

## About Monitor

As the sector regulator for health services in England, our job is to make the health sector work better for patients. As well as making sure that independent NHS foundation trusts are well led so that they can deliver quality care on a sustainable basis, we make sure: essential services are maintained if a provider gets into serious difficulties; the NHS payment system promotes quality and efficiency; and patients do not lose out through restrictions on their rights to make choices, through poor purchasing on their behalf, or through inappropriate anti-competitive behaviour by providers or commissioners.

## Foreword

NHS providers are under unprecedented pressure to meet greater demand within constrained budgets while at the same time improving the quality of patient care. Realising available opportunities to improve productivity in resource-hungry care pathways could relieve at least some of that pressure.

This report aims to help NHS providers identify such opportunities. It scrutinises a group of ophthalmic and orthopaedic elective care providers at home and abroad selected for their strong performance on quality and cost metrics. The report pinpoints what these providers do differently, so others can follow their lead.

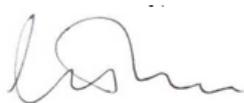
A result of close collaboration with service providers, the report and its detailed appendices describe where and how elective teams can concentrate their efforts to maximise quality and efficiency, from first consultation to postoperative follow-up. The results include benefits for patients, such as shorter hospital stays.

Research for the report showed wide variation in performance between NHS providers at every stage of each care pathway, specifically in staff costs, overhead costs and number of appointments.

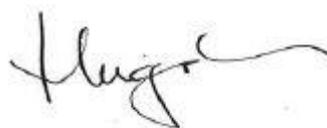
From our standpoint, this variation is a cause for optimism as it indicates the scale of achievable productivity gains available to NHS providers now: if every NHS provider followed the good operational practices adopted by the highest performers at each stage of their elective ophthalmology and orthopaedic care pathways, they could save 13% to 20% of today's spending on planned care in these two specialties. This view is shared with Monitor by the Royal College of Ophthalmologists, the British Orthopaedic Association and the hospital clinicians, directors and operational managers who co-developed this report.

Moreover, the techniques which make processes more efficient in ophthalmology and orthopaedics can be applied to other elective care pathways and probably yield the same scale of productivity gains.

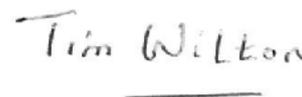
Lastly, most of the techniques to increase productivity that the report describes, such as stratifying patients by risk and standardising postoperative care, will be well known to readers. But even today's most efficient providers have not put all the critical techniques in place. There is an opportunity for all to improve.



Professor Caroline MacEwen  
President  
The Royal College of  
Ophthalmologists



Professor Hugo Mascie-Taylor  
Medical Director  
Patient and Clinical Engagement  
Monitor



Mr Tim Wilton  
President  
British Orthopaedic  
Association

## Contents

Foreword.....	3
Summary .....	5
1. Approach .....	10
2. Improving productivity in elective care pathways.....	13
2.1. Levers for improving the productivity of elective care .....	13
2.2. Potential productivity improvements in NHS elective care.....	17
2.3. Good practices with most potential for improving productivity .....	19
3. Local changes to enable more productive elective care .....	21
4. Next steps: Supporting the development of local elective care strategies.....	22
Appendices (supplied separately) .....	25

## Summary

### Purpose of this project

Elective care services across England are under pressure to do more with less. Their costs are increasing and demand is growing. Similar pressures affect all NHS care: they are the source of the £30 billion gap between NHS funding and the projected costs of care in 2021 that the NHS Five Year Forward View highlights and new care models seek to address. But they affect elective care in particular because of its share of the costs and activity of NHS providers. Elective care accounts for around 18% of providers' total annual expenditure, rising to over 30% if outpatient spend is included.<sup>1</sup> It represents 34% of activity in acute specialist trusts, 23% in acute teaching trusts and 21% in district general hospitals.<sup>2</sup>

For these reasons, improving productivity in elective care is critical for NHS providers. Improving productivity does not mean simple cost cutting: it means increasing the efficiency of elective care while at the same time improving or maintaining its quality. Cost cutting at the expense of quality therefore does not count as a productivity gain. By the same token, making operational improvements that reduce costs and improve service quality at the same time can achieve really substantial gains in productivity. Any efficiency savings will contribute to protecting patient services.

Monitor has produced this report to help NHS providers make improvements in the productivity of elective care. The report concentrates on potential improvements in the operational management of elective patient pathways within the direct control of NHS providers and identifies a mechanism whereby clinicians and managers can work together to maximise provision of care. It draws on procedure-level research in the two largest elective specialties – orthopaedics and ophthalmology – which together account for around 30% of total expenditure on elective admitted patient care.<sup>3</sup>

Our aim was to identify currently productive elective care pathways in NHS and international hospitals, to understand the practices that drive higher productivity, to calculate the potential efficiency improvements from introducing those practices

---

<sup>1</sup> The 18% figure includes elective inpatient care (excluding excess bed days), elective day case and outpatient procedures. It does not include outpatient consultations (the figure rises to £18 billion or 31% of the total if all outpatient spending is included). National schedule of Reference Costs, 2013/14, NHS trusts and NHS foundation trusts, Department of Health. Available from: [www.gov.uk/government/publications/nhs-reference-costs-2013-to-2014](http://www.gov.uk/government/publications/nhs-reference-costs-2013-to-2014) Accessed 22 June 2015

<sup>2</sup> NHS England, allocations for 2013/14. Available from: [www.england.nhs.uk/allocations-2013-14/](http://www.england.nhs.uk/allocations-2013-14/) Accessed 22 June 2015

<sup>3</sup> If outpatient consultations are included, the proportions rise to 52% for acute specialist trusts, 41% for acute teaching trusts and 37% for district general hospitals (defined as all other acute trusts). Reference Costs organisation-level data, 2013/14, Department of Health. Available from: [www.gov.uk/government/publications/nhs-reference-costs-2013-to-2014](http://www.gov.uk/government/publications/nhs-reference-costs-2013-to-2014) Accessed 22 June 2015

across the NHS and to provide detailed evidence from case studies to help providers introduce or refine those practices. This research was 'co-developed' by hospital clinicians, directors and operational managers from eight NHS providers and alongside two professional clinical bodies, the Royal College of Ophthalmologists and the British Orthopaedic Association. For each step of the elective patient pathway (from first outpatient appointment to discharge), we looked at the number of patient contacts, the staff costs per contact and the overhead costs per contact. As these data are not available from national or international datasets, we collected local data from the eight NHS providers acting as co-development sites, as well as five international hospitals.

