

Anaesthesia and Perioperative Medicine

GIRFT Programme National Specialty Report

By Dr Chris Snowden and Dr Mike Swart
GIRFT Clinical Leads for Anaesthesia and Perioperative Medicine

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Foreword from Professor Tim Briggs

I am delighted to recommend this Getting It Right First Time review of anaesthesia and perioperative medicine, led by Chris Snowden and Mike Swart.

This report comes at a time when the NHS has undergone profound changes in response to the COVID-19 pandemic. The unprecedented events of 2020/21 – and the extraordinary response from everyone working in the NHS – add greater significance to GIRFT's recommendations, giving many of them a new sense of urgency.

Actions in this report, such as optimising the rates of day case surgery across all specialties, will free up inpatient beds for appropriate cases and, in doing so, help to tackle the significant surgical backlog that has built up as a result of the pandemic. These recommendations can help the NHS as it faces the substantial challenge of recovering services while remaining ready for any future surges, by operating more effectively and safely than ever before.

Chris and Mike have applied the GIRFT approach to both anaesthesia and perioperative medicine, a specialty cutting across all surgical specialties and also across the patient's journey, from the first plans of an operation through to discharge and beyond.

Anaesthesia is the largest hospital specialty in the UK, involved in a third of all hospital admissions. In the GIRFT surgical specialty reports already published, the impact of perioperative care on surgical outcomes and the key role that anaesthetists play has been very clear. This report brings together many of those findings.

The recommendations set out in this report are based on Chris and Mike's visits to 72 trusts, in addition to other data, audits and a detailed survey of trusts. Implementing these 18 recommendations will improve perioperative care for patients, reducing on-the-day cancellations and enhancing patient recovery. Faster recovery times will reduce average lengths of stay, meaning that patients can get home sooner and that inpatient beds can be used for the most appropriate cases.

I am encouraged to hear about the openness and positivity Chris and Mike have found on the deep-dive visits to trusts. Like their colleagues before them, they have found many examples of excellence and improvement to applaud and we are pleased to share some of them in this report.

That commitment to improvement is crucial. GIRFT cannot succeed without the backing of clinicians, managers and all of us involved in delivering care.

My greatest hope is that GIRFT will provide further impetus for all those involved in anaesthesia and perioperative medicine, to work shoulder to shoulder to improve quality and outcomes across all surgical care for patients.



Professor Tim Briggs CBE

GIRFT Programme Chair and National Director of Clinical Improvement for the NHS.

Professor Tim Briggs is consultant orthopaedic surgeon at the Royal National Orthopaedic Hospital NHS Trust, where he is also Director of Strategy and External Affairs.

He led the first review of orthopaedic surgery that became the pilot for the GIRFT programme, which he now chairs.

Professor Briggs is also National Director of Clinical Improvement for the NHS.

Introduction from Dr Chris Snowden and Dr Mike Swart

In the operating theatre, the anaesthetist's skill is vital. Anaesthetists also have a unique insight into the consistencies that run through many surgical specialities and the differences that define them. Beyond the theatre walls, anaesthetists are developing expertise in new areas of healthcare, including complex patient pathway management. They are bringing to bear their understanding of how the combination of ageing and co-morbidity influences surgical procedures and are active in developing rehabilitation pathways for patients both before and after surgery.

This much broader role for anaesthetists lies at the heart of the concept of perioperative care – a patient-centred, multidisciplinary team-based approach to care of the surgical patient from contemplation of surgery to discharge and beyond. Perioperative care aims to bring together primary, secondary and social care resource to provide a seamless patient pathway.

The Royal College of Anaesthetists (RCoA) states that: 'Perioperative medicine provides a solution to an unmet need, using existing skills and expertise within the NHS to reduce variation and improve patient outcomes after surgery.'¹

Our approach to the Getting It Right First Time (GIRFT) programme for Anaesthesia and Perioperative Medicine was underpinned and driven by 1) our acknowledgement of the importance of broadening the anaesthetist's role to encompass perioperative medicine and 2) our awareness of the current limitations of national data capture around theatre-based anaesthetic activity. We resolved to examine areas where anaesthetists, alongside clinicians from other specialties, nurses, allied health professionals and departmental managers, could influence real change to overall surgical pathway management.

While working on this programme we have had the opportunity to visit colleagues in departments around the country and to discuss their work in depth. It has been a pleasure and a privilege to do this. The openness and positivity we found in various departments, even while acknowledging variations and areas for improvement revealed by the data, have been inspiring. We have found much to applaud and celebrate: notably a spirit of adaptability, innovation and co-operation across disciplines.

The first draft of this report was written in early March 2020. We had completed over 70 trust visits and had delivered a draft report that noted continuing concern around the threat of winter surge pressures on surgical services. Then came a global pandemic, the effects of which continue to reverberate throughout the NHS, especially in relation to surgical care resilience and recovery.

The NHS was under considerable strain even before the pandemic. The information we collected on our deep-dive visits not only remains relevant but has become crucial in understanding how we can rebuild more efficient services in the light of the COVID-19 insult. It has become increasingly clear to us and to many in the GIRFT community that understanding and fully utilising perioperative care will be key to the sustained, future recovery of elective and emergency surgery in the NHS.

The report was completed during the continuing second surge in 2020/21. As a result, we make broader, more far-reaching and stronger recommendations that seek to improve outcomes in patients having surgery in this new COVID environment. These recommendations are relevant to multiple clinical specialities as well as to NHS systems policy-makers. We set out a clear direction of travel:

- Day case has to be the default surgical pathway.
- Where day case surgery is not possible, we must ensure inpatients are discharged as early as possible by providing appropriate pathways with enhanced recovery.²
- Delivering the correct pathway for optimal patient care depends on accurate and effective preoperative assessment conducted by a perioperative team.
- Cancellations must be reduced to an absolute minimum – use of enhanced care³ is key in achieving this as it reduces pressure on critical care, leaving greater flex for emergency care, which is dominated by elderly patients who frequently have co-morbidities.
- Effective perioperative teams can be formed only where there is an appropriate workforce available.
- All of these changes must be made in a way that is sustainable and resilient.

¹ Royal College of Anaesthetists (RCoA) (2019) 'A teachable moment': delivering perioperative medicine in integrated care systems, <https://www.rcoa.ac.uk/sites/default/files/documents/2019-07/IntegratedCareSystems2019.pdf>

² Enhanced recovery is a patient pathway that prioritises quality of care and patient participation in their own care, to enable patients to recover more quickly following elective surgery and to allow early, safe discharge with minimal readmission rates. It begins with preoperative assessment and continues until the patient is discharged.

³ Enhanced care is a level of care above that offered by a standard acute ward but below that of critical care. It is particularly suitable for patients after surgery, since they may require close monitoring.

We hope that the following pages lead to close consideration of how the careful development of anaesthetic and perioperative care will have a major impact on how we manage all forms of surgical care in the future.



Dr Chris Snowden

GIRFT Clinical Lead for Anaesthesia and Perioperative Medicine

Dr Chris Snowden is Consultant Anaesthetist, Newcastle upon Tyne Hospitals NHS Foundation Trust (Freeman Hospital)



Dr Mike Swart

GIRFT Clinical Lead for Anaesthesia and Perioperative Medicine

Dr Mike Swart is Consultant Anaesthetist and Critical Care Medicine, Torbay and South Devon NHS Foundation Trust.

Statements of support

Association of Anaesthetists

The Association of Anaesthetists welcomes the publication of this report; the analysis of anaesthesia and perioperative medicine using GIRFT methodology was much anticipated. GIRFT principles align with our own aims of promoting high-quality, safe and modern care, and of supporting our members through education, guidelines, provision of information and ensuring their own wellbeing.

The GIRFT team has found significant variation in the provision of care including in the use of day case surgery, pre-operative assessment and optimisation, postoperative care and data collection. We support the recommendations, which are rightly ambitious and wide ranging. As the authors describe, the COVID-19 pandemic has highlighted the need to improve the provision of anaesthesia and perioperative care. The unprecedented increase in the surgical backlog presents a very significant problem, but also provides the stimulus and urgency to tackle these issues with renewed vigour.

The promotion of multidisciplinary care and development of new pathways, along with innovation and continual quality improvement, is emphasised. We look forward to working with other partner organisations to help deliver these aims. The challenges, not least around an ageing population (with more co-morbidities), workforce shortages and ensuring sustainability, require us to work together and discard many of the traditional boundaries between the professions.

We congratulate the GIRFT team and thank them for their contribution to patient care.



Dr Mike Nathanson

President, Association of Anaesthetists



Royal College of Anaesthetists (RCoA)

I congratulate the GIRFT programme, and in particular Dr Mike Swart and Dr Chris Snowden, for their excellent report on Anaesthesia and Perioperative Medicine.

This report is the outcome of in-depth study and analysis of the visits Mike and Chris made to 72 NHS trusts. They have complemented it with a number of survey reports, and existing data and evidence. The authors have made 18 main recommendations that have the potential to transform perioperative pathways in the NHS and bring greater efficiency to workflow at a systems level.

I welcome the fact that the authors have taken a perioperative pathway approach throughout their report. In particular, the emphasis on pre-operative consultation and preparation, and postoperative enhanced recovery, is in alignment with the RCoA's vision and ongoing work in the area of perioperative quality improvement.

One very important feature of this report is the timing of its publication at a point when the NHS is recovering from the latest surge of the COVID-19 pandemic, and trusts are faced with a large surgical backlog. This backlog is a 'new emergency', and the timeline for implementation of the recommendations in this report is a reflection of the urgent need to address this backlog for the benefit of our patients, society and the NHS.

The report sets out ambitious action plans and targets for trusts. Active clinical engagement will be crucial in successful implementation of the recommendations and it is clear this should begin as soon as possible. At the same time, it is important that clinicians, leaders and managers involved in this transformation remain mindful of the basic principles that underpin good medical practice: putting patient safety first, ensuring fully informed, shared decision making, respect for patient choice, and clinical autonomy in making well-considered and justified actions in the best interests of the patient. This will require maturity and understanding on the part of all concerned in order to ensure successful implementation of the recommendations in this report, which have the capacity to drive improvements in patient care.

Finally, I applaud the openness of all the clinicians and managers of the trusts who have contributed constructively to the report. I am pleased to recommend this report to all our members and fellows, as well as those involved in managing and caring for patients in their perioperative journey.



Professor Ravi Mahajan

President, RCoA



Royal College of Surgeons of England (RCS)

I am pleased to support this GIRFT national specialty report on anaesthesia and perioperative medicine. On behalf of the Royal College of Surgeons of England I commend its findings to every theatre team in the country.

Publication could not have been more timely, as we recover from the COVID pandemic and begin to deal with some of its consequences. The huge backlog of surgery has made us think carefully about all the issues raised in this report.

To make any inroads on the waiting lists we will need to use more day surgery; to carefully select, assess, and optimise our elective surgery inpatients so that they have surgery in the safest elective facility for them; and reduce unnecessary cancellation. Critical care must be used wisely and we must make proper provision for emergency surgery, which still has such a high mortality.

Most importantly of all, this report develops the theme of perioperative medicine in which the multidisciplinary team take care of a patient from listing, through surgery to discharge and beyond, and in which anaesthetists play such a key role.

As with all GIRFT reports there is huge variation in practice. I was struck by the lack of data collection and strongly support the suggestion that there should be clinical coding, so that what anaesthetists do in and out of theatre is no longer invisible. This will reinforce the other key messages here on workforce and sustainability.



Professor Neil Mortensen

President, Royal College of Surgeons of England



About this report

The analysis we carried out in developing this report is based on the Getting It Right First Time (GIRFT) programme model.

This initially included drawing together relevant data sources (including data kindly provided from each trust-directed questionnaire), benchmarking key delivery measures and producing data packs specific to each trust. Then followed visits to individual departments, trusts or, in some cases, wider local healthcare systems, to present and discuss the data in depth with clinicians, senior management and all those involved in delivering and commissioning services that impact on surgery and perioperative medicine. During these deep dive visits we discussed where the trust is doing well, where they are underperforming, how they stand in relation to their peers and how they might be able to improve. These discussions have informed our findings and recommendations.

Not all sections of this report will be relevant to all readers. We understand that most will want to focus on the sections closely related to their own work, but we urge all to read the introduction, in order to understand why the report highlights the development of perioperative medicine and the potential it has to change NHS surgical practice pathways, as well as focusing on the primary speciality of anaesthesia.

We have tried to make the report as multidisciplinary as possible without unnecessarily repeating the findings of other workstreams. There is some crossover with other GIRFT reports including Adult Critical Care, Breast Surgery, Diabetes, ENT, General Surgery, Geriatric Medicine, Hospital Dentistry, Maternity and Gynaecology, Ophthalmology, Oral and Maxillofacial Surgery, Orthopaedics and Vascular Surgery, and with further reports in Orthopaedic Trauma Surgery and Plastic Surgery and Burns.

This report has been reviewed and considered by relevant stakeholders before publication, and secured strong support for both the overall direction of travel and specific recommendations.

Financial implications of the report

The key recommendations in this report have extremely significant financial implications in terms of the potential opportunities they generate through improved use of limited resources. The gross notional financial opportunity based on best decile indicates a potential of savings c.£400m (an average of around £3m per trust). These have been calculated based on a number of index procedures, with potentially far greater opportunities once the wider-ranging recommendations are implemented.

We outline the relevant potential savings at the end of each section. It is important that these savings are understood as opportunities to reinvest in long-term improvements in patient care. A more detailed summary of the financial implications can be found in the section *Notional Financial Opportunities*, on page 124.

COVID-19 and anaesthesia and perioperative medicine

COVID-19 has had a significant detrimental impact on the delivery of surgical services throughout the NHS. As the pandemic continues to evolve, it is challenging to capture its many effects on anaesthetic and perioperative teams and on the systems, processes and pathways that we deliver. Even more difficult to predict are the longer term effects of the pandemic.

Within our report, we have highlighted specific areas where COVID-19 has already had significant impact. Below we list what we consider to be the main ongoing issues related to the pandemic for patients and staff. We also highlight some future areas where we expect to see transformational change becoming necessary. We hope our report will provide some plausible solutions to these issues.

Impact on patients:

- increased postponement of upcoming surgical operations;
- increased waiting times (referral to treatment times) for those on waiting lists;
- increased time for patient referrals for surgery (including a reduction in cancer screening);
- increased 'on the day' cancellation of patients for surgery;
- reduction in patients' mental and physical fitness during self-isolation (especially in the older surgical patients).

Impact on staff:

- anaesthetic and theatre staff seconded to unfamiliar environments including intensive care units;
- theatre infrastructure repurposed as additional intensive care beds;
- training and postgraduate exam system disrupted;
- inability to take annual leave;
- physical and emotional fatigue and burnout.

Future impact:

- requirement for anaesthesia and perioperative medicine to be involved in reducing significant surgical backlog;
- moving inpatient surgery to day case surgery and day case surgery to office or community-based treatment;
- reducing length of stay for inpatient surgery through reinvigoration of enhanced recovery;
- improving use of surgical critical care through the development of enhanced care.

Executive summary

The specialty of anaesthesia is undergoing a period of change as the perioperative model comes to the fore. The pressure on the NHS in terms of surgical numbers (current and projected) was a cause for serious concern before the COVID-19 pandemic; since COVID-19 this has only increased. Our main focus has been on increasing the efficiency of surgical pathways and improving patient outcomes. Insights gained from the first wave of the COVID-19 pandemic have fed into the report.

The Getting It Right First Time (GIRFT) review of Anaesthesia and Perioperative Medicine has found a significant degree of unwarranted variation in a number of key areas.

It should also be noted that the cross-cutting nature of anaesthesia and perioperative medicine – covering all surgery – means this report is longer and broader in its scope than many others, and that its recommendations, particularly concerning the increase in the proportion of surgery conducted on a day case basis, are for change on an extremely large scale with concomitant benefits in terms of efficiency savings and improved patient outcomes.

About anaesthesia and perioperative medicine

As the role of the anaesthetist is broadening to encompass more work beyond the theatre, perioperative medicine is becoming increasingly important. Perioperative medicine is a multidisciplinary team-based approach to the care of surgical patients from contemplation of surgery to discharge and beyond. Anaesthetists are particularly well placed to take a key role in multidisciplinary perioperative teams.

The overarching challenge facing the speciality concerns surgical volumes. Particular factors include the growing demand for surgery, the ageing population, increasing co-morbidities in surgical patients and the unpredictable effects on elective inpatient surgery of emergency care. These factors indicate, among other things:

- a need for rigorous assessment of a patient's suitability for surgery and of their surgical risk;
- a streamlined surgical pathway with reduced rates of cancellation and reduced length of stay wherever clinically appropriate;
- a consistent, proactive and evidence-based approach to managing co-morbidities before, during and after surgery.

What we found

We identified hospitals and specialist centres with anaesthetic services in 134 trusts. We were able to make 'deep-dive' visits to 72 trusts before the COVID-19 pandemic. We supplied each of these 72 with a data pack. We also made copious use of additional data, both from a questionnaire sent to each trust (of 134 questionnaires sent out, 119 were completed and returned in time to be used in our analysis) and from various additional sources, as cited throughout this report. Where we found unwarranted variation we investigated this and applied data analysis to examine the situation in detail wherever possible. We grouped our findings and subsequent recommendations under the headings that follow.

Day case surgery

Day case surgery is surgery that is conducted without an overnight stay. It has long been acknowledged within the NHS and internationally that increasing the proportion of day surgery to overall elective surgery is one of the best routes to increased efficiencies, cost savings and patient benefits. In general, day case surgery should be considered the default option unless an inpatient stay is unavoidable. However, the rates of day case surgery vary considerably by trust, hospital and surgical speciality. In some instances, a culture change within hospitals is required before we can expect to see any significant change; but in most cases the adoption of recent guidelines and in particular the establishment of generic dedicated day case systems, from pre-assessment to discharge, can be expected to make a significant difference.

Elective inpatient surgery

The key issues affecting elective inpatient surgery are the number and impact of cancellations (particularly on-the-day cancellations) and unwarranted variation in length of stay. Elective inpatient surgery is particularly vulnerable to emergency pressures on the system ('winter pressures' traditionally, but these pale into insignificance beside the ongoing cumulative effects of COVID-19). Reducing cancellations and length of stay would increase the efficiency of the elective inpatient pathway, making it more resilient in the face of disruption. A systematic perioperative team-based pre-assessment and risk assessment process is a key route to reducing last-minute surgical cancellation rates. In terms of reducing length of stay, the enhanced recovery process is widely supported, but its implementation is patchy at present.

Emergency surgery

Emergency surgery is a small proportion of overall surgical work but is highly demanding of resources and, as such, can affect overall surgical capacity. Most emergency surgical patients are older people with co-morbidities and extended lengths of stay are not uncommon. We considered two typical emergency procedures – repair for hip fracture and repair for periprosthetic fracture. In both cases there is significant variation in outcomes, suggesting the need for a consistently applied multidisciplinary team approach.

Use of critical care for surgical patients

We found a great deal of variation in terms of postsurgical critical care. The proportion of patients admitted to critical care is inconsistent (as is the numbers of critical care beds available) and where numbers are high (i.e. including patients not normally considered 'high risk') this indicates a need for an 'enhanced care' pathway sitting somewhere between a standard acute ward and critical care. We also noted a lack of clear data on the outcomes for patients admitted to critical care. This, were it available, would be helpful in establishing optimal flow patterns based on data rather than local culture.

Perioperative medicine

Perioperative medicine relies on a multidisciplinary team approach in order to optimise management of patients with a wide range of conditions and co-morbidities. In this section we considered patients with diabetes and those who require perioperative blood management as well as considering pain management and use of opioids. In each of these areas there are existing guidelines but they may be contradictory or inconsistently applied, indicating the need for a more systematic approach.

Workforce and capacity

As demand for surgery continues to increase, so does demand for anaesthetists. Currently the specialty is understaffed. Anaesthetists are also undertaking a broader range of duties than previously as the perioperative service develops. There are no easy answers to future workforce issues and some cultural changes may be required in order to make the best use of newer resources such as Anaesthesia Associates.

Clinical coding for anaesthetics and perioperative medicine

Most anaesthetic activities do not have specific specialty codes, with the result that much of the work done by anaesthetists in and out of theatre is invisible. This has implications for workforce planning, perioperative team development and departmental finances. With the development of the perioperative approach, it is particularly important that anaesthetists' broader activities are accurately recorded.

Procurement and sustainability

While the standard GIRFT approach to procurement is less relevant to anaesthesia and perioperative medicine, the sustainability issues, particularly around the use of volatile agents in anaesthesia, are extremely pertinent in light of the NHS's 'net zero' ambitions. Similarly, the use of consumables – often single-use plastics – may also require a rethink.

Making it happen

The report makes 18 recommendations and identifies owners and timelines for each one. GIRFT works in partnership with NHS England and NHS Improvement regional teams to help trusts and their local partners to implement improvements and address the issues raised in both the trust data packs and the national specialty reports. The GIRFT team provides support at a local level, advising on how to reflect the national recommendations into local practice.

About anaesthesia and perioperative medicine

What is anaesthesia?

Anaesthesia is the provision of general or local insensibility to pain and other sensation, induced by interventions or drugs to permit the performance of surgery or other painful procedures. There are three types of anaesthesia: general, regional (including spinal and epidural) and local. Doctors, dentists and other healthcare professionals provide local anaesthesia to patients. Most general and regional anaesthesia in the UK is provided to patients by medically qualified anaesthetists. Some general and regional anaesthesia is provided by Anaesthetic Associates (AAs) and this is expected to increase in the UK over time.

The anaesthesia specialty

Anaesthetists make up the UK's largest single hospital specialty and are involved in all three major pathways of surgical care (day case, elective inpatient and emergency) across all surgical specialties. This activity accounts for almost a third of all hospital admissions in England⁴ (there were over seven million surgical admissions in 2019/20). Historically, patient management during the intraoperative period has been the mainstay of anaesthetists' work, and this work will continue. However, as the NHS evolves, anaesthetists' responsibilities are broadening, necessitating the development of the perioperative care model.

Governing bodies and national audits

The Royal College of Anaesthetists (RCoA) is the specialty's professional body. Within the RCoA are based two separate faculties: the Faculty of Intensive Care Medicine (FICM) and the Faculty of Pain Medicine (FPM).

The RCoA regularly performs national perioperative audits. In conjunction with the National Institute for Academic Anaesthesia (NIAA) and the Health Services Research Centre (HSRC) it also hosts the National Emergency Laparotomy Audit (NELA) and the Perioperative Quality Improvement Programme (PQIP). Anaesthetists are involved in developing data for other speciality audits, including the National Vascular Database (NVD), National Hip Fracture Database (NHFD) and the maternity and urology (BAUS) databases.

The Association of Anaesthetists is a professional body with an important guidance role in the development of anaesthesia. It is at the forefront of advancing anaesthetic safety, supporting education and research, encouraging co-operation within anaesthetic circles and promoting staff wellbeing.

Given the broad and cross-cutting nature of the anaesthetist's role, the sub-specialty societies play an important role in supporting and informing the specialty overall.

Anaesthesia Clinical Services Accreditation (ACSA)

The RCoA accredits anaesthetic departments through the ACSA process. ACSA offers quality improvement through peer review and is a voluntary scheme for NHS and independent sector organisations. Benefits of the ACSA include a supported process for improving standards and access to a network of accredited departments to share best practice and service improvement initiatives.⁵ We believe it has the potential to benefit the perioperative medicine pathway.

The RCoA records current ACSA registration and accreditation of anaesthetic departments (several hospitals may belong to the same trust). At the time of writing, 121 (70%) hospitals had registered for accreditation and 37% had subscribed (confirmed payment) to enable commencement of the ACSA process within their department. Reasons provided during the GIRFT deep-dive visits for either not being accredited or not having applied for accreditation included financial issues and anxieties around not having the appropriate policies or documents in place to run perioperative programmes.

How the anaesthetist's role is changing

Anaesthetists' theatre skills remain indispensable within the operating department. Beyond the theatre, anaesthetists already play an extended cross-cutting role within healthcare. They are involved in the development and management of areas such as day surgery, critical care, obstetrics, emergency department, pain management, pre-assessment and preparation for surgery. However, the increasing breadth of the anaesthetists' role is not always reflected in the Hospital Episode Statistics (HES) data, since current coding methods do not represent the full scope of their work, particularly during pre- and postoperative care of the surgical patient. (See *Clinical coding for anaesthesia and perioperative medicine* on page 115 for further analysis.)

⁴ Royal College of Surgeons (based on data from the Health and Social Care Information Centre (HSCIC) and Hospital Episode Statistics (HES) 2013/14), <https://www.rcseng.ac.uk/news-and-events/media-centre/media-background-briefings-and-statistics/surgery-and-the-nhs-in-numbers/>

⁵ Royal College of Anaesthetists, Anaesthesia Clinical Services Accreditation, <https://www.rcoa.ac.uk/safety-standards-quality/anaesthesia-clinical-services-accreditation>

Anaesthetists have also become experts in understanding and developing clinical pathways – prioritising the provision of optimal and efficient patient care in the face of NHS targets, winter pressures and, recently, in response to COVID-19. In the aftermath of the pandemic has come the realisation that many services, including anaesthesia, need to undergo a major reshaping process. Areas that may have previously been fit for purpose are now acknowledged as requiring large-scale change. The need for flexibility and the capacity to manage unprecedented surges will remain at the forefront of medical care.

What is perioperative care?

'Perioperative care' refers to the practice of patient-centred multidisciplinary and integrated care from contemplation of surgery to full recovery. The perioperative care pathway covers all surgical patients until their discharge, and in many cases beyond.

'Perioperative medicine' is the term used to describe medical input into perioperative care. Currently, in the UK the two main medical specialties developing perioperative medicine are anaesthetists and geriatricians. Geriatricians provide perioperative medicine for elderly patients in the UK, mainly for hip fracture surgery, emergency laparotomy and other major surgical procedures. Anaesthetists provide perioperative medicine for all types of surgery and all ages. There is an overlap between perioperative medicine and the perioperative care provided by surgeons, intensive care medicine, interventional endoscopists and interventional radiologists. We have used the terms 'perioperative care' and 'perioperative medicine' throughout the report, depending on context.

UK and international evidence in support of perioperative care continues to accumulate. Not only does it have clear benefits for people having surgery, perioperative pathways and their key components (including enhanced care⁶ and enhanced recovery⁷) also benefit health services and systems by, for example, reducing:

- lengths of stay after surgery;
- use of intensive care after surgery;
- complication rates after surgery (meaning fewer resources are spent on this);
- the overall cost of care – perioperative care costs the same or less than conventional care.⁸

The perioperative model of multidisciplinary surgical pathway provision and care

The effects of COVID-19 have dominated anaesthetic and surgical practice in recent months and will continue to do so for the foreseeable future as the NHS attempts to recover. Even before the pandemic, however, the RCoA in conjunction with the majority of practising anaesthetists had accepted the need for change. COVID-19 has simply added impetus to the task of repositioning the specialty for the future, through delivery of a more encompassing model of care: **perioperative care**.

One of perioperative care's defining features is that its focus is multidisciplinary and its teams reflect this.⁹ While we note and strongly support this, our main emphasis in the report is on the role of anaesthetists within this new structure. Other GIRFT reports from medical and surgical specialties will also play a key role in perioperative care.

Anaesthetists are well-placed to play a key role in multidisciplinary perioperative care teams, working jointly with other specialties. The expertise anaesthetists have gained by driving and developing clinical pathways during the pandemic can, with care, help bring about sustained changes in the way elective and emergency surgical care is managed.

Our work for GIRFT has taken a wide, cross-cutting approach to anaesthetic practice. We have looked across the key surgical specialties and considered anaesthetists, critical care clinicians, perioperative and surgical colleagues and physicians as they work together in teams with nursing professionals, allied health professionals and the wider MDT to plan and deliver patient care along the elective and emergency surgery pathways. We support the view that anaesthetists should develop as partners in perioperative care rather than simply further developing their expertise in anaesthesia. As the RCoA noted prior to the pandemic: 'We believe perioperative medicine provides a solution to an unmet need, using existing skills and expertise within the NHS to reduce variation and improve patient outcomes after surgery.'¹⁰

⁶ *Enhanced care is a level of care above that offered by a standard acute ward but below that of critical care. It is particularly suitable for patients after surgery, since they may require close monitoring.*

⁷ *Enhanced recovery is a patient pathway that prioritises quality of care and patient participation in their own care, to enable patients to recover more quickly following elective surgery and to allow early, safe discharge with minimal readmission rates. It begins with preoperative assessment and continues until the patient is discharged.*

⁸ *Centre for Perioperative Care (2020), The impact of perioperative care on healthcare resource use: rapid research review, <https://www.cpoc.org.uk/about-cpoc-cpoc-policy/proving-case-perioperative-care>*

⁹ *Centre for Perioperative Care (2020), Multidisciplinary working in perioperative care: rapid research review, <https://www.cpoc.org.uk/about-cpoc-cpoc-policy/multidisciplinary-working-perioperative-care>*

¹⁰ *Royal College of Anaesthetists (2019), 'A teachable moment': delivering perioperative medicine in integrated care systems, <https://www.rcoa.ac.uk/sites/default/files/documents/2019-07/IntegratedCareSystems2019.pdf>*

If the perioperative model is to be advanced, the anaesthetist's role will encompass complex interactions between patient flow patterns in secondary care for both medical and surgical pathways. Critically, the vision also involves bringing together primary, secondary and social care to deliver perioperative medicine as a major part of influencing the future development of Integrated Care Systems (ICSs) across the NHS.

Perioperative teams can help support the aims and delivery of ICSs by ensuring that the patient is in the best condition for the whole perioperative journey.¹¹ The recent RCoA report on perioperative medicine provides best practice examples and a series of recommendations for this model, which we fully support. It notes:

“

Utilising the opportunities offered by the integration of services within the ICS model and embracing shared decision-making between healthcare professionals and their patients, a perioperative approach to care can improve health outcomes, help patients to get home from hospital sooner and reduces the risk of readmissions that put people back in hospital when it could have been avoided.”

(RCoA, 2019)¹²

”

The government's recent green paper¹³ highlights the importance of prevention through more predictive and personalised care. A proportion of this work is likely to fall within the remit of perioperative teams, since surgery is a time at which patients are most receptive ('a teachable moment')¹⁴ to adopting lifestyle changes to protect their future health.

The Centre for Perioperative Care (CPOC)

CPOC is a cross-specialty collaboration dedicated to the promotion, advancement and development of perioperative care for the benefit of patients at all stages of their surgical journey.¹⁵ CPOC's multi-professional centre is hosted by the RCoA. Its aim is to improve care from the moment surgery is contemplated, through preparation, operation, aftercare and rehabilitation – the vision driving the perioperative care agenda.

Current challenges for anaesthesia and perioperative medicine: what is driving the need for change?

The need for co-ordinated perioperative care is urgent and growing, as is the need to focus on value in terms of improving patient outcomes without increasing costs. An ageing population (it is estimated there could be an extra 8.2 million people aged 65 and over in the UK by 2068),¹⁶ surgical and technological advances and increased life expectancy all bring challenges. Demand for surgical care is predicted to increase.¹⁷

¹¹ Centre for Perioperative Care (2020) *Perceptions of perioperative care in the UK: rapid research review*, <https://www.cpoc.org.uk/about-cpoc-cpoc-policy/perceptions-perioperative-care-uk>

¹² Royal College of Anaesthetists (2019), 'A teachable moment': delivering perioperative medicine in integrated care systems, <https://www.rcoa.ac.uk/sites/default/files/documents/2019-07/IntegratedCareSystems2019.pdf>

¹³ Green paper (July 2019), 'Advancing our health: prevention in the 2020s', <https://www.gov.uk/government/consultations/advancing-our-health-prevention-in-the-2020s/advancing-our-health-prevention-in-the-2020s-consultation-document>

¹⁴ Royal College of Anaesthetists (RCoA) (2019), 'A teachable moment': delivering perioperative medicine in integrated care systems, <https://www.rcoa.ac.uk/news/dedicated-care-after-surgery-offers-patients-teachable-moment-improve-long-term-health>

¹⁵ <https://www.cpoc.org.uk>

¹⁶ Office for National Statistics, *Overview of the UK population: August 2019*, <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/articles/overviewoftheukpopulation/august2019#the-uks-population-is-ageing>

¹⁷ Royal College of Surgeons (2019), *Future Surgery*, <https://www.futuresurgery.rcseng.ac.uk>

Increasing demand for overall hospital services

Total elective and emergency hospital admissions have continued to rise at a rate of around 3% year on year (as shown in **Figure 1**). The highest number of hospital admissions in 2018/19 were in those aged 70–74yrs (as shown in **Figure 2**), a group often living with multiple long-term health conditions that require more medical care, especially during episodes of acute deterioration.

Figure 1: Increasing hospital admissions (finished admission episodes (FAE) – first episode in a spell of care), 2008/9–2018/19

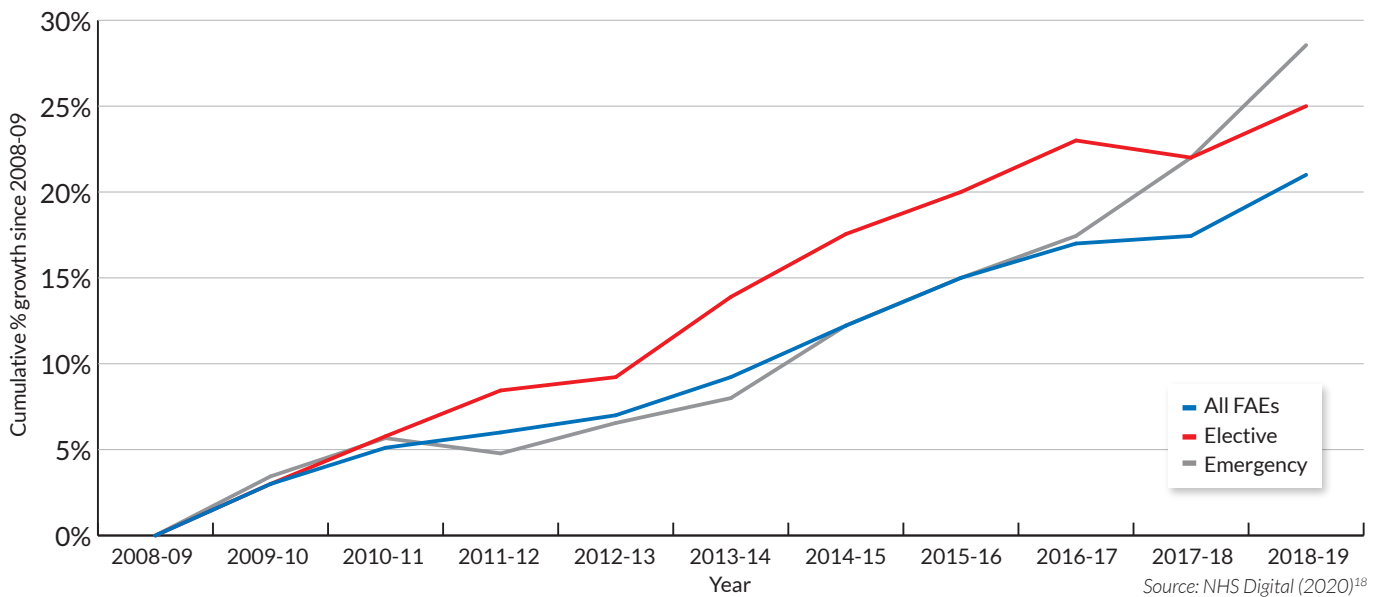
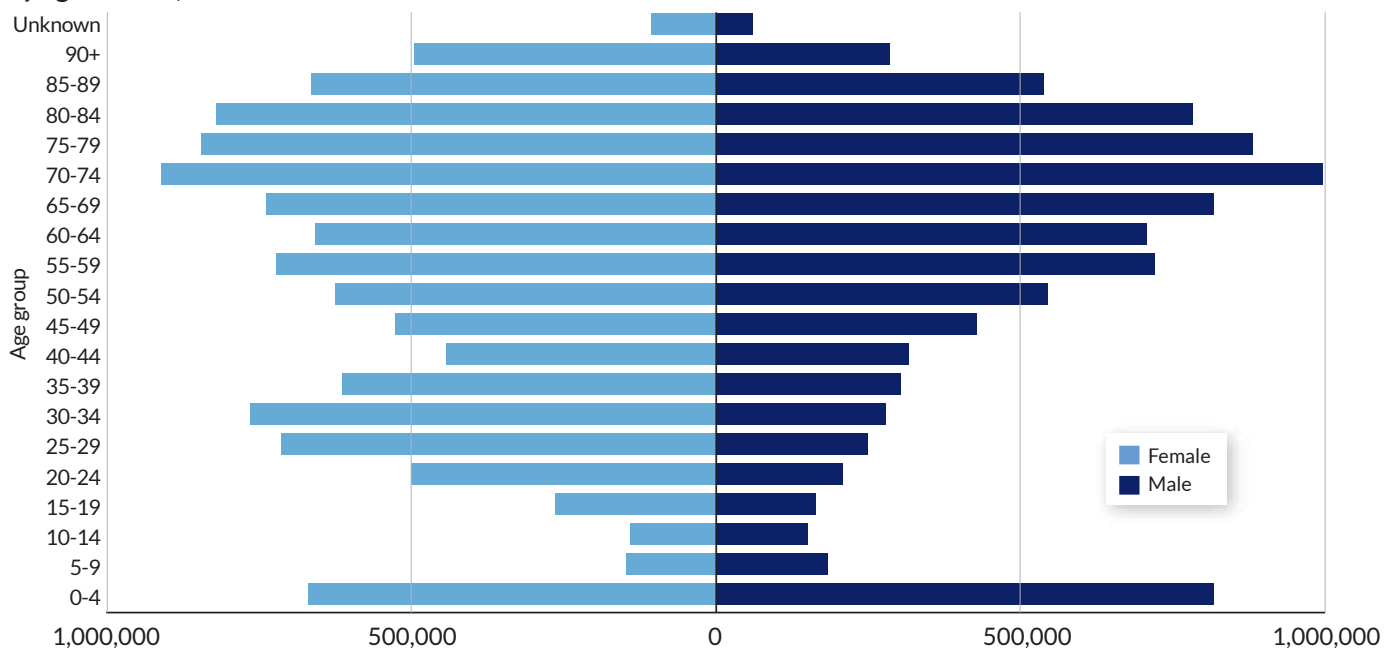


Figure 2: Hospital admissions (finished consultant episodes – a continuous period of care under one consultant) by age and sex, 2018/19



Note: Elevated female admissions aged 20–40 years are largely attributable to maternity services.

¹⁸ <https://files.digital.nhs.uk/F2/E70669/hosp-epis-stat-admi-summ-rep-2018-19-rep.pdf>

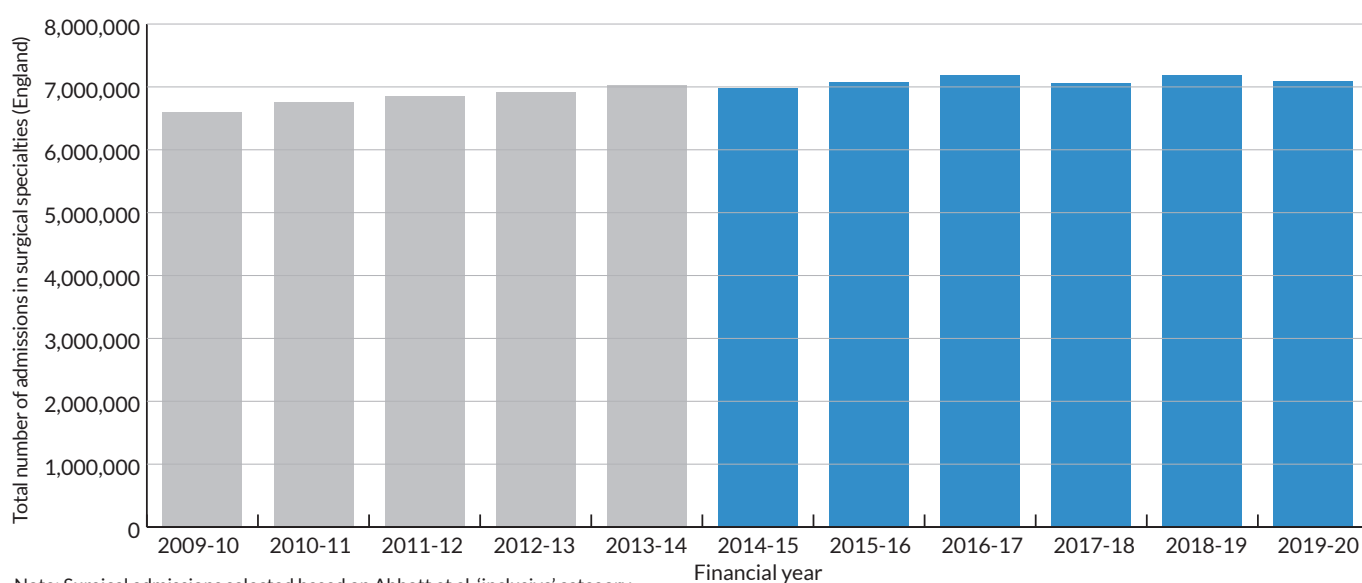
¹⁹ <https://files.digital.nhs.uk/F2/E70669/hosp-epis-stat-admi-summ-rep-2018-19-rep.pdf>

The increase in hospital admissions is only partly related to growing numbers of older patients. Other reasons include an increase in public expectations of healthcare and continuing advances in medical care that allow more people to be treated.

Demand for surgical procedures

Detailed published figures based on hospital admissions for surgical procedures (derived from Hospital Episode Statistics (HES) data for England, Scotland and Wales) and shown in **Figure 3** demonstrate that demand, which grew steadily between 2009 and 2014,²⁰ has remained high.

Figure 3: All surgical admissions (adult and paediatric) 2009–2020



Note: Surgical admissions selected based on Abbott et al. 'inclusive' category (includes NHS procedures delivered by private providers)

Source: Abbott et al. 2017²¹ (grey bars) and GIRFT (blue bars) based on HES data 2014–20

Traditionally, the care of surgical patients has been related directly to the operation itself and to the index disease it is intended to treat. Prior emphasis on technological surgical advances and the development of newer techniques would suggest that the demand for surgery should increase as the range of patients to whom surgery could be applied also increases. Patients for whom surgery might not previously have been advised, especially in the older population, may well be offered surgical intervention.

On the other hand, the less invasive nature of many surgeries mean that there is less need for a surgical theatre environment and there is a concerted move towards some procedures being performed on an outpatient basis. These patients would not be counted in the overall surgical admissions and account for some levelling off of the admission numbers as shown in **Figure 3**.

Where the theatre environment is still required, the surgical and anaesthetic complexity of surgical procedures being performed continues to grow. The most common theatre based procedures are outlined in **Table 1** below.

²⁰ Abbott, T. E. F., Fowler, A. J., Dobbs, T. D. et al. (2017), Frequency of surgical treatment and related procedures in the UK: a national ecological study using hospital episode statistics, *British Journal of Anaesthesia* 119 (2): 249–257, doi: 10.1093/bja/aex137, <https://www.ncbi.nlm.nih.gov/28854546/>

²¹ Abbott, T. E. F., Fowler, A. J., Dobbs, T. D. et al. (2017), Frequency of surgical treatment and related procedures in the UK: a national ecological study using hospital episode statistics, *British Journal of Anaesthesia* 119 (2): 249–257, doi: 10.1093/bja/aex137, <https://www.ncbi.nlm.nih.gov/28854546/>

Table 1: The most common surgical procedures performed in England

Procedure	Specialty	No. performed per year in NHS providers
Cataract surgery	Ophthalmology	433,557 ²²
Caesarean section	Obstetrics	159,365
Hernia repairs	General surgery	85,407
Hip replacement	Orthopaedics	83,692
Knee replacement	Orthopaedics	78,324
Cholecystectomy (gall bladder removal)	General surgery	74,887
Tonsillectomy	ENT	46,341

Source: HES data 2018/19

Increase in surgical patient co-morbidities

Alongside the continuing high demand for surgery, there is also a requirement to advance the prevention and care of post-surgical complications that are increasingly medical in nature, i.e. often not directly related to the index disease the surgery is intended to treat. The most common life-threatening medical complications are sepsis from multiple causes or myocardial injury.

An increasingly complex group of mostly older patients with multiple co-morbidities are more likely to experience complications. Currently it is estimated around 250,000 of these 'high-risk' patients undergo surgery each year in the NHS²³ and over 80% of major complications occur in this group.^{24, 25}

The prevention of post-surgical complications requires a more holistic approach to patient care. It begins even before surgery takes place – looking beyond what is surgically possible and, through an informed shared decision-making process between clinicians and the patient, allowing a full assessment of the potential risks and benefits of surgery for the individual. Once surgery has occurred, the early recognition and treatment of complications to prevent worsening of the problem delivers improved surgical outcomes. In short, aside from the immediate perioperative risk, patients need to be assessed and optimised across their long-term health issues.

The unpredictable effects of emergency hospital care

In terms of surgical services, emergency admissions represent a small (21%) proportion of the overall cases (see **Figure 4** below). Hospitals remain reactive to these cases and rightly prioritise their management over elective surgery. Although emergency surgical procedures can in some circumstances impinge on the provision of planned surgery, the relatively low number of these admissions in relation to overall surgical admissions, in combination with emerging initiatives (including dedicated emergency theatres and day case emergency care), serve to limit any disruption to surgical care.

Emergency hospital care is, in fact, dominated by medical (i.e. non-surgical) rather than the surgical specialities admissions. Emergency admissions make up 64% of all medical admissions (seen in **Figure 4** below); they are usually unpredictable with any degree of certainty and are prioritised above all planned (elective) care. Even in the case of emergency surgical admissions, the majority do not have surgery within 48 hours (and many not with that index admission).

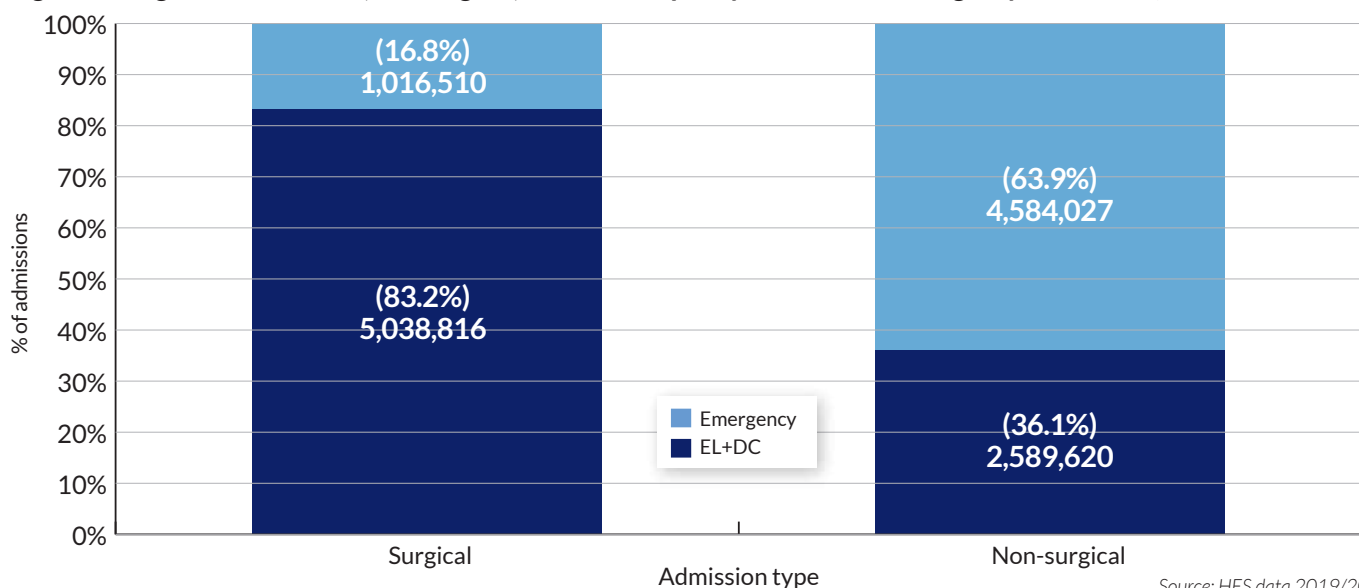
²² Note: Most cataract surgery is done under local anaesthesia put in by surgeons or nurses. The preoperative preparation is part of perioperative medicine.

