and awareness in this area was generally recognised.

- Whilst Boards recognise the impact of whole system influences on theatre performance, this is an area receiving limited attention often of an *ad hoc* nature. Again there is wide variety in the approaches taken by Boards.
5. Findings and Recommendations – Full

5.1 Implementation

We recommend the formation of a National Theatres Implementation Group (NTIG) led by a Chief Operating Officer reporting to Board Chief Executives to manage and monitor the implementation of the detailed recommendations in this section of the report.

5.2 National Theatres Glossary and Definitions

Measuring and managing activities for theatre services requires consistent definitions and descriptions of activities. Improvement in the consistency of data fields and definitions needs to be achieved to allow a common understanding of activities and to allow valid comparisons.

There is strong support for a National Theatres Glossary and Definitions. All current theatre system implementations should have the capability of accommodating these, but for some costs may be involved. This potential cost has not been quantified.

Recommendation

We recommend NHS Boards implement the National Theatres Glossary and Definitions from 1st April 2007 with a shadow preparatory phase from 1st January 2007 to 31st March 2007.

5.3 Balanced scorecard approach to improvement

We found strong support for a balanced scorecard approach. Within the delivery of theatre services, quality is a key issue and it is necessary to ensure that improved efficiency is not at the expense of the quality of patient care. The balanced scorecard approach supports this requirement and to ensure the approach is fully effective, additional work has been undertaken around the dimensions on Patient/Quality and Future/Capability.

We believe that the introduction of different levels of scorecard from a national scorecard to a personal scorecard to inform the appraisal process will encourage relevant data capture and quality at all levels. The introduction of a limited but uniform and relevant balanced scorecard (made up of a number of performance indicators) will help ensure that nationally all units aspire to the same high standards as the best. The intermediate scorecards can be seen as a management tool to identify and resolve local areas of concern early and in some detail. More information on the different levels of scorecard can be found in the Technical Appendix.

We consulted with the Service at a Theatres Focus Day in June 2006, attended by stakeholders from across the Service, and held workshops on quality issues. The suggested measures for Patient/Quality and Future/Capability will require further testing as part of the National Theatres Project implementation.

Recommendations

Boards are asked to refine the full scorecard (page 14) and develop different levels of scorecard as appropriate, within the context of existing or planned performance frameworks, to reflect local priorities for improvement and use these to manage theatre services locally. Scorecards should be available at Board level to inform the 2007/08 Accountability Review and at team and individual level to support the 2007/08 appraisal and job planning process.

We recommend that a subset of the full scorecard be adopted on a mandatory basis and that these indicators are reviewed on a national basis at six-monthly intervals through the NTIG, with implementation progress forming part of Boards’ Delivery Plans. Definitions of the mandatory measures are detailed in the Technical Appendix. It is proposed that national reporting of these should be at Board level and is primarily to support implementation of the recommendations and findings.
### Initial Mandatory Indicators

<table>
<thead>
<tr>
<th><strong>Financial</strong></th>
<th><strong>Patient/Quality</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunity cost of unused hours</td>
<td>Risk management episodes</td>
</tr>
<tr>
<td>Comparative cost of theatres activity</td>
<td>Surgical re-admissions</td>
</tr>
<tr>
<td></td>
<td>Theatre delays</td>
</tr>
<tr>
<td></td>
<td>Cancellations</td>
</tr>
<tr>
<td></td>
<td>Deaths/10,000 patients</td>
</tr>
<tr>
<td></td>
<td>% emergency procedures at night</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Efficiency</strong></th>
<th><strong>Future/Capability</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unutilised hours/Allocated hours</td>
<td>Information quality</td>
</tr>
<tr>
<td>Over-runs/Allocated hours</td>
<td>% dataset captured</td>
</tr>
<tr>
<td>Under-runs/Allocated hours</td>
<td>Use of theatres information</td>
</tr>
<tr>
<td>Procedural time/Actual hours</td>
<td>Development of new ways of working</td>
</tr>
<tr>
<td>Operative time/Allocated hours</td>
<td></td>
</tr>
<tr>
<td>% cancelled sessions</td>
<td></td>
</tr>
<tr>
<td>Late start hours/Allocated hours</td>
<td></td>
</tr>
<tr>
<td>% emergency cases in planned sessions</td>
<td></td>
</tr>
</tbody>
</table>

At present there is no clear risk management episode methodology and reporting, and this should be a key national priority for development. There is clear evidence that high levels of reporting result in fewer serious episodes.