This work seeks to support the work planned by Lord Carter of Coles's team into hospital efficiency and the 'model hospital' programme.

## Main findings

The following findings from the research were validated by operational clinical teams and board members at our co-development sites.

1. **NHS trusts could achieve 13% to 20% productivity gains from today's spending on elective ophthalmology and orthopaedic care** if they all adopt the nine good practices reviewed in this report. These good practices are not currently applied universally.
2. **The scale of these potential productivity gains stems from the degree of variation in operational performance at a procedure level across the NHS.** NHS providers delivering ophthalmology and orthopaedic elective care procedures vary considerably in their staff and overhead costs per patient and number of patient contacts at each stage of the elective care pathway.
3. **The potential productivity gains this report identifies can likely be made for routine elective procedures in specialties beyond orthopaedics and ophthalmology.** We are confident of this finding for two main reasons:
  - a. The efficiencies identified relate to changes to general aspects of care delivery (described in detail in [Appendix A](#)) that could be applied to all procedures. These include changes to: organisation of preadmission assessments and consultations; organisation of activities on the day of admission; approach to scheduling and staffing of theatres; approach to length of stay and discharge preparedness; and organisation of routine follow-ups post discharge. The efficiency opportunity with the largest financial potential is to be gained from reducing length of stay.
  - b. The efficiencies found across all the procedures analysed for two specialties were consistently in the same range (13% to 20%), suggesting this range is currently broadly typical for general elective care procedures both within and between organisations.

4. **Focusing on five of the nine good practices reviewed will realise most of the potential productivity gain** in elective care available to NHS hospitals.<sup>4</sup>  
These five practices are:
  - a. stratifying patients by risk and creating low-complexity pathways for lower-risk patients
  - b. extending clinical roles to enable lower-grade staff to undertake routine tasks in theatre or outpatients usually performed by consultants
  - c. increasing throughput in theatres by explicitly measuring, communicating and managing the number of procedures per theatre session
  - d. implementing enhanced and rapid recovery practices to reduce length of stay
  - e. providing virtual follow-up for uncomplicated patients.
5. **No single service model or organisation – nationally or internationally – yet excels in all five practices**, although a larger sample size is required to confirm this finding. Where providers compared favourably in some practices, they compared less favourably in others.
6. **A single set of supporting conditions does help to improve productivity.** Clinicians and managers at our co-development sites saw putting these supporting conditions in place as fundamental for improving productivity. The conditions are:
  - a. **Standardised pathways and protocols.** These clarify which tasks should be done and by whom, so individuals can be held to account for particular tasks. Standardisation can also help identify opportunities to extend a staff member's role.
  - b. **Effective performance management systems.** These support active, real-time analysis and provide evidence for performance review discussions. They can be used for self-monitoring and peer benchmarking such as reviewing consultant-level performance.
  - c. **Visible leaders accountable for continuous improvement** from board to ward. Leaders of elective care pathways are held to account for making measurable improvements in productivity. They achieve continuous improvement by proactively comparing their unit's productivity metrics against those of national and international peers to identify and implement

---

<sup>4</sup> We acknowledge the implementation of these five levers will involve challenges and risks. Change must be implemented through specialty-led quality assurance/improvement at trust level with assistance from supportive management.

more efficient and effective ways of working. They also recognise the importance in their improvement work of effective clinical engagement and praise their teams for initiatives that improve quality and productivity.

- d. Adapted staff contracts.** These support implementation of a good practice care pathway. Some sites involved in this research had developed extended or specialist roles for junior staff to include routine work currently performed by consultant surgeons or anaesthetists.
- e. Efforts to engage patient and families in their own care.** Evidence shows that educating and informing patients about their care helps them to leave hospital sooner.

### Findings build on earlier work

This is not the first time that a national initiative has looked at improving productivity in elective care. Earlier projects include High Impact Changes<sup>5</sup> in 2004 and the Productive Operating Theatre<sup>6</sup> in 2010. In addition, there have been important specialty initiatives, notably Action on Cataracts<sup>7</sup> and Getting It Right First Time (GIRFT),<sup>8</sup> which this report seeks to support and complement.

Our work adds to these initiatives in four main ways:

- a. We have collected new procedure-level data on a number of metrics that are not routinely measured and which have a significant impact on the overall costs of care. These include the size and skill mix of theatre teams, output per time-defined theatre session and outpatient appointments (pre and post surgery) per procedure.
- b. We have included international benchmarks for comparison with NHS data and developed case studies of productive elective care pathways from overseas. These benchmarks and case studies can provide an element of 'stretch' for NHS benchmarking and contribute to efforts to design new models of elective care in the NHS.
- c. The level of co-development between Monitor, staff at the eight selected NHS sites and the professional bodies involved has led to a shared view of achievable levels of productivity improvement in NHS elective care, as noted

---

<sup>5</sup> Available from:

[www.skane.se/Upload/Webbplatser/Uvecklingscentrum/dokument/10%20bra%20punkter%20NH S1.pdf](http://www.skane.se/Upload/Webbplatser/Uvecklingscentrum/dokument/10%20bra%20punkter%20NH S1.pdf)

<sup>6</sup> Further information on the Productive Operating Theatre can be found at:

[www.institute.nhs.uk/quality\\_and\\_value/productivity\\_series/the\\_productive\\_operating\\_theatre.html](http://www.institute.nhs.uk/quality_and_value/productivity_series/the_productive_operating_theatre.html)

<sup>7</sup> [www.rcophth.ac.uk/wp-content/uploads/2015/03/Action-on-cataracts-Jan-2000-dh\\_4014514.pdf](http://www.rcophth.ac.uk/wp-content/uploads/2015/03/Action-on-cataracts-Jan-2000-dh_4014514.pdf)

<sup>8</sup> Professor Tim Briggs, *Getting It Right First Time: A national review of adult elective orthopaedic services in England*, British Orthopaedic Association, 2015. [www.gettingitrightfirsttime.com/](http://www.gettingitrightfirsttime.com/) Accessed 22 June 2015.

above. The eight co-development sites were selected because they are regarded as delivering high quality care by the Royal College of Ophthalmologists and the British Orthopaedic Association.

- d. We have provided specific, detailed and practical evidence and advice in the appendices to this report to help NHS trusts and foundation trusts introduce or refine the good practices the report identifies.

The rest of this report explains:

- our approach to developing the report's findings and recommendations
- nine practices or levers identified for improving productivity in an elective care pathway within a provider, from first specialist input to postoperative inpatient and outpatient care
- local changes to enable more productive elective care
- our proposed next steps for supporting the development of local elective care strategies.