²³ The Royal College of Anaesthetists (2015), *Perioperative medicine: the pathway to better surgical care*, <https://www.rcoa.ac.uk/sites/default/files/documents/2019-08/Perioperative%20Medicine%20-%20The%20Pathway%20to%20Better%20Care.pdf>

²⁴ Pearse, R. M., Harrison, D. A., James P. et al. (2006), *Identification and characterisation of the high-risk surgical population in the United Kingdom*, *Critical Care*, 10 (3):R8, DOI: 10.1186/cc4928, <https://www.pubmed.ncbi.nlm.nih.gov/16749940/>

²⁵ Pearse, R.M., Moreno, R. P., Bauer, P. et al. (2012), *Mortality after surgery in Europe: A 7 day cohort study*. *The Lancet*, 380 (9847): 1059–65, <https://www.pubmed.ncbi.nlm.nih.gov/22998715/>

Figure 4: Surgical and medical (non-surgical) admissions split by elective and emergency admissions, 2019/20



Source: HES data 2019/20

Note: Surgical admission selected using Abbott et al. (2017)²⁶ 'inclusive, intermediate and restrictive' categories to identify procedures involving surgery.

Medical emergencies can have a disproportionate impact on the availability of many other hospital services. For example, the unpredictable ebb and flow of medical emergencies can strongly influence the number of elective surgical procedures being performed at any one time, especially where there is minimal capacity for hospital bed ring-fencing. This can lead to cancellations and delay to planned inpatient surgery.

In the past, the annual 'winter pressures', where seasonal disease (e.g. influenza) causes a spill-over of medical bed occupancy into the surgical domain, have resulted in cancelled elective inpatient surgeries. More recently, the COVID-19 pandemic has had similar, more devastating, consequences, the effects of which are set to resonate for some years to come.

Reduced specialist workforce

The growing focus within the specialty on the broader area of perioperative care has implications in terms of both workforce numbers and structure. While we acknowledge that all specialties are experiencing workforce issues, the fact that the anaesthetist's role is expanding and anaesthetists consistently comprise 15%–20% of the acute hospital consultant workforce, mean that deficiencies will create a significant workforce gap and should be addressed as a priority (see *Workforce and capacity* section for further analysis).

A recent Centre for Perioperative Care (CPOC)²⁷ report stresses that multidisciplinary working is key to the success of perioperative care and is worth prioritising. Multidisciplinary working can:

- speed access to surgery;
- improve clinical outcomes;
- reduce the cost of surgical care by helping people leave hospital earlier.

The report also stresses, however, that further research is needed to explore which types of multidisciplinary working are most effective and what infrastructure and resources are needed to strengthen and sustain multidisciplinary working around the time of surgery.

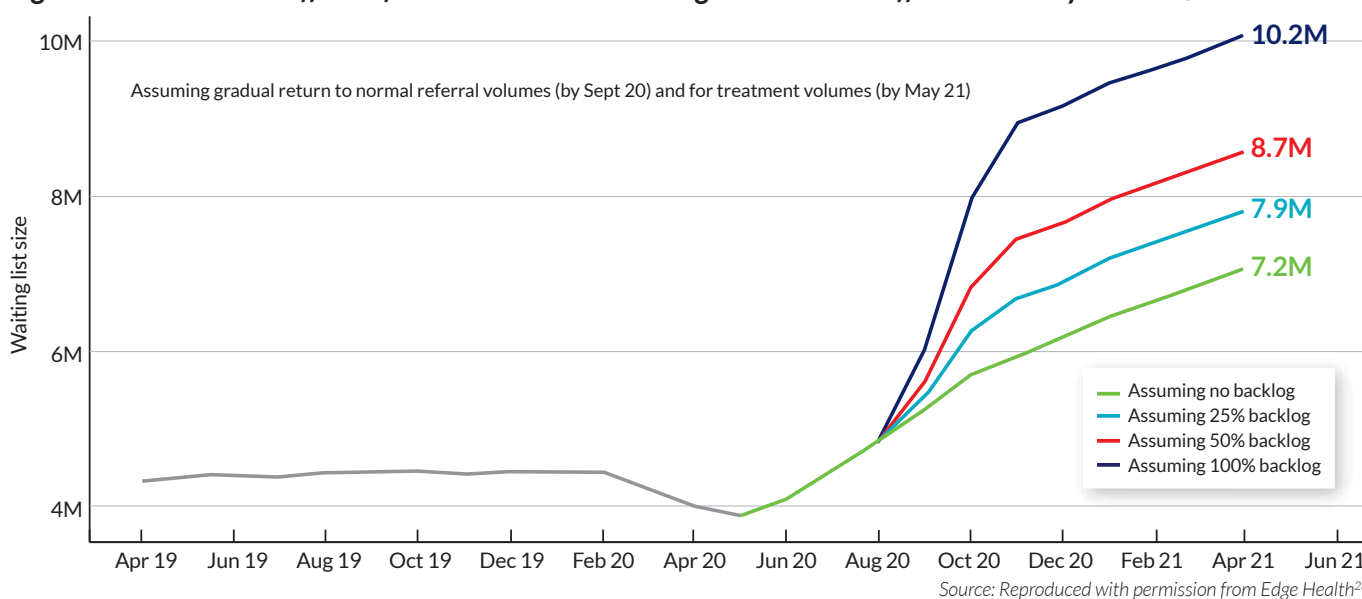
²⁶ Abbott, T. E. F., Fowler, A. J., Dobbs, T. D. et al. (2017), *Frequency of surgical treatment and related procedures in the UK: a national ecological study using hospital episode statistics*, *British Journal of Anaesthesia* 119 (2): 249–257, doi: 10.1093/bja/aex137, <https://www.ncbi.nlm.nih.gov/28854546/>

²⁷ Centre for Perioperative Care (2020) *Multidisciplinary working in perioperative care: rapid research review*, <https://www.cpod.org.uk/about-cpod-cpod-policy/multidisciplinary-working-perioperative-care>

The post-COVID-19 landscape for elective surgery

Even before the COVID-19 pandemic, the increasing demand for elective surgery resulted in growing surgical waiting lists. The cessation of most elective surgery in March 2020 and further postponement in December 2020 and into 2021 have produced a step-change in the numbers of patients waiting for elective surgery. **Figure 5** shows the historic and projected size of the official NHS waiting list to April 2021. The projections are based on a range of estimated scenarios for how much 'missing' activity returns to the NHS over the first few months of 2021.

Figure 5: The estimated effects of COVID-19 on NHS waiting lists based on different recovery scenarios



Note: The chart also reflects lower productivity due to infection control requirements with the drop based on estimates from the Royal College of Surgeons of England of how much pre-Covid-19 crisis activity can be restored.

Based on what we know from the 72 GIRFT deep dive visits we conducted before the pandemic and on data collected from the 119 trust questionnaires returned to us, most providers will find it difficult to deal with the surge of non-COVID-19 surgical patients while also maintaining capacity for COVID-19 patients. A recent report estimated the UK was cancelling 43,307 elective procedures per week during the initial 12-week period of disruption caused by the pandemic.²⁹

Even before the pandemic, although we noted much good practice and increased efficiency in the surgical process generally, there was considerable variation in perioperative pathways. It is vital we develop the most efficient patient pathways and deliver uniformly excellent perioperative care, as well as adopting a pragmatic approach to what constitutes 'good' or necessary surgery.

In order for the NHS to recover from the pandemic, we need to review all surgical pathways. This requires visibility into patient demand, co-morbidities and perioperative complication rates in order for us to understand how to safely provide perioperative care while balancing the clinical, operational and financial complexity and pressures imposed by COVID-19. The more insights we can gather, the better. We will be able to use this information in combination with anaesthetist/perioperative expertise to balance real need, perceived demand and resources constraints around postponed and future surgical procedures.

²⁸ <https://www.edgehealth.co.uk/post/covid-19-impact-on-waiting-times-for-elective-procedures>

²⁹ Members of the COVIDSurg Collaborative (2020), Elective surgery cancellations due to the COVID-19 pandemic: global predictive modelling to inform surgical recovery plans, *BJS Society*, DOI: 10.1002/bjs.11746, <https://bjssjournals.onlinelibrary.wiley.com/doi/epdf/10.1002/bjs.11746>

Potential impact of perioperative care processes

While there are considerable pressures on anaesthetists developing the perioperative programme, the current healthcare environment also provides significant opportunities. We outline the key opportunities below.

Decreasing inappropriate surgical demand

This can be achieved by means of improved clinical risk assessment and full discussion of the benefits, risks and alternatives to surgical treatment (including the option of no surgery) through shared decision-making (SDM). This will prevent surgery being undertaken when there is minimal chance of a successful outcome or where it may not be in the patient's best interests.³⁰ We discuss SDM in different contexts throughout the report.

Increasing efficiency of the surgical process and supply of surgery

This requires promoting surgical pathways and practices that reduce the need for hospital attendance and inpatient stays, and reduce length of stay. For example, significant efficiencies and improved patient outcomes can be achieved by increasing the proportion of day case to inpatient surgery (see *Day Case Surgery*, page 34) and promoting the enhanced recovery pathway to reduce unwarranted variation in length of stay for elective inpatients (see *Elective Inpatient Surgery*, page 54).

Better utilising existing hospital beds

This can be undertaken through the development of appropriate postoperative pathways (including the use of enhanced care³¹) to reduce overreliance on critical care for postoperative patients (see *Use of Critical Care for Surgical Patients*, page 83) and increasing the efficiency of preoperative assessment in order to prevent cancellations for clinical reasons (see *Elective Inpatient Surgery*, page 54).

Fully integrating care of surgical patients

We must stress the importance of public health messaging around healthy lifestyle and increasing focus on the 'prehabilitation' and rehabilitation cycle of surgical patients, which includes nutrition, physical activity, addressing obesity, and psychological support.³² Links between all levels of patient care will assist in ensuring patients are in the best condition for an operation, enabling high-quality care during surgery and prioritising the patient's recovery post-surgery. We refer to the RCoA's Integrated Care System's report, which provides best practice examples and a series of recommendations, which we fully support. In his Foreword Professor Steven H.Powis notes:

“

By utilising the opportunities offered by the integration of services within the ICS model and embracing shared decision-making between healthcare professionals and their patients, a perioperative approach to care can improve health outcomes, help patients to get home from hospital sooner and reduces the risk of readmissions that put people back in hospital when it could have been avoided.

(RCoA, 2019)³³

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³⁰ Santhirapala, R., Fleisher, L. A. and Grocott, M. P. W. (2019), *Choosing wisely: just because we can, does it mean we should?* *British Journal of Anaesthesia*, 122 (3): 306e310. doi: <https://www.doi.org/10.1016/j.bja.2018.11.025>; see also NHS Medical Directorate and Strategy and Innovation Directorate (2018) *Evidence-based interventions: guidance for CCGs*, <https://www.england.nhs.uk/wp-content/uploads/2018/11/ebi-statutory-guidance-v2.pdf>

³¹ Faculty of Intensive Care Medicine (FICM) and Royal College of Physicians (2020), *Enhanced care: guidance on service development in the hospital setting* (May), https://www.ficm.ac.uk/sites/default/files/enhanced_care_guidance_final_-_may_2020-.pdf

³² Royal College of Anaesthetists, Macmillan and NIHR (2019), *Prehabilitation for people with cancer*, <https://www.rcoa.ac.uk/news/rcoa-macmillan-nihr-launch-prehabilitation-report-people-cancer>

³³ Royal College of Anaesthetists (2019) 'A teachable moment': *delivering perioperative medicine in integrated care systems*, <https://www.rcoa.ac.uk/sites/default/files/documents/2019-07/IntegratedCareSystems2019.pdf>

About the analysis

We carried out our analysis following the established Getting It Right First Time (GIRFT) model. (For more on the GIRFT programme, see the separate section in this report.)

Identifying anaesthesia and perioperative care service providers

Firstly, we set about assembling all of the relevant existing NHS data on anaesthesia and perioperative medicine. We identified hospitals and specialist centres with some surgical, and therefore anaesthesia and perioperative medicine, activity in 134 trusts (see *Appendix 1*, page 136, for a list of trusts visited).

Where we analysed data from hospital trusts we excluded those trusts where the range of surgeries was non-typical. For example, Moorfields Eye Hospital conducts a disproportionate amount of day surgery (for cataract removal) and Royal Papworth Hospital's surgeries are heavily weighted towards elective inpatient cardiac surgery. Similarly, trusts with very low levels of activity for the pathway under review were also excluded where this was likely to skew data.

Collecting data

We conducted our own supplementary data collection through an extensive questionnaire to providers. Where the data allowed, we benchmarked providers on key measures and identified where there is variation.

Carrying out deep-dive visits

Deep-dive meetings with providers are a vital part of the GIRFT process. At these meetings, we reviewed data at trust level, engaging with clinical and managerial staff to review performance, provide advice and gather views and opinion.

1. We provided every trust with a data pack. We then visited 72 trusts to discuss the data in depth.
2. During these deep-dive meetings, we looked closely at the variation in clinical data. We discussed this detail at length with clinicians, senior provider management and all those involved in delivering anaesthesia and perioperative care services. Our aim is to identify, recognise and highlight those hospitals that demonstrate variation that improves patient outcomes by providing high-quality care and to help and support those hospitals with unwarranted variation that could be detrimental to patient outcomes.
3. Following the deep-dive meetings a report was produced for the trust highlighting good practice and areas for potential improvement in perioperative care.
4. We also discussed our findings before making the GIRFT visits with several professional bodies including the Royal College of Anaesthetists, Association of Anaesthetists, Royal College of Surgeons, Royal College of Obstetricians and Gynaecologists, and British Association of Day Surgery.

Recognising organisational changes within the NHS

While our visits focused on individual acute trusts, the way in which services are planned and delivered in the NHS is in the process of changing. In 2016, NHS organisations and local councils joined forces in every part of England to develop proposals for improved health and care. They formed new partnerships – known as Sustainability and Transformation Partnerships (STPs) – to run services in a more co-ordinated way, to agree system-wide priorities, and to plan collectively how to improve their population's health. Some areas have formed even closer partnerships known as Integrated Care Systems (ICS). The NHS Long Term Plan set out an aim that every area of England would be covered by an ICS from April 2021.

As such, for a number of the report recommendations we have identified ICSs as owners of these actions. As systems become more mature, improvement will be driven through the larger footprint of these new systems and not just at an individual trust level.

Scope of this report

The report focuses mainly on the distinct perioperative pathways integral to anaesthetic practice – namely, elective care (day case and inpatient) and emergency (non-elective) procedures. We were also keen to highlight current use of critical care for surgical patients and the developing areas within perioperative care that anaesthetists are leading.

Anaesthesia and perioperative care naturally runs alongside the surgical specialties and there are also significant overlaps with diabetes, geriatric care and intensive and critical care in particular.

This report covers the care of adult surgical patients only (age 18 and older). We excluded specialist hospitals that only undertook paediatric, cardiothoracic or ophthalmic surgery from the analysis of HES data.

Recommendations

Day case surgery

Recommendation	Actions	Owners	Timescale
1. Ensure that day case surgery is the default for all suitable elective surgical procedures.	a Ensure patients are made aware in primary care at time of referral for possible surgery that their procedure is likely to be conducted as a day case.	ICS	For immediate action
	b Confirm or establish a dedicated preoperative assessment and preparation process for the day case surgery pathway.	Trusts	For immediate action
	c Ensure there is an appropriate trust infrastructure to deliver effective day case surgery.	Trusts	For immediate action
	d Confirm or appoint an effective trust day case management team that includes clinical and nursing leads, an operational manager and a named executive trust board member responsible for the provision of day surgery.	Trusts	Within 12 months of report publication
	e Educate all trust staff in the importance of promoting day surgery (over inpatient surgery), to ensure consistent messaging to patients and families.	Trusts	For immediate action
	f Separate day case surgery pathways from inpatient surgical pathways, to ensure the continuation of day case surgery during surge conditions.	Trusts	For immediate action
	g Develop generic and procedure-specific day case guidelines and pathways, consistent with GIRFT surgical pathways.	Trusts	Within 12 months of report publication
	h Develop emergency ambulatory surgical pathways.	Trusts	Within 24 months of report publication

Day case surgery

Recommendation	Actions	Owners	Timescale
<p>2. Ensure that metrics are appropriately recorded and monitored using available tools³⁴ to inform successful day case delivery.</p>	<p>a Ensure day case surgery is coded as a surgical procedure on day case pathway.</p>	Trusts	Within 12 months of report publication
	<p>b Record when day case patients have converted to inpatients and the reason for that conversion.</p>	Trusts	For immediate action
	<p>c Review day case metrics monthly.</p>	Trusts	For immediate action
	<p>d Disseminate data on successful day surgery, cancellations on the day of surgery and unplanned admissions to all staff involved in the day surgery pathway.</p>	Trusts	For immediate action
	<p>e Benchmark day case success rates using British Association of Day Surgery (BADs) and Model Hospital metrics. Integrated Care Systems (ICSs) to benchmark provider trusts as part of a Quality and Efficiency dashboard.</p>	Trusts, ICSs	Within 12 months of report publication
	<p>f Conduct follow-up for all day case patients with a next-day telephone call to audit postoperative pain, nausea and vomiting, patient satisfaction and patient feedback.</p>	Trusts	For immediate action
	<p>g Provide all day case surgical patients with a telephone contact number for postoperative advice.</p>	Trusts	For immediate action
	<p>h Ensure ICSs assume a leadership role* where required, to ensure that day surgery becomes the default option unless an inpatient stay is unavoidable. (*Trusts to retain responsibility for the delivery of day-to-day services.)</p>	ICS	For immediate action

³⁴ Tools for this purpose can be found on the NHS Model Hospital website (<https://www.model.nhs.uk>) and in the BADs Directory <https://bads.co.uk/>

Elective inpatient surgery

Recommendation	Actions	Owners	Timescale
3. Deliver enhanced recovery ³⁵ across all elective inpatient surgical pathways.	a Develop (or reinvigorate) an enhanced recovery culture, driven by a team-wide approach covering nurses, doctors, anaesthetists, surgeons, dieticians, physiotherapists and everyone involved in the perioperative pathway.	Trusts	Within 12 months of report publication
	b Ensure quarterly review and feedback of the appropriate metrics related to enhanced recovery.	Trusts	Within 12 months of report publication
	c Join the Perioperative Quality Improvement Programme (PQUIP) in order to improve patient care. (see https://pqip.org.uk/content/home)	Trusts	Within 12 months of report publication
	d Ensure that patients undergoing a caesarean section are on an enhanced recovery pathway.	Trusts	Within 24 months of report publication
4. Admit patients for elective inpatient surgery on the day of surgery.	a Ensure that the appropriate preoperative assessment and preparation processes are in place to facilitate day of surgery admissions and to avoid day-of-surgery cancellations.	Trusts	Within 24 months of report publication
	b Use 'patient hotels' for patients travelling long distances for surgery.	Trusts	Within 12 months of report publication
5. Record the rates of and reasons for day-of-surgery cancellations for elective surgical patients.	a Capture and monitor surgical cancellation data in real time and act on it to improve pre- and postoperative processes.	Trusts	Within 12 months of report publication
	b Ensure that the rates of and reasons for cancellations are collected and fed back to the appropriate clinicians and managers in a timely manner.	Trusts	Within 12 months of report publication

Emergency surgery

Recommendation	Actions	Owners	Timescale
6. Ensure effective multidisciplinary input into all emergency surgery pathways.	a Ensure a timely approach, with multidisciplinary input, to all emergency procedures.	Trusts	For immediate action
	b Provide appropriate information to patients and their relatives around outcome in emergency surgery to enable shared decision-making.	Trusts	For immediate action
	c Assess and record frailty and delirium before emergency surgery.	Trusts	For immediate action
	d Record a predicted 30 day mortality rate for all high-risk surgery (>1%).	Trusts	For immediate action
	e Ensure that patients have access to postoperative rehabilitation, provided both in hospital and in the community.	Trusts	For immediate action

³⁵ Enhanced recovery is a patient pathway that prioritises quality of care and patient participation in their own care, to enable patients to recover more quickly following elective surgery and to allow early, safe discharge with minimal readmission rates. It begins with preoperative assessment and continues until the patient is discharged.

Use of critical care for surgical patients

Recommendation	Actions	Owners	Timescale
7. Develop and provide enhanced care ³⁶ to the appropriate elective and emergency surgical patients. ³⁷	a Develop enhanced care as described in the recent guidance from the Faculty of Intensive Care (FICM) and the Centre for Perioperative Care (CPOC).	Trusts	Within 12 months of report publication
	b Develop a local process to identify patients who would benefit from enhanced care.	Trusts	Within 12 months of report publication
	c Ensure that enhanced care is multidisciplinary.	Trusts	Within 12 months of report publication
	d Integrate enhanced recovery with enhanced care.	Trusts	Within 12 months of report publication
	e Ensure enhanced care does not prevent the appropriate development of Level 2/3 intensive care.	Trusts	Within 12 months of report publication
8. Audit all patients on surgical pathways that involve enhanced and intensive care.	a Ensure optimal flow of surgical patients through enhanced care and intensive care pathways.	Trusts	Within 12 months of report publication
	b Audit and review planned admissions, unplanned admissions and readmissions to enhanced care and intensive care.	Trusts	Within 12 months of report publication
	c Review and improve the appropriate use of enhanced and intensive care on an ongoing basis using audit data.	Trusts	Within 12 months of report publication

³⁶ Enhanced care is a level of care above that offered by a standard acute ward but below that of critical care. It is particularly suitable for patients after surgery, who may require close monitoring.

³⁷ We recognise that some work to promote and develop enhanced care is already under way. These recommendations seek to support and further develop this work.

Perioperative medicine

Recommendation	Actions	Owners	Timescale
9. Integrate perioperative care across all surgical pathways.	a Develop a local multidisciplinary and multi-specialty team to deliver perioperative care.	Trusts	For immediate action
	b Ensure regional-level standardisation of perioperative care through clinically-led networks.	ICS, Trusts	For immediate action
	c Incorporate best practice as described by the Royal College of Anaesthetists (RCoA) guidance to deliver perioperative medicine that is aligned with Integrated Care Systems (ICS).	ICS, Trusts	For immediate action
10. Ensure that shared decision-making (SDM) takes place throughout the surgical pathway.	a Incorporate SDM across all surgical pathways.	Trusts	For immediate action
	b Ensure SDM is linked to the 'Choosing Wisely' recommendations. (see https://www.choosingwisely.co.uk/about-choosing-wisely-uk/)	Trusts	For immediate action
	c Ensure all staff involved in perioperative care are trained in SDM in line with NICE guidelines (update document awaited).	Trusts	Within 12 months of report publication
	d Triage all identified high-risk surgical patients (those with a predicted 30-day mortality risk >1%) from the pre-assessment clinic to ensure they receive a medically-led SDM consultation.	Trusts	Within 12 months of report publication
	e Make certain that SDM consultations deliver decisions around choice, alternative treatments (including no surgery) and realistic expectations for outcome, recovery and rehabilitation based on clearly delivered information.	Trusts	Within 12 months of report publication
	f Obtain informed consent from patients in line with the ruling of the Montgomery Judgment.	Trusts	For immediate action
11. Deliver generic preoperative assessment with expansion to perioperative medicine clinics for higher-risk patients.	a Develop a generic, nurse-led preoperative assessment system.	Trusts	Within 12 months of report publication
	b Provide a unified pre-assessment team (not defined by individual surgical specialty) to avoid siloed working and mitigate resistance to standardised pathway organisation.	Trusts	Within 12 months of report publication
	c Provide medically-led perioperative clinics to optimise patients' medical conditions (clinic time should be formally job planned).	Trusts	Within 12 months of report publication
	d Develop virtual, telephone or face-to-face consultation options as appropriate.	Trusts	Immediate
	e Use formal frailty assessment where appropriate to guide referral to geriatrician, occupational therapist and discharge co-ordinator.	Trusts	Within 12 months of report publication
	f Ensure the pre-assessment team includes targeted involvement from other healthcare professionals, such as pharmacists, physiotherapists, dieticians and specialist nurses.	Trusts	Within 12 months of report publication

Perioperative medicine (continued)

Recommendation	Actions	Owners	Timescale
11. Deliver generic preoperative assessment with expansion to perioperative medicine clinics for higher-risk patients.	g Ensure healthy patients undergoing minor or intermediate surgery are not routinely given unnecessary preoperative tests, as recommended by NICE guideline NG45.	Trusts	For immediate action
	h Develop pathways to enhance preoperative risk assessment by including use of validated risk scoring systems or survival prediction models and availability of more advanced perioperative testing procedures (e.g. cardiopulmonary exercise testing).	Trusts	For immediate action
	i Employ digital solutions for pre-assessment documentation with full integration across both trust and primary care electronic patient record systems.	Trusts	Within 12 months of report publication
	j Establish effective communication links with primary care teams to facilitate and support optimisation of acute and chronic medical conditions before surgery.	Trusts	Within 12 months of report publication
	k Provide preoperative support for patients to engage in change activities, including lifestyle factors (e.g. weight loss, smoking cessation, alcohol reduction and increased physical activity).	Trusts	For immediate action
	l Ensure all staff are trained to incorporate 'Making every Contact Count' principles into pre-assessment pathways.	Trusts	For immediate action
12. Ensure effective perioperative care for patients with diabetes.	a Implement the recommendations set out in recent publications from the National Confidential Enquiry into Patient Outcome and Death (NCEPOD), GIRFT Diabetes National Specialty Report recommendations and the forthcoming Centre for Perioperative Care (CPOC) document to improve perioperative care of patients with diabetes.	Trusts	For immediate action
	b Ensure a recent HbA1C (glycated haemoglobin) measurement is available within three months of surgery for all patients with diabetes.	Trusts	For immediate action
	c Promote and develop effective lines of communication between the perioperative team and the diabetes specialty teams.	Trusts	For immediate action
	d Ensure all staff managing surgical patients are fully educated on appropriate perioperative management pathways for patients with diabetes.	Trusts	For immediate action
13. Optimise the use of blood products through effective perioperative blood management.	a Encourage perioperative teams to collect data on perioperative blood and blood product transfusions with three monthly review of usage in conjunction with a transfusion committee.	Trusts	For immediate action
	b Ensure that all current national guidelines on perioperative blood management are followed (NICE guideline NG24 and Mueller et al. (2019)).	Trusts	For immediate action

Perioperative medicine (continued)

Recommendation	Actions	Owners	Timescale
13. Optimise the use of blood products through effective perioperative blood management.	c Establish early access to haemoglobin levels through primary care and preoperative assessment clinics. (A low haemoglobin measurement should trigger simultaneous access to haematinics to assess cause of preoperative anaemia.)	Trusts	For immediate action
	d Ensure that effective pathways exist for further investigation of anaemia if there is a suspicion of malignancy.	Trusts	Immediate
	e Establish a process whereby perioperative teams audit anaemia management through levels of blood transfusion, readmission rates and post-discharge anaemia rates.	Trusts	Within 24 months of report publication
	f Develop local guidelines for anaemia levels that would benefit from treatment in different surgical procedures.	Trusts	Within 12 months of report publication
	g Establish oral and IV iron pathways in primary and secondary care with agreed shared responsibilities.	Trusts	Within 12 months of report publication
	h Ensure cell salvage systems are available when required in all surgical specialities through infrastructure, staff training and audit of use.	Trusts	Within 12 months of report publication
14. Develop and implement perioperative pathways and protocols for managing pain medication.	i Educate all staff on the wards regarding postoperative transfusion triggers.	Trusts	Within 12 months of report publication
	a Follow the Royal College of Anaesthetists (RCoA) 'Opioids Aware' guidance ¹⁹² on pain management and ensure both staff and patients are educated as to the risks and signs of opioid addiction.	Trusts	For immediate action
	b Ensure that preoperative initiation of a pain management pathway is followed for all patients. (In more complex patients, referral to a pain specialist may be required.)	Trusts, Primary care	For immediate action
	c Establish systems to identify patients early in the perioperative pathway who have pre-existing opioid use for pain issues related to surgery (e.g. hip pain) or unrelated to surgery (e.g. chronic myalgia), or patients who have had a previous poor experience with postoperative pain.	Trusts	For immediate action
	d Ensure all staff have a clear understanding that inpatient pain management is integral to perioperative care and that a specialist pain team is available as required.	Trusts	For immediate action
	e Review discharge prescribing and ensure patients on opioid medications are followed up.	Trusts, Primary care	Within 12 months of report publication
f Ensure patients are discharged with no more than five days' supply of opioids, GPs are informed and the patient is given a copy of the Opioids Aware leaflet 'Taking Opioids for Pain'.	Trusts	For immediate action	

Workforce and capacity

Recommendation	Actions	Owners	Timescale
15. Ensure that the workforce reflects the needs of a rapidly developing anaesthesia and perioperative service.	a Continue to examine the future staffing requirements for anaesthesia and perioperative care teams.	RCoA, NHS England and NHS Improvement, Health Education England	For immediate action
	b Ensure that all work undertaken by anaesthetists, whether or not it is within the theatre environment, is accurately recorded.	Trusts	For immediate action
	c Ensure that anaesthetists' job plans reflect the entire spectrum of work being delivered.	Trusts	Within 12 months of report publication
	d Implement electronic rota systems in all anaesthetic departments.	Trusts	Within 24 months of report publication
	e Consider how best to deploy Anaesthetic Associates, matching their skills and competences to the tasks required to ensure optimal functioning of the perioperative team.	Trusts	Within 24 months of report publication
	f Identify tasks that do not need to be undertaken by an anaesthetist but could be assigned to other staff.	Trusts	Within 12 months of report publication

Clinical coding for anaesthetics and perioperative medicine

Recommendation	Actions	Owners	Timescale
16. Mandate a specific dataset which effectively captures the hospital activity and input for the anaesthetic and perioperative medicine team as a priority.	a Ensure surgical pathway coding is appropriate, especially concerning admission on an intended day case pathway, to be differentiated from elective inpatient admission.	Trusts	Within 12 months of report publication
	b Investigate the need for inclusion of codes to record perioperative activity.	NHS Digital – specifically the Terminology and Classification Delivery Service (TCDS)	Within 12 months of report publication
	c Ensure that there is collaboration between GIRFT and NHS England and NHS Improvement to develop a list of new mandated data items for currently uncoded anaesthetic care in theatres with a view to this being implemented by NHS Digital.	GIRFT, NHS England and NHS Improvement, NHS Digital	Within 24 months of report publication
	d Review and improve processes for clinical data capture and code assignment to ensure that no clinical factors that can be captured using the clinical classifications are missed (with particular reference to pre-admission data/co-morbidities and the operation record).	Trusts	Within 24 months of report publication
	e Use all relevant data captured within theatre systems to produce information on the volume and quality of anaesthetic activity conducted, and use the electronic patient record to improve coding wherever possible.	Trusts	Within 24 months of report publication
	f Investigate and improve the accuracy of procedural coding for caesarean sections as necessary, using a regular process of data validation involving a responsible named clinician and a clinical coding team representative.	Trusts	Within 24 months of report publication

Procurement and sustainability

Recommendation	Actions	Owners	Timescale
17. Use data on sustainability of surgical and anaesthetic practice to drive down the environmental impact of surgery.	a Develop strategies to reduce the use of volatile anaesthetic agents and nitrous oxide in anaesthesia.	Trusts	Within 12 months of report publication
	b Develop sustainable procurement of anaesthetic consumables, including waste recycling.	Trusts	Within 12 months of report publication

Litigation

Recommendation	Actions	Owners	Timescale
<p>18. Reduce litigation costs by application of the GIRFT programme's five-point plan (this is the standard litigation guidance that applies to all GIRFT reports).</p>	<p>a Clinicians and trust management to assess their benchmarked position compared to the national average when reviewing the estimated litigation cost per activity. Trusts will have received this information in the GIRFT 'Litigation data pack'.</p>	Clinicians and trust management	For immediate action
	<p>b Clinicians and trust management to discuss with the legal department or claims handler the claims submitted to NHS Resolution to confirm correct coding to that department. Inform NHS Resolution of any claims which are not coded correctly to the appropriate specialty via CNST.Helpline@resolution.nhs.uk</p>	Clinicians and trust management	Upon completion of A
	<p>c Once claims have been verified, clinicians and trust management to further review claims in detail including expert witness statements, panel firm reports and counsel advice as well as medical records to determine where patient care or documentation could be improved. If the legal department or claims handler needs additional assistance with this, each trusts panel firm should be able to provide support.</p>	Clinicians and trust management	Upon completion of B
	<p>d Claims should be triangulated with learning themes from complaints, inquests and serious untoward incidents (SUI)/serious incidents (SI)/Patient Safety Incidents (PSI) and where a claim has not already been reviewed as SUI/SI we would recommend that this is carried out to ensure no opportunity for learning is missed. The findings from this learning should be shared with all front-line clinical staff in a structured format at departmental/directorate meetings (including Multidisciplinary Team meetings, Morbidity and Mortality meetings where appropriate).</p>	Trusts	Upon completion of C
	<p>e Where trusts are outside the top quartile of trusts for litigation costs per activity GIRFT we will be asking national clinical leads and regional hubs to follow up and support trusts in the steps taken to learn from claims. They will also be able to share with trusts examples of good practice where it would be of benefit.</p>	Trusts	Ongoing

Findings and recommendations

Day case surgery

With over seven million surgical procedures performed per year³⁸ across the NHS, streamlining surgical pathways is one of the best routes to improved efficiency, substantial cost savings and patient benefits in terms of reduced waiting times and improved outcomes. We believe that the best way to achieve this is through increasing day case surgery as a proportion of overall elective surgeries.

What constitutes day case surgery?

The definition of day surgery in Great Britain and Ireland is clear:

“the patient is admitted and discharged on the same day, with day surgery as the intended management.”

(The Association of Anaesthetists and the British Association of Day Surgery, 2019)³⁹

This section considers the case for increasing the overall proportion of elective surgery conducted on a day case basis.

Day case surgical admissions

In 2000 the NHS Plan⁴⁰ set out the benefits of increasing day cases as a proportion of elective surgery and produced an operational policy in 2002 to facilitate this. This was followed in 2013/14, by a King's Fund report⁴¹ that addressed the opportunities and the potential benefits that day surgery could deliver. This report included a projection that 1.5 million extra elective patients could be treated over the course of a decade (from 2013/14 to 2023/24) by gradually increasing the proportion of day case activity with no real increase in total spending.

It is now widely accepted within the NHS that for a significant number of high-volume procedures, day case surgery should be the default option. If one hospital trust fails to offer a day case pathway for a given procedure where another comparable hospital does so, not only does this represent inequity of choice for patients, there are also considerable cost implications for the NHS.

COVID-19 and day case delivery

Following the COVID-19 pandemic and due to service reconfiguration, inpatient bed availability will be significantly reduced and it will be imperative to rapidly develop provision for elective and urgent surgery via efficient and 'ultra-green' pathways. Aside from the very considerable cost savings and benefits to patients (most of whom are keen to avoid an unnecessary inpatient stay, with all this entails), when appropriately arranged, day case surgery can continue more or less independently, even when the overall hospital system is under increased pressure from emergency medical or surgical admissions. This helps to mitigate delays to elective surgery from surges in emergency medical and surgical admissions. It can also alleviate pressure by reducing surgical waiting lists. For all these reasons, the delivery of high-quality day surgery pathways is crucial to the recovery of our surgical services.

Increasingly, day case surgery affords a safer environment for patients and enables the NHS to tackle expanding waiting lists and reduce the secondary impact of COVID-19 as it relates to morbidity associated with delayed surgery.

There has never been a more important time to push the boundaries of day surgery. It is vital that, whenever surgery is contemplated, we ask:

- Is there an advantage to admitting this individual patient into hospital preoperatively or postoperatively?
- If so, does that advantage outweigh the potential risk of infection associated with hospital admission?

³⁸ GIRFT anaesthesia and perioperative medicine workstream data derived from English Health Episode Statistics.

³⁹ Bailey, C. R., Ahuja, M., Bartholomew, K. et al. (2019), Guidelines for day case surgery 2019: guidelines from the Association of Anaesthetists and the British Association of Day Surgery, <https://associationofanaesthetists-publications.onlinelibrary.wiley.com/doi/10.1111/anae.14639>

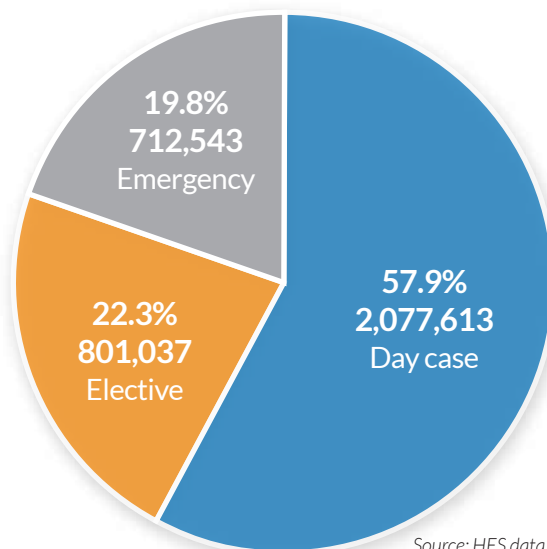
⁴⁰ Department of Health (2000), The NHS Plan: a plan for investment, a plan for reform, https://www.webarchive.nationalarchives.gov.uk/+http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4002960

⁴¹ Appleby, J. (2015), Day case surgery: a good news story for the NHS, The King's Fund, <https://www.kingsfund.org.uk/blog/2015/07/day-case-surgery-good-news-story-nhs>; also published in the BMJ 29 July 2015, BMJ 2015;351:h4060, <https://www.bmj.com/content/351/bmj.h4060.full>

What is happening to day case admissions?⁴²

Around 58% of all surgical admissions requiring use of a theatre and presence of an anaesthetist are being reported as day case admissions (see **Figure 6** below) at trust level. This increases to 72% when we consider day cases as a proportion of elective surgical cases (admissions which are reasonably predictable in comparison to emergency admissions).

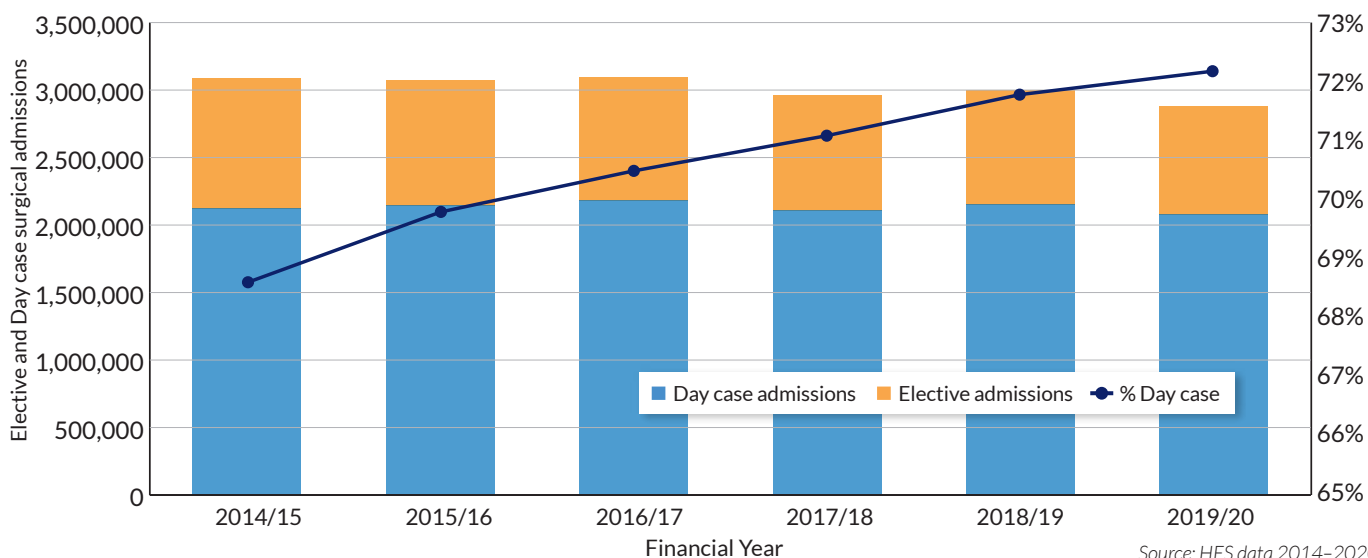
Figure 6: Admission type as proportion of surgical admissions, England, 2019/20



Source: HES data 2019/20

The proportion of procedures recorded as day cases or elective admissions remains dependent on coding accuracy and the case selection for surgical admissions. GIRFT figures demonstrate that the number of surgical day case admissions as a proportion of surgical elective admissions has increased steadily since 2014 (see **Figure 7**). (Note that Figure 7 includes only those surgical admissions for procedures that usually require a theatre and an anaesthetist. If surgical procedures that do not typically require a theatre and an anaesthetist were also included, day cases would by 2019/20 equate to 82% of all elective surgical admissions.)

Figure 7: Proportion of day case as percentage of surgical admissions by year



Source: HES data 2014–2020

⁴² The analysis in this section and used to develop Figures 6 to 9 uses the recognised, published criteria for the selection of surgical admissions data, selecting only those surgical admissions that require the presence of an anaesthetist and use of a theatre. See Abbott, T. E. F., Fowler, A. J., Dobbs, T. D. et al. (2017), Frequency of surgical treatment and related procedures in the UK: a national ecological study using hospital episode statistics, *British Journal of Anaesthesia* 119 (2): 249–257, doi: 10.1093/bja/aex137, <https://www.ncbi.nlm.nih.gov/28854546/>

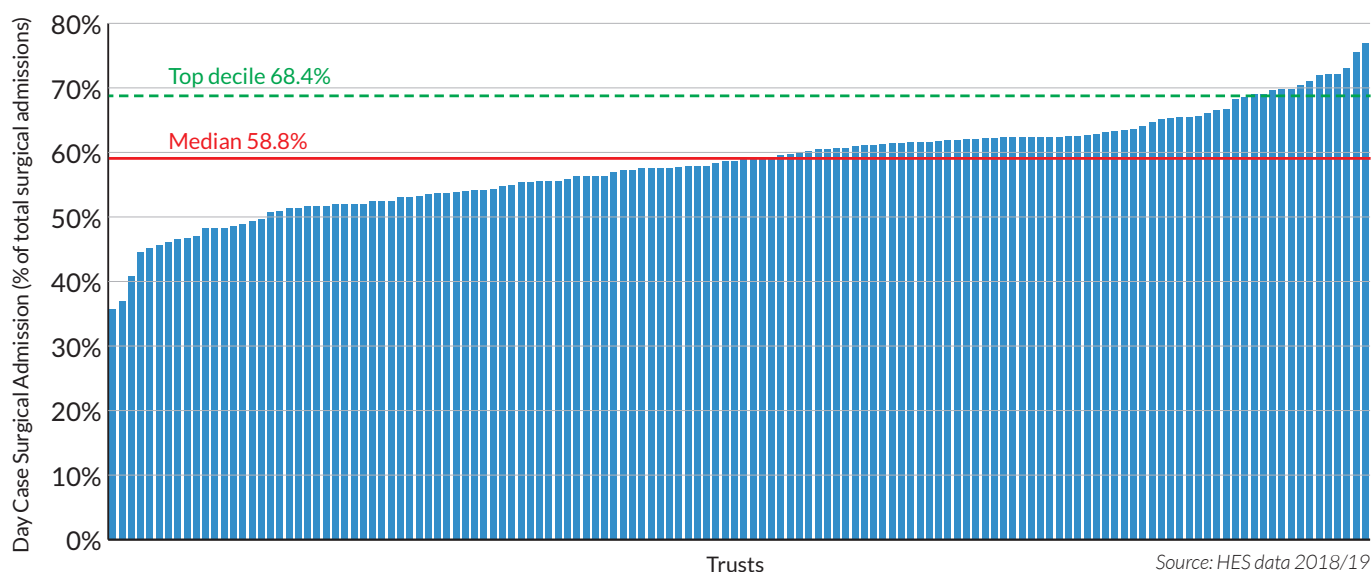
Whichever headline figure is accepted, in combination with the demonstrated trend in day case proportions, the data is supportive of the fact that there is an increasing move towards replacing elective inpatient surgical work with day case procedures for the benefit of hospitals and patients.

This gradual shift in terms of how the NHS delivers elective surgical work could be interpreted as a considerable success story. It certainly lends data to support the notion that the government's initial aspirational target for day cases (set in 2000⁴³) to be 75% of elective surgery, has been delivered, even with the increase in surgical complexity that has occurred over this time.

However, undermining this overall optimism, is the fact that at individual trust level there remains considerable variation between levels of day case admission. The reported level of day case admissions (as a proportion of total surgical admissions, as seen in **Figure 8** below) ranges from 36% to 77% (median 58%). Only 15 trusts were in the top decile, with values above 68% of total surgical admissions.

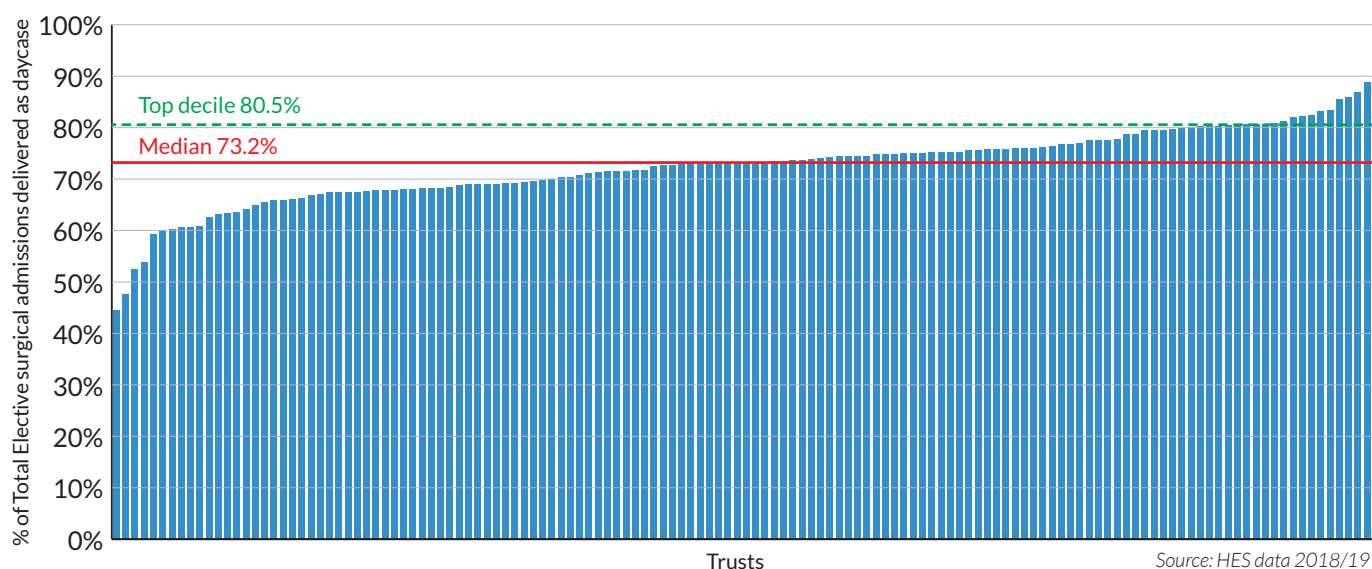
Similar degrees of variation exist around the trust level of day case admissions as a proportion of elective surgical procedures (see **Figure 9**). The large trust variation range of 44%–89% warrants further exploration.

Figure 8: Day case admissions as a proportion of total surgical admissions (elective - day case and inpatient - and emergency admissions), by trust



⁴³ Department of Health (2000), *The NHS Plan: a plan for investment, a plan for reform*, https://webarchive.nationalarchives.gov.uk/+/http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4002960

Figure 9: Day case admissions as a proportion of elective surgical admissions (excluding emergency), by trust



Examining successful day case delivery

Reporting of a hospital admission as a day case does not necessarily mean that the intended pathway was successfully followed and the surgical procedure delivered as a day case. As such, simply looking at a trust's reported day case figures as a proportion of any form of overall hospital surgical admissions denominator (be it total or elective admissions) is unlikely to give us a true reflection of how successful the day case pathways and processes have been.

We suggest that a more meaningful way to examine the proportion of elective surgery being conducted on a basis that could better inform day case processes, is to select a group of relevant index procedures and review whether patients admitted for those procedures successfully underwent the procedure within the same day. We have used this approach to analyse GIRFT data.

Using index cases to examine successful day case delivery

We selected a set of index procedures (or groups of procedures) to investigate the trust day case success rate:

- All breast surgery (except for reconstruction).
- Trans urethral resection of bladder tumour (TURBT).
- Trans urethral resection of the prostate (TURP).
- All orthopaedic arthroscopies (including knee, shoulder and hip).
- Primary inguinal hernia repair.
- Minor anal lesions (haemorrhoids, fissures, skin tags).
- Anterior and posterior vaginal repair.
- Anterior cruciate ligament repair (ACL).
- Hemithyroidectomy (lobectomy or partial thyroidectomy).
- Tonsillectomy (adults).
- Vitrectomy.