The NTIG will:

- Review the mandatory indicators submitted by Boards
- Draw up an implementation plan to support the capture and development of additional Patient/Quality and Future/Capability indicators
- Develop the integration of Quality Assurance and Risk Management in theatre management
- Recommend a national theatres scorecard for implementation in 2008
- Obtain relevant benchmarks for specific procedures.
### National Theatres Project – Balanced Scorecard – as at 3rd October 2006

#### Financial

**National**
- Cost of idle capacity
- Direct cost per case (case-mix adjusted)
- Total cost per head population (adjusted for cross-boundary flow) and by theatre level

**Local**
- Financial measures are currently thought to be less useful at local level

#### Patient/Quality

**National**
- Deaths
- Cancellations

**Local**
- Cancellations
- Complaints
- Resource unavailability
- Deaths
- Critical care
- Time in recovery
- Risk management episodes
- Length of stay outliers
- Surgical re-admissions
- Waiting list efficiency ratio
- Theatre delays
- Re-operation within the same admission
- Sickness absence
- % emergency procedures at night

#### Efficiency

**National**
- Surgical theatre hours
- Anaesthetic theatre hours
- Downtime
- Utilisation
- Case-mix adjusted throughput
- Elective/non-elective mix

**Local**
- Available theatre time
- Allocated theatre hours
- Actual theatre hours
- Procedural theatre hours
- Surgical theatre hours
- Anaesthetic theatre hours
- Turnover time
- Case-mix adjusted throughput
- Elective/non-elective mix
- Over-runs
- Under-runs
- Late starts
- Cancelled sessions
- Delayed discharges (from Recovery)

#### Future/ Capability

**National**
- Information capture

**Local**
- Theatre staff compliance ratio
- Development of new ways of working
- PDPs (learning/development)
- Utilisation of theatre information
- Level of dataset capture
- Role within capacity planning
- Level of supervised training procedures
- Level of unsupervised training procedures
5.4 National Data

We found national data was generally considered not to be an accurate representation of the costs and activities by those responsible for theatre services. However, in a number of cases the national data was considered to be a reasonable reflection at a high level of the costs and activities of theatre services at Board level.

This high level national data indicated apparent wide variability in performance.

In order to improve the completeness, relevance, reliability, accuracy, validity and ownership of national data at all levels of the Service, action must be taken to harness frontline knowledge and experience of theatres information prior to submission. This will improve the alignment of understanding around strategic and operational performance.

**Recommendation**

We recommend:

- Submissions of national data should be reviewed and signed off by those responsible for theatres prior to submission
- Definitions in the Health Services Costs Book should be updated to be consistent with the national Glossary and Definitions.

5.5 Local Data

Good quality data is required for the effective management of theatres. We found that the level of assurance around local data quality (completeness, consistency, relevance reliability and validity) varied.

We anticipate that the regular use of theatre data to support the planning and performance management for theatre services as suggested in this report will in itself be a key driver which leads to improvement in the quality of information.

**Recommendation**

With respect to improving the quality of the detail of the data, Boards are asked to review and improve as necessary:

- System checks (e.g. input checks, range and reasonableness checks, control totals and reconciliation of outputs)
- Management review of data (review of outputs and reports)
- Review of information by individual users.

The National Theatres Implementation Group will manage and monitor progress through the development of the information quality national mandatory indicator.

5.6 Information Systems

Availability and effective use of appropriate management information on a real-time basis is critical to support the operational and strategic management of the theatre services resource.

Around half of Boards have existing real-time system implementations but there is wide variability in the systems’ flexibility to produce reports and interact with other hospital systems.

**Recommendation**

We recommend NHS Boards:

- take appropriate steps to ensure their theatre systems have appropriate support from the supplier or the IT function at the Board to integrate IT systems to facilitate data access, analysis, and performance reporting
- implement and maintain rigorous data collection and monitoring systems which attain the minimum data set required.
5.7 Continuous Improvement

We found that in some Boards theatre service information tends to be used only on an ad hoc basis. Varying levels of staff awareness around the role and contribution of information in the management of theatres was evident from both the pilots and the capability visits.