We are publishing four appendices to this summary report to support clinical teams making operational improvements in elective care:

- a detailed description of the improvement levers for increasing productivity in elective care in [Appendix A](#)
- a set of detailed international case studies in [Appendix B](#)
- a set of national good practice case studies in [Appendix C](#)
- a summary of our financial model and the productivity metrics used to generate our calculations in [Appendix D](#).

## 1. Approach

To understand in detail the opportunities for improving elective care, Monitor co-developed the project with eight trusts that provided local data, validated the research and helped shape the recommendations. In addition to these co-development sites, we collected insights from five international sites<sup>9</sup> that provided examples of good and interesting practice in orthopaedics and ophthalmology.

The NHS co-development sites were chosen to represent a range of provider types in the NHS – large teaching hospitals, small district general hospitals and specialist centres – and to reflect current good practice.<sup>10</sup> They are:

- The Newcastle upon Tyne Hospitals NHS Foundation Trust
- The Robert Jones and Agnes Hunt Orthopaedic Hospital NHS Foundation Trust
- City Hospitals Sunderland NHS Foundation Trust
- Moorfields Eye Hospital NHS Foundation Trust
- South West London Elective Orthopaedic Centre (Kingston Hospital NHS Foundation Trust)
- Royal Devon and Exeter NHS Foundation Trust
- The Royal Orthopaedic Hospital NHS Foundation Trust
- Worcester Acute Hospitals NHS Trust.

The reviewed international hospitals were chosen for their clinical excellence, commitment to participate in the project and cultural and contextual fit. These features were critical to ensuring that any lessons learned from them could be applied by NHS teams. They comprise:

- Cleveland Clinic Rheumatological Institute and Cole Eye Clinic (USA)
- Coxa Hospital for Joint Replacement (Finland)
- Alfred Health (Australia)
- Capio (Sweden)

---

<sup>9</sup> As part of the development of our work programme to help NHS providers improve productivity in elective care, we externally commissioned this review of international high value elective care models. The intention was to identify what's possible for the NHS and to provide a new level of aspiration for NHS providers.

<sup>10</sup> The leadership of the Royal College of Ophthalmologists and the GIRFT project were asked to suggest and review proposals for trusts representing current good clinical practice in the NHS.

- Emory University Orthopaedics and Spine Hospital (USA).

The research for this report was undertaken in partnership with the NHS Trust Development Authority, Royal College of Ophthalmologists, British Orthopaedic Association and GIRFT.<sup>11</sup>

For each of the co-development sites and international hospitals, we carried out a detailed analysis of the patient pathways for six procedures in four general categories of activity that are common to elective care pathways:

#### 1. **Outpatient procedures** (ophthalmology)

- injections for wet age-related macular degeneration (AMD)

Main sources of efficiency include: reduced costs per appointment due to increased number of patients; lower staff costs per appointment; lower overhead costs per appointment due to extended opening hours.

#### 2. **Day case procedures** (ophthalmology)

- cataract surgery

Main sources of efficiency include: lower number of outpatient appointments pre surgery; reduced costs per procedure due to increased number of cases per theatre list; lower overhead costs per procedure due to extended hours.

#### 3. **Straightforward inpatient procedures** (orthopaedics)

- primary total knee replacements
- primary total hip replacements

Main sources of efficiency include: decreased volume of outpatient appointments per procedure; increased theatre throughput; lower staff costs per procedure in theatre; reduction in postoperative length of stay; reduced number of readmissions.

#### 4. **Complex inpatient procedures** (orthopaedics)

- revisions to total knee replacements
- revisions to total hip replacements

Main sources of efficiency include: same as for simple inpatient procedures.

---

<sup>11</sup> Professor Tim Briggs. *Getting It Right First Time: A national review of adult elective orthopaedic services in England*. British Orthopaedic Association, 2015. Available from: [www.gettingitrightfirsttime.com/](http://www.gettingitrightfirsttime.com/) Accessed 22 June 2015.

These procedures were chosen because they represent a high share of activity within their respective specialties and of the overall NHS expenditure on elective admitted patient care.<sup>12</sup> The providers participating in the study typically benefit from consistent elective demand and throughput within their respective configurations.

An important additional aim of this research was to identify opportunities for improving productivity that could be relevant to other specialties. So we looked for insights from these six procedures that could be relevant to other elective procedures. We focused on aspects of care in the six procedures that are consistently present and relatively standard in all elective pathways. These include the organisation of preadmission activities and follow-up care, scheduling of theatres, ward care and discharge planning.

Moreover, a research focus on productivity gains and not cost savings was important because of how productivity is realised in practice. For example, providers can't reduce the cost of one staff member by 10%; staff costs can often only be reduced by 100% of a full-time equivalent (FTE) at a time. An understanding of a trust's semi-variable costs can only be gained from knowing staff job plans and the potential for part-time work. Therefore, depending on individual trusts' cost structures, potential productivity gains calculated using our financial model may not be realised immediately. However, the improved productivity will still enable trusts to free up capacity and/or absorb growth in elective surgical volumes.

We did not consider the efficiency potential of consumables as it is unlikely variation in consumable spend can be widely extrapolated across specialties. This is because the consumable share of total costs varies substantially both between and within specialties by procedure. (Potential savings from improving procurement of consumables is a subject covered in the recent review by Lord Carter of Coles.<sup>13</sup>)

The research involved site visits, interviews as well data analysis. In addition, we conducted detailed analyses of operational data from all eight co-development sites and five international sites. Based on the findings from these sites, we described and valued a set of common opportunities for improving efficiency of elective care.

---

<sup>12</sup> In 2013, orthopaedics (specialty code 110) and ophthalmology (specialty code 130) represented 29% of all on-tariff elective spend on admitted patient care. Within orthopaedics, hip and knee replacements (OPCS codes W37, W38 and W4) accounted for 34% of elective spend on admitted patient care, and cataract surgery (OPCS code C75) accounted for 55% within ophthalmology. Collectively, these procedures (excluding AMD, which is an outpatient procedure) accounted for 11% of total elective spend on admitted patient care. Hospital Episode Statistics 2013/14, HSCIC; Payment by Results, 2013/14.

<sup>13</sup> Review of operational productivity in NHS providers, Department of Health, 2015. [www.gov.uk/government/publications/productivity-in-nhs-hospitals](http://www.gov.uk/government/publications/productivity-in-nhs-hospitals). Accessed 22 June 2015. Monitor will be working with the 'Carter team' to ensure any future national initiatives on efficiency are aligned.