They were chosen based primarily on surgical volume – each procedure is performed in most general hospitals in England – and represent a mix of day surgery procedures. In all cases, the surgery is elective and the patients are older than 17 years of age. We would expect to see these cases represented to some degree in the surgical case mix of the vast majority of hospital trusts running successful day case programmes.

We excluded some outlier trusts for day case procedures from our analysis. We then determined how many of these recorded day case admissions were performed as such, defined by our day case criteria outlined on page 38.

What constitutes successful day case surgery?

According to HES data, day case delivery is defined whenever the length of hospital stay (LoS) is recorded as zero days. In combination with separate coding for two forms of elective surgical admission (inpatient elective and day case), successful day case admission criteria may then be classified in two forms;

1. **An elective inpatient admission that completes surgery and discharge within the same day** – the patient is no longer in hospital at midnight on the day of surgery and the LoS is recorded as zero days. This recognises a group of patients who may, on another occasion, have been delivered on an intended day case pathway.
2. **An ‘ideal day case’ patient** – where a day case admission was coded, the patient is admitted on an intended day case surgery pathway and the surgical procedure was performed successfully with a recorded LoS = 0 (i.e. the patient was no longer in hospital at midnight the same day). This is a more rigorous coding of a surgical day case admission and follows criteria applied to day cases metrics developed by the British Association of Day Surgery (BADS) with the Association of Anaesthetists⁴⁴ in 2019 and more recently with the NHS Model Hospital.⁴⁵ The definition description considers that ‘*the patient is admitted and discharged on the same day, with day surgery as the intended management.*’

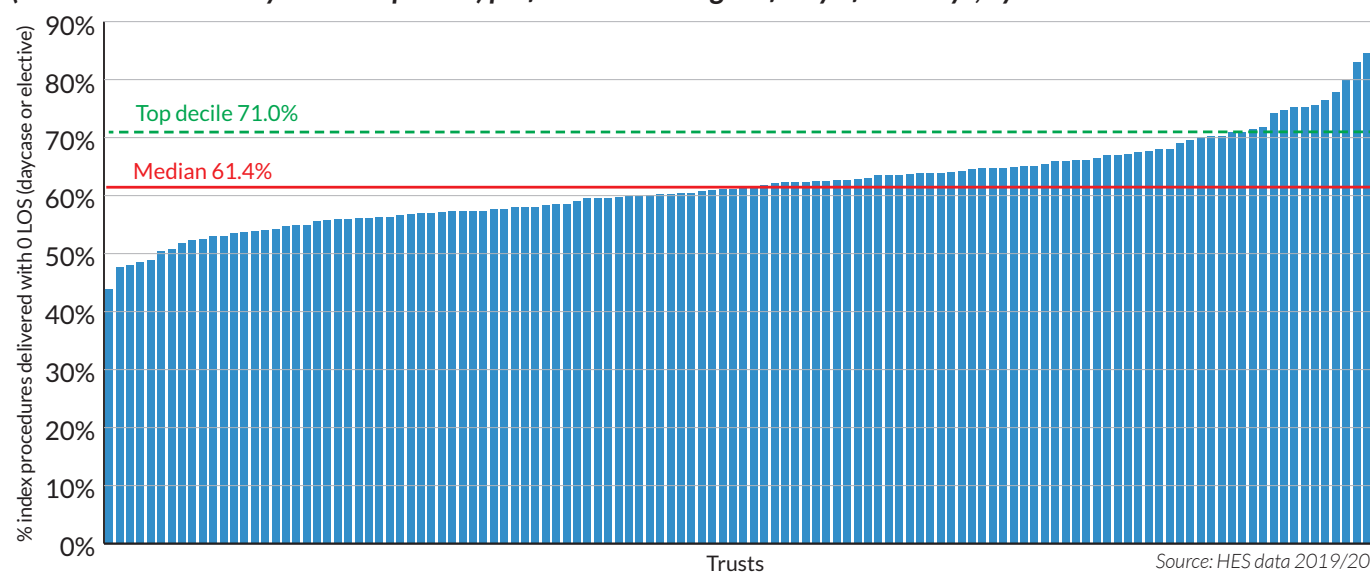
For our index procedural analysis:

- Firstly, both criteria were combined to capture all day case activity (where LoS = 0), thereby avoiding any differences in admission coding criteria. We used this to investigate national variation in successful day case delivery rates, speciality differences in day case rates and early readmission rates following day case procedures.
- Secondly, the more rigorous ‘ideal’ day case criteria was used to determine the success of intended day case delivery, by examining inpatient conversion rates.
- Thirdly, both these definitions were combined to create a method whereby trusts should be able to examine their own status for successful day case delivery, to assist in delivery improvement.

Unwarranted variation in successful day case delivery

Figure 10 demonstrates significant trust-wide variation in GIRFT Anaesthesia and Perioperative Medicine index case delivery for day case patients. The variation ranges between 44% and 83% with a median rate of 61%. Whilst the top 10% of trusts are performing these index day case procedures above a 71% success rate, the level of variation represents a considerable opportunity for improvement in successful day case surgery delivery throughout the NHS.

Figure 10: GIRFT index day case procedures – percentage of elective admissions (either admitted as day case or inpatient) performed with length of stay of zero days, by trust

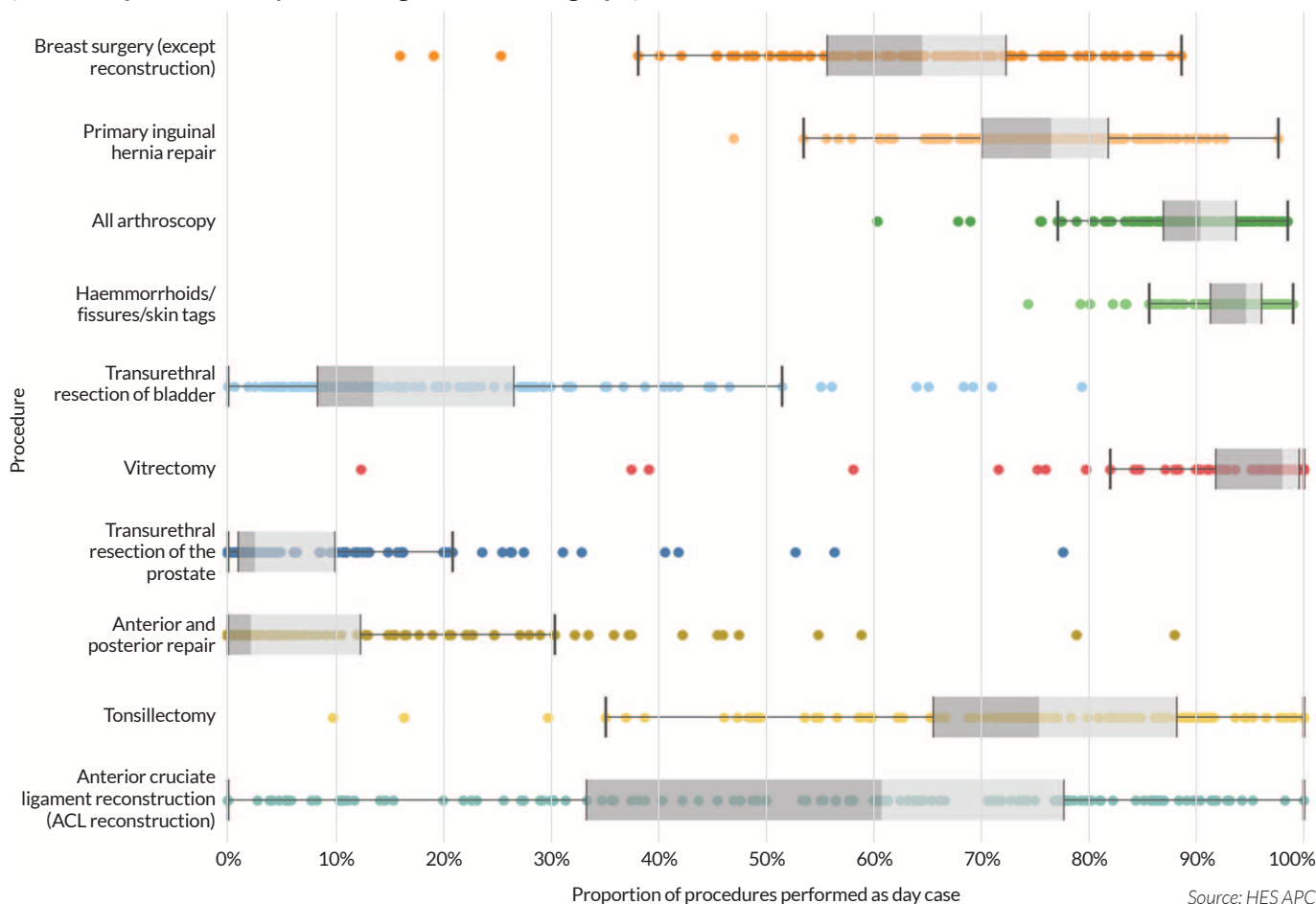


⁴⁴ Bailey, C. R., Ahuja, M., Bartholomew, K. et al. (2019), *Guidelines for day case surgery 2019: guidelines from the Association of Anaesthetists and the British Association of Day Surgery*, <https://associationofanaesthetists-publications.onlinelibrary.wiley.com/doi/10.1111/anae.14639>

⁴⁵ See <https://model.nhs.uk/>

This opportunity for increasing successful day case surgery delivery for these index cases occurs both across specialties and within specialties for different procedures. **Figure 11** below shows the variation in success rates for some of the index surgical cases across specialities. There is widespread variation between trusts for each surgical speciality, with multiple outlier trusts. The figure also demonstrates variation within specialties for different procedural types (see, for example, for orthopaedics anterior cruciate versus arthroscopy, and for urology TURP versus TURBT).

Figure 11: Speciality-based overall day case rates for selected GIRFT index procedures (see description of interquartile range beneath the graph)



Notes: Box is limited by interquartile 25%–75% range (IQR); whiskers represent the maximum values within 1.5 x IQR above 75th percentile and minimum value within 1.5 x IQR below 25th percentile. Trusts outside these limits represent outliers. TURBT = Transurethral resection of bladder tumour; TURP = Transurethral resection of the prostate

Successful day case delivery and readmission rates

As the complexity of surgery being performed as day cases increases and as each trust negotiates the learning curve for initiating new procedures delivered in this way, there is the possibility that there may be an increase in the rate of early readmissions. With this in mind, we looked at the effect of same-day surgery rates on emergency readmissions within two days of procedure.

Figure 12 shows the number of early emergency readmissions (within two days) for selected key procedures. Overall there appears to be no significant relationship between high success rates for day surgery and the incidence of readmissions, suggesting that increased readmission rates are not causally linked to same day surgery innovation. Early readmission following a surgical procedure is not the sole outcome criterion, however. In line with recent recommendations, we support the practice of telephone follow-up with patients to report pain scores and nausea, for example, and to review day case procedures wherever indicated.

⁴⁶ GIRFT, CPOC and BADS (2020) National day surgery delivery pack, <https://www.gettingitrightfirsttime.co.uk/webinar-highlights-new-advice-pack-to-help-trusts-increase-and-improve-day-surgery/>

Figure 12a: Emergency admissions within two days of surgery vs overall day case rates for specific day case procedures - Laparoscopic cholecystectomy

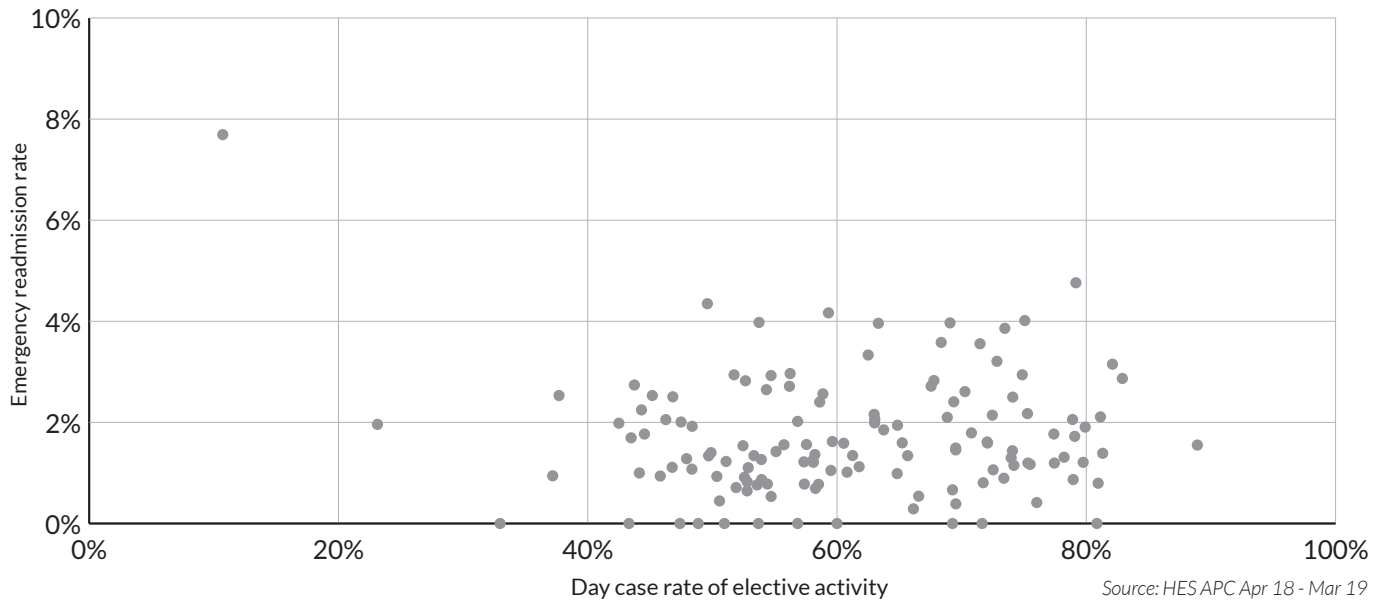


Figure 12b: Emergency admissions within two days of surgery vs overall day case rates for specific day case procedures - Tonsillectomy

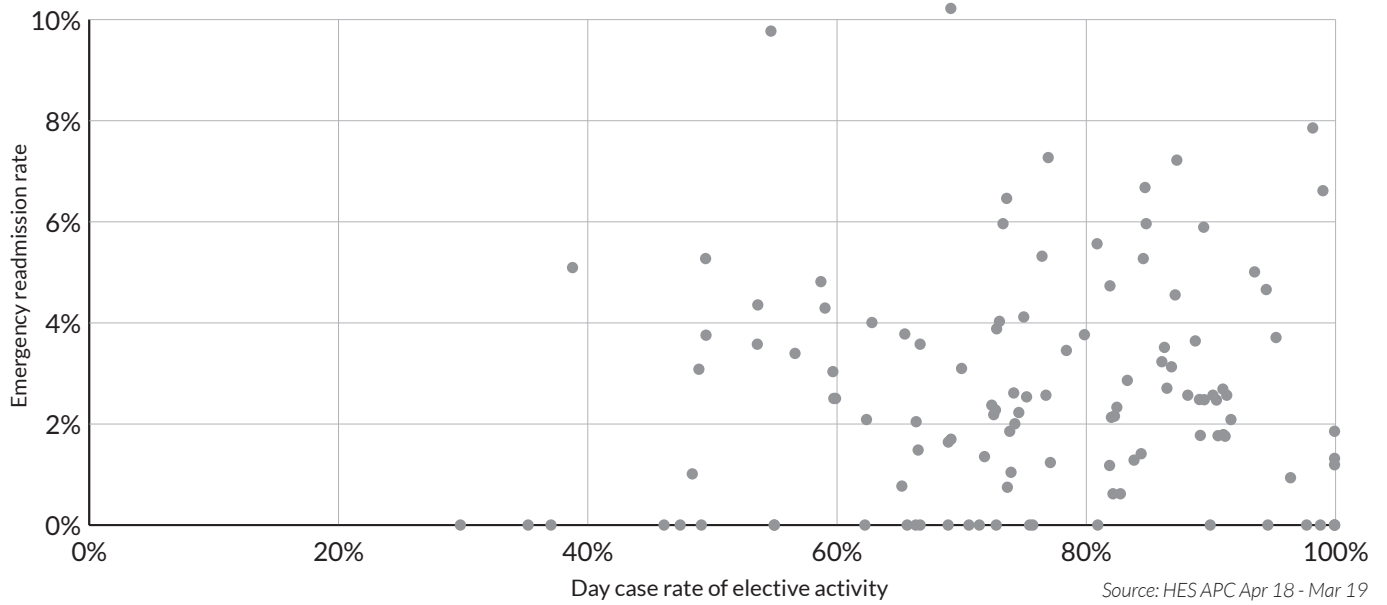


Figure 12c: Emergency admissions within two days of surgery vs overall day case rates for specific day case procedures - Breast surgery

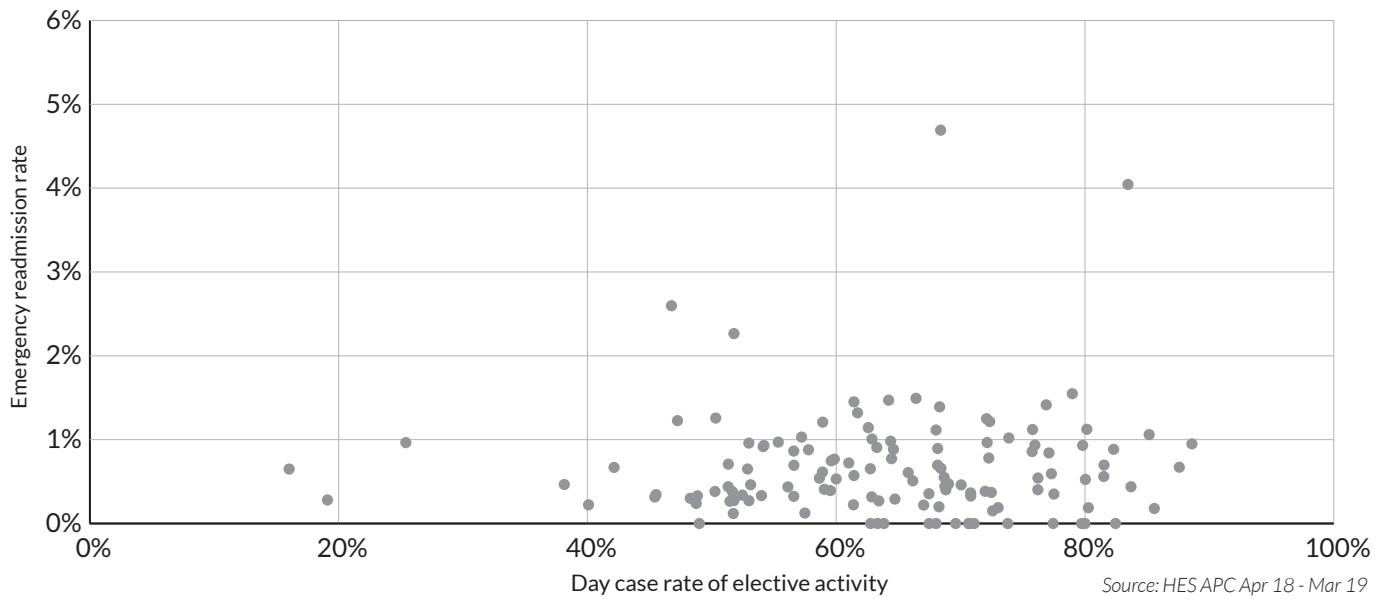
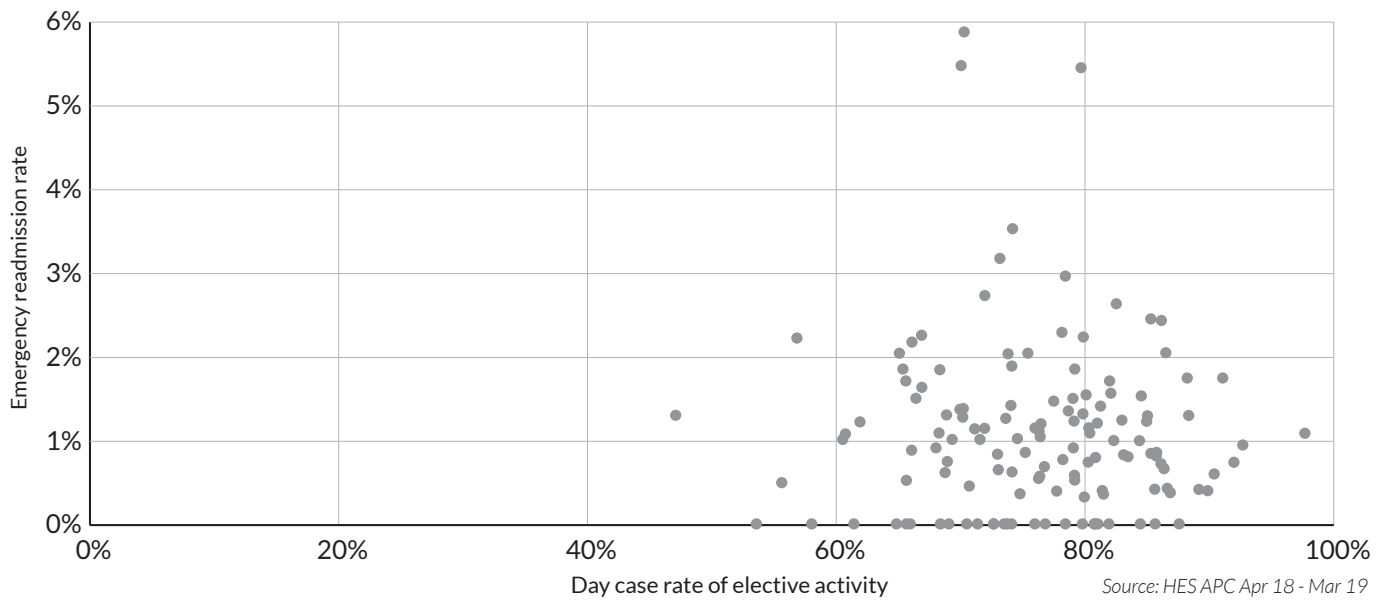


Figure 12d: Emergency admissions within two days of surgery vs overall day case rates for specific day case procedures - Primary inguinal hernia



CASE STUDY

Hospital culture attuned to the importance of day case surgery

Croydon University Hospital

Croydon University Hospital (CUH) provides surgical care to one of the largest and most diverse regions of London. The GIRFT Anaesthesia and Perioperative Medicine report team identified above-average performance in achieving day case procedures for high-volume index cases despite a higher deprivation index compared to the national average.

Some key factors in achieving this are:

- Increasing consultant presence in preoperative assessment with a dedicated daily clinic. This has reduced on-the-day cancellation rates and allows for advance planning if admission is required.
- A rigorous monthly cancellation audit identifies and focuses on constructive solutions for all cancellations and delays to treatment.
- Collaboration between surgical and anaesthetic teams has led to locally effective enhanced recovery pathways for orthopaedic, breast and thyroid surgery. This has enabled day case procedures to occur with low rates of readmission and high patient satisfaction scores.

Prior to the COVID 19 pandemic, an integrated patient pathway allowed movement of patients between separate main theatre recovery and day surgery discharge areas. Post pandemic this arrangement has ceased. However, CUH was one of the best-performing trusts locally and nationally in returning to business-as-usual activity for elective surgery.

The trust has maintained prioritised elective cancer surgery throughout the second peak, establishing a clean site 'elective centre' in an isolated area of the hospital. This is supported by the provision of Level 1.5 (enhanced) care through extended recovery times and by a recently created surgical high-dependency unit.

The success of CUH in this regard relies on a dedicated and flexible approach from all healthcare staff and management and a culture that is open to innovation.

The role of 'ideal' day case delivery pathways

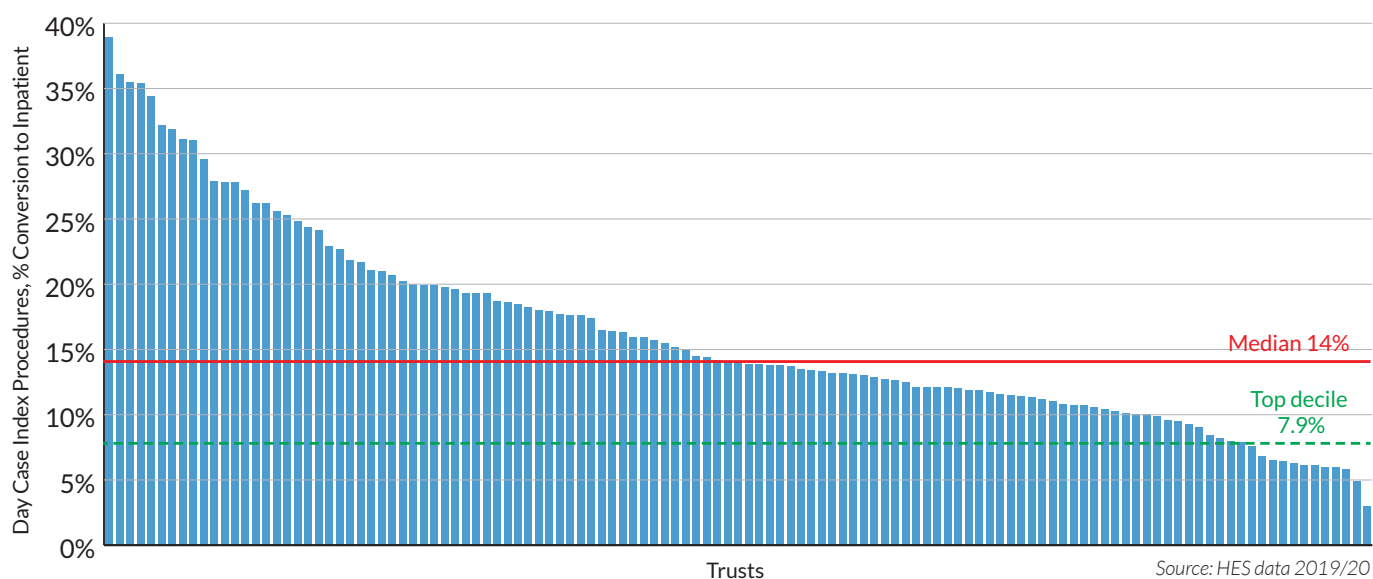
The observed marked variation between trusts and specialities in delivering successful day case surgery could be affected by differences in day case selection process, leading to a different case mix and/or complexity of patients for the same index surgical procedures. This is in contrast to the unwarranted variation between trusts in their ability to deliver effective, intended clinical pathways for day case surgery.

Using the more rigorous criteria for 'ideal' day case delivery described above, where the analysis is applied only to index cases where day case management was intended, there is a justifiable assumption that all trusts are on a level playing field in terms of the initial decision regarding the appropriateness of day case pathways for those patients undergoing the index cases, which should effectively rule out differences in patient and surgical complexities.

With this definition applied, the success of the 'ideal' day case pathway relates to the ability to perform the day case without inpatient conversion (when LoS = more than one day). Alternatively, this could be seen as the failure of intended 'ideal' day case management. The conversion of an intended day case procedure into an inpatient stay is an important metric for ideal day case effectiveness. The conversion not only affects hospital bed capacity, since the patient occupies a bed for at least one night, but, more importantly, it is not in the patient's best interests when the expectation was for same-day discharge.

On this basis, **Figure 13** (below) shows that overall, 14.0 % (median) of intended day case index procedures converted to an inpatient stay. Again, there was considerable variation (3%–39%). If all trusts performed at the level of the top decile (7.9 %), there would be a significant saving in terms of reduced bed occupancy due to unnecessary inpatient admissions.

Figure 13: GIRFT index day case procedures converting to inpatient stays (length of stay more than 1 day) (data uses the 'ideal' day case criteria)



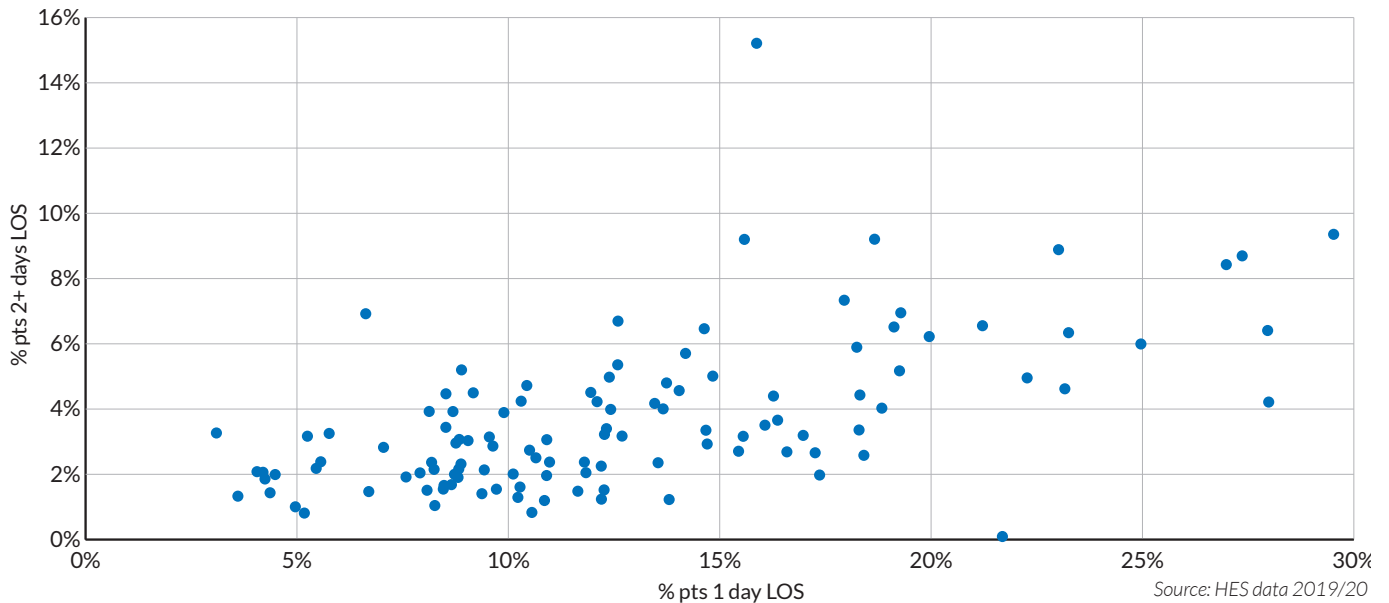
There may be multiple, complex reasons why patients have to stay at least one night in hospital after an intended day case procedure. Often the stay is limited to an overnight admission, with discharge the next day. This overnight stay is often related to an unforeseen or poorly controlled surgical or anaesthetic postoperative issues such as nausea, vomiting or continuing pain.⁴⁷ Alternatively, a trust's day case infrastructure and culture may make it easier to admit the patient into an overnight bed space rather than send the patient home.

In some cases, inpatient conversion is more than an overnight stay (more than 1 day). This type of conversion is more complex. It may be related to an issue around the initial poor choice of day surgery patients and/or the type of procedures being performed. However, in more innovative units where new procedures are being trialled, initial inpatient conversion rates may be higher and could be attributable to a learning curve.

Our data shows some evidence of an association between the two forms of admissions. **Figure 14** shows this association between the percentage of planned day case surgery patients who stayed overnight (1 day) following an attempted day case procedure, against those who had longer stays (more than 1 day) for each trust. Our impression from this data and from our discussions with clinicians during GIRFT visits, is that trusts successful at day case delivery have been significantly better at controlling overnight admissions through the implementation of well-defined pathways of care, the use of surgical trolleys rather than beds (emphasising the need for early mobilisation and preventing admission to a hospital bed) and having efficient protocols and guidelines in place to prevent minor complications that could delay discharge.

⁴⁷ GIRFT, Centre for Perioperative Care and British Association of Day Surgery (2020) National day surgery delivery pack, <https://www.gettingitrightfirsttime.co.uk/webinar-highlights-new-advice-pack-to-help-trusts-increase-and-improve-day-surgery/>

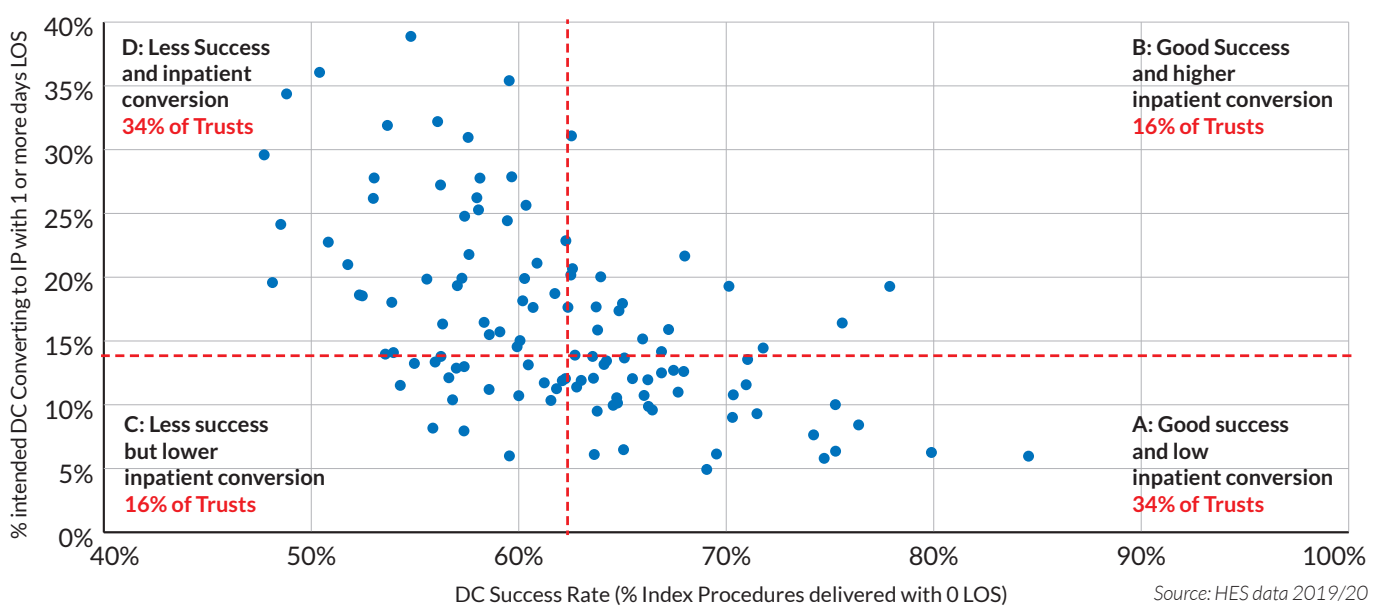
Figure 14: GIRFT index day case procedures: relationship between the percentage of 'ideal' day cases that converted to inpatient stays of 1 day or more than 1 day.



Understanding successful day case delivery

Combining the two criteria for successful day case surgery delivery, namely the overall delivery rates for all elective surgery where LoS = 0 and the 'ideal' day case conversion rates, it may be possible to develop a degree of understanding around causality of successful day case delivery. This concept is developed further in **Figure 15**.

Figure 15: Relationship between day case success and conversion rate to inpatient (1+ days), by trust - Median levels



Interpretation of this quadrant graph may help to explain some of the variation in the successful delivery of day case surgery between trusts where;

- Quadrant A could be considered the optimal quadrant for trusts to be positioned. Trusts here are demonstrating high rates of overall day case success (>62%) alongside and fuelled by the successful delivery of ideal day case pathways (as shown by the low rates of inpatient conversion of <12%). Trusts showing this degree of success will possibly look to improve further towards the upper decile levels and showcasing best practice.
- Trusts situated in Quadrant B show high overall day case success rates but some higher rates of intended day cases being converted to inpatients. Our deep-dive visits demonstrated that some trusts develop this pattern when attempting to deliver new day case pathways and this may represent a learning curve for innovation and development of newer pathways. This is to be expected but would require careful monitoring of day case pathways throughout the improvement process.
- Trusts situated within Quadrant C have low conversion rates where day cases are being performed through dedicated day case pathways but low overall rates of day case delivery. This pattern could be related to limited cultural change around day case delivery or barriers existing within some specialities around day case delivery. In this case, investigation of the barriers for cultural change and examples of speciality best practice may help improve day case delivery.
- Trusts situated within Quadrant D may be struggling in terms of day case delivery. Low overall success in day case rates and high rates of inpatient conversion of intended day case surgery suggest widespread failings in day case delivery. This should encourage review of both day case pathways and the barriers to increasing day case rates overall.

CASE STUDY

Increasing day case success rates

Airedale NHS Foundation Trust

In 2017 the unit's rate for overnight admissions was 10%. After careful review, analysis of data and discussions with clinicians, it was established that 60% of these admissions were avoidable. A series of changes to practice and culture have reduced the admission rate following day surgery to a consistent 5%.

Key changes include:

- Scheduling – wherever possible day case surgery is done before inpatient surgery and laparoscopic cholecystectomy (which has the longest recovery time for a day surgery procedure) to be done first, ideally in the morning. This allows more time for patients to fully recover before the day ward closes.
- Nurse-led discharge – nurses were supported to develop enhanced and advanced level skills in criteria-led (and not time-led) discharge on behalf of the wider MDT and as part of this initiative. Previously, custom rather than clinical need had meant that every laparoscopic cholecystectomy patient arriving in PACU after 15:00 was admitted overnight. This is no longer the case. The unit utilises nursing skillsets, expertise and knowledge under appropriate governance arrangements to enable nurses to manage the discharge of patients later into the evening, after the day ward has closed.
- Post-Operative Urinary Retention Policy (POUR) – this allows low-risk patients not having surgery on the genito-urinary tract to be discharged home without having passed urine postoperatively, with a back-up plan in case they were to develop urinary retention.
- Reduced use of morphine – the introduction of nurse-led intravenous fentanyl as rescue analgesia reduces the need for morphine, which is a slow-acting drug with long-lasting side-effects. Fentanyl is much quicker acting (reducing the likelihood of inappropriate repetitive dosing to manage acute pain) with fewer and shorter side-effects.
- Other analgesia trials – anaesthetists are investigating alternative analgesics including multi-modal analgesia, regional and local anaesthesia and shorter-acting opioids. A trial of a new local anaesthetic technique for laparoscopic cholecystectomy is also ongoing.
- 'Sip until we send' – a policy of liberal fluid fasting means fewer patients become dehydrated and suffer associated side-effects of anaesthesia, particularly post-operative nausea and vomiting.

Towards increased delivery of day case surgery

Using data derived from HES analysis and information gathered from the trust deep dives, we examine potential ways to increase NHS day case rates.

Benchmarking day case delivery

Where we have determined unwarranted variation across national and speciality-based day case success rates, it is important to set these levels against recognised, nationally recommended best practice levels in order to investigate the opportunities for improvement. These guidelines exist and have been regularly produced by the British Association of Day Surgery (BADS) since 2006.

BADS: guidance and recommended targets

BADS is an association of doctors, nurses and allied health professionals who promote day surgery. Among other work, BADS supports research and quality improvement projects and provides information about day and short-stay surgery.

Since 2006, BADS has produced a directory of procedures considered appropriate for day surgery. The directory includes comprehensive guides to procedures relating to specific HES codes and outlines by procedure the national recommended rates for zero, one and two nights' stays. Although the BADS (and Model Hospital) recommendations are aspirational, they are based on expert opinion and a review of data collected during the development of previous directories. The latest directory (2019), lists 204 procedures across 12 surgical specialties.⁴⁸ It covers the majority of surgical specialties. The BADS recommendations and the performance of individual trusts against these targets can be found in Model Hospital.⁴⁹

The BADS-recommended day case delivery rates (which also influence Model Hospital benchmarking metrics) for the index procedures are shown in **Table 2**, set alongside the GIRFT day case success rates actually achieved.

Table 2: Success rates for chosen GIRFT index procedures (HES 2018/9) alongside recommended benchmarking values (BADS Directory 2019) and Model Hospital (April 2020)

Speciality	Operation type	GIRFT (median and IQ range)	BADS recommended success (% of all day case admissions)	Model Hospital (benchmark range or value)
Breast	All (including simple mastectomy without reconstruction)	64 (55–72)	95	75–100
ENT	Tonsillectomy (Adult)	75 (65–88)	90	-
General	Primary inguinal hernia	76 (70–82)	90	90
	Minor anal operations	94 (92–96)	95	95–100
Orthopaedic	Anterior cruciate repair	61 (33–78)	90	90
	All arthroscopies	91 (77–98)	95	90–99
Gynae	Anterior or posterior vaginal repair	3 (0–13)	60	70–80
Eyes	Vitrectomy	97 (92–99)	98	98
Urology	TURBT	13 (8–27)	60	60
	TURP	3 (2–10)	15	15
Endocrine	Hemithyroidectomy and partial lobectomy	4 (0–8)	30	30
Total (Median)		64	90	-

⁴⁸ British Association of Day Surgery (BADS) (2019) BADS directory of procedures, sixth edition, <https://www.daysurgeryuk.net/en/shop/directory/bads-directory-of-procedures-6th-edition/>

⁴⁹ See <https://model.nhs.uk/>

Our data showed that most trusts were performing successful day cases at substantially lower levels than those recommended by BADS or Model Hospital. The recommended BADS values were based on the 2019 directory and our data was collected over the year 2017/18, so there may have been further improvements since our data was collected. In addition, there were minor differences in the OPCS codes for the BADS database and the chosen GIRFT index procedures. Nevertheless, there is no doubt that the levels of day case success in some specialities fall far short of what is recommended and represent a significant opportunity for future improvement.

BADS guidance suggests that many trusts are successfully transforming their surgery pathway by increasing day cases. However, BADS also estimates that if, for example, the proportion of day case to elective inpatient surgeries were to be increased to meet its targets for all procedures, the NHS could save £104m per year. This shows the scale of the opportunity if we can develop day case surgery as the default admission type and develop processes to help trusts benefit from improved best practice pathways. The financial savings figure estimated by BADS is remarkably consistent to the figure that has been estimated by GIRFT within this report (see the section on Notional financial opportunities, page 124).

Day case thyroid surgery

The potential for further development of thyroid day case surgery warrants comment. Since hemithyroidectomy and its related procedures were chosen as one group for the GIRFT day case index cases, the British Association for Endocrine and Thyroid Surgery (BAETS) has recently reviewed and debated the safety of performing these procedures as day cases. Due mainly to the risk of postoperative haemorrhage and the potentially catastrophic outcome where this is not detected early, BAETS does not support same-day discharge after thyroid surgery.

The GIRFT Endocrinology clinical leads take a pragmatic view and recommend that, where a unit offers thyroid surgery as a day case, the unit must provide the patient and their carer with detailed information as part of shared decision-making, taking into account patient preferences, availability of transport, local geography and family support. The information must include an explanation of how a neck swelling would be managed if it happened while still in hospital. In the meantime, the report suggests rapid discharge is suitable for most patients and recommends trusts review their patient pathways with a view to achieving the following targets for elective admissions:⁵⁰

- 90% of patients having parathyroid surgery for primary hyperparathyroidism to be discharged with zero-night stay (day case);
- 90% of patients undergoing thyroid lobectomy to be discharged with no more than one-night stay;
- 90% of patients undergoing total thyroidectomy to be discharged with no more than two nights' stay.

Examining perceived barriers to day case surgery

There are still several cultural and physical factors within the NHS that can in some instances hamper the expansion of day case surgery.

Infrastructure

Best practice recommendations for day surgery suggest that where possible the day case process should be undertaken within a dedicated day surgery unit, separate from inpatient surgical activity. This is recommended in the recently published guidance by GIRFT, Centre for Perioperative Care (CPOC) and British Association of Day Surgery (BADS), which is endorsed by the Department of Health, RCoA, Association of Anaesthetists and the Royal College of Surgeons (RCS).⁵¹

Where specialist day case units have been developed, improved efficiencies provide greater capacity for increasing day case access. The development of these day case units has not been universal, but even in hospitals without a day case unit it is possible to develop effective day case pathways.

⁵⁰ Wass, J. and Lansdown, M. (2020) Endocrinology: GIRFT Programme national specialty report, <https://www.gettingitrightfirsttime.co.uk/medical-specialties/endocrinology/>

⁵¹ GIRFT, Centre for Perioperative Care and British Association of Day Surgery (2020) National day surgery delivery pack, <https://www.gettingitrightfirsttime.co.uk/webinar-highlights-new-advice-pack-to-help-trusts-increase-and-improve-day-surgery/>

Types of procedures

Since the government first expressed an interest in increasing the proportion of day case surgery in 2000, improved techniques and technologies (such as those used in minimally invasive surgery) and the work of pioneering day case units have meant that the complexity of procedures that can be considered for day case surgery has increased. Major procedures, previously not considered appropriate for short-term admission, are now routinely undertaken as day surgery in some centres. These include:

- laparoscopic hysterectomy;
- laparoscopic nephrectomy;
- laparoscopic prostatectomy;
- mastectomy;
- vaginal prolapse surgery;
- lumbar discectomy;
- total hip replacements;
- unicompartment knee replacements;
- craniotomies;
- appendectomy.

In addition, some procedures that are admitted through emergency pathways, after being rapidly assessed, are being safely postponed and performed as emergency or urgent day case procedures. These include:

- laparoscopic appendectomy;
- laparoscopic cholecystectomy;
- incision and drainage of abscess;
- evacuation of retained products of conception.⁵²

Patient suitability for day case

Broadly speaking, a patient defined as unfit for surgery, is unfit for surgery whether performed as a day case or elective inpatient environment. It is also now well established that shorter lengths of stay and earlier mobilisation reduce the risk of hospital-acquired infections and venous thromboembolism.⁵³ The only medical exclusions to day surgery for adults are severe systemic disease that is unstable or poorly controlled.⁵⁴ Patients with unstable or poorly controlled disease should be optimised for surgery, at which point day surgery may be suitable for them.

During preoperative assessment, potential issues, such as the risk of increased postoperative pain for patients who already suffer chronic pain and/or take opioids, can be picked up and pre-empted.⁵⁵ (For more on pain management see *Perioperative medicine*, page 94.)

Along with clinical advances, the medical criteria for patients suitable for day surgery have become broader and co-morbidities such as obesity, dementia and obstructive sleep apnoea, which were once perceived as barriers to day surgery are no longer considered as such. Notably, diabetic patients were previously not considered for day case surgery and the National Confidential Enquiry into Patient Outcome and Death (NCEPOD) noted that a 'failure to follow basic common sense' meant that 9% (18/198) of hospital day surgery protocols placed a blanket prohibition on patients with diabetes, 'despite the fact that it is often these very patients who would be best served by minimising the disruption to their diabetic regimens in a day surgery environment'.⁵⁶

⁵² GIRFT, Centre for Perioperative Care and British Association of Day Surgery (2020) National day surgery delivery pack, <https://www.gettingitrightfirsttime.co.uk/webinar-highlights-new-advice-pack-to-help-trusts-increase-and-improve-day-surgery/>

⁵³ L. Wang, O. Baser, P. Wells et al. (2017), Benefits of early discharge among patients with low-risk pulmonary embolism *PLoS One*, Oct 10:e0185022 (cited in C. R. Bailey, M. Ahuja, K. Bartholomew et al. (2019), Guidelines for day case surgery 2019: Guidelines from the Association of Anaesthetists and the British Association of Day Surgery, *Anaesthesia* 74, 778–792, <https://pubmed.ncbi.nlm.nih.gov/30963557/>)

⁵⁴ GIRFT, Centre for Perioperative Care and British Association of Day Surgery (2020) National day surgery delivery pack, <https://www.gettingitrightfirsttime.co.uk/webinar-highlights-new-advice-pack-to-help-trusts-increase-and-improve-day-surgery/>

⁵⁵ Rockett, M., Kanagasundaram, S. and Hutchins, D. (2019), Chronic and complex pain workload of inpatient pain services (chips) – a national audit: preliminary analysis of a complete dataset, *British Journal of Pain*, 23 December, <https://journals.sagepub.com/doi/abs/10.1177/2049463719895793?journalCode=bjpb%3B+see+also+www.iasp-pain.orgGlobalYear%2FAfterSurgery&>

⁵⁶ National Confidential Enquiry into Patient Outcome and Death (NCEPOD) (2018), Highs and lows: A review of the quality of care provided to patients over the age of 16 who had diabetes and underwent a surgical procedure, 2018, https://www.ncepod.org.uk/2018pd/Highs%20and%20Lows_Full%20Report.pdf

Social criteria

Improved housing and transport infrastructure mean that the traditional social barriers to day case surgery are less prevalent than in the past. They include inadequate housing (without access to an indoor bathroom or phone) and living more than an hour from a hospital that could provide care in the result of postoperative complications. Formerly it was stipulated that the patient should be escorted home and cared for during the 24 hours after surgery by a responsible adult. Shorter-duration anaesthetics and, in some cases, the availability of community-based carers have largely resolved this issue, but restrictions may remain in the case of patients with dementia or learning disabilities and those who have had airway or laparoscopic surgery. These patient groups should always be in the care of a responsible adult for 24 hours after surgery and should be admitted as inpatients if this is not possible.⁵⁷

Cultural change

Successful day case delivery relies on the combination of appropriate patient preoperative assessment, expectation setting and joint decision-making combined with well organised pathways of care embedded within the surgical setting.