A key benefit from the development and exploitation of better comparative information is to improve understanding of the patient’s health journey and the “cause and effect” behind differences in performance within theatres and within the health system as a whole. This facilitates both strategic and operational planning.

We recognise that the teams of staff in theatres are already providing a high level of efficient high quality care, however, staff themselves recognise there are opportunities for further improvement.

It is envisaged that identification and adoption of best practice will be facilitated by the network and dialogue developed through NTIG.

Recommendations

With respect to accountability and responsibility:

- NHS Boards should show implementation of a structured approach to reporting performance and actioning improvement in theatre services in the context of their wider improvement agenda by April 2008.

- Performance should be reported at theatres directorate level, by specialty, team, and by individual clinician using different levels of scorecard, within the context of existing or planned performance frameworks, and placing the data in a local/national context. This should be in place by the end of 2007/08.

- Accountability frameworks for theatre services, both national and local, to the level of the individual should ensure that the steps to achieve improvement are owned and understood by those who have the control and responsibility to achieve change successfully.

- Any changes agreed should be incorporated into work plans/job plans, training plans or job descriptions as appropriate.

With respect to performance reporting:

- Boards will be expected to report nationally at six-monthly intervals using the mandatory indicators for activity within main and satellite theatres (operating room types 1 and 2 detailed in Section 4).

- Where Boards have theatre systems these mandatory indicators should be collected and submitted to the NTIG for the shadow period 1st January 2007 to 31st March 2007 and fully from 1st April 2007.

- Where Boards do not have computerised systems or where significant system enhancement is required, submission of the full set of data should commence from 1st October 2007. A subset of the mandatory national measures can be agreed with the NTIG for the shadow period 1st April 2007 to 30th September 2007.

- Boards will be expected to report locally at directorate level at a minimum of quarterly intervals.

- The reasons behind differences (cause and effect) should be investigated and actioned.

With respect to future improvement:

- Boards are asked to initially focus on ophthalmology and orthopaedics. However, it is expected that Boards will cover all specialties where is a requirement for change or which form a material part of their theatre services activity.

- Training future clinicians and theatre staff is key to the future capability of the Health Service but also has a potential effect on patient throughput. It is therefore essential that the level of training is reported for both these reasons. Training measures will be developed for this purpose.

- NHS Boards and providers must ensure that both managerial and frontline staff are supported in developing improvement skills to identify and implement the necessary changes.
5.8 Theatres Within the Whole System

Improvement in theatres cannot be considered in isolation, it is just one aspect in the system to improve outcomes for patients. Consequently, a whole system approach is required. Theatre management impacts on, and is impacted by, many other aspects within the healthcare system. This principle has been confirmed during the various stages of the project by those responsible and accountable for activities in theatres.

The theatres balanced scorecard (page 14) developed in partnership with the service has been designed to take into account some of the key interdependencies with related parts of the system in order to ensure that these important links are made on an ongoing basis as part of theatre services management.

**Recommendation**

We recommend The National Benchmarking Project Board undertake further work in the areas of diagnostics and outpatients as part of their work on the whole system.

Setting our patients expectations and goals, together with the technical preparation and assessment process prior to operation, is the key to optimal outcomes, efficient services and greater satisfaction. Pre-operative patient assessment facilities are well developed in other healthcare systems. They ensure that patients are informed and properly consented both for the individual procedure and the anaesthetic techniques involved. Using evidence-based assessment of the patient’s fitness for surgery and the subsequent optimisation of the patient’s general condition, specific measures to reduce the risks of surgery can be used. By addressing the patient’s information needs, familiarisation with the hospital environment, and defining the systems expectations of the patient, satisfaction scores can be improved. Properly developed screening for infective risk and the collation of appropriate protocol and needs-based investigation results in fewer late cancellations and improved theatre utilisation. Critical care bed use can be better anticipated and resource also more appropriately focused. Appropriately bundled this is all achievable as part of a one-stop service.

Pre-admission encompasses patient satisfaction, safety, evidence-based practice, and the efficient use of operating theatres, thus reducing late cancellations and complications, and improving the patient’s experience of the NHS.

We suggest that further work is undertaken in this area to achieve continuous improvement and the communication of Best Practice.

We acknowledge the linkages to the work on the Planned Care Programme and the NHSScotland Orthopaedic Plan and have specifically addressed key relationships such as day surgery and case-mix comparisons.
6. National Theatres Project Steering Group Membership

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