We also held workshops in the UK to review, challenge and contribute to the findings presented in this report. These were attended by people with a range of roles: nurses, consultants, physiotherapists, optometrists, operational managers, clinical directors, strategy directors, finance directors, representatives of professional clinical bodies and regulators.

We relied on existing local procedure datasets collected by the NHS and international sites involved in this project. While these included both routine and complex patients, we did not measure the specific routine-to-complex patient ratio for each site. Providers with teaching responsibilities caring for an average (ie not selective) casemix of patients could make the potential productivity improvements the report identifies. However, as many of the organisations involved in the study are national and international specialist referral centres with research and training obligations, they have a relatively larger share of complex cases in their casemix compared to the casemix of a general acute hospital in England.

## **2. Improving productivity in elective care pathways**

The project has confirmed the nine operational levers or good practices can improve the productivity of a provider's elective care pathway. These levers are already familiar to NHS providers but variations in providers' operational performance suggest they are not yet applied in full everywhere. Improving productivity through applying these levers across the NHS could lead to significant productivity gains.

### **2.1. Levers for improving the productivity of elective care**

The nine operational levers and the associated sources of efficiency are summarised in Figure 1 and explored in more detail in [Appendix A](#).

To identify the operational levers with the greatest efficiency potential we compared performances at the sites studied (the eight NHS co-development sites – six ophthalmology units and five orthopaedic units – and five international organisations) across their elective pathways. At each stage in the pathway for each of the selected procedures, we looked at the degree to which the improvement levers reviewed affected:

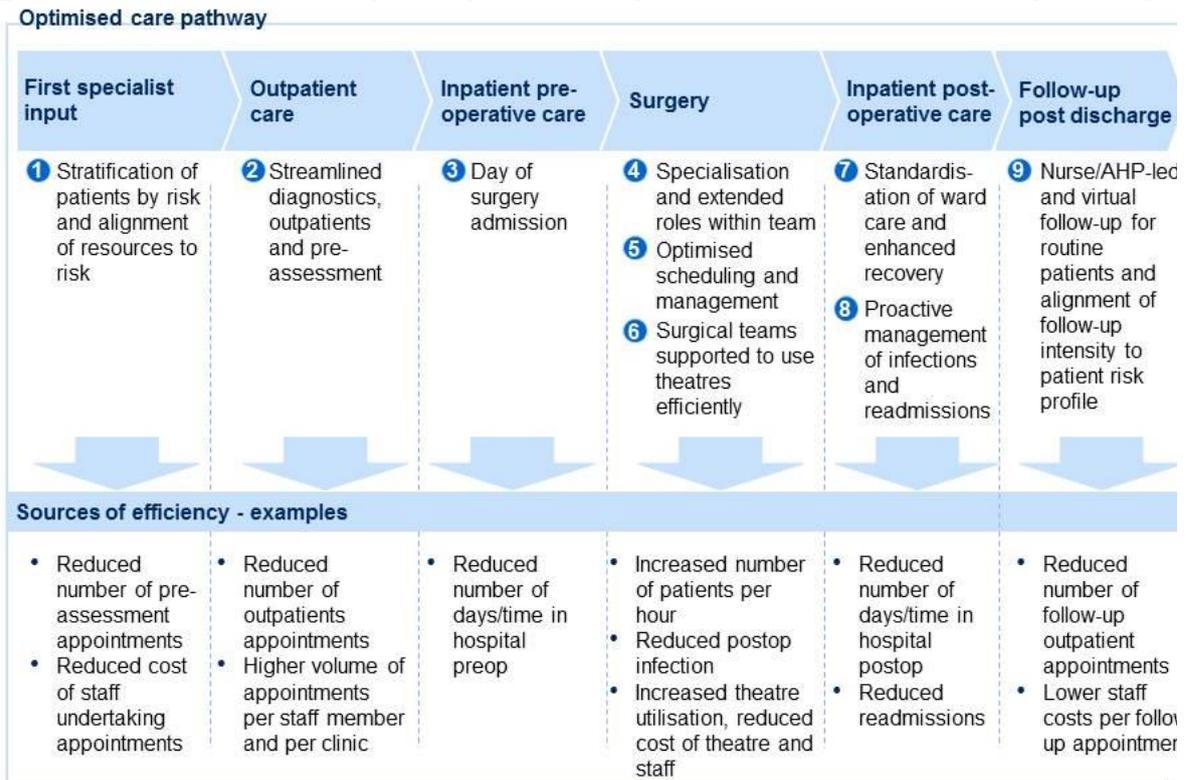
- number and duration of patient contacts
- staff cost per contact
- overhead cost per contact.

**Examples of the sources of efficiency we identified using this approach are summarised in the lower half of Figure 1 and described in full contextual detail in [Appendix A](#).**

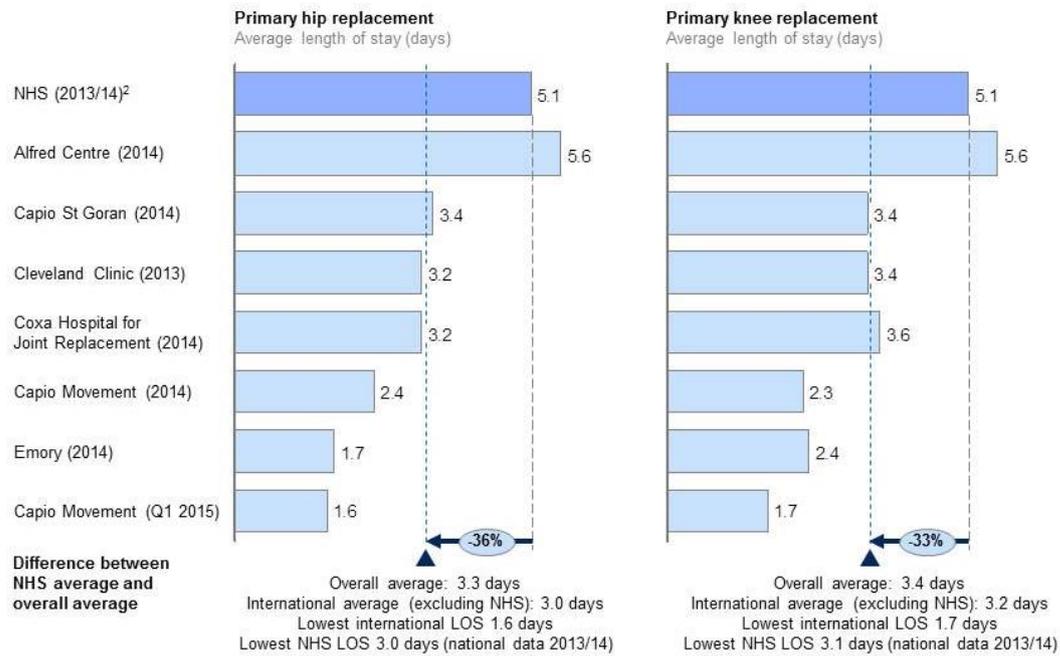
We found variation in operational performance for each procedure at each stage of the pathway, both between the NHS sites and between their average performance and the average performance of the international sites. For example, we found a difference of more than 30% between average length of stay for primary hip and knee replacement surgery in the NHS and the average for the international sites, and a difference of almost 70% between the NHS average and the international site with the lowest average length of stay (Figure 2).