Our visits did not reveal any obvious causal variation in day case delivery success related to either trusts' age distribution, demographics, deprivation indices or levels of co-morbidities (as referenced by the Elixhauser Comorbidity Index).

As some centres continue to expand the list of procedures performed as day cases, the performance of other trusts is indicative of an inability or reluctance to change established pathways. This lag may be general across a trust, in which case the broader hospital culture and/or the status or management of any available day case facility (especially where there is a standalone unit) may be part of the problem. However, we recognised during our GIRFT visits that the effect is often inconsistent and levels of day case surgery may vary significantly, even by specialty within a given trust. In these cases, a culture of working in silos is likely to be a more long-term factor to overcome.

Using information from our data analysis and trust visits, we considered the top 25% of trusts in terms of day case success rates in an attempt to understand what factors have allowed them to succeed, where others had not. This group of trusts all had index procedure success rates in excess of 57%. The median level of success within this group was 62.8%, ranging between 61% and 65%.

Defining day case pathways, day case leads and dedicated day case units

Initial responses to our GIRFT questionnaire suggested that 70% of the 103 trusts who responded had a dedicated day case unit within their trust. However, it was apparent from our follow-up visits that there was a lack of clarity as to what constituted a dedicated day case unit and minimal understanding of the evidence relating to this as an optimal environment for day case success.

When the recommended day case unit set-up was described, many trusts felt that in the current financial environment this was an unrealistic ask, although they recognised the benefits of ring-fenced day surgery. Many trusts had theatre environments where inpatients and day case surgery patients were mixed. Although some of these worked well for day case delivery, this was not consistent. In other trusts there were multiple geographically distinct surgical sites. This meant that some sites deliver day cases through a dedicated unit, whereas other parts of the trust lacked this facility. The COVID-19 pandemic has further highlighted the value of a separate, dedicated day case unit where surgery can be undertaken safely and independently from the rest of the hospital.

When asked about the presence of a nominated clinical day case lead, 72% of the 103 responders indicated that they have one. However, this seemed to be unrelated to the number of successful day case procedures performed and day case lead presence did not always extend across individual hospital boundaries.

⁵⁷ GIRFT, Centre for Perioperative Care and British Association of Day Surgery (2020) National day surgery delivery pack, <https://www.gettingitrightfirsttime.co.uk/webinar-highlights-new-advice-pack-to-help-trusts-increase-and-improve-day-surgery/>

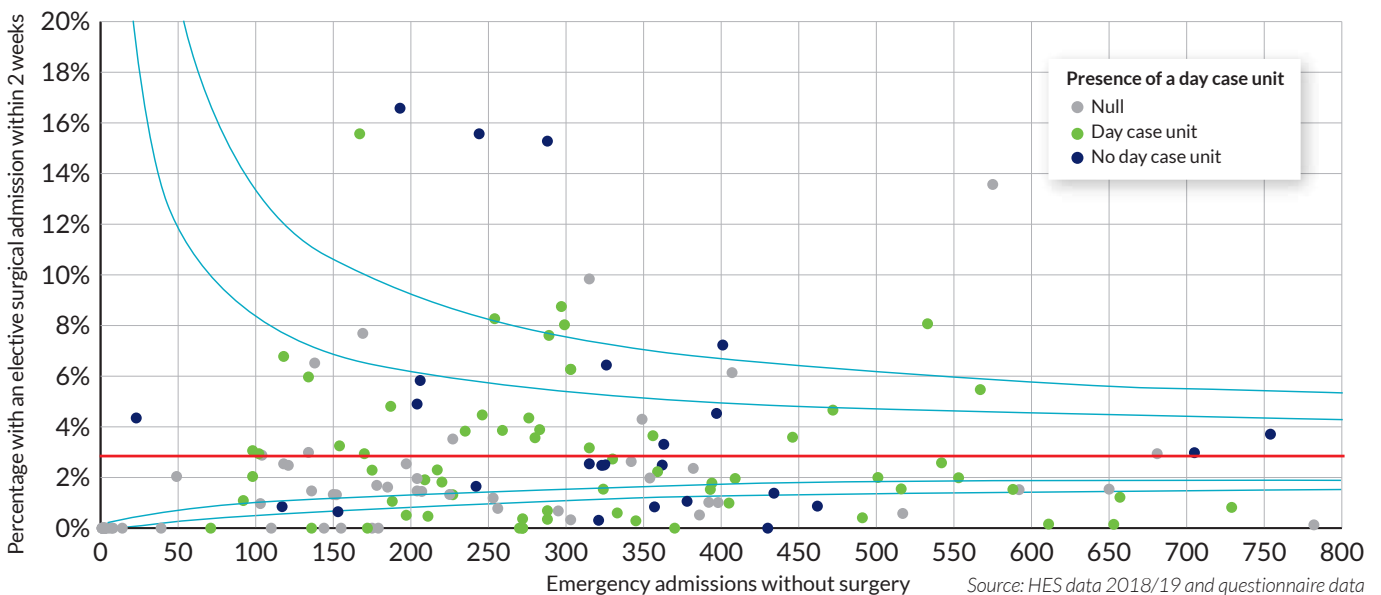
Development of emergency ambulatory care pathways – an emerging day case opportunity

Emergency surgery has recently been considered from a day surgery perspective. **Figure 16** shows the percentage of emergency surgical admissions where the patient is discharged without surgery and is readmitted for an elective surgical procedure within two weeks (see **Figure 16** below). These patients go home and are brought back as scheduled urgent surgery to be performed potentially as a day case.

This is typically the case for a wrist or ankle fracture where the swelling needs to resolve before surgery or for the incision and drainage of an abscess or some laparoscopic cholecystectomies, for example. Where this new pathway is not followed, the patient often remains in hospital unnecessarily until a suitable slot becomes available in an elective theatre.

During our deep-dive visits it became clear that some centres were particularly good at initiating this new type of emergency day case pathway. Appropriate and expedient decision-making processes by surgical teams may prevent admissions that could be safely postponed and reallocated as a day case.

Figure 16: Emergency admissions without surgery followed by an elective surgical admission within two weeks, by trust



Note: Colour of trusts denotes presence or absence of day case unit; 'null' means that no answer was given

Source: HES data 2018/19 and questionnaire data

CASE STUDY

Emergency cholecystectomy pathway

North Devon Healthcare Trust

Gallstone-related disease accounts for approximately one-third of emergency general surgery admissions and referrals. The majority of patients presenting to hospital with biliary pain go on to have a cholecystectomy as definitive treatment. Around 20–33 per cent of patients with acute cholecystitis or pancreatitis will re-present with gallstone-related symptoms before they have a cholecystectomy.

Early laparoscopic cholecystectomy has been shown to be beneficial both for both patients and healthcare systems. It reduces costs, improves patient experience and has been shown in multiple studies to have no significant increase in complications.

The trust aimed to improve the care of patients with gallstones by providing emergency laparoscopic cholecystectomy within 14 days of presentation. A pathway was designed to aid diagnosis and management of patients with suspected gallstones. Within the pathway two theatre lists per week are dedicated to emergency cholecystectomies (4–5 cases per week).

Medically fit patients were added to a 'hot list'. 'Well enough' patients were discharged with a date for surgery on the dedicated lists within two weeks through a day case pathway. These patients had telephone preoperative assessment.

The service was started in 2016 and to date 426 patients have been listed for emergency cholecystectomy.

Outcomes:

- 92% of patients had cholecystectomy within 14 days of admission (mean time from admission to surgery was 11.4 days).
- 81% were performed as outpatient procedures with 62% of patients discharged the same day.
- Patients were significantly more likely to have a day case procedure if they attended through a day case pathway (73% vs 8%, $p < 0.0001$).
- Median length of stay was 3 days for index admission (range 0–19 days).
- 13 patients had a further admission postoperatively (3.1%).

Conclusions

If day case delivery is to increase in proportion to inpatient elective surgery, as we believe it should and must, it is the responsibility of surgical and perioperative teams to drive and deliver a culture for day case delivery.

Simple reporting of day case admission rates is of limited value. Metrics relating to the success of day case delivery (as have recently been developed by GIRFT, BADS and the NHS Model Hospital⁵⁸), including rates and types of conversion to inpatient status and early readmission rates, should be a part of a regular monitoring and review system. Once these metrics have been established, while trusts retain responsibility for day-to-day delivery of day case procedures, commissioning bodies (including developing ICSSs) may wish to take on a leadership role to ensure that day case surgical admissions occur as default and to monitor successful day surgery delivery and plan services accordingly.

Wherever day case surgery is relatively straightforward, following the optimal patient pathway ensures good outcomes and efficient patient flow. The key to achieving this lies in developing a generic, day case systems approach to preoperative assessment and effective discharge criteria. These will be relevant to most surgical day case procedures. It would be appropriate to further develop a set of best practice pathways for speciality-based procedures that can be disseminated within and between trusts. The collaborative GIRFT/BADS/RCoA document⁵⁹ will be important in this regard.

⁵⁸ See <https://model.nhs.uk/>

⁵⁹ GIRFT, Centre for Perioperative Care and British Association of Day Surgery (2020) National day surgery delivery pack, <https://www.gettingitrightfirsttime.co.uk/webinar-highlights-new-advice-pack-to-help-trusts-increase-and-improve-day-surgery/>

There is a clear need to define what a dedicated day case unit looks like and what constitute the responsibilities of a dedicated clinical day case lead. In this regard, one size does not fit all. Our overall impression is that the appointment of a day case lead clinician is a useful adjunct to day case delivery but only where a full set of supporting systems and processes also exist.⁶⁰

Financial implications of improved surgical day case delivery

The potential national gross financial opportunity related to our recommendation that day case surgery becomes the default pathway for elective surgical procedures across all specialities are c. £110m. This is based on the bed days that could be saved if trusts were to meet the British Association of Day Surgery (BADS) targets for elective surgery. Were trusts also to meet BADS targets for emergency day surgery, this figure would increase by c. £18m. More detailed calculations can be found in the section on *Notional Financial Opportunities* (page 124).

Recommendations: Day case surgery

Recommendation	Actions	Owners	Timescale
1. Ensure that day case surgery is the default for all suitable elective surgical procedures.	a Ensure patients are made aware in primary care at time of referral for possible surgery that their procedure is likely to be conducted as a day case.	ICS	For immediate action
	b Confirm or establish a dedicated preoperative assessment and preparation process for the day case surgery pathway.	Trusts	For immediate action
	c Ensure there is an appropriate trust infrastructure to deliver effective day case surgery.	Trusts	For immediate action
	d Confirm or appoint an effective trust day case management team that includes clinical and nursing leads, an operational manager and a named executive trust board member responsible for the provision of day surgery.	Trusts	Within 12 months of report publication
	e Educate all trust staff in the importance of promoting day surgery (over inpatient surgery), to ensure consistent messaging to patients and families.	Trusts	For immediate action
	f Separate day case surgery pathways from inpatient surgical pathways, to ensure the continuation of day case surgery during surge conditions.	Trusts	For immediate action
	g Develop generic and procedure-specific day case guidelines and pathways, consistent with GIRFT surgical pathways.	Trusts	Within 12 months of report publication
	h Develop emergency ambulatory surgical pathways.	Trusts	Within 24 months of report publication

⁶⁰ GIRFT, Centre for Perioperative Care and British Association of Day Surgery (2020) *National day surgery delivery pack*, <https://www.gettingitrightfirsttime.co.uk/webinar-highlights-new-advice-pack-to-help-trusts-increase-and-improve-day-surgery/>

Recommendations: Day case surgery (continued)

Recommendation	Actions	Owners	Timescale
2. Ensure that metrics are appropriately recorded and monitored using available tools ⁶¹ to inform successful day case delivery.	a Ensure day case surgery is coded as a surgical procedure on day case pathway.	Trusts	Within 12 months of report publication
	b Record when day case patients have converted to inpatients and the reason for that conversion.	Trusts	For immediate action
	c Review day case metrics monthly.	Trusts	For immediate action
	d Disseminate data on successful day surgery, cancellations on the day of surgery and unplanned admissions to all staff involved in the day surgery pathway.	Trusts	For immediate action
	e Benchmark day case success rates using British Association of Day Surgery (BADs) and Model Hospital metrics. Integrated Care Systems (ICSs) to benchmark provider trusts as part of a Quality and Efficiency dashboard.	Trusts, ICSs	Within 12 months of report publication
	f Conduct follow-up for all day case patients with a next-day telephone call to audit postoperative pain, nausea and vomiting, patient satisfaction and patient feedback.	Trusts	For immediate action
	g Provide all day case surgical patients with a telephone contact number for postoperative advice.	Trusts	For immediate action
	h Ensure ICSs assume a leadership role* where required, to ensure that day surgery becomes the default option unless an inpatient stay is unavoidable. (*Trusts to retain responsibility for the delivery of day-to-day services.)	ICS	For immediate action

⁶¹ Tools for this purpose can be found on the NHS Model Hospital website (<https://www.model.nhs.uk>) and in the BADs Directory (<https://www.daysurgeryuk.net/en/shop/directory/bads-directory-of-procedures-6th-edition/>)

Elective inpatient surgery

We have discussed the value of performing most elective surgery as day case procedures and proposed this as the default surgical pathway. However, there will remain surgical operations and patients with existing co-morbid disease that will continue to require inpatient hospital admission. This section considers how best to manage care for those patients whose surgical pathway necessitates an inpatient hospital stay.

Background

Elective inpatient admissions make up 23% of total surgical admissions (see **Figure 6**, page 35). Although this is a relatively small proportion of overall surgical admissions, many of these patients are preparing for complex major surgery. Some patients remain in hospital a considerable period of time following their surgical procedure and will require a significant amount of perioperative care, including critical care.

Where elective inpatient surgery is the appropriate choice, it is vitally important that the patient pathway is well planned, that the infrastructure is in place to allow the operation to occur at an appropriate time in the correct perioperative environment and that lengths of stay are not extended unnecessarily. This helps prevent hospitals cancelling other surgeries and potentially wasting critical resource.

Surgical cancellations

The need to prevent surgical cancellations is predicated on two key points:

- Surgical cancellations are a serious, established, long-term and ongoing issue affecting elective inpatient surgery.
- COVID-19 has had a profound impact on planned, elective surgery leading to many operations being postponed and cancelled due to need for hospital bed capacity. The cumulative effects of this which will be felt in the short and long term.

In this section we discuss the mechanics of surgical cancellations as a pre-existing problem within the NHS. We consider the additional impact of COVID-19 on elective surgery in a separate box on page 57.

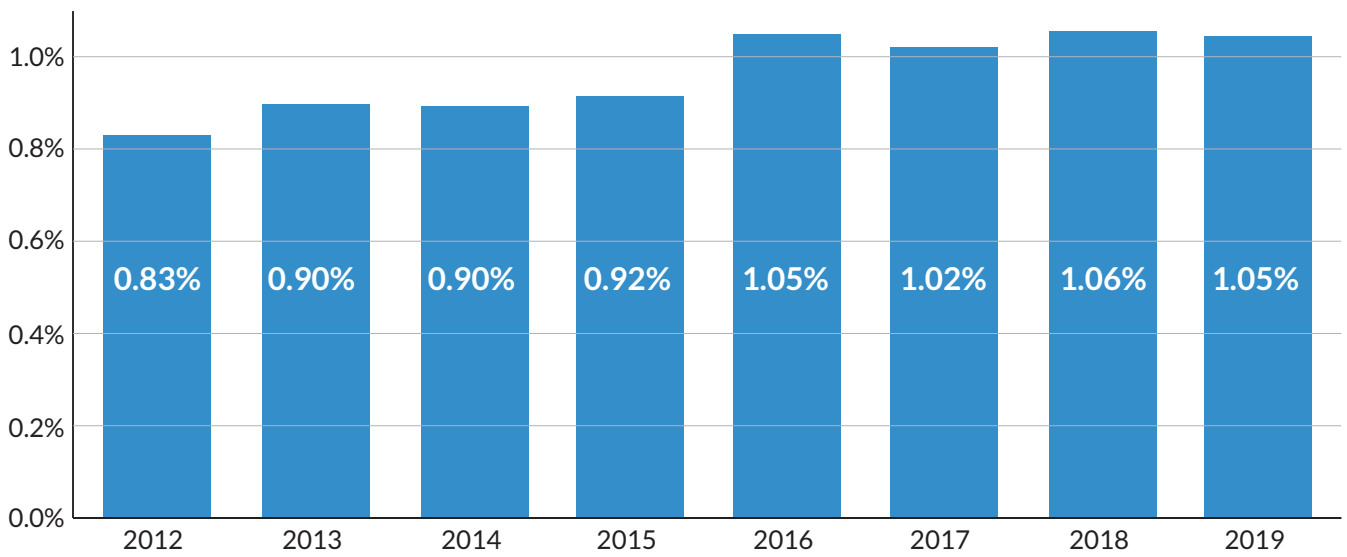
Nationally, data on surgical cancellations is inconsistently collected and frequently misinterpreted and therefore widely variable. Surgeries cancelled more than 24 hours in advance are not captured, even though they are particularly relevant to surgical efficiency, since there is no organised replacement to fill theatre slots. In addition, information on the reasons for cancellation is limited and there is considerable variation in terms of which surgical admission denominator (e.g. total elective, inpatient elective, all hospital admissions) is used to calculate cancellation rates.

According to NHS Key Statistics data (NHS England and NHS Digital), in 2019, 86,364 elective operations were cancelled for non-clinical reasons on the day the patient was due to be admitted.⁶² This is 1.05% of all elective hospital admissions, a value that has not changed significantly since 2016 (see **Figure 17**). In contrast, where total elective surgical admissions is used as the denominator, and taking both clinical and non-clinical reasons for cancellations into account, the cancellation rate was estimated to be as high as 14%.⁶³

⁶² <https://www.parliament.uk/commons-library> | intranet.parliament.uk/commons-library | [papers@parliament.uk](https://papers.parliament.uk) (NHS Key statistics Feb 2020)

⁶³ Wong, D. J. N., Harris, S. K. A. and Moonesignhe, S. R. on behalf of the SNAP-2: EPICS Collaborators (2018), Cancelled operations: a 7-day cohort study of planned adult inpatient surgery in 245 UK National Health Service Hospitals, *British Journal of Anaesthesia*, 121 (4): 730–738, [https://www.bjanaesthesia.org/article/S0007-0912\(18\)30565-8/fulltext](https://www.bjanaesthesia.org/article/S0007-0912(18)30565-8/fulltext)

Figure 17: Cancellations as a percentage of all (surgical and medical) admissions



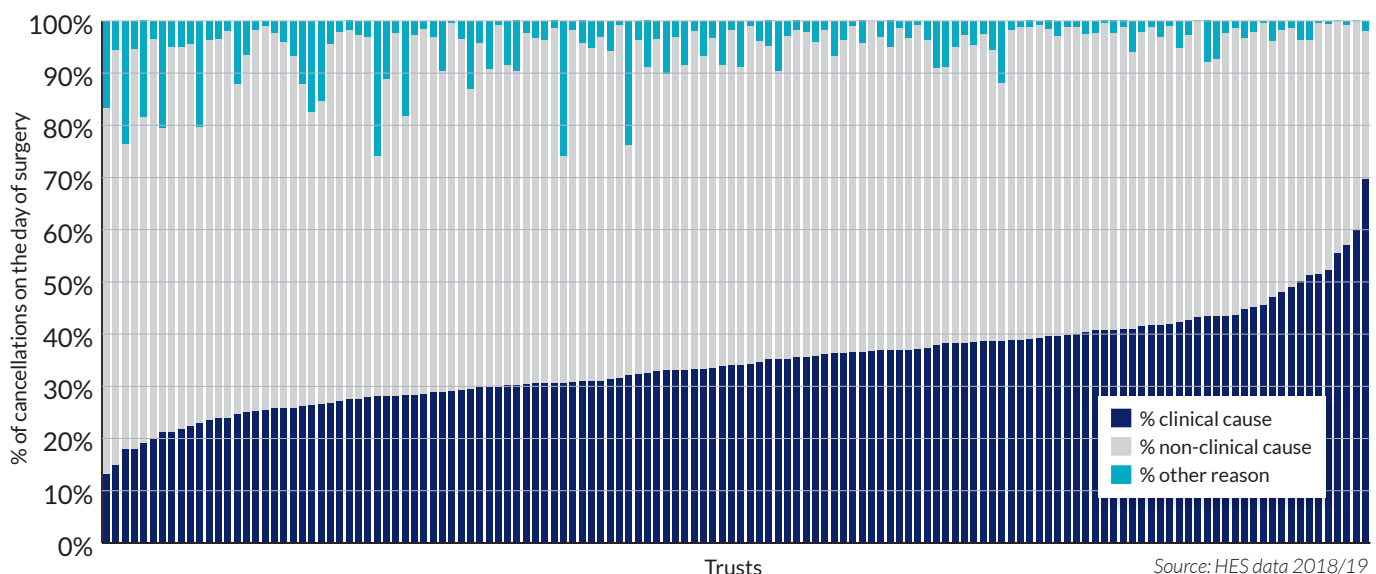
Source: based on data from www.parliament.uk/commons-library⁶⁴

Even taking into account these limitations of the HES data regarding cancellations, we were able to apportion the reasons for same-day surgical cancellations into:

- clinical, due to medical/surgical contraindications;
- non-clinical, due to either:
 - infrastructural issues (e.g. lack of beds, estates or staff);
 - other non-clinical causes (e.g. patient decisions to forego surgery in favour of another treatment).

Our data showed that 64% of cancellations reported were due to non-clinical factors, mainly infrastructural issues (53%), with only 36% due to clinical causes (see **Figure 18**).

Figure 18: Proportion of surgical elective cancellations, by reason



Source: HES data 2018/19

Note: Data selected based on surgical treatment function codes

⁶⁴ <https://www.parliament.uk/commons-library> | intranet.parliament.uk/commons-library | papers@parliament.uk (NHS Key statistics Feb 2020)

This is closely comparable with data from a UK-wide study performed in 2017, using a seven-day dataset. The 2017 study also showed non-clinical factors as the predominant cause of the majority of same-day surgical cancellations, most often related to limited existing estates resource and hospital capacity (especially in terms of surgical bed space and staff availability).⁶⁵ We reproduce a table from this report below (see **Table 3**).

Table 3: Reported reasons for previous cancellations

Reported reason	Count (n)	%
Clinical	499	33.3
Non-clinical:		
Lack of beds	465	31.0
Insufficient operating theatre capacity	190	12.7
Personal reasons	36	2.4
Equipment problem	34	2.3
Staff unavailable	33	2.2
Administrative error	24	1.6
Patient did not attend	7	0.5
Not known	211	14.1
Total	1499	100

Source: Wong, Harris and Moonesinghe (2018)⁶⁶

During our deep-dive visits we found significant variation in knowledge and recording of cancellation data at trust level. The best centres had developed appropriate local classifications for surgical cancellations on the day of surgery and were more knowledgeable about reasons behind cancellations. These centres promoted regular review and discussion with relevant surgical specialities when there was perceived to be a consistent cancellation problem.

However, even where local information on cancellations was available, we noted that minimal information was regularly shared with the appropriate anaesthetists, nurses, surgeons and managers, for whom this information is of particular relevance, especially in relation to the development of preoperative assessment systems.

Overall, it is apparent that there is a need for regular and routine collection of more detailed information around cancellations. Without more granular information it is hard to see how significant improvements can be made.

⁶⁵ Wong, D. J. N., Harris, S. K. A. and Moonesinghe, S. R. on behalf of the SNAP-2: EPICS Collaborators (2018), *Cancelled operations: a 7-day cohort study of planned adult inpatient surgery in 245 UK National Health Service Hospitals*, *British Journal of Anaesthesia*, 121 (4): 730–738, [https://bjanaesthesia.org/article/S0007-0912\(18\)30565-8/fulltext](https://bjanaesthesia.org/article/S0007-0912(18)30565-8/fulltext)

⁶⁶ Wong, D. J. N., Harris, S. K. A. and Moonesinghe, S. R. on behalf of the SNAP-2: EPICS Collaborators (2018), *Cancelled operations: a 7-day cohort study of planned adult inpatient surgery in 245 UK National Health Service Hospitals*, *British Journal of Anaesthesia*, 121 (4): 730–738, [https://bjanaesthesia.org/article/S0007-0912\(18\)30565-8/fulltext](https://bjanaesthesia.org/article/S0007-0912(18)30565-8/fulltext)

CASE STUDY

Multidisciplinary elective surgery cancellation programme

Homerton University Hospital NHS Foundation Trust

Homerton began a programme in 2019 whereby each elective cancellation is discussed and analysed at a weekly formal meeting attended by the directorate/management team, bookings team and pre-assessment, anaesthesia and surgical specialty leads. Root causes for the cancellation are proposed and identified. Trends and themes become apparent over time and these form the basis for future theatre cancellation and efficiency/quality improvement projects. The aim is to provide focused as well as broad changes to the patient pathway to reduce elective surgery cancellations.

The platform facilitates discussion between clinical and non-clinical staff. The impact of the programme is continuously monitored and the data is freely available to clinicians.

COVID-19 and elective surgery

In the aftermath of the COVID-19 crisis, the need for any patient to be admitted to hospital for a surgical procedure for longer than necessary, or to attend on multiple occasions for investigations leading up to a surgical procedure, must be carefully examined.

The COVID-19 pandemic has had a significant impact on surgical postponement and cancellations. While many trusts continued to provide some access to emergency and more urgent cancer-related procedures, many elective surgical procedures were postponed to free up bed capacity for admitting patients with COVID-related disease and to reduce exposure to the virus. There is also emerging data to suggest that COVID-19-positive patients are at high risk of mortality and complications following even minor elective procedures.⁶⁷ The impact on future surgical cancellations will be considerable, as individuals testing positive for COVID-19 may be advised against elective surgery.

We suggest the following mechanisms are put in place to speed recovery from the effects of COVID-19 on surgical waiting lists:

- Demand management in the form of re-evaluating patients on the current waiting lists, which may also involve re-prioritising specialties within trusts.
- Capacity augmentation by exploring new/other facilities (including those from the private sector) and recruitment methods to help increase surgical throughput.
- Optimising use of existing facilities and resources by ensuring day case procedures are the default, elective procedures (where unavoidable) are managed as efficiently as possible, and that hot and cold sites/facilities (including COVID-hot and -cold) are established as early as possible.

⁶⁷ COVIDSurg Collaborative (2020), *Elective surgery cancellations due to the COVID-19 pandemic: global predictive modelling to inform surgical recovery plans*, *Br J Surg*. May 12; 10.1002/bjs.11746. doi: 10.1002/bjs.11746, <https://pubmed.ncbi.nlm.nih.gov/32395848/>

Length of stay after elective surgery: relationship to complications

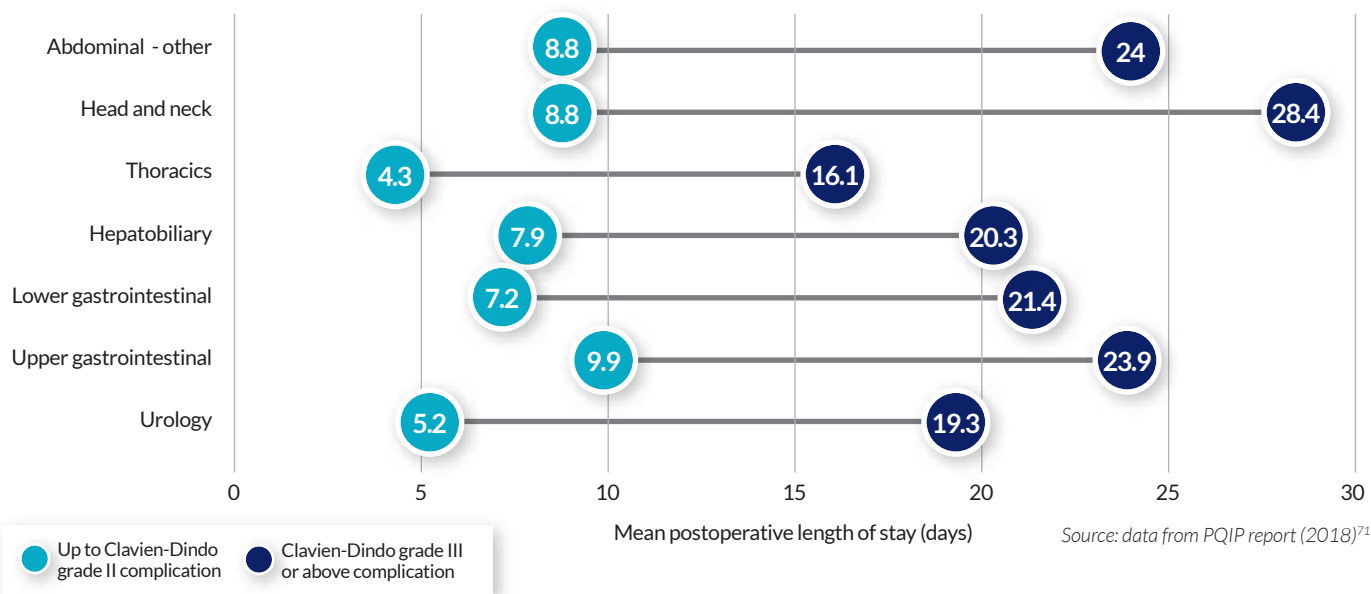
The key to achieving efficient, safe inpatient care is minimising the occurrence and duration of complications.

The duration of hospital stay and patient throughput related to elective surgery should be relatively predictable and largely controllable. Prolonged postoperative stays reduce the capacity to admit future elective surgical patients and should be avoided wherever possible. More importantly, they have a significant effect on the quality of patient outcome and can hinder timely recovery and rehabilitation.

Lack of readily available social and community facilities may play some part in prolonging hospital stay. However, it is recognised that increased length of stay after surgery is more commonly associated with the development of postoperative complications. The SNAP 2: EPICCS study showed that in a population of c.26,000 surgical patients, 21% remained in hospital >7 days after surgery and of those, two-thirds had persistent postoperative complications.^{68,69}

Data from the first Perioperative Quality Improvement Programme (PQIP) report (2018) demonstrates the effect of complications on duration of stay (see **Figure 19**).⁷⁰ Even with minor complications (Clavien–Dindo grades I–II), many of the specialities studied had lengths of stay >7 days. Where major complications occurred postoperatively, the duration of hospital stay was considerably increased.

Figure 19: The effect of complications on postoperative length of stay (days) for elective surgical procedures split by surgical specialities



⁶⁸ Moonesinghe, S.R., Wong, D. J. N., Farmer, L. et al. (2017) SNAP-2 EPICCS: the second Sprint National Anaesthesia Project—Epidemiology of Critical Care after Surgery: protocol for an international observational cohort study, *BMJ Open* 7:e017690. doi:10.1136/bmjopen-2017-017690, <https://pubmed.ncbi.nlm.nih.gov/28882925/>

⁶⁹ Wong, D. J. N., Popham, S., Wilson, A. MM. et al. (2019), Postoperative critical care and high-acuity care provision in the United Kingdom, Australia, and New Zealand, *British Journal of Anaesthesia*, 122 (4): 460-469. 10.1016/j.bja.2018.12.026, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6435907/>

⁷⁰ Perioperative Quality Improvement Programme (PQIP) (2018), Annual report 2017–18, <https://pqip.org.uk/pages/ar2018>

⁷¹ Perioperative Quality Improvement Programme (PQIP) (2018), Annual report 2017–18, <https://pqip.org.uk/pages/ar2018>

Enhanced recovery: optimising patient recovery following elective inpatient surgery

Preventing complications after surgery to expedite surgical recovery and prevent extended hospital stays was an important rationale behind the Enhanced Recovery after Surgery programme introduced into the NHS by the Department of Health in the mid-2000s.⁷² First developed in Europe, the enhanced recovery concept focused on structured patient preparation and covered aspects such as preoperative counselling and nutrition as well as postoperative care, as illustrated in **Figure 20** (below).⁷³

CASE STUDY

Enhanced recovery programme for hip and knee orthoplasty

Northumbria Healthcare NHS Foundation Trust)

By adopting and continually refining an enhanced recovery programme over the last ten years, Northumbria Healthcare NHS Foundation Trust has seen a consistent reduction in length of stay, positive patient experience and good patient outcomes.

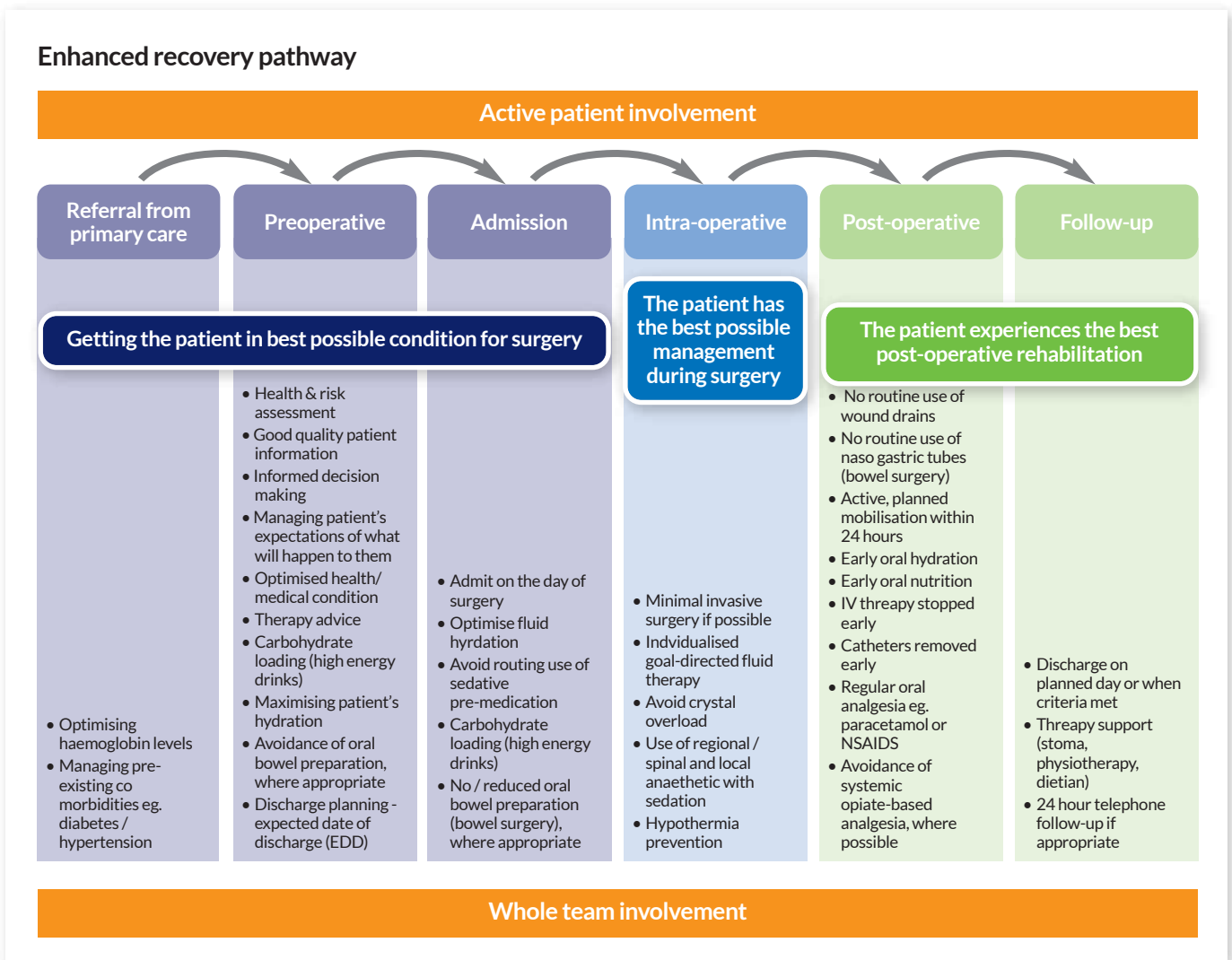
The comprehensive programme includes:

- Preoperative patient education and counselling. The trust has its own patient leaflet and DVD, offers a physiotherapist-led 'joint school' and provides an occupational therapy assessment for patients. Expected length of stay is clearly defined and day surgery is considered wherever appropriate.
- Pre-assessment and screening. As well as screening and treating anaemia, the trust actively seeks to optimise such conditions as diabetes and thyroid disease and to improve nutritional status preoperatively where needed. Risk stratification allows for shared decision-making and helps determine the level of postoperative care required.
- Standardised anaesthetic and surgical techniques. These promote early mobilisation and minimise fasting. A consistent approach to surgery ensures the ward teams are confident in enacting postoperative protocols. Opiate-sparing multimodal analgesia allows for early mobilisation (on day zero).
- Nurse-led discharge. This is based on clear protocols and includes early phone follow-up and 24-hour patient helpline.
- Physiotherapy and exercise. Physiotherapists determine a mobility progression plan and provide exercise advice along with outpatient surgical and physiotherapy review to check progress.

⁷² NHS Improvement, *Enhanced recovery*, <https://www.improvement.nhs.uk/documents/2111/enhanced-recovery.pdf>

⁷³ Ljungqvist, O., Scott, M. and Fearon, K. C. (2017), *Enhanced recovery after surgery: a review*, *JAMA Surg.* Mar 1;152(3):292-298. doi: 10.1001/jamasurg.2016.4952, <https://www.ncbi.nlm.nih.gov/28097305/>

Figure 20: General overview of the enhanced recovery pathway



Source: NHS Enhanced Recovery Programme (2010)⁷⁴

The enhanced recovery process prioritised quality of care and patient participation in their own care, to enable patients to recover more quickly following elective surgery and to allow early, safe discharge with minimal readmission rates. It challenged the cultural norms that had built up around surgical practice, endorsing practices that have an evidence base for improving recovery (e.g. proper fluid balance) and removing those that decrease mobilisation/recovery (e.g. nasogastric tubes in colorectal surgery).⁷⁵ Reduced length of hospital stay was a by-product of good patient outcomes,⁷⁶ and was achieved without increasing readmissions.⁷⁷

With the introduction of Commissioning for Quality and Innovations (CQUIN) in 2010, hospitals were rewarded for taking certain quality measures (including some key enhanced recovery steps) to further reduce lengths of stay and increase patient satisfaction. The CQUIN scheme initially provided good results in terms of promoting the enhanced recovery pathway, but once the incentives were focused elsewhere, sustained adherence to the pathway became less of a priority in many trusts. We aimed to investigate this during our analysis and visits.

⁷⁴ NHS Enhanced Recovery Programme (2010), *Delivering enhanced recovery: helping patients to get better sooner after surgery*, https://pre-op.org/sites/default/files/Delivering%20enhanced%20recovery_0.pdf

⁷⁵ Mclsaac, D. I. (2020), *Real-world evaluation of enhanced recovery after surgery: big data under the microscope*, Editorial, *British Journal of Anaesthesia*, 124(5): 510-512, 20 January 2020, <https://www.doi.org/10.1016/j.bja.2020.01.012>

⁷⁶ Fawcett, W. J., Mythen, M. G. and Scott, M. J. P. (2012), *Enhanced recovery: more than just reducing length of stay?*, PMID: 23065999 DOI: 10.1093/bja/aes358; BJA 2012 Nov, 109(5):671-4, <https://www.pubmed.ncbi.nlm.nih.gov/23065999/>

⁷⁷ Roberts, J., Mythen, M. and Horgan, J. (2010), *Thinking differently: working to spread enhanced recovery across England*, *Current anaesthesia and critical care*, 21(3): 137-141, <https://www.doi.org/10.1016/j.cacc.2009.12.003>

Enhanced recovery in the GIRFT programme

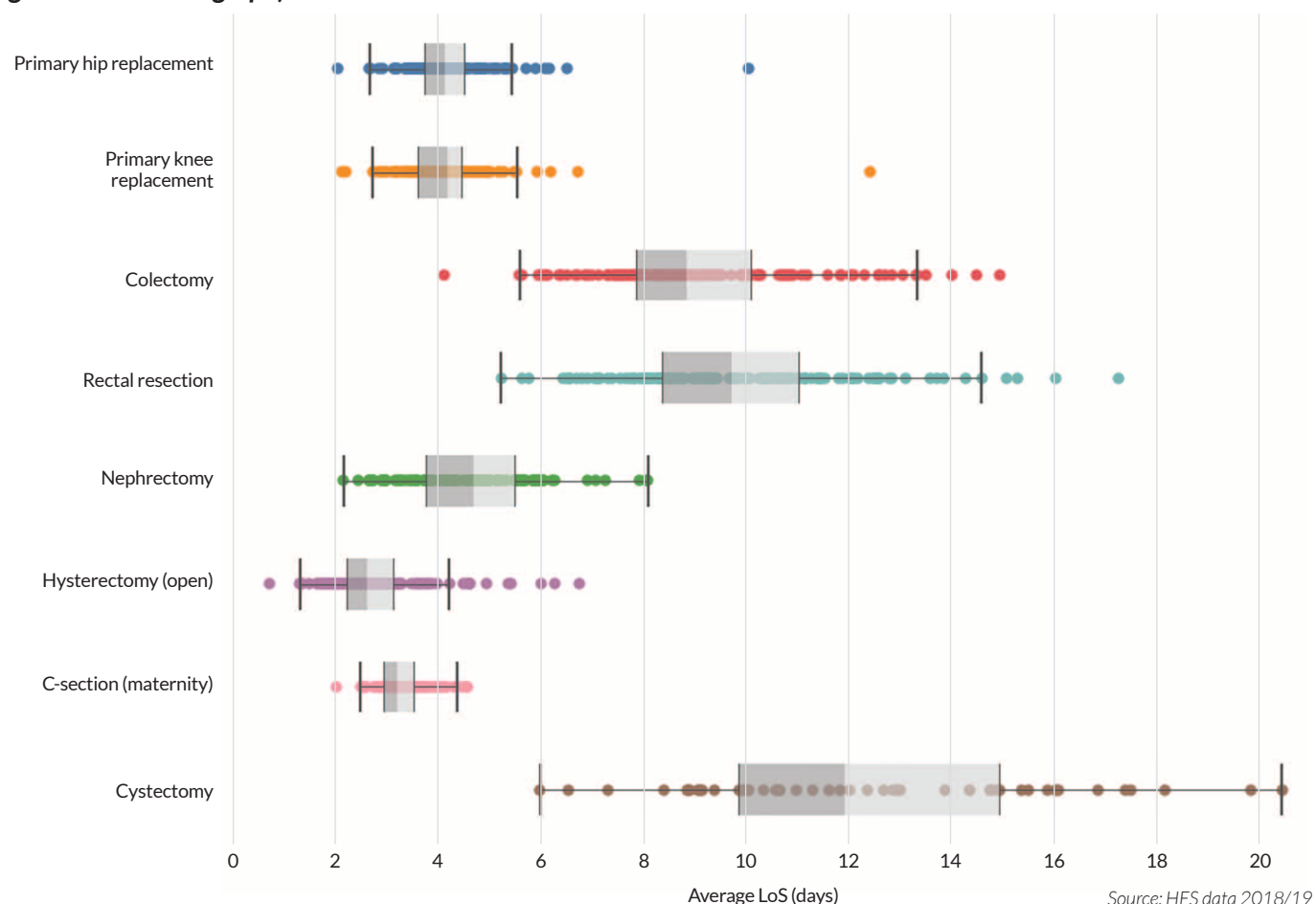
To analyse unwarranted variation in surgical lengths of stay we chose seven elective inpatient surgical procedures (based on the original NHS England Enhanced Recovery after Surgery programme), which are usually performed as elective inpatient procedures rather than day case surgery, as our GIRFT index. We included caesarean section as an eighth procedure, given the significant volume of these procedures that are performed. The GIRFT index elective inpatient procedures chosen were:

- primary hip replacement;
- primary knee replacement;
- colectomy;
- rectal resection;
- nephrectomy and/or nephroureterectomy;
- open hysterectomy;
- cystectomy;
- caesarean section.

All patients (except for those undergoing caesarean sections⁷⁸) had elective surgery and were adults (based on HES data: procedure codes, 'elective surgery' + 'age >17').

The initial data (shown in **Figure 21**) revealed widespread and unwarranted variation in length of stay across the NHS in all these procedures, with significant trust outliers.

Figure 21: Length of stay for elective inpatient GIRFT index surgical procedures (description of interquartile range is given beneath the graph)



Note: Box is limited by interquartile 25–75% range; whiskers represent the maximum values within 1.5 x IQR above 75th percentile and minimum value within 1.5 x IQR below 25th percentile. Trusts outside these limits represent trust outliers.

⁷⁸ Because of the way caesarean sections are coded within HES, it is not always clear whether they are elective or emergency procedures.

This variation is likely due to a range of factors, as uncovered during our deep-dive visits. Firstly, patients are being enrolled onto enhanced recovery pathways but the pathways may be inefficient in promoting consistent changes in length of stay for patients. There is also widespread variability across trusts in the number of eligible patients being enrolled onto different speciality-based enhanced recovery pathways. The latter point is supported by the response to our trust questionnaire: while 84.5% of trusts reported a colorectal enhanced recovery pathway, 74% had an orthopaedic pathway and only 43% had one for urology.

Our overriding impression from deep-dive visits is that, although there is clinical belief in the efficiency of these pathways, the results reflect a widespread reduced emphasis on the perioperative delivery of enhanced recovery and a reduction in support for the promotion of these pathways at trust level. The culture that developed during the introduction of enhanced recovery has not been sustained. Although there are best practice guidelines and multiple publications on the benefits of enhanced recovery across various specialities,⁷⁹ we found limited evidence for consistent application of this approach.

When we compared the current situation with the lengths of stay that were demonstrated at the end of the initial enhanced recovery programme reported in 2012, mean length of stay for the procedures chosen has mostly decreased (see **Table 4**). However, given the time that has elapsed since the launch of the enhanced recovery programme and with the incentivisation of the CQUIN programme in the interim, it is disappointing that a more substantial improvement has not been delivered. This is especially surprising given the level of ambition that followed the initial positive results of the programme and the continued development of enhanced recovery programmes by learned societies such as the Enhanced Recovery after Surgery Society (ERAS)⁸⁰ and its UK derivative ERAS-UK.⁸¹

Table 4: Comparison between lengths of stay following the Enhanced Recovery programme (ERP, 2011/12 figures)⁸² and currently (GIRFT index procedures, median, 25th and 75th centile)

Speciality	Operation type	Enhanced Recovery Programme (median length of stay)*	GIRFT (median length of stay and IQ range)
Orthopaedics	Primary knee replacement	5.0	4.0 (2.5–5.8)
	Primary hip replacement	5.0	4.2 (2.4–5.7)
Colorectal	Colectomy	7.0	8.8 (5.5–13.3)
	Rectal resection	8.0	9.5 (5.1–14.5)
Gynaecology	Hysterectomy (open)	4.0	2.4 (1.1–4.3)
Urology	Cystectomy	13.0	11.8 (6.0–20.5)

Source: NHS Improvement on behalf of the Enhanced Recovery Partnership (no date)⁸³

Enhanced recovery/reduced LoS and readmission rates

Length of stay is only one marker of good enhanced recovery care. Even where there are good enhanced recovery processes in place and lengths of stay are short, there is a balance to be struck between reducing length of stay and ensuring that patients are not prone to early readmission. In some circumstances a longer stay in hospital may prevent complications after discharged, thereby preventing unwanted readmission. With this in mind, we would expect to see a relationship between shortened lengths of stay and readmission rates

⁷⁹ For example, Department of Health (2011) *Enhanced recovery partnership programme: report March 2011*, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215511/dh_128707.pdf

⁸⁰ See <https://www.erasociety.org>

⁸¹ See <https://www.erasuk.net>

⁸² Simpson, J. C., Moonesinghe, S. R., Grocott, M. P.W. et al. (2015), *Enhanced recovery from surgery in the UK: an audit of the enhanced recovery partnership programme 2009–2012*, *British Journal of Anaesthesia*, 115 (4): 560–568, doi: 10.1093/bja/aev105, <https://www.ncbi.nlm.nih.gov/25926312>

⁸³ NHS Improvement on behalf of the Enhanced Recovery Partnership (no date), *Fulfilling the potential: a better journey for patients, a better deal for the NHS*, <https://www.slideshare.net/NHSImprovement/fulfilling-the-potential-a-better-journey-for-patients-and-a-better-deal-for-the-nhs>

Figure 22 below cross-references lengths of stay with emergency readmissions within 30 days of discharge from hospital. There is no obvious correlation between shorter lengths of stay and increased readmissions rates. Trusts with the shortest lengths of stay for these elective procedures – those with arguably the most efficient enhanced recovery pathways – did not consistently suffer from a higher rate of readmissions. This confirms the safety of early discharge in the majority of cases.