A second example of significant variability is illustrated by day case rates in cataract surgery. We found that theatre throughput and staffing approaches varied considerably between NHS providers managing an average casemix for cataract surgery. Theatre throughput ranged from 4.5 to 8 procedures per four-hour session and there was no direct correlation between productivity and staff costs per theatre time. We also found wide variations in the approach to cataract anaesthesia and a 25% difference in staff costs per hour of planned theatre time (Figure 3).

**Figure 1: Nine levers to improve productivity across the elective care pathway**

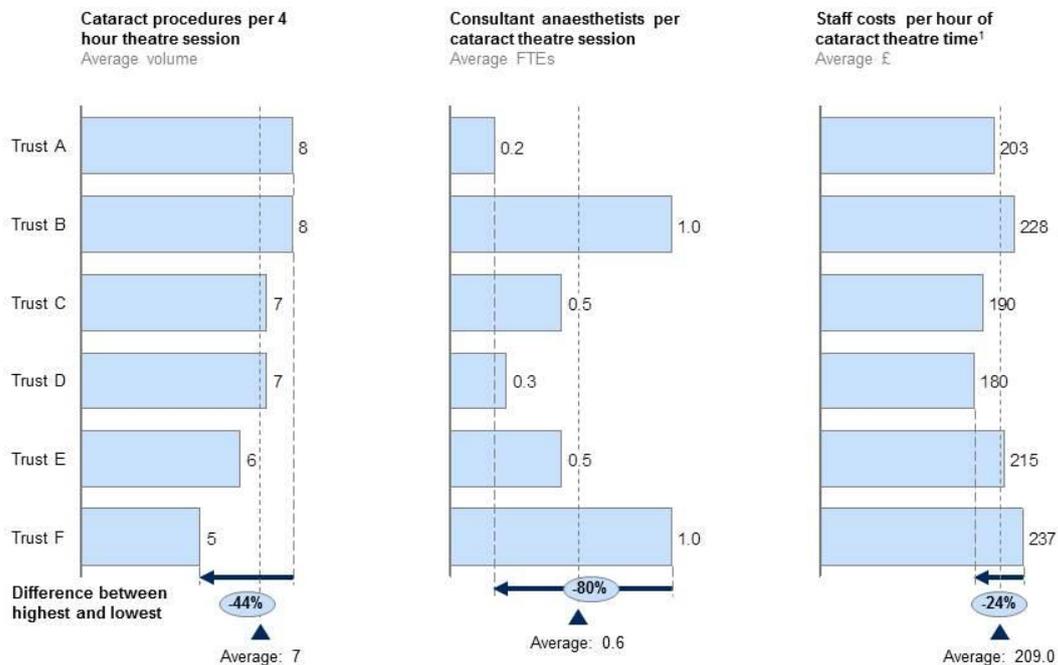


**Figure 2: Average length of stay (LOS) for joint replacement: an international comparison**



Sources: See individual cases studies (Appendix B); Cleveland Clinic Department of Orthopaedics and Rheumatological Institute, Outcomes Report 2013; Hospital Episode Statistics 2013/14, HSCC.

**Figure 3: Theatre staffing and throughput: cataract surgery**



<sup>1</sup> Calculated using national average salaries by staff category/grade/band.  
Source: NHS trusts.

The findings from the international case studies for ophthalmology and orthopaedics are summarised in Box 1.

### Box 1: Summary of findings from the international case studies

#### Ophthalmology

None of the international centres was more productive than any of the NHS providers studied in cataract surgery and treatment of wet AMD. Extended nurse roles are more developed in many parts of the NHS, particularly in the treatment of wet AMD, and some international organisations are beginning to follow the NHS's lead.

That said, providers in international healthcare systems have developed productive approaches which many NHS sites have also adopted, for example:

- stratifying patients by risk into a limited number of groups and tailoring pathways to the risk profile of each group
- running virtual clinics where the consultant reviews the patient records/images rather than the patient in person
- community optometrists delivering postoperative follow-up care
- using alternative anaesthesia providers, including anaesthetist nurse practitioners, for some routine cataract surgery.

We did not review some of the emerging and innovative ophthalmology models from the developing world, such as those adopted by Aravind Eye Care and Vasan Eye Care<sup>14</sup> in India. These may provide additional insights into ways of improving productivity but the co-development sites and national clinical bodies considered their regulatory and cultural fit with the NHS too limited at present to make comparison during the project helpful.

#### Orthopaedics

Compared to the NHS, the international sites tended to have shorter lengths of stay for joint replacement: average length of stay was around 3.5 days; at some centres it was under 2 days. The average NHS length of stay for hip and knee replacements was 5 days in 2013/14.

At some of the international centres, including the Coxa Hospital for Joint Replacement and Cleveland Clinic, around a third of patients are discharged to an intermediate rehabilitation facility. However, there are no step-down facilities at the centres with the shortest lengths of stay, including Capio (see [Appendix B](#) for full details).

Achieving shorter lengths of stay through rapid recovery requires complementary efforts across the patient pathway, from preparing patients and setting their expectations before admission, to processes during surgery (including choice of anaesthesia) and postoperative mobilisation and therapy.

<sup>14</sup> See Vasan Eye Care: [www.vasaneye.in](http://www.vasaneye.in); Aravind Eye Care [www.aravind.org/](http://www.aravind.org/)

In addition to shorter lengths of stay, we also observed innovative practices including:

- specialist centres training and auditing community providers of diagnostics and physiotherapy, in order to ‘unbundle’ the pathway and provide elements of care closer to home
- imaging immediately postoperatively, and same-day mobilisation and physiotherapy assessment.