Figure 22a: Elective nephrectomy/nephroureterectomy: emergency readmissions within 30 days against average length of stay

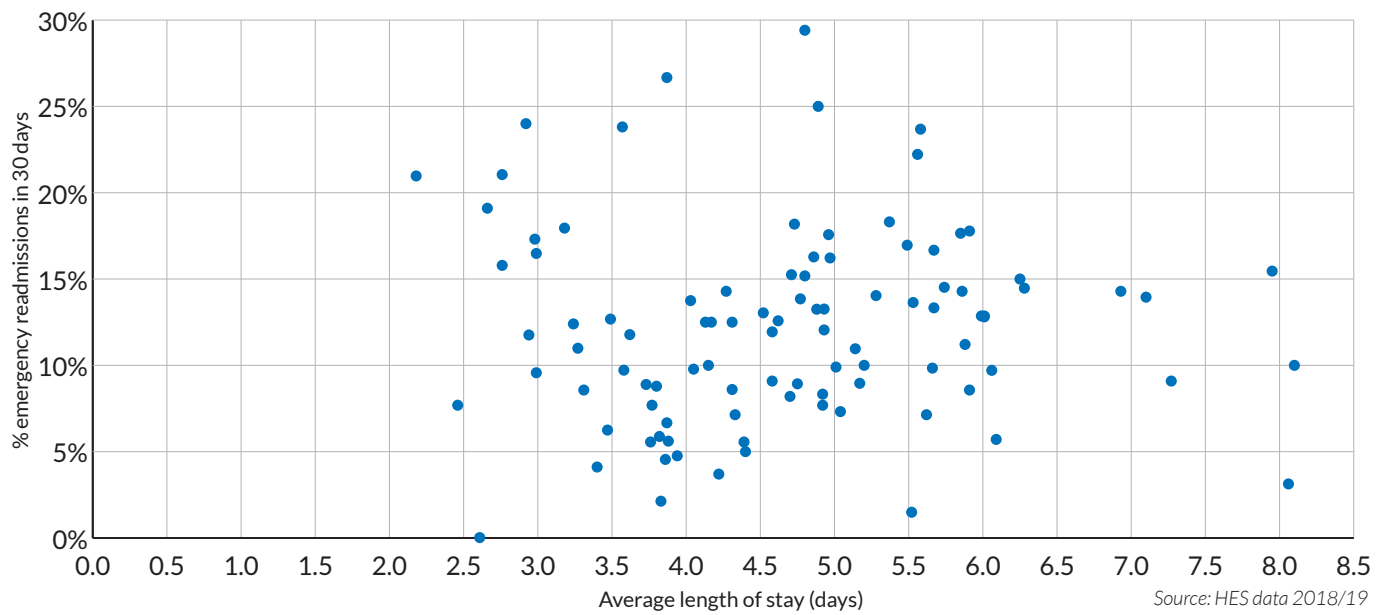


Figure 22b: Elective colectomy: emergency readmissions within 30 days against average length of stay

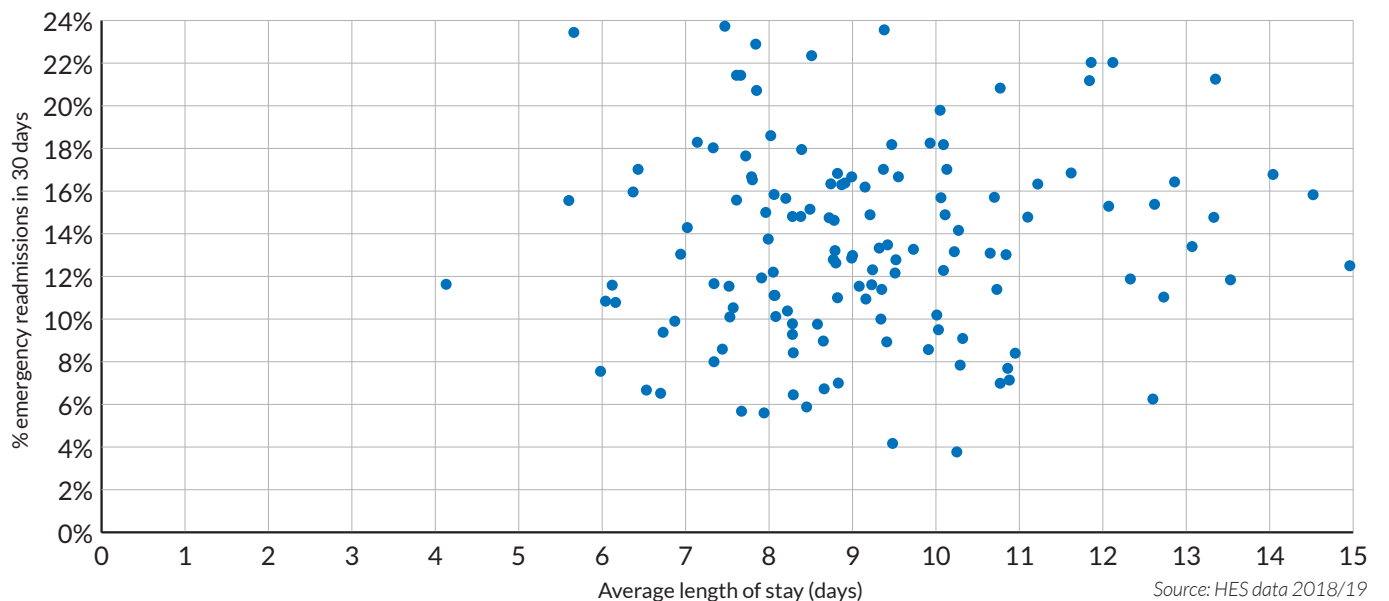


Figure 22c: Elective primary knee replacement: emergency readmissions within 30 days against average length of stay

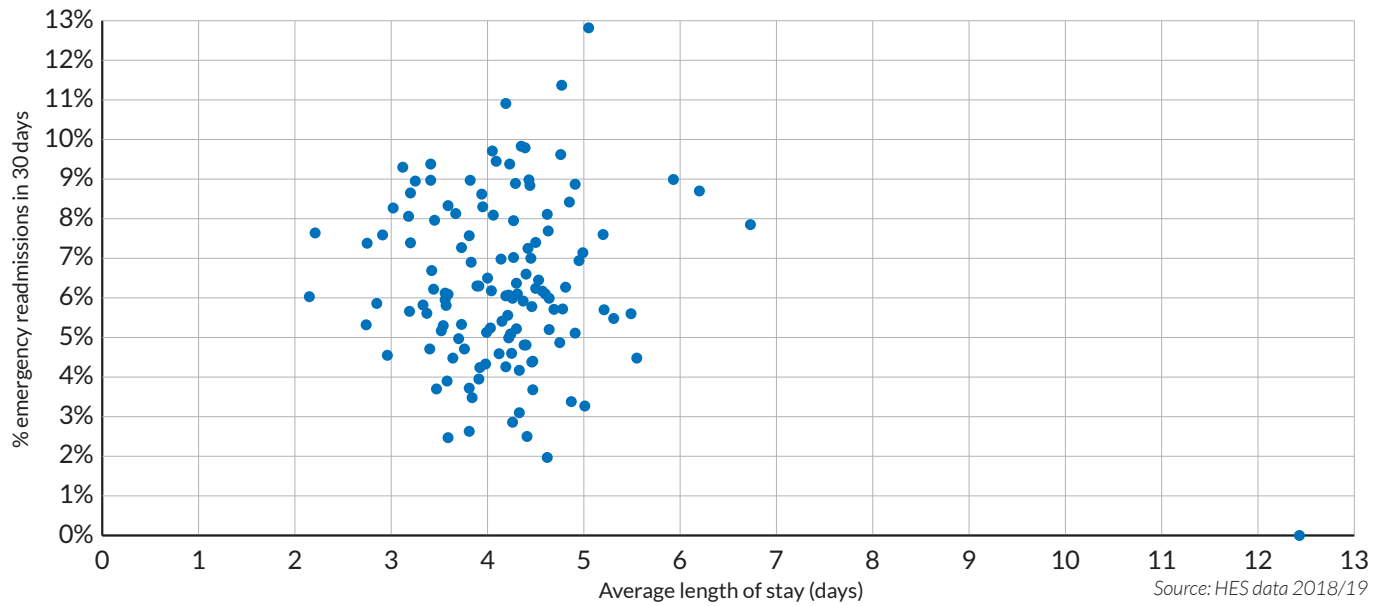
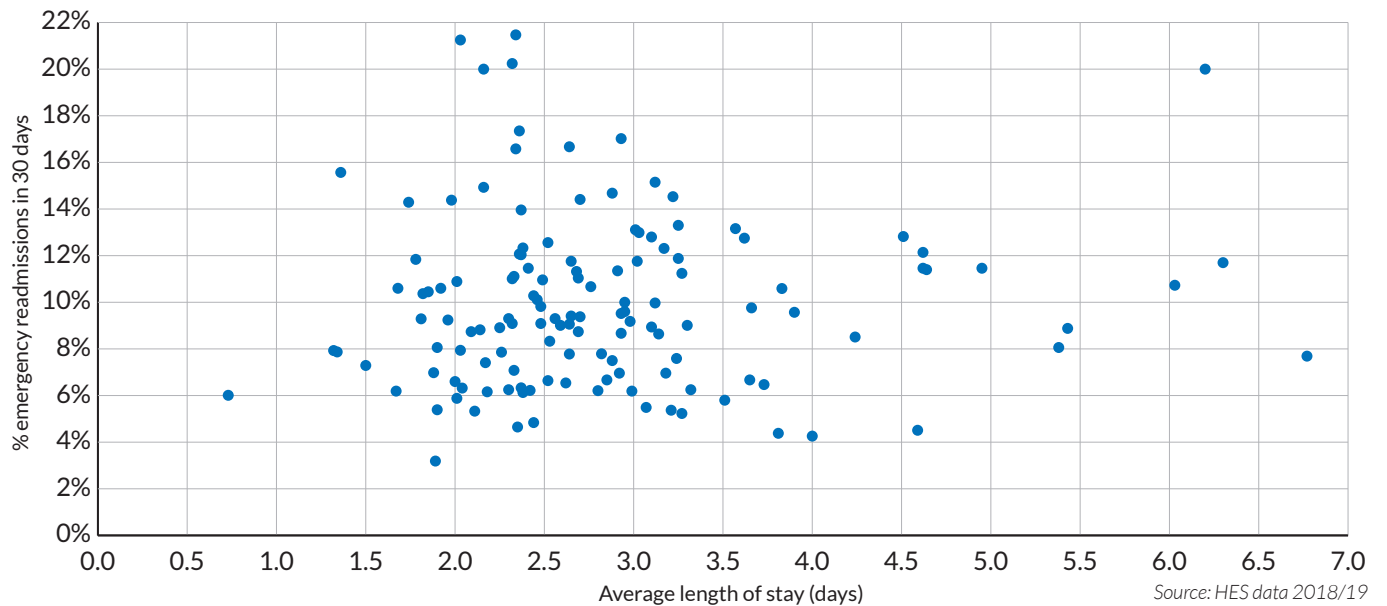


Figure 22d: Elective open hysterectomy: emergency readmissions within 30 days against average length of stay



Reinvigorating the enhanced recovery programme

The value of enhanced recovery is clear and there is a need to ensure that its ethos continues, particularly as our deep-dive visits suggested that active support for key elements of this approach is patchy. The answer may be to take some key elements of care and apply them in a simplified form across all surgical specialities, whilst also introducing some speciality-based interventions where appropriate.

'DREAM'ing

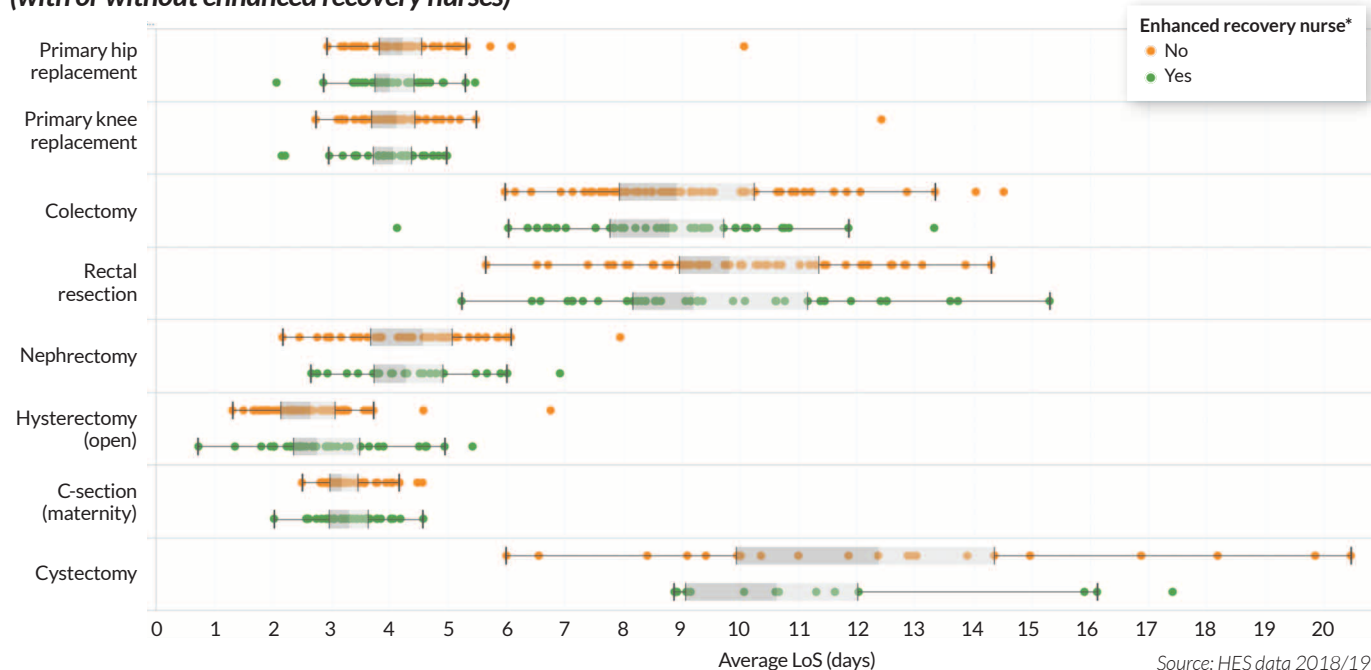
In recent attempts to revitalise the enhanced recovery, there has been interest in the development of a simplified programme of care that emphasises preoperative patient risk assessment and preparation alongside a primary focus on early recovery of postoperative DRinking, Eating and Mobilising⁸⁴ (or 'DREAM'ing). This approach may highlight the overall ethos behind enhanced recovery, which is to promote a culture of care, delivered by a multidisciplinary team that should include nurses, doctors, anaesthetists, surgeons, dieticians, physiotherapists and anyone involved in post-surgical recovery.

A key element of enhanced recovery during the early phase was the presence of clinical champions (often both medical- and nursing-based). Following the subsequent development of multiple protocol-driven pathways, the responsibility for driving enhanced recovery has often reverted to the input of an enhanced recovery nurse.

When we asked our cohort of trusts, only 38.6% of those questioned had an enhanced recovery nurse for any speciality. This supports the idea that the emphasis on delivering the enhanced recovery process has waned and uptake is inconsistent. We wanted to investigate whether a dedicated enhanced recovery nurse altered the length of stay of patients undergoing index procedures.

Figure 23 illustrates the effect of the presence of an enhanced recovery nurse on length of stay for our index procedures. Across all surgical operations, the presence of an enhanced recovery nurse seems not to be a prerequisite for reduced lengths of stay. This suggests that enhanced recovery is primarily about embracing culture change, rather than appointing a specific individual.

Figure 23: Average lengths of stay for enhanced recovery index procedures (with or without enhanced recovery nurses)



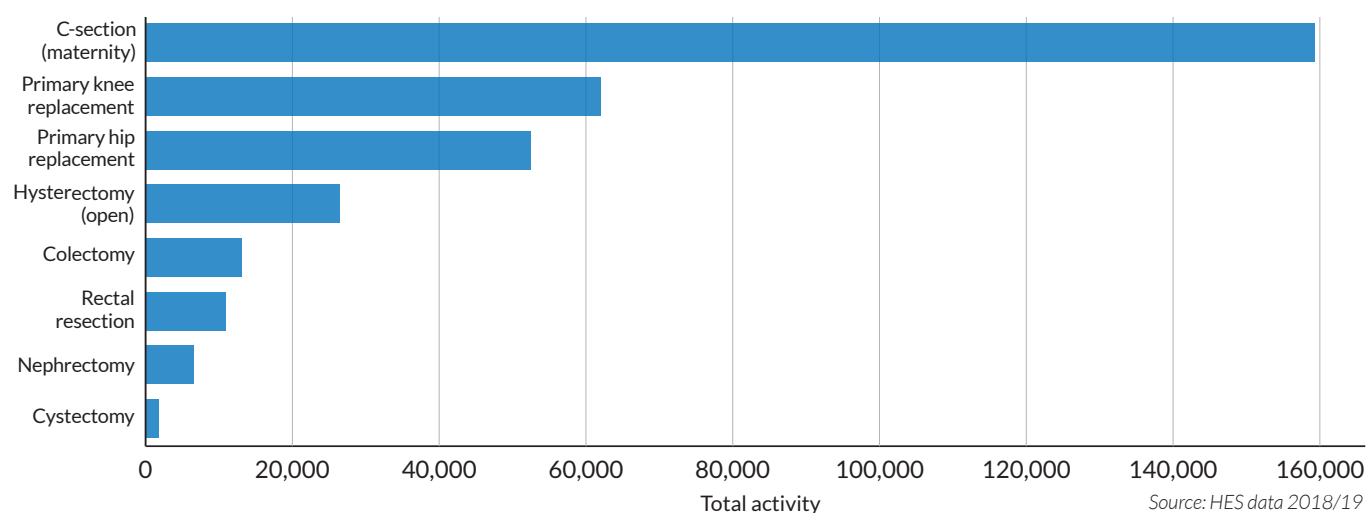
⁸⁴ Levy, N., Mills, P. and Mythen, M. (2016), Is the pursuit of DREAMing (drinking, eating and mobilizing) the ultimate goal of anaesthesia?, first published 15 April 2016, <https://www.doi.org/10.1111/anae.13495>, <https://onlinelibrary.wiley.com/doi/full/10.1111/anae.13495>

New areas of opportunity: caesarean sections

Caesarean sections are usually carried out to protect the health and wellbeing of the baby and/or mother and many are performed as a matter of urgency. However, there has been an increase in numbers of non-urgent (elective) caesarean sections performed year on year, suggesting that maternal and clinical shared decision-making around childbirth has changed. The relevance of this increase in demand, for what is essentially and predominantly an elective surgical procedure, should not be underestimated in terms of hospital resource.

HES data shows that caesarean sections are now by far the most common inpatient surgical procedure, with more performed than orthopaedic hip and knee replacement combined, as illustrated in **Figure 24**.

Figure 24: Total activity counts for enhanced recovery procedures



Since 2010 there has been a standard way to record the urgency of a caesarean section in the UK:

- Category 1 – immediate threat to life of woman or foetus;
- Category 2 – no immediate threat to life of woman or foetus;
- Category 3 – requires early delivery;
- Category 4 – at a time to suit the woman and the maternity services.⁸⁵

Unfortunately, this urgency level is not recorded reliably in HES data. Therefore, our analysis of maternal length of stay following caesarean section had to combine all four categories. However, one would expect that the proportion of non-urgent caesarean sections performed to those in the more urgent categories would be similar in most centres. The National Maternity and Perinatal Audit's clinical report in 2019 stated that between 1 April 2016 and 31 March 2017, 25.5% of women who gave birth to a singleton baby at term in England – just over 145,000 – had a caesarean section. Around 64,000 of these were elective procedures, which is equivalent to 11.2% of all births considered.⁸⁶

Aside from the cost of prolonged hospital stays, where unrelated to baby complications, they are likely to have a significant maternal impact and ideally should be minimised.⁸⁷ Our GIRFT data (from HES 2017/18) showed considerable UK variation in the length of stay associated with caesarean sections. The mean length of stay for all categories of caesarean section was 3.4 days (range 2.5–4.4 days).

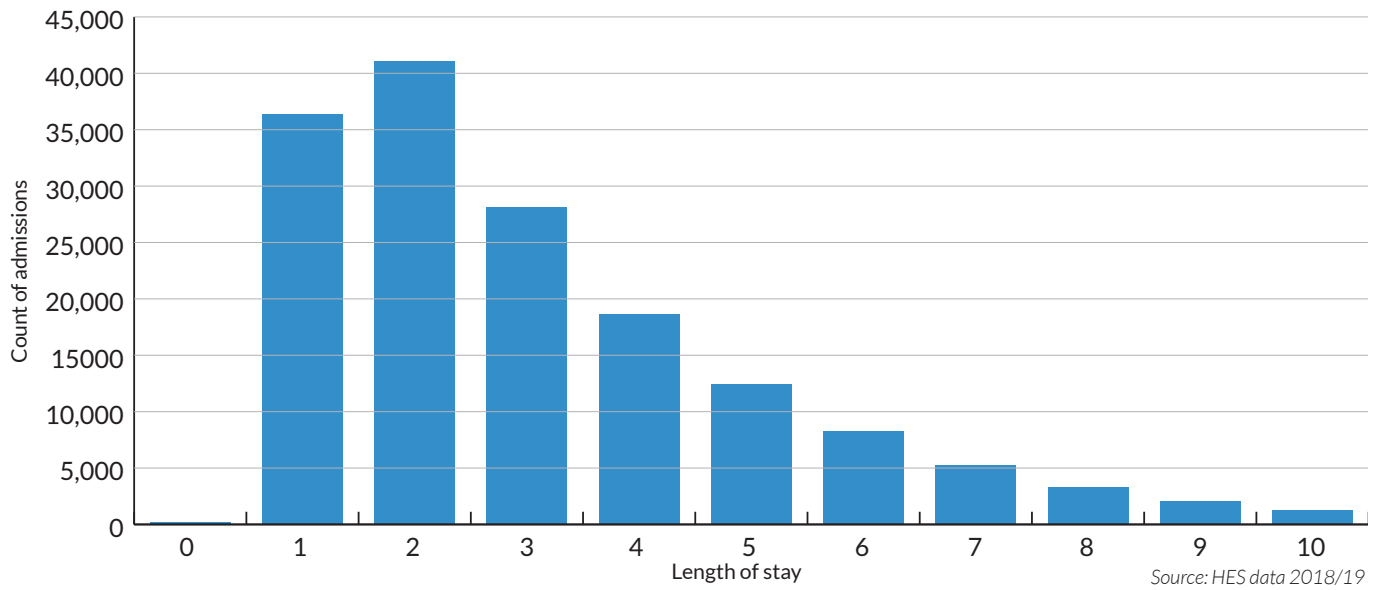
⁸⁵ Royal College of Obstetricians and Gynaecologists (2010), *Classification of urgency of Caesarean section – a continuum of risk* (Good Practice No. 11), <https://www.rcog.org.uk/en/guidelines-research-services/guidelines/good-practice-11/>

⁸⁶ National Maternity and Perinatal Audit (2019), *Clinical Report 2019*, <https://www.hqip.org.uk/wp-content/uploads/2019/09/NMPA-Clinical-Report-2019.pdf>

⁸⁷ NICE (2011, updated 2019), *Caesarean section* (CG132), 1.6.7, <https://www.nice.org.uk/guidance/cg132>

Figure 25 (below) shows the frequency of admissions for whole days spent in hospital for patients following caesarean section. The most frequent length of stay is two days. Given the high number of patients also being discharged on day one, there would seem to be the potential to move this distribution to the left and discharge more patients on the first postoperative day. Indeed, some patients are being discharged the same day, effectively having a day case caesarean section. Quite apart from being in the best interests of some patients, reduced lengths of stay would also bring about significant cost savings.

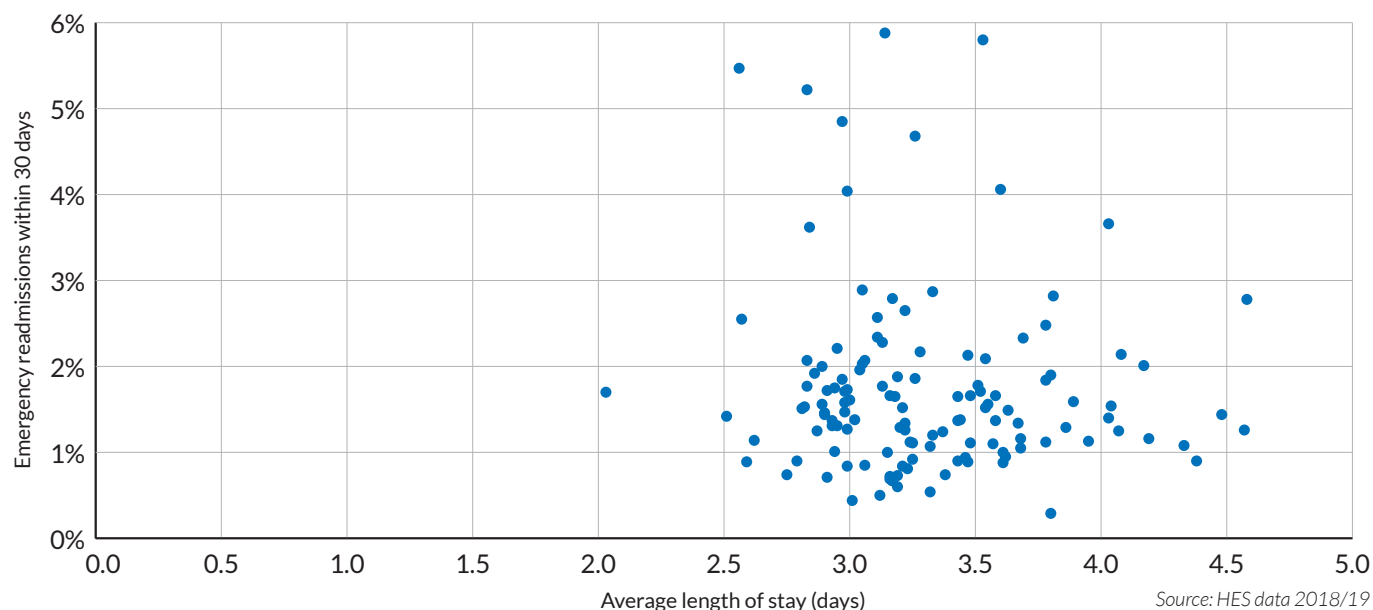
Figure 25: Number of admissions by length of stay for caesarean sections



Readmission rates for caesarean sections

It is worthwhile examining readmission rates as a surrogate for early discharge, since this often represents poor pathway development. As **Figure 26** below illustrates, there appears to be no simple correlation between shorter lengths of stay and increased emergency readmissions for caesarean sections any more than for the other surgical procedures shown in **Figure 22** (page 63).

Figure 26: Maternity caesarean section: emergency readmissions within 30 days against average length of stay



The case for enhanced recovery/day case pathways for caesarean sections

There seems to be a good case for the development of an enhanced recovery process after elective caesarean section to reduce length of stay and, where appropriate, make it into a day case procedure. Exceptions to this would be any instances in which the health of the baby is of concern or where there is a need to provide additional support for a new mother in caring for her baby. Shorter lengths of stay following caesarean sections, wherever clinically appropriate, are recommended in the current NICE guidance.⁸⁸ If reduced length of stay is to become an option for this procedure, it will require careful consideration and staff training in the principles of enhanced recovery care, as well as a shift in culture, not only on behalf of staff but also mothers and relatives. Principles that can be applied to this have been outlined in a presentation by the NHS Enhanced Recovery Partnership⁸⁹ and some trusts are currently promoting this pathway.⁹⁰

Against this process, it could be argued that the surgical component of maternity care differs from other established general surgical procedures and that this difference precludes an enhanced recovery process.

The obstetrics specialty is committed to acute sites due to the need for emergency procedures requiring immediate attention. This could mean that obstetrics day case surgery carried out at existing day case units is not logistically possible, especially where the day surgery unit is on a separate site. Nevertheless, there is no reason why day case pathways and specific day case units could not be established within obstetrics units in order to increase the number of elective procedures.

The majority of caesarean sections are suitable for enhanced recovery pathways,⁹¹ but there is some cultural resistance to change for a variety of reasons. Caesarean sections were not included in the original NHS England Enhanced Recovery programme, which may partly account for the slower rate of change in this regard, but this does not mean that obstetrics should be excluded from consideration in the future, particularly given the size of the opportunity.

⁸⁸ NICE (2011, updated 2019), *Caesarean section (CG132)*, 1.6.7.1, <https://www.nice.org.uk/guidance/cg132>

⁸⁹ NHS Recovery Partnership (no date), *Fulfilling the potential: a better journey for patients and a better deal for the NHS*, slide presentation, www.improvement.nhs.uk/documents/er_better_journey.pdf

⁹⁰ See, for example, University Hospitals of Leicester NHS Trust (2017), *Enhanced recovery for elective caesarean sections at UHL*, <https://secure.library.leicestershospitals.nhs.uk/PAGL/Shared%20Documents/Elective%20Caesarean%20Section%20Enhanced%20Recovery%20UHL%20Obstetric%20Guideline.pdf>

⁹¹ Kitson-Reynolds, E. and Rogers, J. (2017) *Service evaluation for the 'enhanced recovery after planned caesarean section'*, *J Nurs Women's Health* 2:124, DOI: 10.29011/2577-145.100024, <https://gavinpublishers.com/articles/review-article/Journal-of-Nursing-and-Womens-Health/service-evaluation-for-the-enhanced-recovery-after-planned-caesarean-section>

Conclusions

Elective care preparation

Cancellations on the day of surgery are the inevitable consequence of inefficient perioperative pathways. As noted in the *Day Case Surgery* section (page 34), efficient preoperative assessment and managing patient expectations around predefined pathways of care is key to preventing cancellations both before and on the day of surgery. However, the main recorded reason for on-the-day cancellations for patients admitted for elective inpatient (non-day case) procedures is inadequate infrastructure around bed space, including critical care, and workforce issues in perioperative and surgical departments. We would recommend that all trusts take responsibility for monitoring and auditing cancellations on a regular basis and focus their attention on addressing the reasons for cancellation.

Where these mechanisms are in place and surgery has been carefully planned, elective inpatients should rarely have any reason to be admitted the day before surgery. Day of surgery admission (DOSA) should be normal practice in most centres, even for the most complex surgeries and should be considered the default process determined early in the perioperative pathway. Where patients may have to travel some distance for surgery, we suggest that trusts consider the use of 'patient hotels' to avoid admission before the day of surgery.

Enhanced recovery

There is large-scale, unwarranted variation across the UK in delivery and uptake of enhanced recovery processes both within and between surgical specialities.

Our GIRFT data did not suggest that enhanced recovery is regarded as 'business as usual' and in some cases any trust-level commitment to following enhanced recovery guidance for elective surgery has ceased. This is consistent with the recent Perioperative Quality Improvement Programme (PQIP)⁹² report of 2017/18, which demonstrated that only 61.4% of patients included in the dataset were being enrolled on an enhanced recovery pathway.⁹³

We believe there is an urgent need to refocus attention and ensure that enhanced recovery pathways are adopted for the majority of surgical inpatient procedures. This could take the form of a more generic, simple set of enhanced recovery principles to encourage early return to DRinking, Eating and Mobilisation (DREAM-ing)⁹⁴ in the postoperative period. We would also suggest that trusts have clear guidance on the responsibilities of an enhanced recovery 'lead', but it should be emphasised that an enhanced recovery nurse is not a prerequisite for effective take-up of this pathway. Trusts should regularly capture and review data on the impact of enhanced recovery pathways in order to modify processes as soon as indicated.

Regarding caesarean sections, the situation is complex, but there is significant opportunity for reducing maternal-baby length of stay through a shared decision-making process, by developing either an enhanced recovery process or, where appropriate, a pathway promoting day case caesarean section. The numbers of patients who could benefit from this – and the savings involved – mean this should be addressed within the obstetric community as soon as possible.

Financial implications of improved elective inpatient surgical pathways

The potential national gross financial opportunity related to our recommendations concerning improved elective surgery pathways, and specifically the use of enhanced recovery processes, are calculated to be in excess of £150m. The true potential savings are in fact much greater than this since these figures are based on reductions in length of stay for the GIRFT enhanced recovery index procedures (which include caesarean sections) and not for all procedures to which enhanced recovery could be applied. The figures are calculated on the basis of all trusts matching the performance of the current best decile. More detailed calculations can be found in the section on *Notional Financial Opportunities* (page 124).

⁹² PQIP was established in 2016 by the National Institute of Academic Anaesthesia's (NIAA) Health Services Research Centre, working on behalf of the Royal College of Anaesthetists, and in collaboration with the Royal College of Surgeons (England), the Royal College of Physicians, the Royal College of Nursing, the Faculty of Intensive Care Medicine and the Faculty of Pain Medicine plus a number of professional specialist societies. Its methodology is to establish a dataset (based on the best evidence for patient risk factors, processes and outcomes) and then use it to measure and improve patient outcomes, while also answering important research questions. PQIP also aims to support clinicians and managers in using data for improvement.

⁹³ Perioperative Quality Improvement Programme, Annual Report 2017–2018, <https://www.pqip.org.uk/FilesUploaded/PQIP%20Annual%20Report%202017-18.pdf>

⁹⁴ Levy, N., Mills, P. and Mythen, M. (2016), *Is the pursuit of DREAM ing (drinking, eating and mobilizing) the ultimate goal of anaesthesia?*, first published 15 April 2016, <https://associationofanaesthetists-publications.onlinelibrary.wiley.com/doi/full/10.1111/anae.13495>

Recommendations: Elective inpatient surgery

Recommendation	Actions	Owners	Timescale
3. Deliver enhanced recovery ⁹⁵ across all elective inpatient surgical pathways.	a Develop (or reinvigorate) an enhanced recovery culture, driven by a team-wide approach covering nurses, doctors, anaesthetists, surgeons, dieticians, physiotherapists and everyone involved in the perioperative pathway.	Trusts	Within 12 months of report publication
	b Ensure quarterly review and feedback of the appropriate metrics related to enhanced recovery.	Trusts	Within 12 months of report publication
	c Join the Perioperative Quality Improvement Programme (PQUIP) in order to improve patient care. (see https://pqip.org.uk/content/home)	Trusts	Within 12 months of report publication
	d Ensure that patients undergoing a caesarean section are on an enhanced recovery pathway.	Trusts	Within 24 months of report publication
4. Admit patients for elective inpatient surgery on the day of surgery.	a Ensure that the appropriate preoperative assessment and preparation processes are in place to facilitate day of surgery admissions and to avoid day-of-surgery cancellations.	Trusts	Within 24 months of report publication
	b Use 'patient hotels' for patients travelling long distances for surgery.	Trusts	Within 12 months of report publication
5. Record the rates of and reasons for day-of-surgery cancellations for elective surgical patients.	a Capture and monitor surgical cancellation data in real time and act on it to improve pre- and postoperative processes.	Trusts	Within 12 months of report publication
	b Ensure that the rates of and reasons for cancellations are collected and fed back to the appropriate clinicians and managers in a timely manner.	Trusts	Within 12 months of report publication

⁹⁵ Enhanced recovery is a patient pathway that prioritises quality of care and patient participation in their own care, to enable patients to recover more quickly following elective surgery and to allow early, safe discharge with minimal readmission rates. It begins with preoperative assessment and continues until the patient is discharged.

Emergency surgery

In this section we consider the key issues facing emergency surgery by focusing on two challenging emergency procedural pathways.

Background

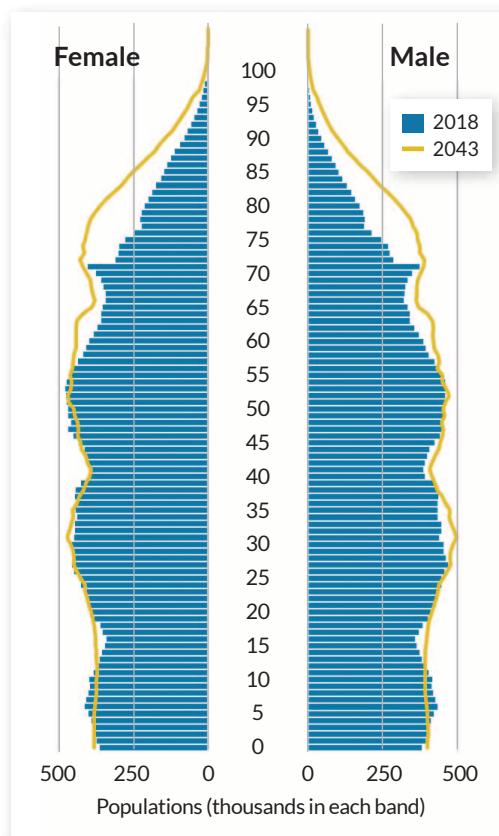
Demand for emergency hospital services has continued to rise year on year. At the time of writing, the forthcoming GIRFT Emergency Medicine work stream notes over 4 million admissions through the cohort of 131 Trusts (with 174 separate emergency departments) in 2018/19. Emergency admissions (both medical and surgical) cause significant disruption to the flow of elective work throughout the hospital.

Emergency surgery constitutes less than 20% of total surgical admissions (see **Figure 4**, page 20). Not all emergency surgical admissions have surgery within 48 hours of admission or even within the index admission. However, where emergency surgery is performed, it is highly demanding of perioperative resources, not least because a high proportion of emergency surgeries are performed on older patients.

Surgery, age, co-morbidity and frailty

Data from the Office of National Statistics (see **Figure 27**) predicts that over the next few decades, the largest proportional increase in the population in England will be in older people, predominantly those over 75 years.⁹⁶ This distribution may have altered somewhat due to the mortality rate as a result of the COVID-19 pandemic, which has targeted an older population.

Figure 27: Population structure in England, 2018–2043 (inner graph is 2018 with projected change at 2043 shown by external line)



Source: Office for National Statistics (2018-based)⁹⁷

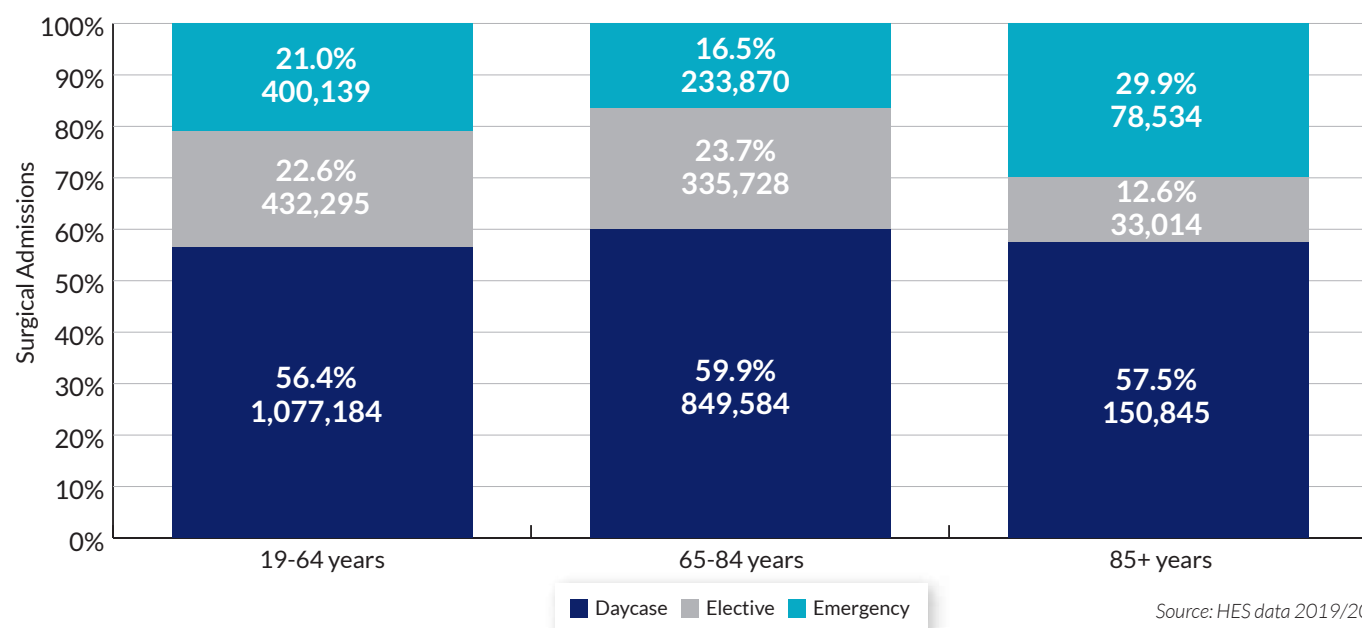
⁹⁶ Office for National Statistics, National population projections: 2018-based, <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/nationalpopulationprojections/2018based>

⁹⁷ Office for National Statistics, National population projections: 2018-based, <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/nationalpopulationprojections/2018based>

Figure 28 below shows GIRFT distribution of adult surgical admissions, categorised by age and admission type. It demonstrates that emergency surgical admissions in patients over 85 are proportionally double those of other adult groups. Patients who were previously considered unsuitable for certain types of surgery because of their age (i.e., 65–85 years) now have a similar distribution of surgical admission type as the younger (18–64 yrs) adult group. The number of people aged 75+ undergoing surgery increased from 544,998 in 1999 to 1,012,517 in 2015⁹⁸ (an increase from 14.9% to 22.9% of that age group) and is likely to continue to increase.

This increase in older surgical patients is highlighted in a recent publication.⁹⁹

Figure 28: Adult surgical admissions, split by age group and admission type



Note: Data selected using Abbot et al. (2017)¹⁰⁰ 'intermediate and restrictive' categories. The data includes only those surgical admissions for procedures that would typically require a theatre and the presence of an anaesthetist.

As patient age increases, the number of coexisting chronic diseases (co-morbidities) increases exponentially.¹⁰¹ **Figure 29** shows the relationship between age and this 'co-morbidity burden',

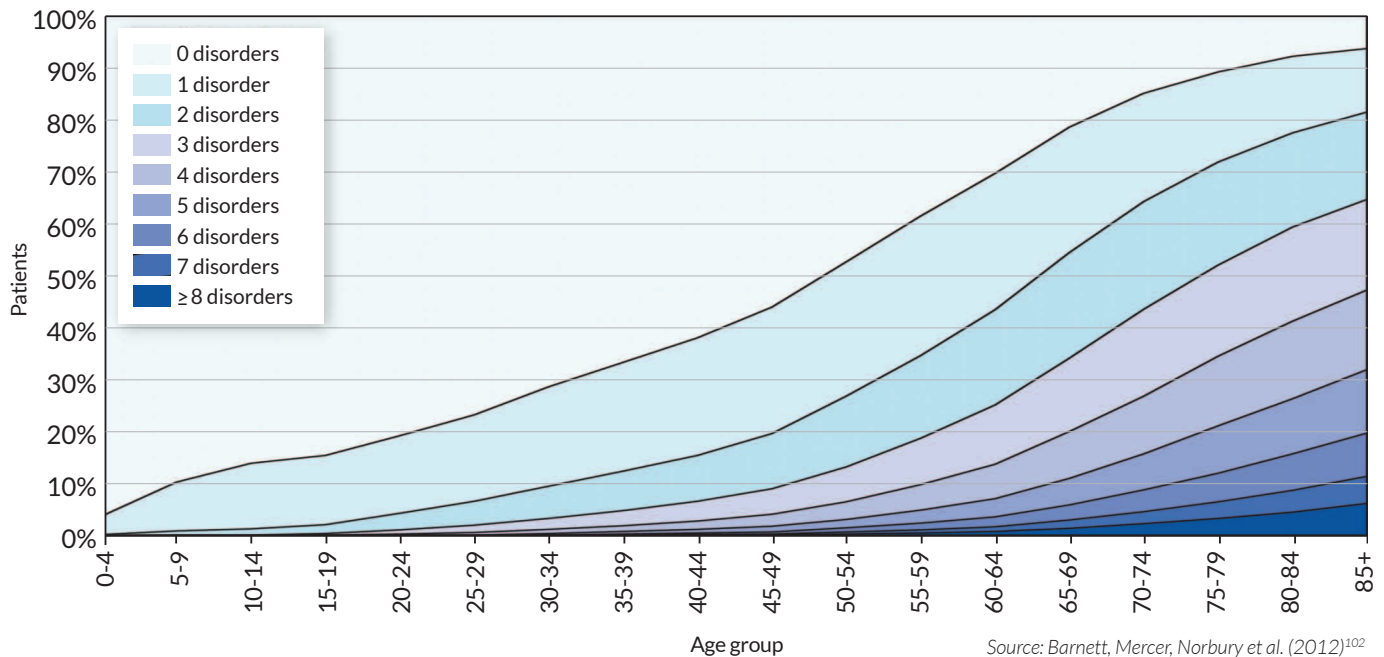
⁹⁸ The Royal College of Surgeons, *Surgery and the NHS in numbers*. <https://www.rcseng.ac.uk/news-and-events/media-centre/media-background-briefings-and-statistics/surgery-and-the-nhs-in-numbers/>

⁹⁹ Fowler, A. J., Abbott, T. E. F., Prowle . et al. (2019), Age of patients undergoing surgery, *British Journal of Surgery*, May, <https://bjssjournals.onlinelibrary.wiley.com/doi/abs/10.1002/bjs.11148>

¹⁰⁰ Abbott, T. E. F., Fowler, A. J., Dobbs, T. D. et al. (2017), Frequency of surgical treatment and related procedures in the UK: a national ecological study using hospital episode statistics, *British Journal of Anaesthesia* 119 (2): 249–257, doi: 10.1093/bja/aex137, <https://pubmed.ncbi.nlm.nih.gov/28854546/>

¹⁰¹ Divo, M. J., Martinez, C.H. and Mannino, D. M. (2014), Ageing and the epidemiology of multimorbidity. *Eur Respir J*. 2014 Oct;44(4):1055-68. doi: 10.1183/09031936.00059814, <https://pubmed.ncbi.nlm.nih.gov/25142482/>

Figure 29: Relationship between age and co-morbidity



The concept of frailty has also been incorporated into the perioperative setting and is significantly associated with surgical mortality and postoperative complications, although the specific relationship is yet to be fully explained. Frailty has been described as;

“

A distinctive health state relating to the ageing process in which multiple body systems gradually lose their in-built reserves ... Around 10% of people aged over 65 years have frailty, rising to between a quarter and a half of those aged over 85.”

British Geriatrics Society (2014)¹⁰³

”

Where a patient is identified as ‘frail’ at the preoperative stage, their overall perioperative management is particularly challenging. However, not all patients with co-morbidities are frail or old, and not all frail patients have co-morbidities.

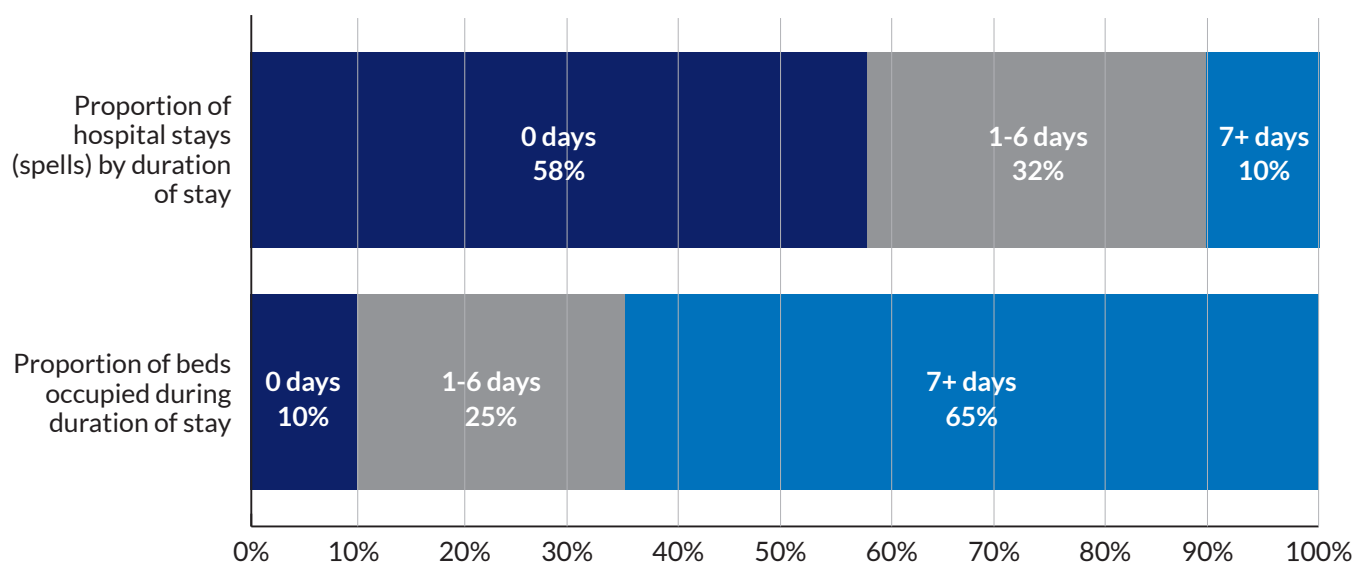
Long lengths of stay following emergency surgery

Patients (whether medical or surgical) with prolonged lengths of stay have significant impact on bed occupancy rates throughout the hospital. This is demonstrated in **Figure 30** below. This figure shows that across all hospital admissions, 90% of hospital stays are 0–6 days, with only 10% of patients staying >6 days. However, when considering overall bed occupancy, this long-stay group of patients will occupy 65% of the hospital’s beds at any one time.

¹⁰² Barnett, K., Mercer, S., Norbury, M. et al. (2012), *Epidemiology of multimorbidity and implications for healthcare, research and medical education: a cross-sectional study*, *The Lancet*, 10 May, [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(12\)60240-2/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(12)60240-2/fulltext)

¹⁰³ British Geriatrics Society (2014), *Introduction to frailty, fit for frailty part 1*, <https://www.bgs.org.uk/resources/introduction-to-frailty>

Figure 30: Bed occupancy and length of stay: proportion of hospital stay separated into duration of stay



Source: Karakusevic (Nuffield Trust) (2016)¹⁰⁴

The underlying causes of long stays are complex, but the pressure points are frequently related to medical (i.e. non-surgical) specialties, with many cases having recognised markers of frailty, such as dementia, mobility problems and anxiety. GIRFT data (based on HES data for 2018/19) demonstrates that in 2018/19, medical specialties accounted for 55% of total bed-days. Of those patients staying ≥ 21 days, 44% were frail (had two or more frailty markers), compared to 8.6% outside the long-staying population. Managing these patients across their pathway is critical – once a patient has stayed for 21 days, their mean length of stay is 39 days.

Concerted attempts are being made to reduce the duration of hospital stay in medical long-stay patients through targeting various hospital ‘flow’ pathways. Measures include the prevention of unnecessary admission through emergency departments (e.g. ‘assess to admit’ pathways and the development of acute medical assessment units in emergency departments)¹⁰⁵ and the avoidance of protracted hospital stays through consistent attention to in-hospital pathways of care (including the introduction of the SAFER patient flow bundle as part of the NHS Emergency Care Improvement programme guided by the Emergency Care Intensive Support Teams¹⁰⁶). In addition, enhanced interaction and collaboration with community care networks is facilitating early, safe discharge.

There has not been an equivalent focus consistently applied in the case of surgery. Hospital stays of more than seven days following elective surgery are not uncommon (see *Elective Inpatient Surgery* section, page 54) and may be considerably longer where postoperative complications or social and community circumstances prevent discharge. However, lengths of stay following emergency surgeries are considerably longer, even without complications. Since an older population dominate emergency surgical procedures, there are now many similarities between hospital pathways dealing with emergency surgical patients and those managing medical care, particularly regarding the need to manage issues around frailty.

We are now able to perform emergency surgery routinely on a progressively older surgical population due to less invasive surgical techniques and an improved understanding of optimal perioperative care for this high-risk group. Emergency surgical care is rightly prioritised, but can have a significant detrimental impact on waiting times and cancellation rates for elective inpatients.

During our GIRFT visits, we concentrated on two groups of emergency surgical patients, both related to orthopaedic injury. Firstly, those patients admitted with a hip fracture requiring surgery. This is an established, high volume emergency procedure. The second group suffer a different form of hip injury. A periprosthetic hip fracture occurs close to an already implanted artificial hip joint (usually performed for arthritis as a result of the ageing process). This is an emerging form of emergency procedure due to an increasing frequency of primary hip replacement and the fact that patients are now living longer after such surgery.

¹⁰⁴ Karakusevic, S. (Nuffield Trust) (2016), Briefing: Understanding patient flow in hospitals, <https://www.nuffieldtrust.org.uk/resource/understanding-patient-flow-in-hospitals>

¹⁰⁵ Type 1 Emergency departments are consultant-led 24-hour services with full resuscitation facilities and designated accommodation for the reception of accident and emergency patients.

¹⁰⁶ NHS Improvement (2018), Guide to reducing long hospital stays, https://www.improvement.nhs.uk/documents/2898/Guide_to_reducing_long_hospital_stays_FINAL_v2.pdf

Hip fractures

Note on data

Most of the data we have used for this analysis is from HES, supplemented with the National Hip Fracture Database. Unfortunately the two datasets are not fully compatible.

Hip fractures often occur in the patient's own residence and tend to affect frail patients with a significant number of co-morbidities. Yearly mortality rates have improved considerably from 10.9% in 2007 to 6.1% in 2019.¹⁰⁷ However, questions remain regarding long-term patient outcomes, including the degree of functional recovery.

Surgery is generally offered to all patients who are not expected imminently to die and is only delayed if there is an immediately reversible pathology. Delays of more than 48 hours are associated with poorer outcomes. Intervention within 36 hours is a quality marker. Even where surgery is performed expediently and successfully, there is considerable risk of postoperative deterioration in the form of delirium (25%), which may prolong hospital stays.

The surgical treatments for hip fracture fall into two main categories;

- Total hip replacement, which may provide the greatest mobility postoperatively. This is generally reserved for the 10-15% of younger, fitter patients to allow them sustained quality-of-life benefits.
- Dynamic hip screw, cannulated screw or hemiarthroplasty depending on the site of the fracture. This is usually preferred where more preoperative frailty exists and is aimed specifically at reducing operative duration and patient stress, relieving pain and promoting early rehabilitation.

Variation in mortality following hip fracture surgery

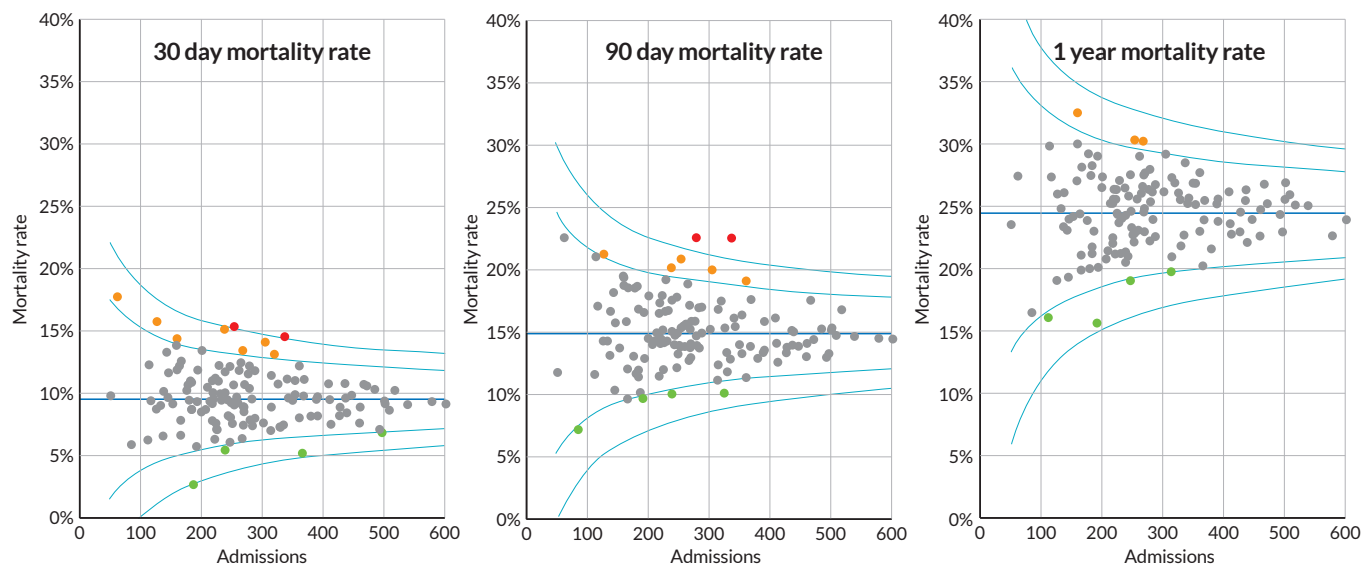
Since only 8% (mean) of patients receive a hip replacement following fractured neck of femur (albeit with a large level of variation), the majority of these patients undergo less invasive surgical procedures, with the primary aim of reducing pain and suppressing trauma-induced mortality. Although mortality rates for fractured neck of femur surgery have decreased considerably, the rate still remains high when compared to mortality following most elective surgical procedures.

Figure 31 below illustrates mortality rates at 30 days, 90 days and a year following hip fracture fixation in patients age 65 and over. Mortality within 30 days of surgery is a standard benchmark for many surgical procedures. Since any surgical procedure with a mortality rate more than 5% is universally recognised as being high risk, a mortality rate of 11% after hip fracture surgery at 30 days demonstrates the deleterious effect of emergency surgery in an older, frail population. The unwarranted variation between trusts' mortality rates remains significant.

Over time we see a marked increase in mortality rates within the first year of the original procedure and increasing variation in trust outcomes. We might expect a small increase in trust-wide variation over time, given the sustained effects of co-morbidity and regional differences in outcome, but the effect is striking. This data is particularly important for shared decision-making before surgery and in developing perioperative pathways that work in the patient's best interests.

¹⁰⁷ National Hip Fracture Database (2019), National report 2019, https://www.nhfd.co.uk/files/2019ReportFiles/NHFD_2019_Annual_Report_v101.pdf

Figure 31: Variance in mortality rate for surgery for hip fracture in patients of 65 and over, by trust



Source: HES and ONS data April 2016–March 2019

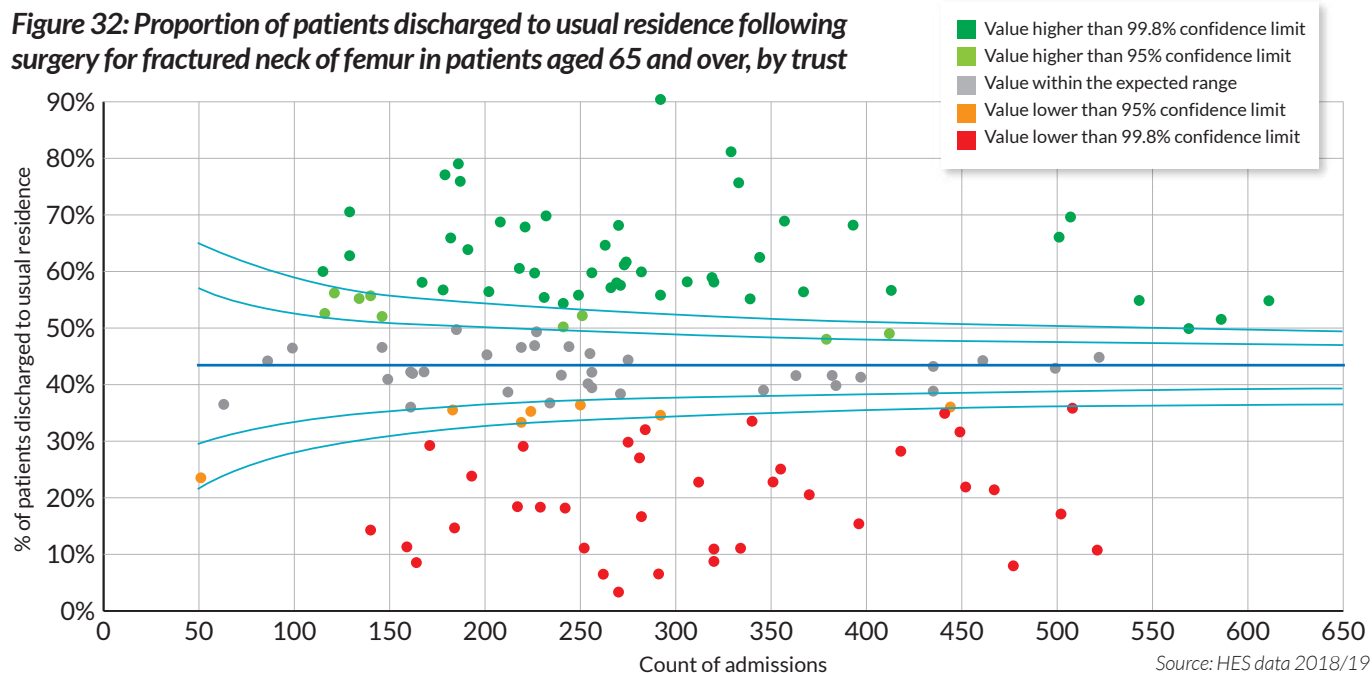
Variation in hospital discharge after emergency hip surgery

Variation in length of stay after emergency hip surgery will vary dependent on postoperative complications, similar to those seen after elective surgery. However, even where no complications develop, the non-availability of step-down community or hospital-delivered care units or excess time taken to modify the home environment to allow safe, rehabilitative onward care, will also prevent discharge and prolong length of stay. Both these factors will have contributed to widespread variation in the length of hospital stay following fractured neck of femur surgery, which varied between 11 and 29 days (18 days mean).

In terms of patient outcome, a return to home or usual place of residence would, in most circumstances, constitute success for the perioperative pathway, whereas a new admission to long-term social care would not. It should be noted, however, that some units will 'discharge to assess', i.e. transfer care out of the hospital, which will delay a patient returning to their place of residence. **Figure 32** shows the percentage of patients who returned to their usual residence following surgery for hip fracture, which often indicates whether there has been a more permanent change in health status following surgical repair. The variation between trusts remains considerable. A more recently developed patient-related outcome measure (<https://www.england.nhs.uk/statistics/statistical-work-areas/proms/>), which is particularly relevant to functional recovery after surgery, is the number of days spent at home (or usual residence) within 30 days of surgery. This measure is highly sensitive to changes in surgical risk and the impact of complications and has prognostic importance.

¹⁰⁸ Bell, M., Eriksson, L. I., Svensson, T. et al. (2019), Days at home after surgery: an integrated and efficient outcomes measure for clinical trials and quality assurance, *EClinicalMedicine* May–June; 11: 18–26, doi: 10.1016/j.eclinm.2019.04.011, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6610780/>

Figure 32: Proportion of patients discharged to usual residence following surgery for fractured neck of femur in patients aged 65 and over, by trust



Overall, there is a lack of public awareness about the severity of outcomes for patients with hip fractures and about the size and complexity of this issue. This is compounded by a lack of appropriately collected data being provided at trust level. These patients are predominantly older, have complex pathways and may be difficult to track. A greater focus on follow-up and aftercare, such as rehabilitative physiotherapy, may improve postoperative outcomes.

An increasing role for geriatric services

Consistent with most emergency hip surgery being performed on a frail, older population of patients, one of the fundamental changes in orthopaedic trauma management during early attempts to improve outcomes was the central involvement of an orthogeriatric service.¹⁰⁹ This was undoubtedly at the forefront of the improvement in mortality rates and recovery outcomes.¹¹⁰ More recently there has been significant stress in the system, due to workforce issues and the rapid increase in older populations dominating other areas of the surgical environment. This means there are continual requests for geriatric input into many other forms of high-risk elective surgery and emergency surgical pathways (e.g. emergency laparotomy) where geriatric input is also inconsistent.

Accepting the limitations of hospital length of stay as an appropriate patient-related outcome metric, we were interested to see whether the presence of a nominated orthogeriatrician, as reported at trust level, was associated with earlier patient discharge.

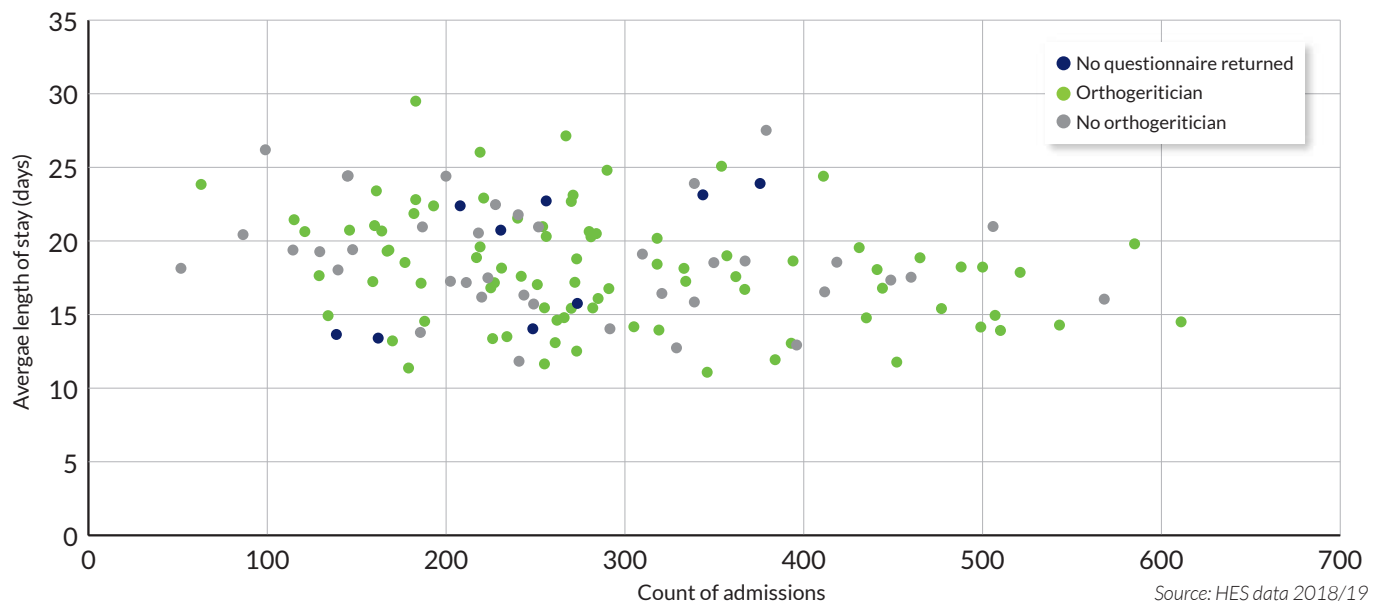
Figure 33 shows the relationship between mean length of stay following fractured neck of femur surgery and count of admissions for all trusts. The presence or absence of a nominated orthogeriatrician (as determined by response to the GIRFT questionnaire) did not show any obvious association with improved length of stay (a null response was from those trusts that did not respond to this question).

There was significant variation around average length of stay following fractured neck of femur repair. However, our data showed no obvious association with the presence or absence of a nominated orthogeriatrician.

¹⁰⁹ Gupta A. (2014), *The effectiveness of geriatrician-led comprehensive hip fracture collaborative care in a new acute hip unit based in a general hospital setting in the UK*, *J R Coll Physicians Edinb*, 44:20-6, doi:10.4997/JRCPE.2014.105 pmid:24995442, <https://www.pubmed.ncbi.nlm.nih.gov/24995442/>

¹¹⁰ Hawley S, Javaid MK, Prieto-Alhambra D, et al. (2016), *Effectiveness of orthogeriatric and fracture liaison service models of care for hip fracture patients: population-based longitudinal study*, *Age Ageing* 45:236-42, doi: 10.1093/ageing/afv204, <https://pubmed.ncbi.nlm.nih.gov/26802076/>

Figure 33: Mean length of stay after surgery for neck of femur fracture for patients 65+ years, based on questionnaire data, by trust



This is important information given the significant shortage of geriatricians in the UK. It has also been estimated that each geriatrician involved has only 5.5 hours per week allocated to their job plan for orthogeriatric activity.¹¹¹ Our questionnaire showed that 92% of trusts that responded (we had a 94% response rate to this question) reported full orthopaedic input from geriatric services. In contrast, data from the National Hip Fracture Database (NHFD) showed that prompt orthogeriatric review (within 72 hours of admission) ranged from 35% to 100% in England. Even with the introduction of a best practice tariff in 2018, there remains huge variation in how likely a patient has early review by an orthogeriatrician.¹¹²

Research evidence shows that organised geriatric input can reduce length of stay and improve care for patients with a hip fracture.¹¹³ Nevertheless, our results suggest that simply appointing a geriatrician into a surgical pathway may not replicate the research evidence. The role needs to be more carefully defined within a robust integrated service support development.¹¹⁴ There is more to this than the employment of a doctor. There are various models of orthogeriatric care and during our deep dive visits we noted several approaches that worked well in managing these hip fracture or similar groups of patients.

¹¹¹ National Hip Fracture Database (2019) National report 2019, <https://www.nhfd.co.uk/20/hipfractureR.nsf/docs/2019Report>

¹¹² National Hip Fracture Database (2019) National report 2019, <https://www.nhfd.co.uk/20/hipfractureR.nsf/docs/2019Report>

¹¹³ Partridge, J. S. L., Harari, D., Martin, F. C. et al. (2017), Randomized clinical trial of comprehensive geriatric assessment and optimization in vascular surgery, *Br J Surg*, May;104(6):679–687, doi: 10.1002/bjs.10459, <https://www.ncbi.nlm.nih.gov/28198997/>

¹¹⁴ Middleton, M. (2018), Orthogeriatrics and hip fracture care in the UK: factors driving change to more integrated models of care, *Geriatrics* 2018, 3(3), 55; <https://www.doi.org/10.3390/geriatrics3030055>

CASE STUDY

Multidisciplinary hip fracture pathway

Bradford Royal infirmary

Since the introduction of a Best Practice Tariff for hip fractures in 2012, Bradford Royal Infirmary's performance has improved significantly.

Key developments:

- A multidisciplinary Hip Fracture Governance Forum was introduced in 2014. It focuses on nutritional, anaesthetic and surgical guidelines, wound care, and early mobilisation and meets every weekday.
- A hip fracture pathway from the emergency department has resulted in a fast track to designated ward, early analgesia and fluids, and femoral nerve block for confirmed/suspected hip fracture along with improved/priority access to theatre and discharge planning.

Outcomes:

- patients assessed preoperatively by an ortho-geriatrician (98%);
- postoperative mobilisation on day after surgery (96%);
- falls assessment (100%);
- pressure ulcer rates 0.7% (nationally 2.8%);
- surgery within 36 hours (83%);
- perioperative nerve block (76%);
- acute and overall LoS 12.6% and 12.7% (nationally 15.7% and 20.3%).

Periprosthetic fractures

Periprosthetic fractures occur in the bones around an existing artificial joint replacement (most commonly hip and knee joints). They are a growing problem, as both the older population and the number of elective surgical joint replacements increases year on year. Periprosthetic fractures present significant management challenges. These fractures are surgically difficult to manage, often requiring multiple surgeon input. The patients may develop a significant stress response to the surgery, which delays early recovery. In addition, the fractures often develop many years after the original surgery, when the co-morbidity burden of the patient has significantly increased with advancing age. In summary, they require a considered team approach for optimum management.

Figure 34 shows the gradual rise in the number of these fractures over the last six years, along with in-hospital mortality rates and lengths of stay. **Figure 35** shows the variability in length of stay across trusts, with a mean length of stay of 21 days, and range of 7 to 45 days. Combined with the data showing an aggregated 4-year in-hospital mortality rate ranging from <1% to >11% (as shown in **Figure 36**), the picture is a troubling one. For example, a patient admitted to one trust with a periprosthetic fracture has a 15% chance of dying within a year; in another trust, performing a similar number of these surgeries, the mortality rate is more than double (32%). These patients are undoubtedly being poorly managed in the worst-performing trusts and the care pathways in many cases would appear to be inadequate.

Figure 34: Average lengths of stay and in-hospital mortality rates for patients aged 65 and over with periprosthetic fractures and count of admissions with a periprosthetic fracture, 2015-2018.

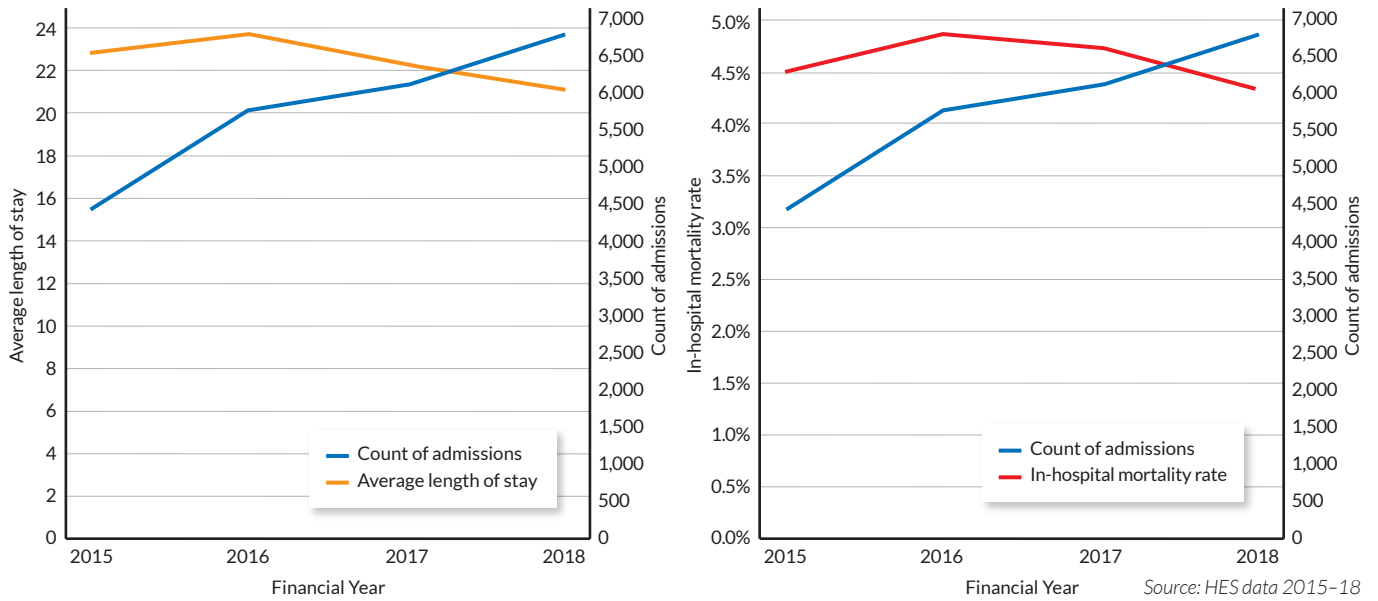


Figure 35: Average length of stay for periprosthetic fractures in patients aged 65 and over, by trust

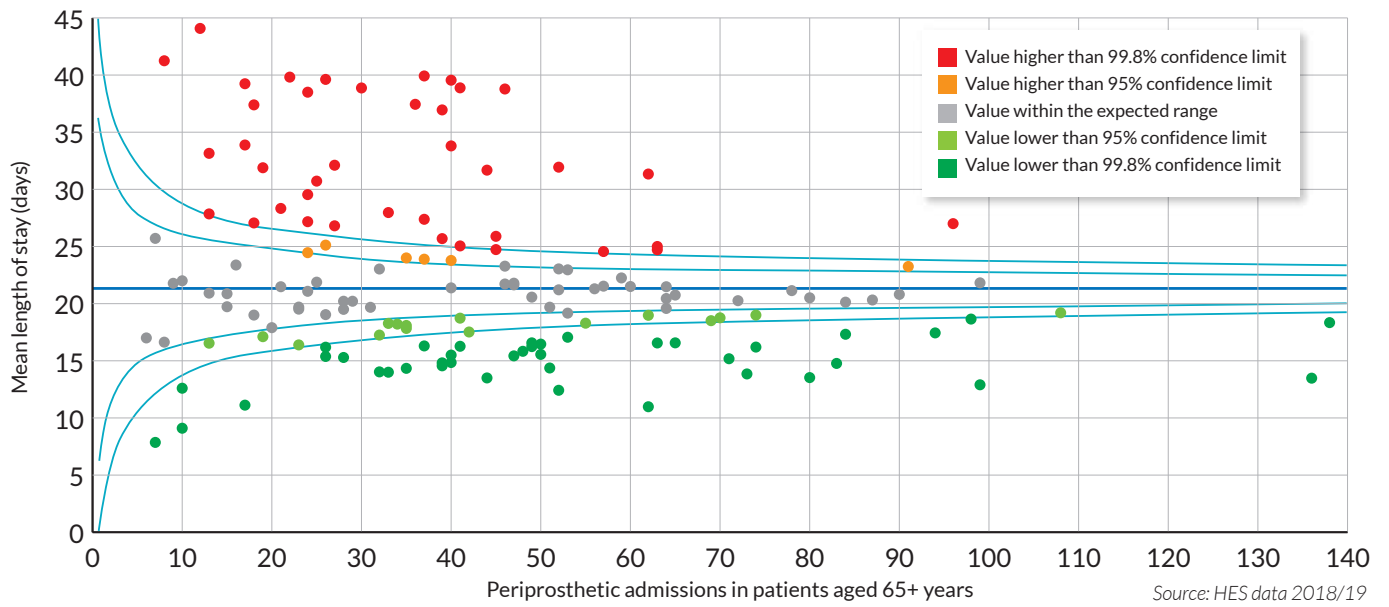
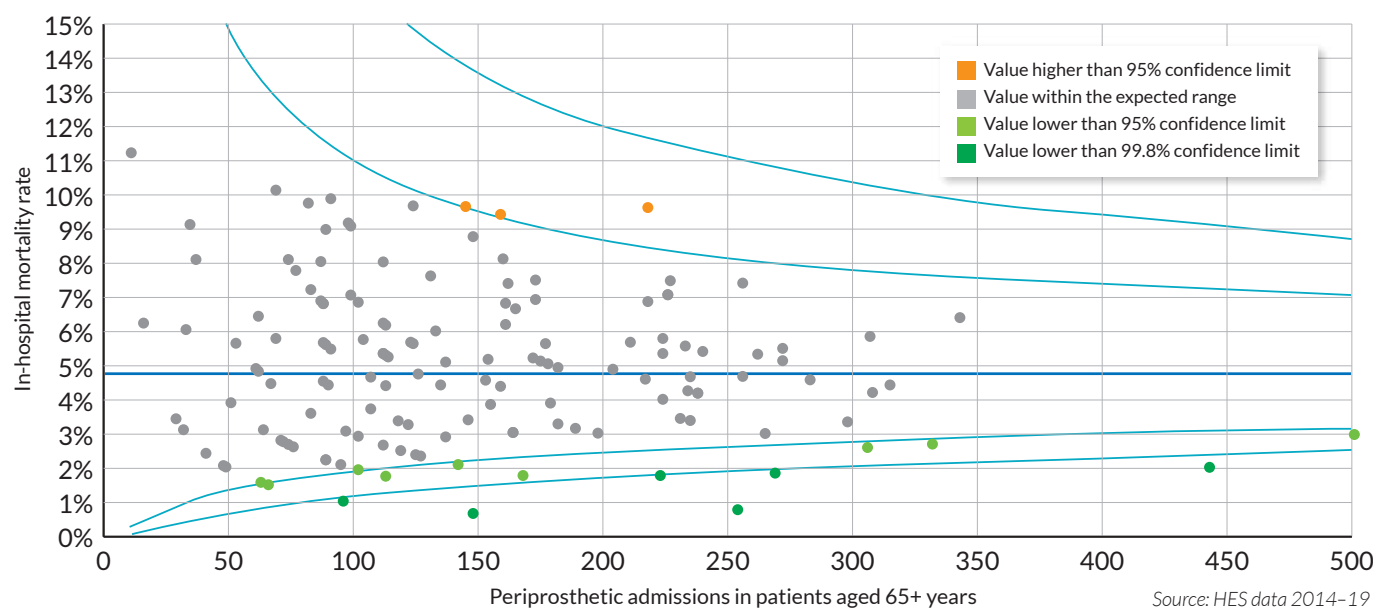


Figure 36: Aggregated four-year in-hospital mortality for periprosthetic fractures in patients aged 65 and over, 2014–19, by trust



Conclusions

Extended lengths of hospital stay after emergency surgery are becoming increasingly commonplace. There is a need for a concerted management approach similar to that which has been successfully introduced for longer-stay medical care patients.

We considered two emergency procedures (hip fractures and periprosthetic fractures) that are complex conditions that require thoughtful, multidisciplinary management before (especially around an initial decision to operate), during and after surgery. Our data showing considerable variation in quality-based outcomes for these emergency surgical procedures, lends support to the argument for all trusts to have an integrated, multidisciplinary perioperative team dedicated to the management of these emergency cases.

New models of perioperative care will require specific input from geriatric services carefully integrated into the perioperative team, with particular attention to addressing workforce and recruitment issues to enable consistent cover.¹¹⁵

An important component for emergency surgical perioperative care is ongoing care after successful surgery that aims to return the patient to their original place of residence with minimal or no loss of functional independence. Successful recovery will also require continuation of care into the community setting, which will be important in the future development of Integrated Care Systems (ICS).

Finally, the NELA report (2019) notes that targeted multidisciplinary clinical input into emergency laparotomy has been successful but will only take us so far.

¹¹⁵ Newer models of care favour complex integration of geriatric services. See, for example, Middleton, M. (2018), *Orthogeriatrics and hip fracture care in the UK: factors driving change to more integrated models of care*, *Geriatrics* 2018, 3(3), 55; <https://www.doi.org/10.3390/geriatrics3030055>

“

The average mortality rate after emergency laparotomy remains static at 9.6%. Improvements in processes within the gift of the individual clinician have plateaued and it is likely that wider system and organisational change is now required to see further improvement.

(NELA, 2019)¹¹⁶

”

The route to further improvement in patient outcomes and overall efficiency (and we would suggest this is the case, not just the case for emergency laparotomy but for surgery generally) is pathway change. We consider this in detail in the next section.

Financial implications of improved emergency surgical pathways

The potential national gross financial opportunity related to our recommendations concerning multidisciplinary input into emergency surgery pathways are c. £90m. This is based solely on a reduced length of stay for patients admitted as emergencies following a hip fracture and is calculated on the basis of all trusts matching the performance of the current best decile. Greater potential savings could be made by implementing our recommendations across all emergency surgery pathways. More detailed calculations can be found in the section on *Notional Financial Opportunities* (page 124).

Recommendation: Emergency surgery

Recommendation	Actions	Owners	Timescale
6. Ensure effective multidisciplinary input into all emergency surgery pathways.	a Ensure a timely approach, with multidisciplinary input, to all emergency procedures.	Trusts	For immediate action
	b Provide appropriate information to patients and their relatives around outcome in emergency surgery to enable shared decision-making.	Trusts	For immediate action
	c Assess and record frailty and delirium before emergency surgery.	Trusts	For immediate action
	d Record a predicted 30 day mortality rate for all high-risk surgery (>1%).	Trusts	For immediate action
	e Ensure that patients have access to postoperative rehabilitation, provided both in hospital and in the community.	Trusts	For immediate action

¹¹⁶ Key Message 1 in NELA (2019), *The fifth patient report of the National Emergency Laparotomy Audit December 2917 to November 2018*, <https://www.nela.org.uk/Fifth-Patient-NELA-Report#pt>

Use of critical care for surgical patients

The GIRFT Adult Critical Care report¹¹⁷ covers all aspects of adult critical care. We align ourselves with the contents of that report but focus here solely on the requirements of post-surgical patients. Specifically, we consider 1) how to ensure equity of access for surgical patients requiring critical care and 2) how the concept of enhanced care may relieve pressure on critical care services by providing support for patients after surgery who do not require critical care but need more support than is provided on a standard surgical ward.

Background

Approximately 170,000 surgical patients are admitted to critical care units in England and Wales following a surgical procedure. The majority of patients (54%) admitted to critical care come from the acute medical specialities, with the other 46% from surgery (30% elective and 16% emergency surgery).¹¹⁸

The Comprehensive Critical Care report (2000), set out four levels of care, based around patient care needs rather than hospital location.¹¹⁹ This definition was endorsed by the Faculty of Intensive Care Medicine (FICM) in 2019.¹²⁰ The defined levels of care are:

- **Level 0:** Patients whose needs can be met through normal ward care in an acute hospital.
- **Level 1:** Patients at risk of their condition deteriorating, or those recently relocated from higher levels of care, whose needs can be met on an acute ward, possibly with additional advice and support from the critical care team.
- **Level 2:** Patients requiring more detailed observation or intervention, including support for a single failing organ system or postoperative care or those 'stepping down' from Level 3 care.
- **Level 3:** Patients requiring advanced respiratory support alone, or basic respiratory support together with support of at least two organ systems. This level includes all complex patients requiring support for multi-organ failure.

Critical care beds are usually available within a dedicated critical care unit and are divided into intensive care unit (ICU or Level 3) beds and high dependency unit (HDU or Level 2) beds. Most critical care units combine both Level 2 and 3 beds (75%), although standalone ICUs (6%) and HDUs (19%) also exist.¹²¹

Compared to ward care (Levels 0, 1), critical care (Levels 2, 3) allows for earlier identification of patient deterioration, a significantly reduced response time for treatment to prevent further deterioration and more extensive treatment options (including early treatments for low blood pressure and heart rhythm abnormalities). These differences are also influenced by higher nurse-to-patient and doctor-to-patient ratios. (The registered nurse-to-patient ratios for critical care were set in 1996 at 1:1 for ICU or Level 3 care and 1:2 for HDU or Level 2 care.¹²² In contrast, the Royal College of Nursing (RCN) recommendations for nurse-to-patient ratios on surgical wards are 1:7.9 daytime and 1:9.5 at night.¹²³)

Overall variation in equity of access to critical care beds

A number of studies have reported the wide variation in the availability of critical care beds per 100,000 population between different European countries. The UK has approximately 6.6 critical care beds per 100,000 population, whereas the European average is 11.5 and Germany has 29.2 critical care beds per 100,000 population (see **Figure 37**).¹²⁴ Some (but not all) of this variation may be attributable to different definitions of critical care beds or different staffing practices.

¹¹⁷ Batchelor, A. (forthcoming), *Adult critical care: GIRFT programme national specialty report*, Royal National Orthopaedic Hospital NHS Trust, NHS England and NHS Improvement, <https://www.gettingitrightfirsttime.co.uk/clinical-work-stream/intensive-and-critical-care/>

¹¹⁸ ICNARC Case Mix Summary Statistics 2018-19, www.icnarc.org/Our-Audit/Audits/Cmp/Reports/Summary-Statistics For further information on ICNARC's Case Mix Programme, see their website at <https://www.icnarc.org/Our-Audit/Audits/Cmp/About>

¹¹⁹ Department of Health (2000) *Comprehensive critical care: a review of adult critical care services*, https://webarchive.nationalarchives.gov.uk/20121014090959/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4082872.pdf

¹²⁰ Faculty of Intensive Care Medicine (FICM) and Intensive Care Society (2019), *Guidelines for the provision of intensive care services, edition 2*, <https://www.ficm.ac.uk/sites/default/files/gpics-v2.pdf>

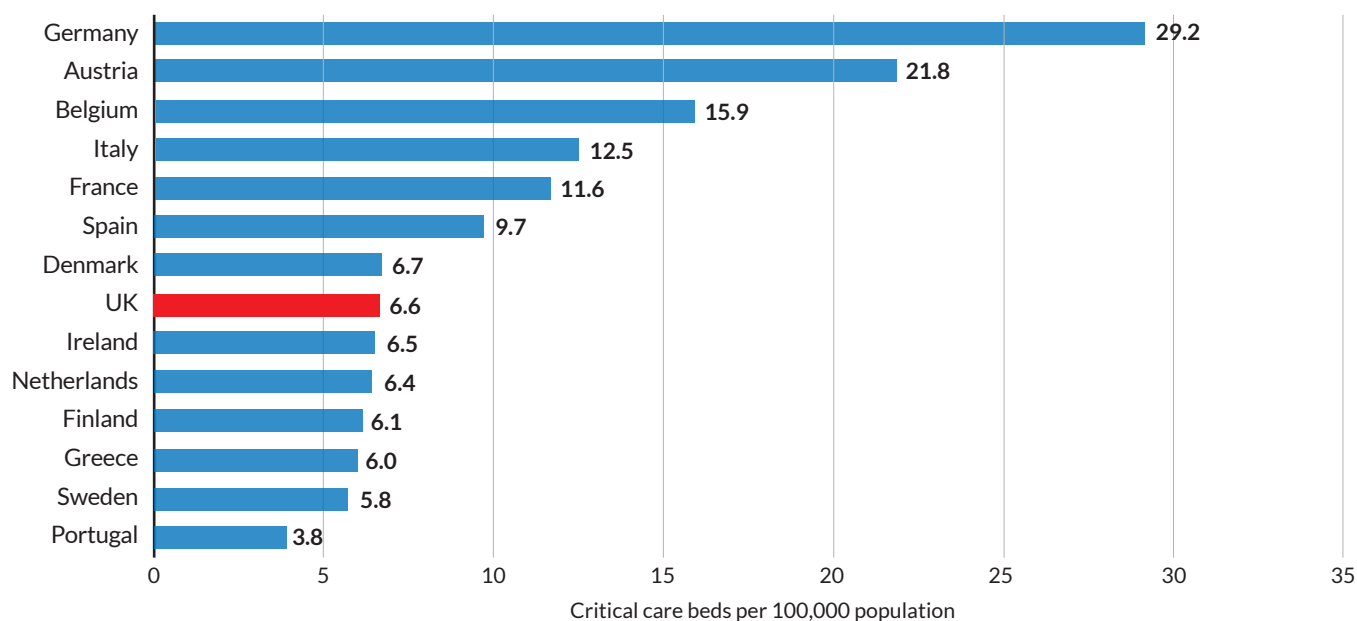
¹²¹ Department of Health (1996), *Guidelines on admission to and discharge from intensive care and high dependency units*, <https://www.wales.nhs.uk/sites3/documents/736/Guidelines%20on%20the%20Admission%20and%20discharge%20from%20ICHDU%20%20March%201996.pdf>

¹²² Department of Health (1996), *Guidelines on admission to and discharge from Intensive Care and High Dependency Units*, <https://www.wales.nhs.uk/sites3/documents/736/Guidelines%20on%20the%20Admission%20and%20discharge%20from%20ICHDU%20%20March%201996.pdf>

¹²³ Royal College of Nursing (2011), *Guidance on safe nurse staffing levels in the UK*, <https://www.rcn.org.uk/professional-development/publications/pub-003860>

¹²⁴ Rhodes et al. (2012), *The variability of critical care bed numbers in Europe*, *Intensive Care Medicine*, cited in Anandaciva, S. (2020) *Critical care services in the English NHS*, The King's Fund, <https://www.kingsfund.org.uk/publications/critical-care-services-nhs>

Figure 37: International comparison of critical care bed numbers



Source: adapted from Rhodes et al. cited at <https://www.kingsfund.org.uk/publications/critical-care-services-nhs>

There are also UK regional differences in overall levels of critical care beds in relation to hospital admissions. For example, the South West of England has 6 critical care beds per 100,000 population compared to London (10 critical care beds per 100,000 population) and different ratios of Level 2 to Level 3 critical care beds. These widespread differences in equity of patient access to critical care are especially relevant given that clinical opinion and circumstantial evidence suggest that early intervention to Level 2 care may avert some of the need for Level 3 care. Where Level 2 capacity is not available, then admission may be delayed until a patient requires Level 3 care, which can lead to increased costs, longer lengths of hospital and critical care stay, a greater requirement for critical care and higher rates of long-term morbidity and mortality.¹²⁵

Unless we do something to change postoperative critical care, inequity of access to critical care is likely to increase. In 2018, the Intensive Care National Audit and Research Centre (ICNARC) reviewed research on projected Level 2 and Level 3 bed days (collecting data on adult critical care in 214 units across England, Wales and Northern Ireland). It concluded:

“

Modelling the trends in terms of age- and sex-specific bed utilization rates and then projecting forward to 2033, if the observed trends continue, then an increase in overall bed days is estimated of approximately 4% per annum – comprising an approximate increase of 7% per annum for Level 2 bed days and an approximate decrease of 2% for Level 3 bed days.”

GPICS2 Guidelines¹²⁶

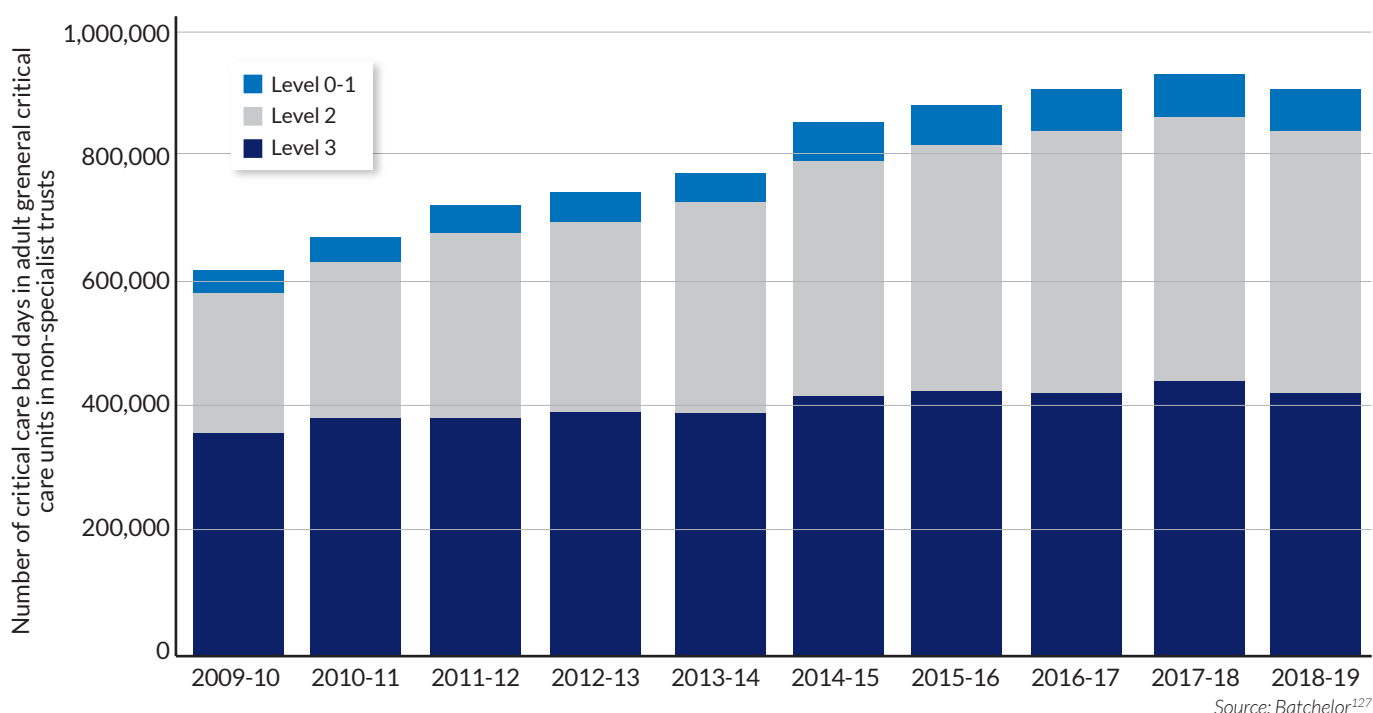
”

¹²⁵ Swart, M., Carlisle, J. B. and Goddard, J. (2017), Using predicted 30 day mortality to plan postoperative colorectal surgery care: a cohort study, *British Journal of Anaesthesia* 118(1): 100-4, doi: 10.1093/bja/aew40, <https://www.academic.oup.com/bja/article/118/1/100/2763319>

¹²⁶ Harrison, D. and Rowan, K. (2014) cited in *The Faculty of Intensive Care Medicine (FICM), Workforce data bank for adult critical care, May 2018, p. 8, https://www.ficm.ac.uk/sites/default/files/workforce_data_bank_2018_updated_for_website.pdf*

After a steady increase up to 2017/18, the number of critical care beds in England, Wales and Northern Ireland has changed little over the last five years (see **Figure 38**). We have an historical unmet demand and an expected future increase in demand. In short, demand for critical care beds is outstripping supply.

Figure 38: Critical care bed days 2009–2019, split by Level 2/Level



Equity of access for surgical critical care

Given limited bed availability, it is imperative that the correct patients are admitted to critical care following surgery. This clinical decision should be based around patient need, factoring in the type of surgical procedure they have undergone, associated co-morbidities and ultimately the overall benefit the patient will derive from critical care (often defined by an estimate of predicted postoperative 30-day mortality). In practice, there are many other factors that influence postoperative admission to critical care, based around hospital infrastructure (e.g. increased availability of hospital and critical care beds or the presence of an emergency department in the hospital leading to competition for critical care bed space), national recommendations (e.g. mandatory admission to critical care following major cardiothoracic procedures) and local customs and practice. Even with these considerations, the reasons behind much of the variation in postoperative admission to critical care remain unclear.