We did not identify major differences between the good NHS sites and international sites in the pace of theatre throughput or use of parallel lists.

## 2.2. Potential productivity improvements in NHS elective care

Our analysis suggests there is potential to improve productivity over the elective care pathway for the procedures we examined and across NHS elective care pathways as a whole (see Figure 5 below). A detailed description of the analysis, key assumptions and procedure-level findings supporting this view is given in [Appendix D](#).

### Efficiency opportunities in the procedures examined

We calculated the opportunity for productivity gain by procedure by comparing the difference between the average cost of delivering the procedures at the eight NHS co-development sites (or the national average cost, where those data were available) and the cost of delivering the procedure if ‘good practice’ were followed. We calculated this difference for each element of the pathway for each procedure, and the differences were then aggregated to reach the procedure total. Where individual elements of care were considered to affect each other (eg number of procedures per hour of theatre time and size/skill mix of theatre team), we looked at the cost impact of combining them.

Figure 4 shows the good practices that offer the main efficiency opportunities.

Good practice was defined as efficient and effective practice used by one or more of the co-development sites, or one or more international sites, and which the Royal College of Ophthalmologists, British Orthopaedic Association and co-development site clinicians agreed should be possible for all NHS providers to adopt: that is, it represented an achievable future state.

Good practice is not the same as best or highest performing observed practice. For example, in cataract surgery, we observed that some sites were able to deliver 12 to 15 procedures per four-hour theatre session. However, the clinical consensus was that eight procedures per four-hour session was a more appropriate measure of good practice, based on data collection from general cataract lists that include a mixture of routine and complex cases. Lists that train more surgeons or treat exclusively more complex cases may require specific attention, although productive

**Figure 4: Good productive practice by procedure**

	First specialist input	Outpatient care	Inpatient pre-operative care	Surgery	Inpatient post-operative care	Follow-up post discharge
Injectable treatment of wet AMD		<ul style="list-style-type: none"> <li>95% of injections by specialist nurses</li> <li>17.5 patients per 4-hour OP clinic</li> <li>Clinics open 50 hours/week</li> </ul>				
Cataract surgery		<ul style="list-style-type: none"> <li>No new outpatient appointment for second eye 12 patients per clinician/4-hour clinic</li> <li>Clinics open 40 hours/week</li> </ul>		<ul style="list-style-type: none"> <li>Eight cataract procedures/4-hour theatre block<sup>1</sup></li> <li>Theatres open 11.5 hours/day</li> </ul>		<ul style="list-style-type: none"> <li>Optometrist-led follow-up</li> </ul>
Primary hip/knee replacement	<ul style="list-style-type: none"> <li>Nurse-led preassessment for 90% of patients (10% anaesthetist led)</li> </ul>	<ul style="list-style-type: none"> <li>Single preoperative outpatient appointment</li> <li>Outpatient clinics open 6 days/week</li> </ul>		<ul style="list-style-type: none"> <li>20% of 8-hour lists manage five joint replacements (80% four)</li> <li>Two scrub nurses and one circulating nurse per list</li> <li>Theatres open six days/week</li> </ul>	<ul style="list-style-type: none"> <li>50% of patients discharged within 3 days</li> <li>Readmission rate of 1.6%<sup>2</sup></li> </ul>	<ul style="list-style-type: none"> <li>One follow-up appointment post-discharge for low-risk patients</li> </ul>
Hip/knee revision	<ul style="list-style-type: none"> <li>Nurse-led preassessment for 90% of patients (10% anaesthetist led)</li> </ul>	<ul style="list-style-type: none"> <li>Outpatient clinics open 6 days/week</li> </ul>	<ul style="list-style-type: none"> <li>Preop length of stay of 0 days</li> </ul>	<ul style="list-style-type: none"> <li>Theatres open 6 days/week (if sufficient demand)</li> </ul>	<ul style="list-style-type: none"> <li>Postop LOS:<sup>3</sup> hips: 3 days knees: 4.5 days</li> </ul>	<ul style="list-style-type: none"> <li>Nurse-led follow-up for 50% of patients</li> </ul>

LOS, length of stay

<sup>1</sup> With theatre staffing model as per units currently undertaking eight cataract procedures per four-hour theatre block

<sup>2</sup> Average for co-development sites

services as a model for training environments have considerable benefits, both for the current and the next generation of surgeons. Evidence from the co-development sites suggests that trusts that have a good balance between lists of training and complex cases, and more straightforward lists with less complex patients could exceed the upper bound of eight procedures per four-hour theatre session that we used in this analysis.

That said, to demonstrate the productivity impact of moving to highest observed practice, we have also calculated a 'stretch target' demonstrating the impact of providers operating at this level. This target may be useful for providers who are already operating at the level of good practice identified in this report.

### Potential for efficiency improvements at the national level

We extrapolated the findings from the detailed procedure-level analysis to national expenditure data to calculate potential total national efficiency improvements for elective care. These improvements were broken down into those for outpatient procedures, day case surgery and inpatient surgery (Figure 5). These calculations assume the productivity gains identified for each procedure are applicable to all similar procedures. For example, we assumed the potential level of productivity

gain<sup>15</sup> found for cataract surgery (13%) would also be found for all other day case procedures; those for AMD (20%) for all other outpatient procedures; and those for hip and knee replacement and revisions (13%) for all other inpatient surgical procedures.

There are two main reasons to have confidence in this approach:

- The efficiencies identified relate to changes to general aspects of care delivery that could be applied to all procedures (described in detail in Appendix A). These include changes to: organisation of preadmission assessments and consultations; organisation of activities on the day of admission; approach to scheduling and staffing of theatres; approach to length of stay and discharge preparedness; and organisation of routine follow-ups post discharge.
- The calculated potential efficiencies found across all the procedures analysed were consistently in the same range (13% to 20%) for all the procedures analysed, suggesting this range of potential savings is typical for general elective care procedures both within and between organisations.

We recognise the limitations of extrapolating our findings to the national level and acknowledge the need for further research to understand how far the findings of this study can be generalised to other specialties and procedures. We hope the findings will encourage trusts and professional bodies to extend this research to more specialties.