During our deep dive visits, we discussed access to postoperative critical care. These discussions supported the view that there is considerable variation and a high level of inequity of access to postoperative adult critical care in England. In **Table 5** below we show where estimated and actual levels of planned critical care admission are not being matched to mortality risk.

¹²⁷ Batchelor, A., *Adult critical care: GIRFT programme National specialty report*, <https://www.gettingitrightfirsttime.co.uk/clinical-work-stream/intensive-and-critical-care/>

Table 5: 30-day mortality rate and planned postoperative critical care admission, by surgical procedure

Surgical procedure	30-day mortality	Planned postoperative critical care admission
Elective coronary artery bypass grafting	< 1% ¹²⁸	100%
Elective colorectal cancer resection	1.7% ¹²⁹	5–20% (estimated)
Hip fracture	6.1% ¹³⁰	1–5% (estimated)
Emergency laparotomy	9.6% ¹³¹	61% ⁸⁸

Source: See footnotes

Where cardiac surgery is commissioned, there is provision for critical care for all open cardiac surgery, resulting in minimal access variation. However, patients with a higher risk of dying after other types of surgery, do not have the same level of access to critical care. Two illustrations of this are given below.

- Following an elective colorectal resection for cancer, in some hospitals, no patients would have planned critical care access; others would admit 20% of these patients based on individual predicted 30-day mortality; other hospitals would admit all of these patients to critical care postoperatively.
- In some hospitals patients having a carotid endarterectomy will go to Level 2 critical care postoperatively. In other hospitals all patients having a carotid endarterectomy will spend four hours in the post-anaesthetic care unit (PACU) and then return to the surgical ward, with only a small minority going to Level 2 care.

How to increase equity of access

Monitoring surgical admissions to critical care

Given the variation in access to critical care, there is an urgent requirement to understand the flow patterns through critical care related to postoperative surgical patients in order to enable equitable access and provision of care.

All critical care units in England employ staff to collate and submit data on all the patients admitted to their beds. This information is sent to ICNARC who provide trust-level reports. The same data is sent to NHS Digital. The Critical Care Minimal Data Set (CCMDS) records the number of organs per patient supported per day within critical care and contains some information on patient origin (i.e., theatre or ward). This data could usefully be applied to local (and national) audit, in order to better understand postoperative critical care flow and the interactions between perioperative medicine and the critical care pathways. **Figure 39** shows how this could work, giving an example of an elective surgery pathway.

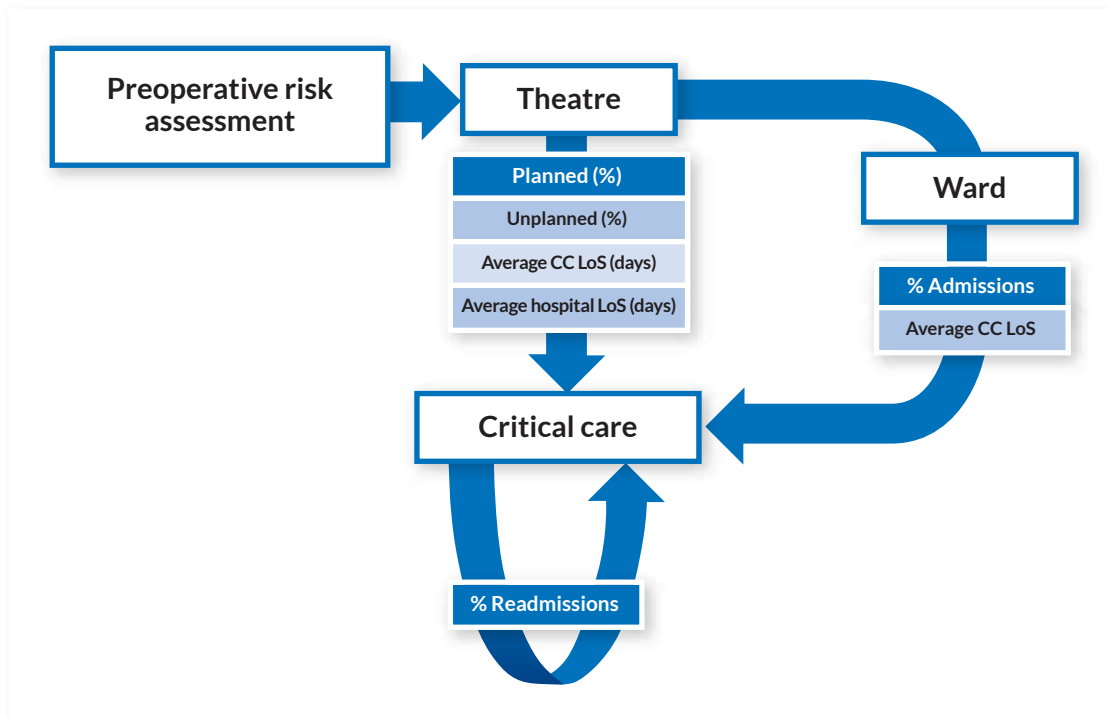
¹²⁸ National Institute for Cardiovascular Outcomes Report (NICOR) (2019) *National adult cardiac surgery report 2019 summary report*, <https://www.hqip.org.uk/wp-content/uploads/2019/09/national-adult-cardiac-surgery-summary-report-2019-final.pdf>

¹²⁹ National Bowel Cancer Audit Annual Report 2019, <https://www.nboca.org.uk/content/uploads/2020/01/NBOCA-2019-V2.0.pdf>

¹³⁰ National Hip Fracture Database Report 2019, https://www.nhfd.co.uk/files/2019ReportFiles/NHFD_2019_Annual_Report_v101.pdf

¹³¹ Fifth Patient Report of the National Emergency Laparotomy Audit December 2017 to November 2018, <https://www.nela.org.uk/reports>

Figure 39: Possible pathways for elective surgical patients through critical care

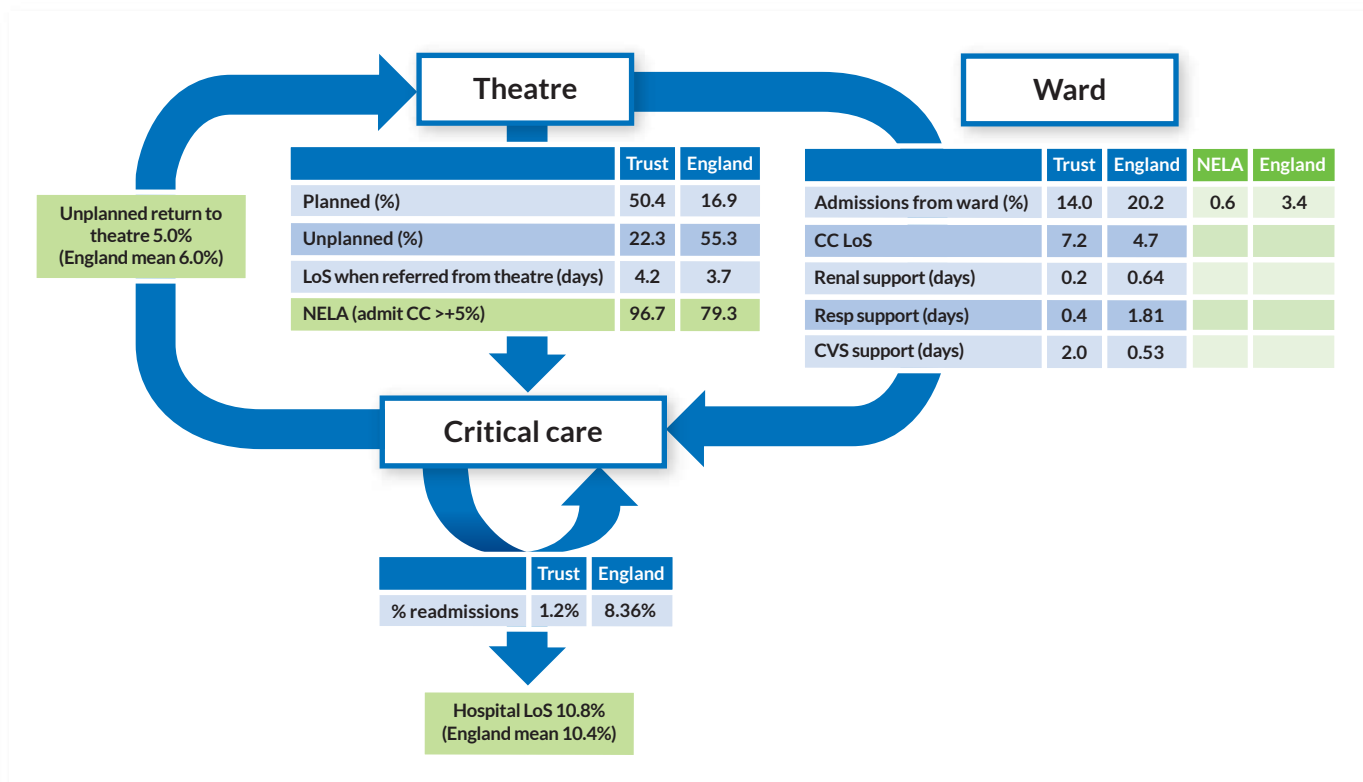


If one were to apply this example of an audit pathway to specific groups of surgical procedures, trusts could ask several useful questions about the perioperative medicine processes. For example, if planned admissions for patients after a carotid endarterectomy from theatre were high, it might be that the hospital is admitting more patients to critical care than necessary. If unplanned admissions to critical care from the ward after elective colorectal surgery were high, this could indicate either poor preoperative assessment and planning of critical care admissions or inadequate postoperative ward care. High readmission rates for critical care might be related to early discharge because of pressures on critical care beds. This type of audit allows investigation of both the perioperative medicine processes and decision-making.

A similar audit model could be applied to emergency surgery pathways, enabling audit of perioperative pathways against benchmarking standards. In this regard, the National Emergency Laparotomy Audit (NELA) recommendations state that all patients undergoing emergency laparotomy should have a preoperative predicted 30-day mortality documented. If the risk is $\geq 5\%$, they should be admitted to critical care after surgery. A key finding of the 2019 NELA Report, was that 23% of patients with a high risk of mortality, were being admitted directly to a general ward and that this level had remained static over the last three years of reporting. The report noted that institutional, cultural and organisational change is required to ensure standards of care.¹³² NELA reports also include trust-level 30-day mortality, unplanned return to theatre and lengths of stay. This type of flow auditing is illustrated in **Figure 40**, although the figures are indicative only.

¹³² Available at <https://www.nela.org.uk/reports>

Figure 40: Possible pathways for emergency patients through critical care (figures are indicative only)



Source: Based on HES and NELA data 2017/18

COVID-19: impact on critical care

In March 2020, following an NHS directive to halt all non-urgent surgery in England, all elective surgery was cancelled to prepare hospitals to receive increased admissions of patients with COVID-19. As a result of this, and a drop-off in admissions generally, the number of elective inpatients admitted to critical care fell dramatically. There was an urgent need to increase the number of Level 3 critical care beds and the requirement to separate COVID-19-positive and -negative patients, by essentially operating two separate critical care units in each hospital. In a matter of weeks, the number of beds available for ventilated patients had rapidly expanded, from 3,500 to just under 7,000. Fortunately, the increased demand was spread over time and we didn't reach a point where nationally the demand for critical care beds exceeded the supply.

Additional staff needed to manage extra critical care patients were recruited from many areas within the NHS. The majority came from anaesthesia, not just consultants but doctors in training and SAS doctors, operating department assistants, post-anaesthetic care unit nurses and nurses with previous critical care experience.

In early 2021, there was another increase in cases of COVID-19. The number of patients requiring mechanical ventilation in UK critical care units peaked at 4,018 patients on January 23rd 2021. This does not include non-invasive ventilation, high flow oxygen or patients in critical care without COVID-19 (see <https://coronavirus.data.gov.uk/details/healthcare>).

Developing enhanced care after surgery

Given the pre-existing inequity of access to critical care beds and the lessons learnt from the rapid expansion of critical care beds and staffing levels in response to the COVID-19 pandemic, this is an optimal time to review critical care provision and especially the requirements for optimal postoperative management of surgical patients.

We have a number of urgent problems to solve. We need:

- to develop a recovery plan to manage the backlog of elective surgery;
- to prevent cancellations on the day of surgery for high-risk patients due to lack of critical care beds;
- to retain and use the knowledge and skills gained by staff who worked in the expanded critical care beds during the COVID-19 surge;
- to increase the provision of critical care, initially within the existing staffing groups and numbers;
- to be able to expand at short notice our capacity to deliver Level 2 and Level 3 critical care if there is another surge.

In May 2020 the Faculty of Intensive Care Medicine (FICM) published a document called ‘Enhanced Care: Guidance on Service Development in the Hospital Setting.’¹³³ This document, which is endorsed by the Royal College of Physicians (RCP) and Royal College of Surgeons (RCS), describes a new development in the provision of care within hospitals, the biggest change, in fact, since the publication of *Comprehensive Critical Care* 20 years ago.¹³⁴ The definition of enhanced care is given below.

“Enhanced Care takes place in a ward setting, by a motivated and upskilled workforce, but provides ready access to the critical care team through established communication links. It is a pragmatic approach to reducing the risk of patients falling into a service gap: patients who would benefit from higher levels of monitoring or interventions than expected on a routine ward, but who do not require admission to critical care. This type of care has grown organically, originally for perioperative patients (elective and emergency), expanding into the fields of maternity and medicine to deliver safe care to the patient at risk of deterioration.”

Following the release of this document, levels of postoperative surgical care are set to include this new level of care. Enhanced care sits between Level 1 (acute ward) and Levels 2/3 (critical care) and provides an intermediate level, where closer observation, monitoring and interventions can be provided for patients who need more than is offered on a general ward but do not require critical care.

Combined benefits of enhanced care with enhanced recovery

Enhanced care, properly implemented, will provide a better patient experience and lead to fewer cancellations on the day of surgery (which can happen when postoperative critical care is indicated but there is no critical care capacity). The majority of on-the-day cancellations are for non-clinical reasons.¹³⁵ (We show evidence around high levels of cancellations of surgery in the *Elective Inpatient Surgery* section, page 54)

Enhanced care beds may also reduce unplanned Level 3 critical care admissions through the early recognition and treatment of deterioration in a postoperative surgical patient. The key features of enhanced care include a higher nurse-to-patient ratio, additional monitoring, early access to consultant-level care and treatments that are usually unavailable on standard surgical wards.¹³³ Postoperative patients on a surgical ward who need these treatments often experience a delay in receiving them if they have to be transferred to a critical care bed, or indeed may not receive them if there is no critical care bed available.

Enhanced care will effectively shift postoperative patients from the critical care units (CCU) and post-anaesthetic care units (PACU) into an enhanced surgical ward environment.¹³⁶ A key part of the patient’s recovery from surgery, namely an early return to normal function, can be further developed in this environment using the principles of enhanced recovery. This type of recovery, driven by dieticians, physiotherapists and occupational therapists is often lost if a patient goes to a CCU or PACU postoperatively. In addition, more basic components of care, relating to Maslow’s hierarchy of needs (see **Figure 41**) are often better provided in an appropriately resourced ward environment.

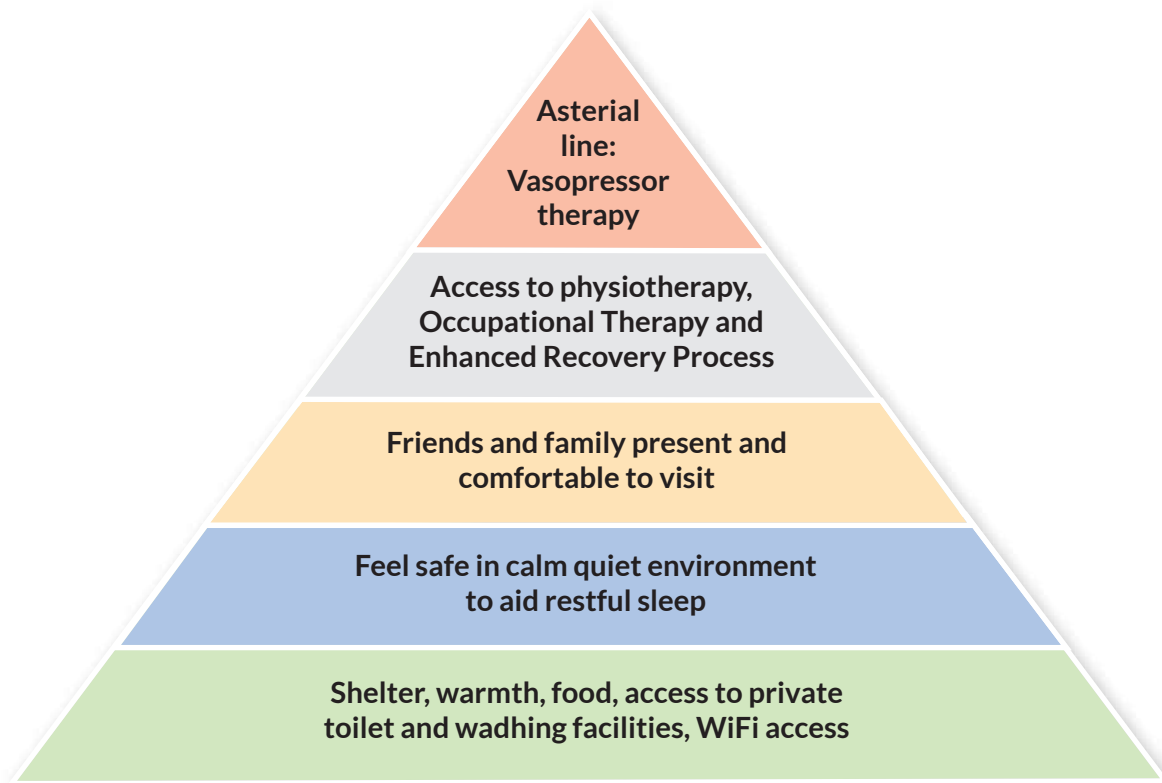
¹³³ Faculty of Intensive Care Medicine (FICM), (2020). *Enhanced care: guidance on service development in the hospital setting*, <https://www.ficm.ac.uk/critical-futures-initiative/enhanced-care>

¹³⁴ Department of Health (2000) *Comprehensive critical care: a review of adult critical care services*, https://webarchive.nationalarchives.gov.uk/20121014090959/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4082872.pdf

¹³⁵ Department of Health (2000) *Comprehensive critical care: a review of adult critical care services*, https://webarchive.nationalarchives.gov.uk/20121014090959/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4082872.pdf

¹³⁶ Centre for Perioperative Care (2020,) *Delivering on better opportunities for health and perioperative care in the COVID-19 era*, <https://www.cpic.org.uk/sites/cpic/files/documents/2020-08/Opportunitites%20in%20the%20COVID-19%20Era.pdf>

Figure 41: Components of enhanced care, incorporating enhanced recovery after surgery

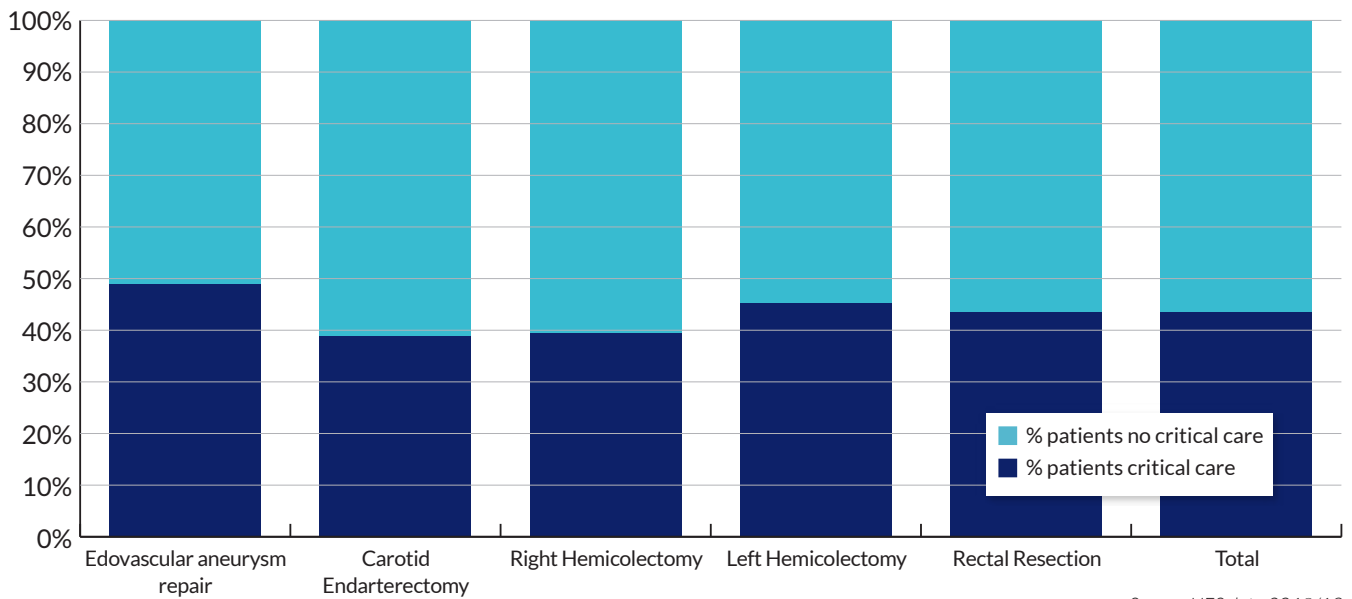


Which patients could be treated in enhanced care?

In our deep dive visits we found significant variation in the types of patient who go to critical care postoperatively. Some did not need Level 2 or 3 care but required something beyond standard ward care. An increased use of enhanced care could reduce demand on critical care beds.

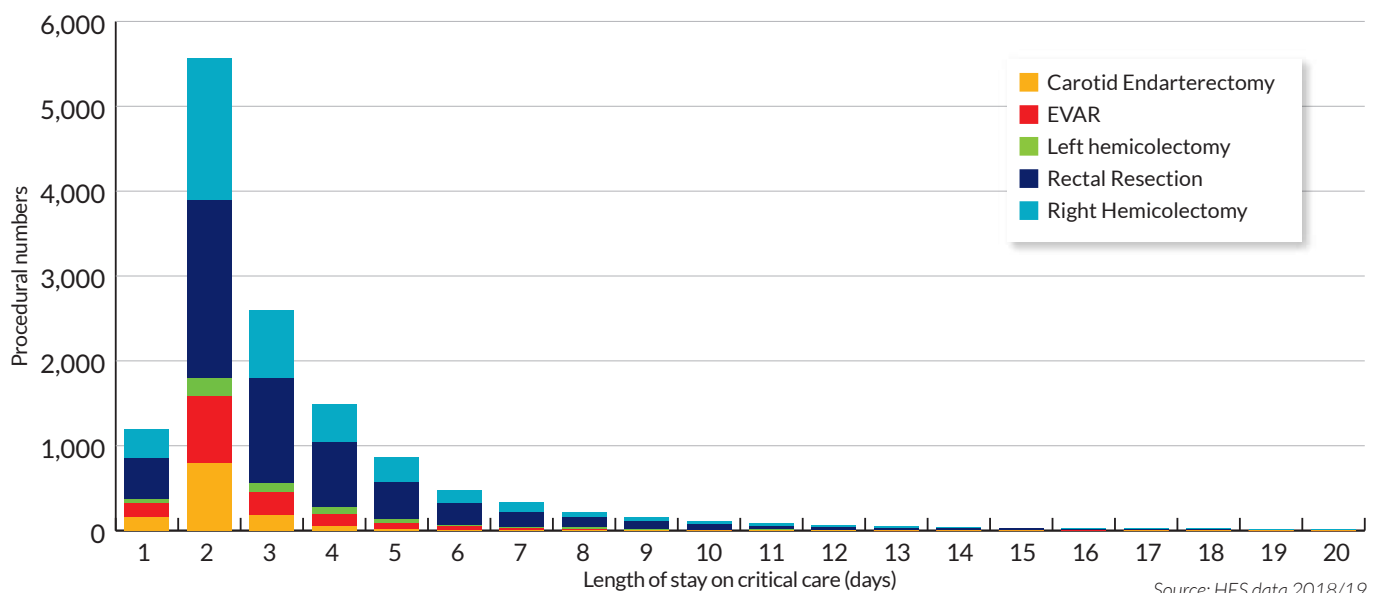
The proportions of critical care admissions for various surgical procedures that could benefit from enhanced care, are shown in **Figure 42** below. The proportion of surgical patients admitted to critical care does not differ significantly (Range 39% - 49%) between procedures. This lack of variation may support the notion that admission to critical care after surgery is based more on individual patient risk than complexity of surgery related to speciality. However, it could also be due to similar levels of critical care bed availability for these procedures. Whichever is the case, we need to be aware that while the majority of these procedures are being managed outside the critical care environment, there remains significant use of critical care bed space for post-surgical patients.

Figure 42: Use of critical care for post-surgical patients



When we look at the numbers of patients undergoing these five procedures and being admitted to critical care against the associated length of stay (see **Figure 43** below), it is evident that most stay for a limited time (mode = 2 days). This suggests that a majority of surgical patients admitted to critical care rarely experience significant complications that prevent critical care discharge and/or extend their length of stay. If this is correct, it is likely that many of these patients could be managed safely in an enhanced care environment and, where enhanced recovery is implemented early, the two days spent in critical care could be eliminated or at least reduced. This is an important part of the rationale behind enhanced care implementation.

Figure 43: Lengths of stay in critical care for post-surgical patients (vascular and colorectal procedures)



Note: EVAR = endovascular aneurysm repair

How to develop enhanced care for surgical patients

The ability to develop enhanced care for surgical patients will depend on surgical patient population, hospital staff and infrastructure. The FICM Enhanced Care document details requirements for a safe enhanced care environment and gives guidance, detailed below, on developing enhanced care for surgical patients.

- Set up a multidisciplinary team with representation from all who will work in the enhanced care area and all who will use it, including patient representatives.
- Determine the type of patients, based on procedure, co-morbidities, local predicted postoperative mortality and morbidity risk that need enhanced care. Determine the volume and flow of patients through these beds.
- Identify the additional monitoring and treatments that will be provided above the normal surgical ward.
- Nurse-to-patient ratio is to be determined locally. You need to look at registered nurses, health care assistants and allied healthcare professionals (AHP's) when determining your nurse to patient ratio.
- Identify the nursing staff-to-patient ratio based on the volume of patients and the planned monitoring and treatment needs.
- In critical care all patients are generally admitted when they need additional care, such as single organ or multi-organ support. In enhanced care the patients are admitted in case they need additional treatments. Experience tells us that 40%–50 % of patients admitted to enhanced care beds do not receive additional treatments such as vasopressors or treatment for fast atrial fibrillation. It is impossible to know which of the high-risk surgical patients admitted to enhanced care will need these treatments, but it is possible to identify those at greater risk of needing these treatments and ensure they go to an enhanced care bed.
- Determine the optimal place to put the enhanced care surgical beds based on local factors. This must be based on patients' needs and clinical staff needs.
- Develop training packages for staff to achieve the competencies required to deliver the appropriate care.
- Develop protocols and standard operating procedures, admission criteria, discharge criteria, referral and escalation protocols, timings of ward rounds, roles and responsibilities of all staff.
- Have a system in place for routine data collection on all patients for audit, quality improvement and governance.¹³⁷

Conclusion

There is significant national variation in the number of critical care beds available and the type of patients being admitted following surgery. It would be beneficial to establish optimal flow patterns for postoperative critical care admissions, which would inform better choices around postoperative admission based on patient needs and benefit rather than existing cultural factors. Many patients being admitted to critical care after surgery are low-risk patients who do not require Level 2 or 3 care in the immediate postoperative period, although they do require more input than general ward care. The development of enhanced care, in conjunction with a tailored enhanced recovery programme, as a step-down approach to postoperative care, is likely to gain the most economical and beneficial approach to address equity of access issues seen both before and in the aftermath of the COVID-19 pandemic.

Financial implications of improved critical care pathways

The potential national gross financial opportunities related to our recommendations concerning pathway change from critical care and PACU units to an enhanced surgical care environment for postoperative patients where clinically appropriate are c. £14m. This calculation is based on reduced critical care bed days. More detailed calculations can be found in the section on *Notional Financial Opportunities* (page 124).

¹³⁷ FICM (2020), *Enhanced care: guidance on service development in the hospital setting*, <https://www.ficm.ac.uk/critical-futures-initiative/enhanced-care>

Recommendations:¹³⁸ Use of critical care for surgical patients

Recommendation	Actions	Owners	Timescale
7. Develop and provide enhanced care ¹³⁹ to the appropriate elective and emergency surgical patients. ¹⁴⁰	a Develop enhanced care as described in the recent guidance from the Faculty of Intensive Care (FICM) ¹⁴¹ and the Centre for Perioperative Care (CPOC). ¹⁴²	Trusts	Within 12 months of report publication
	b Develop a local process to identify patients who would benefit from enhanced care.	Trusts	Within 12 months of report publication
	c Ensure that enhanced care is multidisciplinary.	Trusts	Within 12 months of report publication
	d Integrate enhanced recovery with enhanced care.	Trusts	Within 12 months of report publication
	e Ensure enhanced care does not prevent the appropriate development of Level 2/3 intensive care.	Trusts	Within 12 months of report publication
8. Audit all patients on surgical pathways that involve enhanced and intensive care.	a Ensure optimal flow of surgical patients through enhanced care and intensive care pathways.	Trusts	Within 12 months of report publication
	b Audit and review planned admissions, unplanned admissions and readmissions to enhanced care and intensive care.	Trusts	Within 12 months of report publication
	c Review and improve the appropriate use of enhanced and intensive care on an ongoing basis using audit data.	Trusts	Within 12 months of report publication

¹³⁸ We recognise that some work to promote and develop enhanced care is already under way. These recommendations seek to support and further develop this work.

¹³⁹ Enhanced care is a level of care above that offered by a standard acute ward but below that of critical care. It is particularly suitable for patients after surgery, who may require close monitoring.

¹⁴⁰ We recognise that some work to promote and develop enhanced care is already under way. These recommendations seek to support and further develop this work.

¹⁴¹ FICM (2020), *Enhanced care: guidance on service development in the hospital setting*, <https://www.ficm.ac.uk/critical-futures-initiative/enhanced-care>

¹⁴² CPOC (2020), *Guidance on establishing and delivering enhanced perioperative care services*, October 2020, <https://www.cpoc.org.uk/sites/cpoc/files/documents/2020-10/Enhanced%20Perioperative%20Care%20Guidance%20v1.0.pdf>

Perioperative medicine

In this section, we discuss four key aspects of perioperative care that we explored through our GIRFT data analysis and deep dive visits. These are intended as representative examples to illustrate how integrated perioperative care can optimise pathways and improve patient outcomes in an increasingly challenging healthcare landscape. As such they represent a much larger opportunity for change.

Background

Perioperative medicine, as described earlier, is concerned with the medical care of surgical patients from contemplation of surgery through to functional recovery, which will often continue well after discharge. This contrasts with the previous historical focus of anaesthetic care solely on the intra- and immediate postoperative period.

Preoperative assessment

Preoperative assessment is concerned not just with the preparation and optimisation of patients for surgery to ensure the best possible outcomes, but also sets out the postoperative pathway, including any requirement for critical care admission. Preoperative assessment is absolutely central to the efficient running of surgical services. Since much of the preoperative assessment relates to individual patient co-morbidities and fitness assessment, most efficient preoperative assessment systems have developed around a generic approach, with minimal surgical speciality bias.

Generic benefits of preoperative assessment

Preoperative assessment is a holistic process that should empower the patient by:

- ensuring that the patient is prepared for the surgery both psychologically and practically;
- optimising any medical conditions and associated medications prior to surgery;
- advising the patient on steps they can take to optimise their own health status and minimise the risk of complications, such as smoking cessation, weight management and exercise at a 'teachable moment'.¹⁴³ (All staff conducting preoperative assessments should be trained in 'making every contact count' (MECC) discussions for this reason.)

It also ensures that resources are used in the most appropriate way for preoperative testing in line with NICE guidelines¹⁴⁴ (this includes not testing where there is no clinical reason to do so).

Preoperative assessment reduces the likelihood of cancellations caused by both non-clinical factors (by ensuring the availability of required expertise on the day of surgery and assigning individual patients to the most appropriate clinical pathway for optimal care) and clinical factors (e.g. by preventing medication errors, detecting and treating unstable co-morbidities and optimising previously known diagnoses). In addition, it should include a point of contact so the patient can report any preoperative issues or concerns promptly.

The assessment may be by telephone, teleconference or face to face, depending on the patient's personal preference and the complexity of the assessment. Some patients may prefer to avoid a visit to the hospital; others may benefit from visiting the place where their surgery is going to take place.

Preoperative assessment for day case patients

Most preoperative assessments for patients contemplating day case procedures are guideline- and protocol-based assessments. In general they will be nurse led with occasional referral to the medical team as required.

The assessment should include an explanation of the rationale for day case surgery and reinforcement of this pathway. It should also cover postoperative analgesic regimes and social discharge arrangements.

Preoperative assessment for elective inpatient procedures

Preoperative assessment is critical for developing shared decisions between clinician and patient concerning the benefit of surgery, exploring patient expectations for surgery and recovery and detecting where surgery is no longer required well before admission, thus reducing the number of cancellations for clinical reasons.¹⁴⁵

¹⁴³ Royal College of Anaesthetists (RCoA) (2019) 'A teachable moment': delivering perioperative medicine in integrated care systems, <https://www.rcoa.ac.uk/sites/default/files/documents/2019-07/IntegratedCareSystems2019.pdf>

¹⁴⁴ NICE (2016), Routine preoperative tests for elective surgery (NG45), <https://www.nice.org.uk/guidance/ng45>

¹⁴⁵ Wong, D. J. N, Harris, S. K. and Moonsinghe, S. R. on behalf of the SNAP-2: EPICCS collaborators (2018), Cancelled operations: a 7-day study of planned adult inpatient surgery in 245 UK National Health Service Hospitals, *British Journal of Anaesthesia*, 121 (4): 730-738, [https://www.bjanaesthesia.org/article/S0007-0912\(18\)30565-8/fulltext](https://www.bjanaesthesia.org/article/S0007-0912(18)30565-8/fulltext)

Pre-assessment has been instrumental in the development of day-of-surgery admission (DOSA), which is beneficial in terms of both bed occupancy rates and patient satisfaction. (We discuss the advantages of DOSA in more detail in the section on *Elective Inpatient Surgery*, page 54)

In some circumstances, preoperative assessment may include more advanced methods of assessing fitness for surgery in high-risk patients (based on pre-existing co-morbidities or where major surgical procedures are being contemplated). This may include the use of validated risk scoring systems, such as SORT,¹⁴⁶ survival prediction models, such as that developed for abdominal aortic aneurysm repair ('AAA'),¹⁴⁷ and cardiopulmonary exercise testing (CPET), where exercise capacity and levels of functional reserve are indicative of perioperative risk. Such advanced investigations require expertise in interpreting the test results as they relate to degree of surgical risk. UK-based consensus guidelines¹⁴⁸ in combination with CPET training courses may allow more widespread use of such technologies. Testing for obstructive sleep apnoea may also be appropriate for some patients. This should be undertaken in collaboration with the respiratory or sleep team.

Preoperative assessment enables the clinician and patient to discuss and make decisions regarding specific postoperative care environments. This not only informs the patient but ensures that appropriate facilities will be informed.

CASE STUDY

An 'ideal' pre- and postoperative electronic record

Torbay and South Devon NHS Foundation Trust

The electronic patient record (EPR) has been successfully integrated into the perioperative clinical pathway at Torbay and South Devon NHS Foundation Trust. The following EPR features were found to be important to ongoing patient care:

- Easily accessible to all involved and adaptable to all surgical pathways.
- EPR data should only be recorded once, using drop-down menus with the option for free text if required.
- Initial data may be recorded by the patient or any other member of the perioperative team.
- EPR should include enough detail to enable targeted use of preoperative scoring systems to assess frailty, sleep apnoea, increased risk of complex postoperative pain, nausea and vomiting, and to allow prompt onward referral for further assessment or treatment.
- Test results should be added to the record and further assessment requested as appropriate.
- Decisions regarding patient care and changes to the record should be tracked to identify who did what and when.
- At each stage of preoperative assessment, it must be clear whether the patient is cleared for surgery or whether further assessment is needed.
- Patients should not be allocated to a surgical list until cleared for surgery by the preassessment team through EPR.
- An electronic operation note should be part of the EPR.
- EPR should be enabled to produce a standardised postoperative analgesia prescription based on the operation and the patient's ability to safely take analgesics
- Production of a printed document with the patient's discharge information and telephone number for postoperative contact, where necessary.
- Production of a discharge letter to be emailed to the patient's GP.
- Inclusion of postoperative data collection - imperative for quality improvement and should include primary recovery outcomes (e.g. temperature, pain scores and PONV) and measures of ongoing recovery (e.g. occurrence and reasons for an unplanned admission following day surgery, patient satisfaction and feedback).
- All the data recorded needs to be easily converted into reports to aid development of high-quality care pathways and feedback to clinicians.
- EPR can facilitate better coding.

¹⁴⁶ Wong, D. J. N., Harris, S., Sahni, A. et al. (2020), *Developing and validating subjective and objective risk-assessment measures for predicting mortality after major surgery: an international prospective cohort study*, PLOS medicine, October, <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1003253>

¹⁴⁷ Carlisle, J. B., Danjoux, G., Kerr, K. et al. (2015), *Validation of long-term survival prediction for scheduled abdominal aortic aneurysm repair with independent calculator using only pre-operative variables*, Anaesthesia, 70 (6): 654–655, <https://www.pubmed.ncbi.nlm.nih.gov/25959175/>

¹⁴⁸ Levett, D. Z. H., Jack, S., Swart, M. et al. (2018), *Perioperative cardiopulmonary exercise testing (CPET): consensus clinical guidelines on indications, organization, conduct, and physiological interpretation*, Br J Anaesth. March 120(3), <https://www.pubmed.ncbi.nlm.nih.gov/29452805/>

Perioperative diabetes management

Over a million people with diabetes were admitted to hospital in the UK in 2017, 92% for a cause other than diabetes.¹⁴⁹ Many studies have shown poor outcomes for people with diabetes across a range of specialties. The National Diabetes Inpatient Audit, launched in 2010, shows that although some trusts have made consistent improvements in diabetes care there are still huge variations.¹⁵⁰

Around 13%–15% of adults undergoing surgery have diabetes¹⁵¹ and the prevalence of the disease in both the UK and worldwide continues to grow. The management of the person with diabetes undergoing surgery is complex. The National Confidential Enquiry into Patient Outcome and Death (NCEPOD) review of the care of surgical patients with diabetes¹⁵² identified substantial variation in the care of these patients at all stages. One issue highlighted was that despite many specialty-specific guidelines, none promote joint ownership of diabetes care. This is highly relevant to the development of the perioperative team approach, which will have to incorporate collaborative support from diabetes specialists in order to fully address the needs of the surgical patient with diabetes. Joint ownership also extends to the patient in regard to self-management of their condition, which includes a focus on lifestyle and behaviours.

NCEPOD has produced a list of perioperative recommendations for diabetes and surgery, which have been recognised and endorsed by the GIRFT diabetes work stream report.¹⁵³ We fully support these and recommend they be followed during the development of perioperative programmes. In addition to this, we also wish to highlight the Guideline for Perioperative Care for People with Diabetes Mellitus Undergoing Elective and Emergency Surgery (<https://www.cpoc.org.uk/cpoc-publishes-guideline-perioperative-care-people-diabetes-undergoing-surgery>).

CASE STUDY

Making surgery safer for patients with diabetes

Newcastle-upon-Tyne Hospitals NHS Foundation Trust

Since 2015, Newcastle-upon-Tyne Hospitals NHS Foundation Trust has used a multidisciplinary leadership model to transform perioperative diabetes care. Surgeons, anaesthetists and diabetologists have worked together with frontline stakeholders. The cross-specialty team has developed trust-wide guidelines and protocols enabling a joined-up pathway of diabetes care based on national recommendations.

Key areas include:

- optimising preoperative planning;
- glycaemic control in theatres and recovery;
- ward handover practices;
- diabetes specialist nurse in-reach and discharge planning.

Safe surgical ward care is further enhanced by real-time electronic alert systems, including whiteboard alerts for poor glycaemic control, pharmacy alerts for reconciliation processes and specialist alerts for recurrent hypoglycaemia. Preoperative admissions, insulin errors and hypoglycaemia have all been reduced. Glycaemic control on the day of surgery has improved and the overall patient experience enhanced.

Newcastle-upon-Tyne Hospitals NHS Foundation Trust is recognised as a national exemplar for safe perioperative diabetes care.

¹⁴⁹ Diabetes UK (2020), *Making hospitals safe for people with diabetes*, <https://www.diabetes.org.uk/professionals/resources/improving-inpatient-care-programme/report-hospitals-safe>

¹⁵⁰ NHS Digital (2018), *National diabetes inpatient audit England and Wales, 2017*, <https://www.digital.nhs.uk/data-and-information/publications/statistical/national-diabetes-inpatient-audit/national-diabetes-inpatient-audit-nadia-2017>

¹⁵¹ Dhatriya, K, Levy, N, Kilvert et al. (2012), *NHS Diabetes guideline for the perioperative management of the adult patient with diabetes*, *Diabetic Medicine* 2012, 29(4):420-433, <https://pubmed.ncbi.nlm.nih.gov/22288687/>; *Perioperative Quality Improvement Programme, Annual report: 2018-19*, <https://www.pqip.org.uk/pages/ar2019>

¹⁵² *National Confidential Enquiry into Patient Outcome and Death (NCEPOD) (2018), Highs and lows: a review of the quality of care provided to patients over the age of 16 who had diabetes and underwent a surgical procedure*, https://www.ncepod.org.uk/2018pd/Highs%20and%20Lows_Full%20Report.pdf

¹⁵³ *Diabetes: GIRFT programme national specialty report*, <https://www.gettingitrightfirsttime.co.uk/medical-specialties/diabetes/>

NCEPOD recommendations

1. Write and implement a national joint standard and policy for the multidisciplinary management of patients with diabetes who require surgery.
2. Appoint a perioperative clinical lead for diabetes care in hospitals where surgical services are provided.
3. Use a standardised referral process for elective surgery to ensure appropriate assessment and optimisation of diabetes.
4. Develop a preoperative assessment clinic policy and standards for the management of patients with diabetes to ensure especially:
 - a) Access to the diabetes MDT, including diabetes specialist nurse input;
 - b) Written instructions regarding their diabetes management plan prior to surgery.
5. Ensure that patients with diabetes undergoing surgery are closely monitored and their glucose levels managed accordingly.
6. Ensure a safe handover of patients with diabetes from theatre recovery to ward.
7. A clinical lead for day surgery should be in place in all hospitals providing day surgery services in order to:
 - avoid cancellation/audit local rates;
 - develop referral criteria
 - monitor fasting;
 - prioritise people with diabetes for surgery to avoid long waits;
 - educate patients.

Diabetes and day case surgery

Diabetes should not be a barrier to day surgery. These patients are more likely to manage their condition effectively in their home environment with their normal diet and medication before and after surgery, so there is recognised benefit to performing day case procedures wherever possible to prevent iatrogenic issues.

The value of day surgery for patients with diabetes has been recognised in many publications.¹⁵⁴ Where this is not offered, patient care suffers and higher costs are incurred. A health economics study of inpatient care found that lower day case rates for people with diabetes cost the NHS more than £9m.¹⁵⁵ It also refers to the optimum management of these patients as day case candidates.

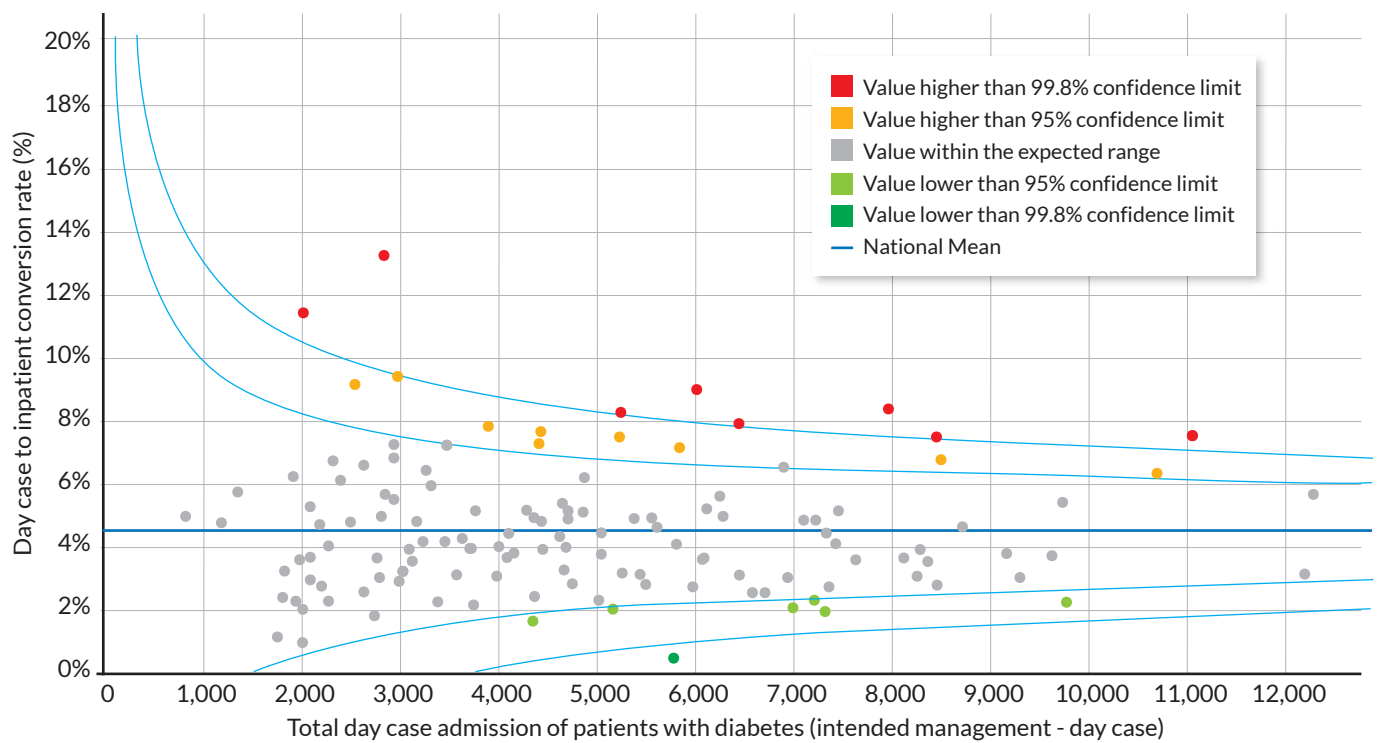
Hospitals need to implement good perioperative planning, which identifies appropriate cases for day surgery and prioritises them on the operating list, so there is less potential for error on the day, to reduce the number of unnecessary inpatient stays. Currently, even where day surgery is attempted in people with diabetes, the inpatient conversion rate is high.

Figure 44 shows large variation in day case to inpatient conversion rates in people with diabetes, with some conversion rates as high as 13%.