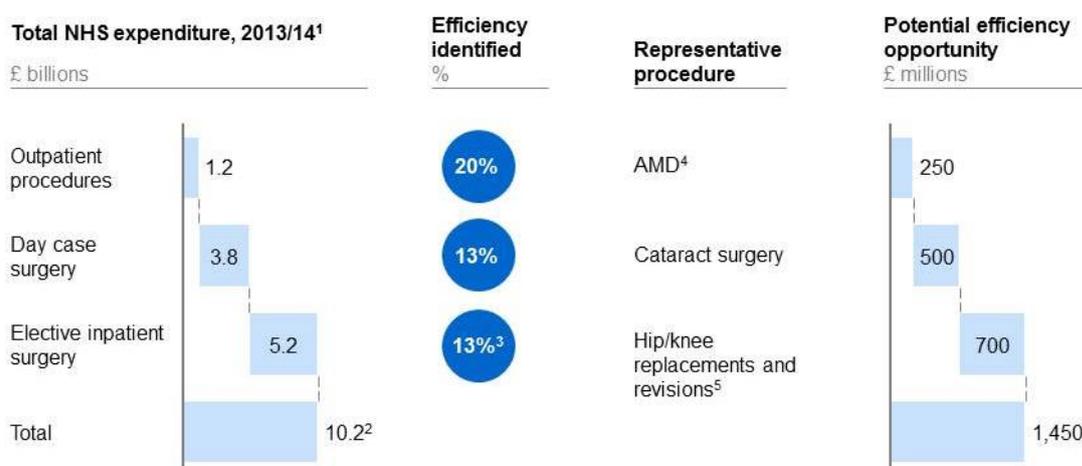
### **2.3. Good practices with most potential for improving productivity**

Of the nine improvement levers identified in Figure 4, five capture most (80% to 90%) of the 13% to 20% potential productivity gain across the elective care pathways we examined.

---

<sup>15</sup> The potential productivity gain was calculated by dividing the total sum of productivity potential at each part of the patient pathway by the NHS Reference Cost of the procedure. See [Appendix D](#) for further details.

**Figure 5: Potential efficiencies in elective surgery**



Note: the calculations are indicative only and further research is required to confirm their accuracy.

<sup>1</sup> NHS Reference Costs for 2013/14.

<sup>2</sup> Excludes spending on outpatient appointments (if included, magnitude of potential savings would be higher).

<sup>3</sup> 17% of spend if consumables (eg prostheses) are excluded.

<sup>4</sup> Injectable (anti-vascular endothelial growth factor (VEGF)) treatment for wet AMD.

<sup>5</sup> Includes primary replacements and revisions combined.

The five levers are:

- Risk stratification and assignment of lower-risk patients to less complex pathways.** These pathways reduce the number of patient contact points and adjust the skill mix along the pathway to meet patient need. They often feature, for example, nurse-led preassessment, alternative types of anaesthesia and ‘fast track’ postoperative practices. At the Royal Orthopaedic Hospital, a trained band 5 nurse categorises all patients into one of three pathways in which the intensity of assessment is determined by the patient’s risk category. (See [Appendix C](#) for further details of this and other examples discussed here.)
- Extended nurse/other roles to undertake tasks usually performed by consultants.** Several of the trusts involved in this project have trained nurses to give injectable treatments for wet AMD. In addition, at City Hospitals Sunderland NHS Foundation Trust, nurses give topical anaesthesia for routine cataract surgery. Overall, we identified a substantial difference between the use of anaesthetic nurse practitioners at international and UK sites, with this role more common outside the UK. Extending clinical roles or ‘task shifting’ involves changes to training, education and continuing professional development. These changes need to be clinically led, made on a large scale and co-ordinated nationally rather than introduced piecemeal locally.
- Increased throughput in theatres.** This is achieved by measuring, communicating and managing the number of procedures per hour per

surgeon and theatre team. For example, at South West London Elective Orthopaedic Centre, all surgeons' throughput metrics are reviewed with them monthly with further follow-up if required. All surgeons are informed on how their performances contribute to the centre's overall financial and clinical sustainability. At the Alfred Centre in Australia, a perioperative co-ordinator schedules theatres on the basis of expected throughput and then assigns theatres to individual surgeons.

- **Implementation of enhanced recovery practices to reduce length of stay.** These practices include optimising analgesia, hydration and postoperative mobilisation as well as preoperative patient education and involving family members in a patient's recovery. In Sweden, the rapid recovery model followed by Capio results in around 75% of hip and knee replacement patients being discharged on the day after surgery (see Appendix B).
- **Transition to a virtual follow-up model wherever possible.** For example, at Royal Devon and Exeter NHS Foundation Trust, some routine orthopaedic patients are followed up virtually after their first face-to-face appointment post surgery; this still allows surgeons to collect and interpret patient outcome data. At the Alfred Centre in Australia, community-based optometrists carry out follow-up appointments for cataract surgery patients and feed back postoperative data to the centre.

We acknowledge implementing these five levers will involve both challenges and risks. To be implemented safely, change must be made through a specialty-led quality assurance process with assistance from supportive management.

### 3. Local changes to enable more productive elective care

At a local organisational level, we observed that a number of the supporting conditions identified by staff at the co-development sites as fundamental to improving productivity, were common to the most effective and efficient elective care pathways.

1. **Standardised pathways and protocols.** These clarify which tasks should be done and by whom. Emory University Orthopaedics and Spine Hospital in Atlanta created a multidisciplinary team across four hospitals to review and improve pathways and set standard protocols in orthopaedics. Patient and family representatives took part in the project to ensure that improving the things that matter to patients was a priority alongside a commitment to improving the efficiency and quality of care.
2. **Data and analysis used in effective performance management systems.** Reliable, relevant data can be used to measure and analyse a centre's performance down to the level of individual surgeons and surgical teams. It provides real-time feedback to surgeons and teams as well as evidence for

performance review conversations, encouraging a culture of improvement and 'healthy competition/peer pressure'. Significant measures include cost per case, turnaround time between procedures, measures of theatre utilisation (in particular, volume of procedures/session required to break even and performance relative to this breakeven point) and outcomes (readmissions, infections, returns to theatre, revisions and patient outcomes).

3. **Visible leaders accountable for continuous improvement from board to ward.** Leaders in highly productive elective care pathways are held to account for making measurable improvements in productivity. We found leaders at all levels of NHS organisations committed to continual improvement by finding more efficient and effective ways of working, and recognising and applauding improved quality and productivity. This quality of leadership was also present at all the international sites reviewed. For example, we observed leaders who encourage their staff to understand what best practice looks like by comparing their performance against that of national/international peers and ensuring there is a high level of clinical management in the organisation's improvement work.
4. **Adapted staff contracts to support implementation of a best practice care pathway.** Development of the skill mix or specialist roles to include routine work currently performed by consultant surgeons and anaesthetists is an important enabler of effective and efficient elective care. We found NHS employers who had made these changes without compromising safe staffing levels, and trusts that are reviewing consultant contracts to see if the confines of existing NHS employment rules will allow them to shift to a model based on productive use of time (eg the number of procedures) rather than just blocks of time.

We also identified a few trusts that have created a mix of incentives for staff with high rates of throughput and quality such as local 'clinical excellence awards'.

5. **Efforts to engage and educate patients and families.** These particularly help to set expectations before admission about when the patient is likely to be discharged, what they will experience post discharge, and how they can best prepare, minimise their own risks and receive post-discharge support (see [Appendices B and C](#) for examples). Such efforts can allow patients to be more engaged in their own care, improve their understanding of the whole process and lead to improved outcomes and satisfaction with service.

#### **4. Next steps: Supporting the development of local elective care strategies**

This report confirms a set of practices that drives productivity improvements in elective care and a set of conditions that supports implementation of those practices. The appendices give details of how NHS trusts and international providers are implementing these practices for orthopaedics and ophthalmology. The many

elective practitioners involved in developing this report have confirmed that the scale of productivity improvement it identifies is achievable across the NHS. So, there is nothing to stop NHS elective care providers from introducing or refining these good practices and making sure they have in place the supporting conditions.<sup>16</sup> Trusts that do realise the productivity gains identified in this report will be faced with consequential issues such as dealing with potential spare resources or being better equipped to absorb growth in demand for elective care.

The work to date has mainly focused on operational improvements within a pathway at individual providers. However, throughout its course, the study has prompted questions about the implications of improving elective care for groups of providers and for broader local health economies, and what the most effective and efficient service models might be. Issues raised include: the case for ring-fencing elective care facilities; ensuring sufficient patient volumes to achieve the highest standards of patient safety and efficiency; calculating the optimal capacity for elective care units; how to plan workforces; and understanding and managing the potential impact of changing elective care provision on non-elective care.

Figure 6 shows the range of different models we have seen organisations using during the course of this project to deliver elective care services.

**Figure 6: Different models for provider delivery of elective care**

	<b>1. 'Full service' specialist hospital</b>	<b>2. Specialist hub with multiple spokes</b>	<b>3. Treatment centre joint venture between multiple acute hospitals</b>	<b>4. Treatment centre: co-located with single acute hospital</b>	<b>5. District general hospital</b>	<b>6. Large academic medical centre</b>
<b>Levels of care provided</b>	<ul style="list-style-type: none"> <li>Simple elective surgery (with or without medical complications) and complex elective surgery performed in one site</li> </ul>	<ul style="list-style-type: none"> <li>Simple elective surgery and simple elective surgery with complex medical problems provided in the 'spokes'</li> <li>Predominantly complex elective surgery provided in the 'hub'</li> </ul>	<ul style="list-style-type: none"> <li>Simple elective surgery provided in treatment centre</li> <li>Simple surgery with complex medical problems and complex surgery provided in nominated hospitals within the network</li> </ul>	<ul style="list-style-type: none"> <li>Simple elective surgery provided in treatment centre</li> <li>Simple surgery in patients with complex medical problems and complex surgery provided in co-located acute hospital</li> </ul>	<ul style="list-style-type: none"> <li>Simple elective surgery with and without complex medical problems provided</li> <li>Complex elective surgery referred to specialist centre</li> </ul>	<ul style="list-style-type: none"> <li>Simple elective surgery (with or without medical complications) and complex elective surgery performed in one site</li> </ul>
<b>Examples</b>	<ul style="list-style-type: none"> <li>The Royal Orthopaedic Hospital (UK)</li> <li>The Robert Jones and Agnes Hunt Orthopaedic Hospital (UK)</li> </ul>	<ul style="list-style-type: none"> <li>Moorfields Eye Hospital (UK)</li> <li>Capio (Sweden/France)</li> </ul>	<ul style="list-style-type: none"> <li>South West London Elective Orthopaedic Centre (UK)</li> <li>Coxa (Finland)</li> </ul>	<ul style="list-style-type: none"> <li>Worcester Acute Hospitals (UK)</li> <li>The Alfred (Aus)</li> </ul>	<ul style="list-style-type: none"> <li>City Hospitals Sunderland (UK)</li> <li>Kingston (UK)</li> </ul>	<ul style="list-style-type: none"> <li>Cleveland Clinic (US)</li> <li>Newcastle upon Tyne Hospitals (UK)</li> <li>Royal Devon and Exeter (UK)</li> </ul>

Source: Interviews with UK and international hospitals.

<sup>16</sup> To support implementation of the report's findings, Monitor intends to do further work with foundation trusts to help providers realise local elective care productivity gains. We plan to discuss with foundation trusts and NHS trusts how we can best support them.

None of these models – national or international – was found to excel at all the productive practices this report identifies. However, we need to understand the broader issues raised during this study as listed above, if we are to better understand the productivity of the different models. To support the development of high value elective care provision in the NHS, we intend to undertake further work to understand these issues and, armed with that understanding, to analyse the potential productivity improvements of different elective care service models across local health economies.

The Five Year Forward View, published in 2014, set the NHS's ambition for a 2% net efficiency gain each year for the rest of the decade. These gains will come from providers improving efficiency in line with good practice, as well as from investment in new care models. The opportunity to make elective care more efficient and effective is substantial: despite the drive for cost improvement across the NHS in recent years, this report has found there is still significant variability in staff and overhead costs for the same elective procedures among NHS providers, and variability in the patient throughput of elective care pathways.

This report has also identified specific levers that NHS providers can apply to raise the productivity of elective care, and presents detailed examples of the levers being applied. So, while the opportunity to improve the productivity of elective care across the NHS is substantial, this report shows that it is an opportunity that NHS trusts and foundation trusts can realise.

## **Appendices (supplied separately)**

This report provides a summary of our main findings and conclusions. The full research is available in a separate set of appendices.

**Appendix A** sets out the framework used to compare both national and international care models in this study and provides a detailed review of each improvement lever in the care pathway (as outlined in Figure 1), including:

- a detailed description of the improvement opportunity, including a discussion of how it can be realised in practice using examples from the NHS and international case studies
- an assessment of the variability observed within current practice in the NHS
- the benefits associated with good practice.

**Appendix B** provides a set of five case studies of elective care units in other countries.

**Appendix C** collates examples of good practice for each improvement lever from the NHS co-development sites involved in this project.

**Appendix D** consists of a guide to the financial model used in our analysis and the assumptions made.