¹⁵⁴ See, for example, National Confidential Enquiry into Patient Outcome and Death (NCEPOD) (2018), *Highs and lows: a review of the quality of care provided to patients over the age of 16 who had diabetes and underwent a surgical procedure*, https://www.ncepod.org.uk/2018pd/Highs%20and%20Lows_Full%20Report.pdf; Perioperative Quality Improvement Programme (PQIP) (2019), *Annual report 2018-19*, <https://www.pqip.org.uk/pages/ar2019/>; NHS Blood and Transplant, *Patient Blood Management (PBM)*, <https://www.hospital.blood.co.uk/patient-services/patient-blood-management/>

¹⁵⁵ Kerr, M. (2011), *Inpatient Care for people with diabetes: the economic case for change*, *Insight Health Economics/NHS* (cited in *Diabetes: GIRFT specialty report*)

Figure 44: Day case to inpatient conversion rate for people with diabetes (%), by trust

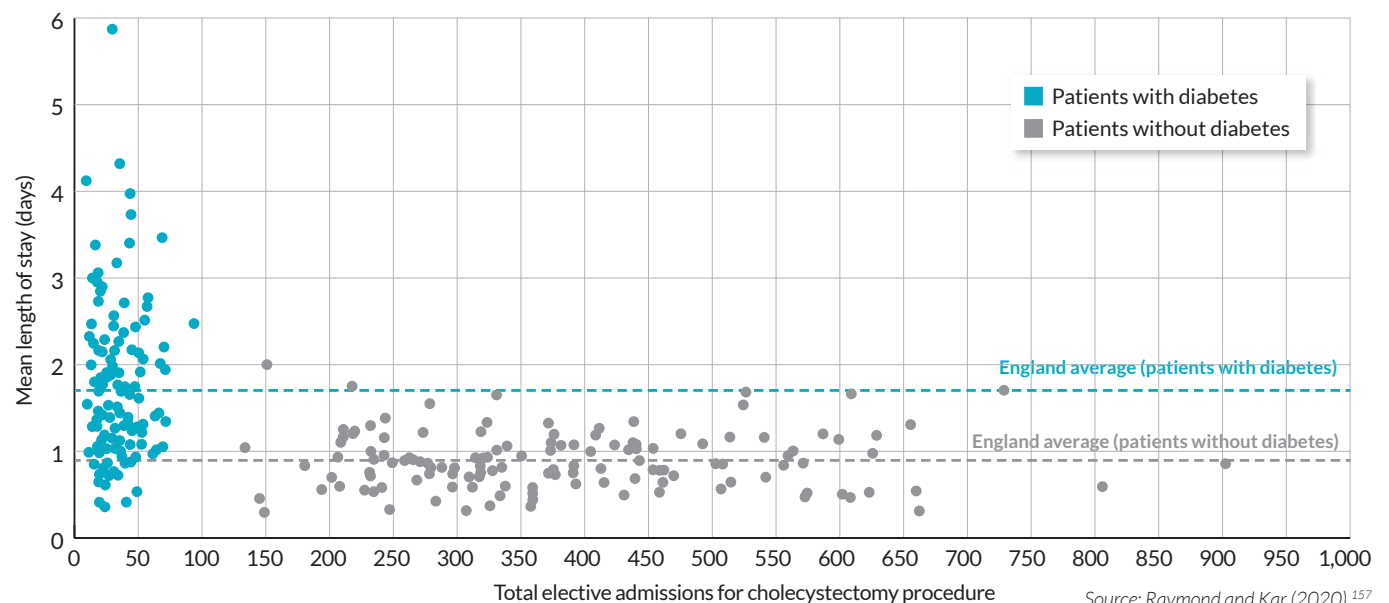


Source: Raymond and Kar¹⁵⁶

Perioperative diabetic care

Figure 45 gives a clear indication of the scale of the issues related to diabetic care following a surgical procedure.

Figure 45: Elective cholecystectomy: mean length of stay for patients with/without diabetes undergoing laparoscopic cholecystectomy, by trust



Source: Raymond and Kar (2020)¹⁵⁷

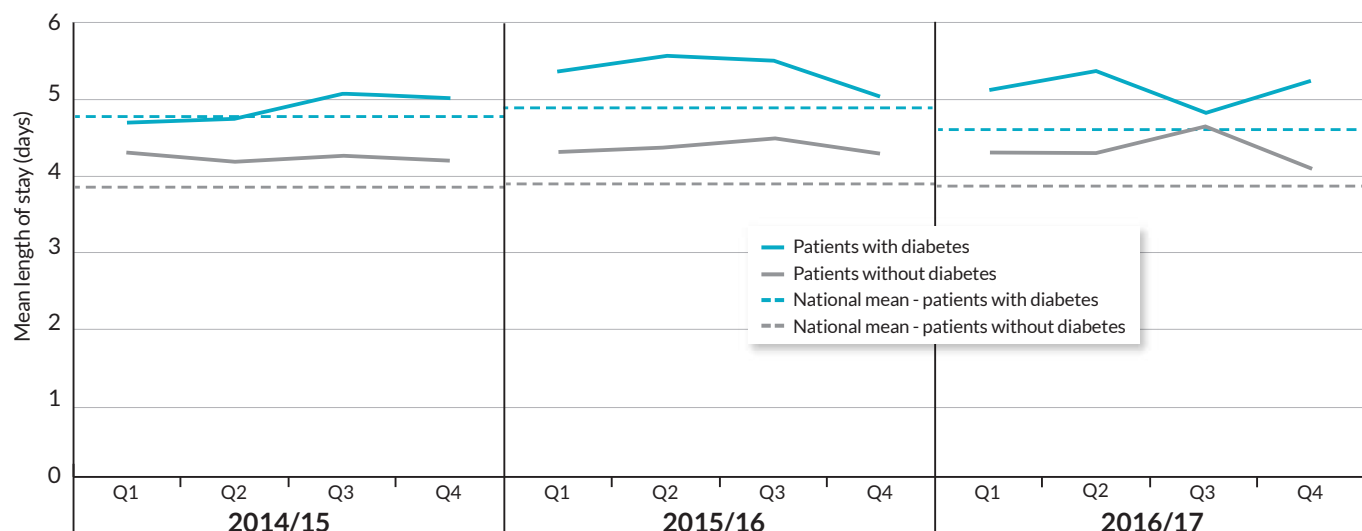
¹⁵⁶ Raymond, G. and Kar, P. (2020), Diabetes: GIRFT programme specialty report, <https://www.gettingitrightfirsttime.co.uk/girft-reports/>

¹⁵⁷ Raymond, G. and Kar, P. (2020), Diabetes: GIRFT programme specialty report, <https://www.gettingitrightfirsttime.co.uk/girft-reports/>

The average length of stay in England for patients undergoing laparoscopic cholecystectomy without diabetes is variable but centres around a mean of one day, relatively independent of admission numbers. In contrast, patients with diabetes, at much lower volumes, have a completely different distribution for length of stay, between 0.5 days and 5.8 days. This unwarranted variation may be due to early preoperative admission of people with diabetes, which could be mitigated by efficient pre-assessment and ensuring patients are defaulting to day surgery. But this data also suggests a delayed recovery time, a feature likely to be related to inadequate care of diabetic patients undergoing surgery.

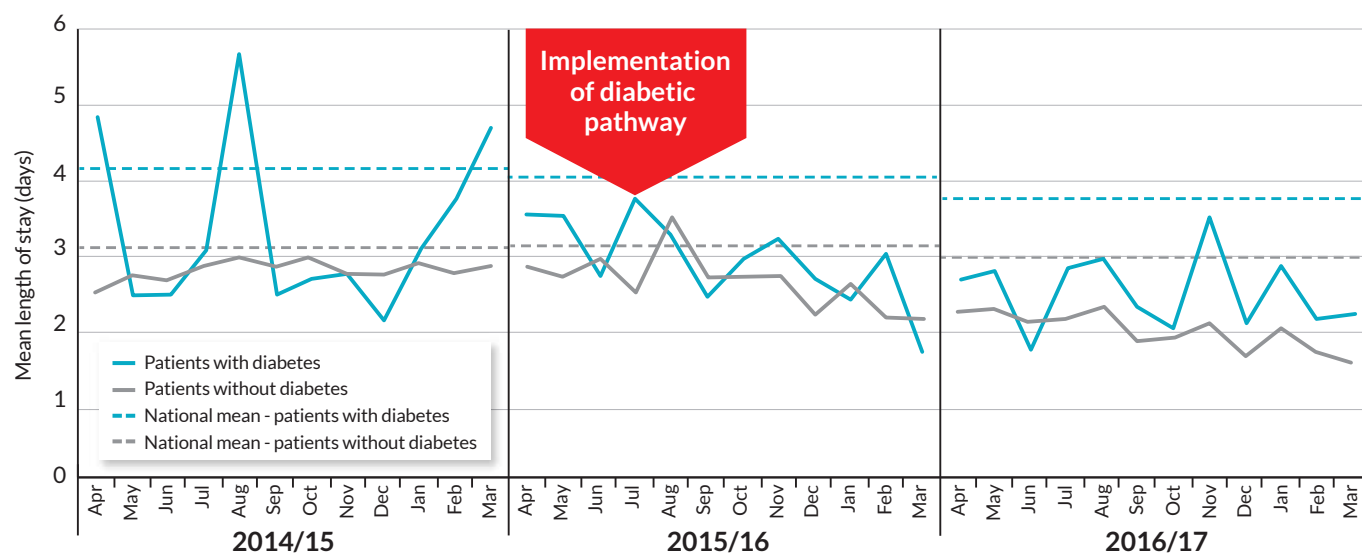
Improvements in perioperative diabetic care have been slow to materialise with missed opportunities. However, the 2018 NCEPOD report¹⁵⁸ has focused perioperative minds. **Figures 46 and 47** below compare all elective inpatient surgeries in two different trusts. **Figure 46** shows the first trust, where there has been no change in length of stay year on year in terms of diabetic outcome (i.e. diabetes lengths of stay remain longer than those for the non-diabetic population), in keeping with there being no perioperative input into diabetic pathways. In contrast, **Figure 47** shows a reduction in both non-diabetic and diabetic patients' lengths of stay during the same time period following implementation of a managed diabetic pathway in 2015/16.

Figure 46: Mean length of stay for elective patients with or without diabetes admitted for surgery, by year and quarter, 2014–2017



Source: HES data 2014–17

Figure 47: Mean length of stay for elective patients with or without diabetes admitted for surgery, by year and quarter, 2014–2017 (diabetic pathway implemented in 2015/6)



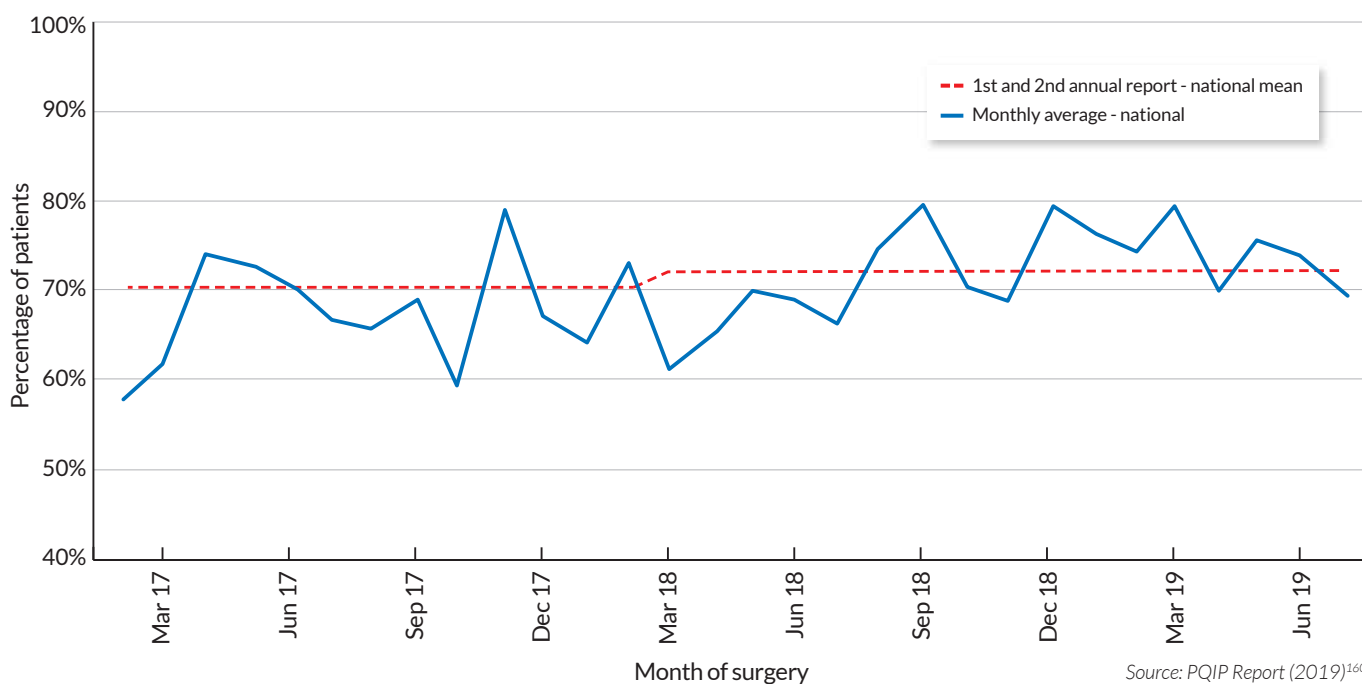
Source: HES data 2014–17

¹⁵⁸ National Confidential Enquiry into Patient Outcome and Death (NCEPOD) (2018), Highs and lows: a review of the quality of care provided to patients over the age of 16 who had diabetes and underwent a surgical procedure, https://www.ncepod.org.uk/2018pd/Highs%20and%20Lows_Full%20Report.pdf

Using HbA1C (glycated haemoglobin) measurements to initiate diabetic pathway development

Simple HbA1C measurements reflect the mean of a patient's glucose levels over a period of approximately three months prior to the test. NCEPOD suggests this could be an early initiative to improve preoperative management of diabetic patients. A suggested HbA1c level of <69 would be appropriate to proceed with surgery; anything higher would necessitate an alternative approach. During our deep dives we found that, where this measure had been instituted, it had been the basis for improved management of these patients perioperatively. PQIP notes that having set a target of measuring HbA1C in 100% of diabetic patients this year, the current rate in reporting hospitals is still only 72%.¹⁵⁹ Although the trend is for gradual improvement, considerable variation remains (see **Figure 48** below).

Figure 48: Perioperative quality improvement: % of people with diabetes having HbA1c measured prior to surgery, May 2017 to June 2019



One barrier to HbA1c measurement in the perioperative clinic relates to misunderstandings around who should take ultimate responsibility for a patient's elective diabetic care during preparation for surgery. There is a question over whether this should be performed as part of the referral process from primary care for example. Where elective surgery is being considered, referral back to primary care for management of the diabetes may be appropriate, since long-term diabetic care is primarily managed in the community.

Yet even where HbA1c screening is established in the hospital setting, our deep-dive visits and questionnaire responses show that a perioperative approach to diabetic care is not being consistently delivered. While 91% of trusts (100% response rate) suggested a diabetic pathway was in place before elective surgery, fewer trusts had a process to address suboptimal diabetes care prior to elective surgery. Only 66% of trusts had an intervention pathway that had been developed with the input from the trust's diabetic team.

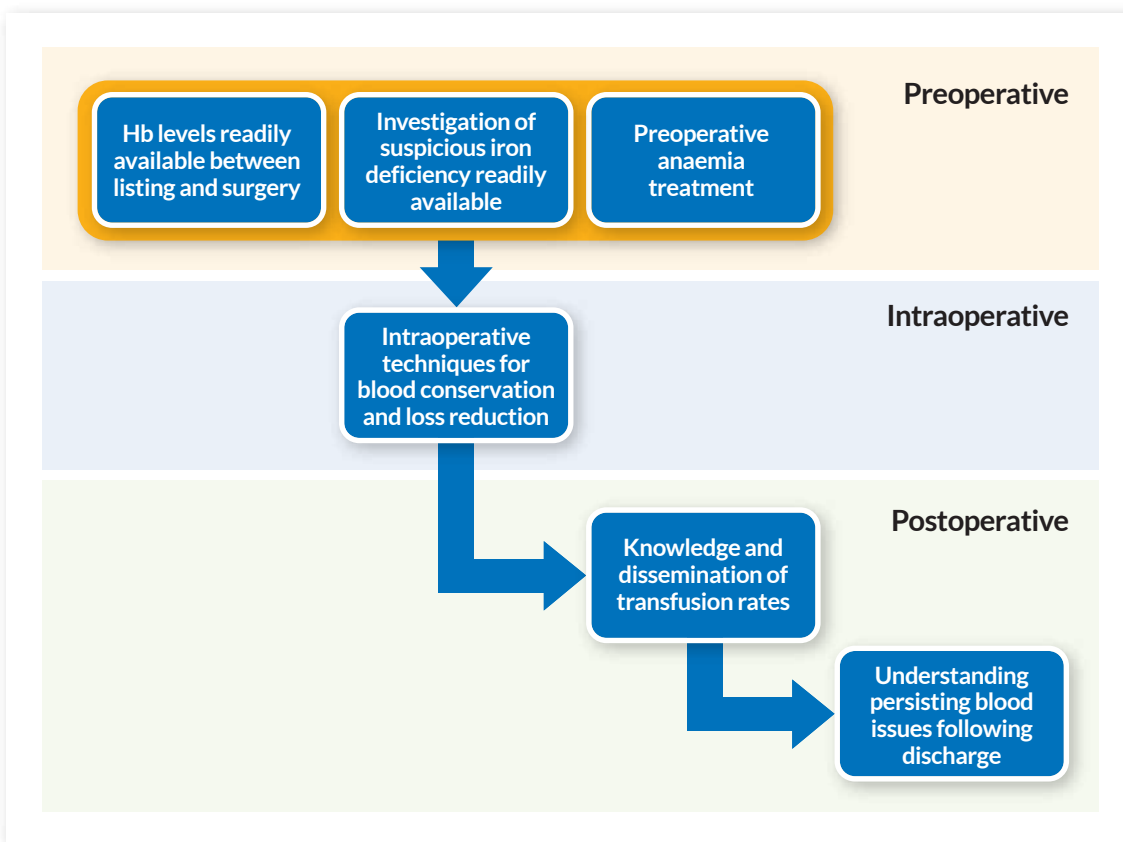
Perioperative blood management

The management of the use of blood and blood products in the perioperative period is a vital part of anaesthetic and now perioperative care. A series of steps known as a Patient Blood Management (PBM)¹⁶¹ system approach prioritises the conservation of blood and blood products during surgery. The main steps in effectively defining a PBM programme are shown in **Figure 49**.

¹⁵⁹ Perioperative Quality Improvement Programme (PQIP) (2019), Annual report 2018–19, <https://www.pqip.org.uk/pages/ar2019>

¹⁶⁰ Perioperative Quality Improvement Programme (PQIP) (2019), Annual report 2018–19, <https://www.pqip.org.uk/pages/ar2019>

Figure 49: Example PBM pathway: linked steps in managing perioperative blood resource



Knowledge of transfusion rates

One of the important outcomes of any PBM system is a working knowledge of the rates of transfusion within the surgical environment. Blood transfusions should be avoided whenever possible to decrease patient exposure to the associated risks, including fluid overload, infection and incorrect blood transfusions. A recent study showed that a PBM system reduced exposure to red cell transfusion. In addition, most patients prefer not to have blood transfusions (due to the risk of an adverse reaction/general fear of contamination) and blood is both scarce and expensive. A recent study showed that a PBM system reduced exposure to red cell transfusion.¹⁶²

National statistics regarding blood transfusion levels are limited as there are no patient-level details and data is rarely specific to speciality, including surgery. At trust level, however, this data is available. Nevertheless, our deep dives demonstrated that most anaesthetic and perioperative medicine departments are not aware of their own rates for surgical blood transfusions. While 65% of trusts recognised that this information was collected by transfusion services, on questioning many could not define the transfusion rates for surgery in the last one to three months. There is an urgent need for more data to enable optimal blood management and reduce this knowledge variation. We recommend ensuring that data is readily available at local trust level and is repeatedly and regularly audited.

Preoperative anaemia detection and treatment

Screening patients for anaemia before major elective blood loss surgery is a key perioperative process.¹⁶³ It relies on good communication between haematologists and the perioperative care team. Anaemia is the most common preoperative predictor of blood transfusion. Therefore, it is good practice to screen for and detect anaemia as early in the patient journey as possible. It is estimated that consistent uptake of anaemia screening to 60% would deliver savings of around £3m associated with units of blood saved due to lower transfusion rates, reduced critical care, saved bed days and reduced admission rates.¹⁶⁴

¹⁶¹ NHS Blood and Transplant, Patient Blood Management (PBM), <https://hospital.blood.co.uk/patient-services/patient-blood-management/>

¹⁶² Roman, M. A., Abbasciano, R. G., Pathak, S. et al. (2021), Patient blood management interventions do not lead to important clinical benefits or cost-effectiveness during major surgery: a network meta-analysis, *British Journal of Anaesthesia* 126 (1):149–156, doi: 10.1016/j.bja.2020.04.087, [https://bjanaesthesia.org/article/S0007-0912\(20\)30342-1/pdf](https://bjanaesthesia.org/article/S0007-0912(20)30342-1/pdf)

¹⁶³ NICE (2015), Blood Transfusion (NG24), <https://www.nice.org.uk/Guidance/ng24>

¹⁶⁴ Commissioning for Quality and Innovation (2020), Guidance for reference 2020–2021, NHS England and NHS Improvement, <https://www.england.nhs.uk/wp-content/uploads/2020/01/FINAL-CQUIN-20-21-Core-Guidance-190220.pdf>

During our deep dive visits, even where screening was performed, we found variation in the haemoglobin levels at which preoperative anaemia was accepted. A consensus document related to surgery, sets limits of haemoglobin < 130 g/l for both male and female patients, but in many centres this has not been accepted, mainly due to the fact that the number of patients who would subsequently qualify for preoperative treatment would require resources that are not available. Resource issues were the major reason clinicians gave for a lack of development of anaemia management programmes at a trust level. We suggest that if trusts were to audit the outcome of the PBM pathway, mainly through the need for blood transfusions, but also through readmission and post-discharge anaemia rates, they would then be able to determine local haemoglobin guidelines. This would describe a level of anaemia that would benefit from treatment in different surgical situations, thereby offsetting the costs of introducing PBM system.

Once anaemia is demonstrated, there is also a need to efficiently access other measurements of blood quality, often referred to as 'haematinics'. These enable clinicians to define a pathway for investigation (including immediate referral for bowel examination where malignancy is suspected) or referral for an effective means of treating anaemia prior to surgery. Our deep dives revealed considerable variation between trusts in the immediate availability of these measurements, which allow early intervention and prevent multiple hospital visits.

Preoperative anaemia is most commonly related to iron deficiency, which has many causes, but which can be treated by iron either in oral or intravenous (IV) form. There is detailed NICE guidance¹⁶⁵ setting out the requirements to offer iron before surgery to patients with iron-deficiency anaemia. Despite this, the 2019 PQIP report noted that 70% of patients with a haemoglobin < 130g/l, did not receive any treatment in the three months before surgery.¹⁶⁶

During our deep dives, whilst there was acceptance of the need for preoperative oral iron treatment as the default option where there was no urgent requirement for surgery, many (60%) units referred non-urgent elective patients back to primary care for treatment, thereby passing responsibility back to the GP. There was often misunderstanding as to who held responsibility for initial treatment, similar to the problem seen in diabetic management. In the most successful centres, however, much work has been done on interaction and collaboration with primary care networks. The best approach is through a joint programme of care. This may be facilitated by future developments in ICS structure and collaborative working.

While oral iron is still the preferred form of treatment, patient tolerance and surgical timescale in some surgical pathways (e.g. cancer surgery) do not allow for this to be effective. In this instance, current practice is to administer IV iron therapy. In our survey, 92% of trusts said they were giving IV iron, but there was no consistency as to where this had been established – in some cases within haematology departments, in others within perioperative clinics or medical departments. Following the delivery of the PREVENTT trial,¹⁶⁷ there is ongoing research on the efficacy of this form of intervention.

CASE STUDY

Preoperative anaemia management

Royal Berkshire NHS Foundation Trust

The Royal Berkshire NHS Foundation Trust introduced a preoperative anaemia policy for elective surgery in 2015. The preoperative team review haemoglobin levels at the initial preoperative assessment and, if the patient is identified as having haemoglobin below 130g/L, they are put on an anaemia pathway to identify the type of anaemia. This includes blood tests for ferritin, B12, folate and CRP. Once the cause is identified, treatment is started in order to optimise haemoglobin prior to surgery. The pathway treatment includes oral iron and/or an IV iron transfusion. This pathway is used for orthopaedic, general surgery, gynaecology and urology patients.

Treatment with IV iron at least 30 days prior to surgery has been shown to increase haemoglobin levels by 20g/L. This early identification and treatment of anaemia has resulted in fewer perioperative transfusions and decreased lengths of stay postoperatively.

¹⁶⁵ NICE (2015), *Blood Transfusion (NG24)*, <https://www.nice.org.uk/Guidance/ng24>

¹⁶⁶ *Perioperative Quality Improvement Programme (PQIP) (2019), Annual report 2018–19*, <https://www.pqip.org.uk/pages/ar2019>

¹⁶⁷ Richards, T., Clevenger, B., Keidan, J. et al. (2015), *PREVENTT: pre-operative intravenous iron to treat anaemia in major surgery: study protocol for a randomised controlled trial*, *Trials* 16: 254, doi: 10.1186/s13063-015-0774-2, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4462008/>

Intraoperative management

Improvements in surgical techniques and technology have been important in conserving blood during surgery. Tranexamic acid, an agent used to prevent clot breakdown in patients and therefore to prevent blood loss, is now routine in most major surgery with a significant bleeding risk of haemorrhage, (e.g. orthopaedic revision surgeries). This was a consistent finding during our deep dive visits.

Perioperative cell salvage, whereby the patient's own blood is collected from the surgical field, filtered and washed and transfused back into the patient, is a relatively safe form of blood conservation, but requires significant initial financial outlay. Kuppurao and Wee's study¹⁶⁸ outlines the benefits of cell salvage (such as it being a cost-effective, safe method of autologous transfusion) but states that a lead clinician for cell salvage is needed within each trust, as is ongoing education and staff training. More recently, as the cost of blood products has risen and the cost of the apparatus for cell salvage has reduced, the balance has moved towards using more cell salvage where required. During our visits, and as a result of responses to our questionnaire, we noted that only 60% of trusts had cell salvage in theatres, meaning that not all trusts are regularly able to offer cell salvage to their patients. This constitutes an unwarranted variation in care and each trust should at least audit their need for cell salvage.

CASE STUDY

Obstetric cell salvage

Royal Cornwall Hospital, Truro

Since 2007, the Royal Cornwall Hospital's routine use of cell salvage in obstetric theatre has safely and economically reduced the need for allogeneic transfusion and the associated risks to patients.

Using cell salvage for all caesarean sections maintains staff competence with the cell salvage equipment and provides daily training opportunities.

The trust has found this approach to be cost effective (in contrast to some recent studies).

The trust:

- only processes blood when sufficient volume has been collected;
- uses only one suction (anticoagulation and aspiration) line;
- does not need to employ extra staff members as all its anaesthetic practitioners have completed an in-house competency-based training programme;
- does not use leucocyte depletion filters in obstetrics.

Outcomes:

- Nearly 40% of collections are sufficient to be processed.
- In 2019 obstetrics at Royal Cornwall transfused 58,264mls of blood – the equivalent of approximately 300 units of red cells.
- No recorded cases of amniotic fluid embolus.
- Observational data suggests women receiving autologous blood maintain normal coagulation profiles.
- No RhD negative mothers who have received autologous blood have needed extra anti-D.

¹⁶⁸ Kuppurao, L. and Wee, M. (2010), Perioperative cell salvage, *Continuing education in anaesthesia, critical care and pain* (vol. 10 (4): 104–108, 26 May, <https://www.academic.oup.com/bjaed/article/10/4/104/380980>

Postoperative management

The NHS Blood and Transplant (NHSBT) audit¹⁶⁹ performed in 2015 provided information on blood transfusion pathways for mainly orthopaedic trauma patients (trauma). It revealed that most of the blood was given postoperatively. During our deep dive visits we noted a significant lack of training and education for clinical staff related to postoperative triggers for using blood transfusions.

Pain management and opioid medicines

The 'opioid epidemic' in the United States is well documented. There is increasing concern about opioid overuse and prescribing in the UK. A recent OECD report¹⁷⁰ noted that between 2013 and 2016 there was a 68% increase in the availability of opioid painkillers in the UK, a trend associated with increasing medical prescriptions and linked to a 'surge in overdose deaths'. The initial emphasis on prevention has focused on overprescribing by primary care and pain specialists. More recently, attention has focused on the use of opioids in the perioperative period and preventing the release of opioids into the community.

Managing the patient who is taking opioids preoperatively is one issue. Clearly, where opioids are prescribed for a condition that is being surgically treated with the primary intention of reducing pain (e.g. elective orthopaedic surgery, surgery for chronic pancreatitis, inflammatory bowel disease, benign cystectomy, and so on), postoperative opioid discontinuation will be a favourable outcome. More recently and rather unexpectedly, it has also been shown that, even where surgeries are not being performed to reduce pain, and where patients are taking opioids for other pain indications, surgery provides an important 'teachable moment' for opioid discontinuation.¹⁷¹ Where this is the case, input from the pain team may be extremely helpful, particularly since patients who are taking opioids preoperatively may suffer worse pain postoperatively. In some trusts these patients are referred to a pain management team before surgery and this can be extremely helpful, not least because pain management services are benchmarked against the Faculty of Pain Management's core standards.¹⁷²

A second form of opioid prescription occurs in surgical patients, who are being prescribed strong painkillers to manage postoperative pain. Perioperative acute pain management in patients who were not previously on opioid medication, should rely on strong painkillers for the shortest time possible. Given the trend for early discharge, and the knowledge that persistent pain after surgery is a significant issue long term,¹⁷³ some patients are being sent home with opioids, unaware of the risks associated with longer-term use. Where this is not well managed, opioid dependency can develop.

Our deep dive visits exposed unexpected variation in the prescribing of opioids around the surgical period. This included the type of opioid prescribed, input from acute pain and pharmacy teams at differing times in the perioperative pathway and few or no hospital discontinuation pathways where opioids are prescribed for postoperative pain.

The treatment of acute pain is essential to facilitate recovery from surgery or trauma by enabling early mobilisation and avoiding complications, including the bed-bound risks of venous thromboembolism, pulmonary embolus, pressure sores and pneumonia. Severe untreated acute pain may also predispose to the development of chronic pain. Opioids are very effective in treating acute pain and are best used as part of a multimodal analgesic approach in combination with paracetamol, non-steroidal anti-inflammatory drugs and local anaesthetics where appropriate. Initiating opioids in the acute setting requires a prescriber to ensure that the opioids are not continued beyond the expected period of tissue healing.

A Canadian study¹⁷⁴ showed that, although the inflammatory response to injury normally resolves within three months, a significant proportion of patients given opioids for postoperative pain took opioids well beyond this time. Pressures for earlier discharge from acute hospitals result in the potential for patients leaving hospital after a short stay with a supply of strong opioids. Although it is essential to supply patients with appropriate analgesia on discharge, clear information for the patient regarding the importance of tapering and stopping these drugs, and good communication with the patient's primary care team should reduce the unnecessary continuation of opioids in the community. This would then have addressed the need for analgesia postoperatively, the risk of progression to persistent post-surgical pain, and ways to address opioids on discharge.

¹⁶⁹ NHS Blood and Transplant and the Royal College of Physicians (2015), *National comparative audit of blood transfusion*, <https://nhsbt.dbe.blob.core.windows.net/umbra-co-assets-corp/14905/2015-pbm-in-scheduled-surgery-audit-report.pdf>

¹⁷⁰ OECD, *Addressing problematic opioid use in OECD countries*, 11 June 2019, <https://www.oecd.org/health/addressing-problematic-opioid-use-in-oecd-countries-a18286f0-en.htm>

¹⁷¹ Brummett, C. M. and Myles, C. S. (2020), *Opioid discontinuation after surgery*, *British Journal of Anaesthesia*, 124 (5): 502–503, doi: 10.1016/j.bja.2020.01.009, [https://bjanaesthesia.org/article/S0007-0912\(20\)30052-0/pdf](https://bjanaesthesia.org/article/S0007-0912(20)30052-0/pdf)

¹⁷² The Faculty of Pain Medicine (2015), *CSPMS: core standards for pain management services in the UK*, <https://www.fpm.ac.uk/standards-publications-workforce/core-standards>

¹⁷³ *Perioperative Quality Improvement Programme (2019), Annual report 2018–19*, <https://www.pqip.org.uk/pages/ar2019>

¹⁷⁴ Jivraj, N. K., Scales, D. C., Gomes, T. et al (2020), *Evaluation of opioid discontinuation after no-orthopaedic surgery among chronic opioid users: a population-based cohort study*, *Br J Anaesth*, March 124 (3): 281–291, [https://www.bjanaesthesia.org.uk/article/S0007-0912\(19\)30964-X/fulltext](https://www.bjanaesthesia.org.uk/article/S0007-0912(19)30964-X/fulltext)

CASE STUDY

Pain management and reducing the risk of opioid addiction

Gloucestershire Hospitals NHS Foundation Trust

The Gloucestershire Hospitals NHSFT pain service works closely with the local Clinical Commissioning Group on the Living Well with Pain clinical programme, which develops and co-ordinates services for people living with pain across primary and secondary care and facilitates appropriate prescribing of opioids and other pain medications. Key to this is educating GPs and primary care pharmacists on the evidence for the management of chronic pain and the challenges inherent in doing so.

The inpatient pain service has identified two areas where it can positively influence opioid de-prescription to mitigate against addiction.

- Where patients are started on modified-release opioids in hospital and the opioids are not stopped prior to discharge, the service advises discharge with a maximum supply of one week and sends an email to the patient's GP/practice pharmacist advising a review within seven days to wean opioids.
- When patients with complex chronic pain on high-dose opioids are admitted, the service reduces the dose wherever possible in communication with the patient's GP practice. They often refer the patient to the persistent (chronic) pain service for follow-up.

The service discusses long-term side-effects of opioids with both groups of inpatients and reinforces this with the FPM patient leaflet 'Taking Opioids for Pain'.

Patients can be referred to the outpatient persistent (chronic) pain service from primary or secondary care and there are specialist nurse-lead pain clinics, to de-prescribe when the need is complex. Many clinicians are trained in health coaching and/or motivational interviewing, helping patients to make healthy choices and to take an active role in managing their pain. The nurses also either hold or are working towards the non-medical prescribing qualification.

The services prioritises patients who are on oral morphine equivalent of 120mg in 24 hours, who have health conditions which put them at higher risk from opioid medications or who have already made progress with medication reduction but are stuck.

The service communicates regularly with GPs to ensure consistency of the messages given to patients and for continuity of care.

Conclusions

The importance of effective perioperative management has never been greater. This section has focused on preoperative assessment and on three specific examples of perioperative medicine, for which there are already existing guidelines and standards that exemplify the way that perioperative care may be introduced and standardised within and across trusts for the benefit of patient care. Our recommendations are based around these examples but can be expanded as future elements of perioperative care are developed.

Preoperative assessment

Preoperative assessment is the cornerstone of good perioperative care and is vital to effective surgical management.

Diabetes

We fully support the recommendations laid out by NCEPOD, and particularly with regard to the suitability of day case surgery for patients with diabetes.

Blood management

The PBM approach is one we support and we would encourage all trusts to adopt this (along with the data analysis and training it requires) in an effort to manage anaemia perioperatively and to avoid blood transfusions where possible.

Pain management and opioids

To avoid the overuse of opioid medications we suggest that trusts follow the guidance of the RCoA Faculty of Pain Medicine¹⁷⁵ concerning surgery and opioid prescription, which is endorsed by the RCS and RCGP.

Financial implications of multidisciplinary perioperative care services

The potential national gross financial opportunity related to our recommendations concerning the management of surgical patients with diabetes are c. £4.9m based on a reduced conversion rate of 2.2% from day case to elective inpatient for this patient group. This represents a fraction of the potential savings offered by improved perioperative care across the wider surgical patient group. More detailed calculations can be found in the section on *Notional Financial Opportunities* (page 124).

Recommendations: Perioperative medicine

Recommendation	Actions	Owners	Timescale
9. Integrate perioperative care across all surgical pathways.	a Develop a local multidisciplinary and multi-specialty team to deliver perioperative care.	Trusts	For immediate action
	b Ensure regional-level standardisation of perioperative care through clinically-led networks.	ICS, Trusts	For immediate action
	c Incorporate best practice as described by the Royal College of Anaesthetists (RCoA) guidance ¹⁷⁶ to deliver perioperative medicine that is aligned with Integrated Care Systems (ICS).	ICS, Trusts	For immediate action
10. Ensure that shared decision-making (SDM) takes place throughout the surgical pathway.	a Incorporate SDM across all surgical pathways.	Trusts	For immediate action
	b Ensure SDM is linked to the 'Choosing Wisely' ¹⁷⁷ recommendations. (see https://www.choosingwisely.co.uk/about-choosing-wisely-uk/)	Trusts	For immediate action
	c Ensure all staff involved in perioperative care are trained in SDM ¹⁷⁸ in line with NICE guidelines ¹⁷⁹ (update document awaited).	Trusts	Within 12 months of report publication
	d Triage all identified high-risk surgical patients (those with a predicted 30-day mortality risk > 1%) from the pre-assessment clinic to ensure they receive a medically-led SDM consultation.	Trusts	Within 12 months of report publication
	e Make certain that SDM consultations deliver decisions around choice, alternative treatments (including no surgery) and realistic expectations for outcome, recovery and rehabilitation ¹⁸⁰ based on clearly delivered information.	Trusts	Within 12 months of report publication
	f Obtain informed consent from patients in line with the ruling of the Montgomery Judgment. ¹⁸¹	Trusts	For immediate action

¹⁷⁵ Faculty of Pain Medicine of the RCoA, Opioid aware website, <https://www.fpm.ac.uk/opioids-aware>

¹⁷⁶ Royal College of Anaesthetists (2019) 'A teachable moment': delivering perioperative medicine in integrated care systems, <https://www.rcoa.ac.uk/sites/default/files/documents/2019-07/IntegratedCareSystems2019.pdf>

¹⁷⁷ <https://www.choosingwisely.org/>

¹⁷⁸ Training resources can be found on the Royal College of General practitioners' website at <https://www.rcgp.org.uk/clinical-and-research/our-programmes/about-person-centred-care.aspx>. Further information and guidance is available via the NICE website at <https://www.nice.org.uk/about/what-we-do/our-programmes/nice-guidance/nice-guidelines/shared-decision-making>

¹⁷⁹ At the time of writing, NICE guidelines on SDM are in development. See NICE (2020) 'Shared decision making: draft for consultation, December 2020, <https://www.nice.org.uk/guidance/indevelopment/gid-ng10120> (publication expected June 2021).

¹⁸⁰ The Choosing Wisely website is a useful resource for both clinicians and patients: <https://www.choosingwisely.org/getting-started/lists/>

¹⁸¹ <https://www.rcseng.ac.uk/standards-and-research/standards-and-guidance/good-practice-guides/consent/>

Recommendations: Perioperative medicine (continued)

Recommendation	Actions	Owners	Timescale
11. Deliver generic preoperative assessment with expansion to perioperative medicine clinics for higher-risk patients.	a Develop a generic, nurse-led preoperative assessment system.	Trusts	Within 12 months of report publication
	b Provide a unified pre-assessment team (not defined by individual surgical specialty) to avoid siloed working and mitigate resistance to standardised pathway organisation.	Trusts	Within 12 months of report publication
	c Provide medically-led perioperative clinics to optimise patients' medical conditions (clinic time should be formally job planned).	Trusts	Within 12 months of report publication
	d Develop virtual, telephone or face-to-face consultation options as appropriate.	Trusts	Immediate
	e Use formal frailty assessment where appropriate to guide referral to geriatrician, occupational therapist and discharge co-ordinator.	Trusts	Within 12 months of report publication
	f Ensure the pre-assessment team includes targeted involvement from other healthcare professionals, such as pharmacists, physiotherapists, dieticians and specialist nurses.	Trusts	Within 12 months of report publication
	g Ensure healthy patients undergoing minor or intermediate surgery are not routinely given unnecessary preoperative tests, as recommended by NICE guideline NG45. ¹⁸²	Trusts	For immediate action
	h Develop pathways to enhance preoperative risk assessment by including use of validated risk scoring systems ¹⁸³ or survival prediction models ¹⁸⁴ and availability of more advanced perioperative testing procedures (e.g. cardiopulmonary exercise testing).	Trusts	For immediate action
	i Employ digital solutions for pre-assessment documentation with full integration across both trust and primary care electronic patient record systems.	Trusts	Within 12 months of report publication
	j Establish effective communication links with primary care teams to facilitate and support optimisation of acute and chronic medical conditions before surgery.	Trusts	Within 12 months of report publication
	k Provide preoperative support for patients to engage in change activities, including lifestyle factors (e.g. weight loss, smoking cessation, alcohol reduction and increased physical activity).	Trusts	For immediate action
l Ensure all staff are trained to incorporate 'Making every Contact Count' ¹⁸⁵ principles into pre-assessment pathways.	Trusts	For immediate action	

¹⁸² NICE (2016), *Routine preoperative tests for elective surgery (NG45)*, <https://www.nice.org.uk/guidance/ng45>

¹⁸³ Such as SORT – see Wong, D. J. N., Harris, S., Sahni, A. et al. (2020), *Developing and validating subjective and objective risk-assessment measures for predicting mortality after major surgery: an international prospective cohort study*, *PLOS medicine*, October, <https://www.journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1003253>

¹⁸⁴ Such as 'AAA' – see Carlisle, J. B., Danjoux, G., Kerr, K. et al. (2015), *Validation of long-term survival prediction for scheduled abdominal aortic aneurysm repair with independent calculator using only pre-operative variables*, *Anaesthesia*, 70 (6): 654–655, <https://www.pubmed.ncbi.nlm.nih.gov/25959175/>

¹⁸⁵ For resources and guidance see practical resources at www.gov.uk/government/publications/making-every-contact-count-mecc-practical-resources and NICE resources at <https://www.stpsupport.nice.org.uk/>

Recommendations: Perioperative medicine (continued)

Recommendation	Actions	Owners	Timescale
12. Ensure effective perioperative care for patients with diabetes.	a Implement the recommendations set out in recent publications from the National Confidential Enquiry into Patient Outcome and Death (NCEPOD), ¹⁸⁶ GIRFT Diabetes National Specialty Report recommendations ¹⁸⁷ and the forthcoming Centre for Perioperative Care (CPOC) document ¹⁸⁸ to improve perioperative care of patients with diabetes.	Trusts	For immediate action
	b Ensure a recent HbA1C (glycated haemoglobin) measurement is available within three months of surgery for all patients with diabetes. ¹⁸⁹	Trusts	For immediate action
	c Promote and develop effective lines of communication between the perioperative team and the diabetes specialty teams.	Trusts	For immediate action
	d Ensure all staff managing surgical patients are fully educated on appropriate perioperative management pathways for patients with diabetes.	Trusts	For immediate action
13. Optimise the use of blood products through effective perioperative blood management.	a Encourage perioperative teams to collect data on perioperative blood and blood product transfusions with three monthly review of usage in conjunction with a transfusion committee.	Trusts	For immediate action
	b Ensure that all current national guidelines on perioperative blood management are followed (NICE guideline NG24 ¹⁹⁰ and Mueller <i>et al.</i> (2019). ¹⁹¹	Trusts	For immediate action
	c Establish early access to haemoglobin levels through primary care and preoperative assessment clinics. (A low haemoglobin measurement should trigger simultaneous access to haematinics to assess cause of preoperative anaemia.)	Trusts	For immediate action
	d Ensure that effective pathways exist for further investigation of anaemia if there is a suspicion of malignancy.	Trusts	Immediate
	e Establish a process whereby perioperative teams audit anaemia management through levels of blood transfusion, readmission rates and post-discharge anaemia rates.	Trusts	Within 24 months of report publication
	f Develop local guidelines for anaemia levels that would benefit from treatment in different surgical procedures.	Trusts	Within 12 months of report publication
	g Establish oral and IV iron pathways in primary and secondary care with agreed shared responsibilities.	Trusts	Within 12 months of report publication

¹⁸⁶ NCEPOD (2018) *Highs and lows: a review of the quality of care provided to patients over the age of 16 who had diabetes and underwent a surgical procedure*, <https://www.ncepod.org.uk/2018pd.html>.

¹⁸⁷ Rayman, G. and Kar, P. (2020), *Diabetes: GIRFT programme national specialty report*, <https://www.gettingitrightfirsttime.co.uk/girft-reports>

¹⁸⁸ At the time of writing CPOC is developing guidance on perioperative care for people with diabetes. See <https://www.cpoc.org.uk/guidelines-resources-guidelines-resources/guideline-diabetes>

¹⁸⁹ NCEPOD (2018) *Highs and lows: a review of the quality of care provided to patients over the age of 16 who had diabetes and underwent a surgical procedure*, <https://www.ncepod.org.uk/2018pd.html>.

¹⁹⁰ NICE (2015), *Blood transfusion (NG24)*, <https://www.nice.org.uk/guidance/ng24>

¹⁹¹ Mueller, M. M., Van Remoortel, H., Meybohm, P. *et al.* (2019), *Patient blood management: recommendations from the 20168 Frankfurt Consensus Conference*, *JAMA: the Journal of the American Medical Association*, 310(10): 983_997, DOI: 10.1001/jama2019.0554, https://www.researchgate.net/publication/331697177_Patient_Blood_Management_Recommendations_From_the_2018_Frankfurt_Consensus_Conference

Recommendations: Perioperative medicine (continued)

Recommendation	Actions	Owners	Timescale
13. Optimise the use of blood products through effective perioperative blood management.	h Ensure cell salvage systems are available when required in all surgical specialities through infrastructure, staff training and audit of use.	Trusts	Within 12 months of report publication
	i Educate all staff on the wards regarding postoperative transfusion triggers.	Trusts	Within 12 months of report publication
14. Develop and implement perioperative pathways and protocols for managing pain medication.	a Follow the Royal College of Anaesthetists (RCoA) 'Opioids Aware' guidance ¹⁹² on pain management and ensure both staff and patients are educated as to the risks and signs of opioid addiction.	Trusts	For immediate action
	b Ensure that preoperative initiation of a pain management pathway is followed for all patients. (In more complex patients, referral to a pain specialist may be required.)	Trusts, Primary care	For immediate action
	c Establish systems to identify patients early in the perioperative pathway who have pre-existing opioid use for pain issues related to surgery (e.g. hip pain) or unrelated to surgery (e.g. chronic myalgia), or patients who have had a previous poor experience with postoperative pain.	Trusts	For immediate action
	d Ensure all staff have a clear understanding that inpatient pain management is integral to perioperative care and that a specialist pain team is available as required.	Trusts	For immediate action
	e Review discharge prescribing and ensure patients on opioid medications are followed up.	Trusts, Primary care	Within 12 months of report publication
	f Ensure patients are discharged with no more than five days' supply of opioids, GPs are informed and the patient is given a copy of the Opioids Aware leaflet 'Taking Opioids for Pain'.	Trusts	For immediate action

¹⁹² Faculty of Pain Medicine (RCoA), Opioids aware website, <https://www.fpm.ac.uk/opioids-aware>

Workforce and capacity

There is a historic and ongoing issue with gaps in the anaesthesia workforce. The movement towards anaesthetist involvement in broader perioperative care has only underlined this and recent experiences with COVID-19 have further exposed the need for increased numbers of anaesthetists.

Perioperative care is in its infancy as a service and perioperative teams are not always fully formed or recognised as such. We attempted in our questionnaire to identify members of the wider workforce involved in perioperative care. However, we were not able to gather enough data on this to analyse the current situation accurately, hence the focus of this section is primarily on consultant anaesthetists and trainees.

We fully support the idea of a broad multidisciplinary team with input from clinicians and nurses from a range of specialties (both surgical and medical), allied health professionals from a range of disciplines, including pharmacists, physiotherapists, dieticians and operating department practitioners. Anaesthesia Associates are also expected to play an increasing role as their numbers increase.

Increasing demand for anaesthesia services

A workforce document published in 2017¹⁹³ by the RCoA outlined the new broader role of anaesthetists. It noted the considerable time spent beyond the theatre involved in all aspects of perioperative care, from outpatient clinics for preoperative assessment to postoperative ward rounds. In future, anaesthetists will spend more time developing other aspects of perioperative care.

As a direct result of this activity, anaesthesia remains the largest single, consultant-led specialty of hospital doctors in the NHS. Recent surveys¹⁹⁴ suggest that 16%–18% of hospital consultants are anaesthetists in the UK. The trusts' responses to our questionnaire confirmed the high level of anaesthetic input into the medical workforce, with our data showing 16% of all hospital whole-time equivalent (WTE) consultants being part of the anaesthetic department

Despite this, the increase in demand for anaesthesia services is now outstripping workforce capacity. This was highlighted initially in a report from the Centre for Workforce Intelligence,¹⁹⁵ which suggested that 15% of anaesthesia need is unaccounted for and the baseline demand for anaesthesia services is expected to increase by 25% by 2033 due to demographic changes alone. Given this initial concern, several additional documents and recommendations considering the anaesthetic workforce have been produced.¹⁹⁶

There was a relatively consistent trust-wide average of 0.88 (confidence interval 0.06) anaesthetic consultants per 1000 surgical admissions, but our deep dive visits uncovered significant apprehension around workforce shortages in many trusts.

Currently:

- around 8% of the funded anaesthetic consultant workforce (England trusts) is unfilled – equating to an average of 3.7 WTE per trust;
- 81% of all departments surveyed have noted an increase in the number of unfilled consultant posts – a further increase since 2018;¹⁹⁷
- there is large-scale variation across the UK trusts in the number of unfilled consultant posts (range of 1-32%) (see **Figure 50**).

¹⁹³ McLure, H., England representative, RCoA Workforce Advisory Group (2017), Recruitment survey to clinical directors. <https://www.rcoa.ac.uk/sites/default/files/documents/2019-09/WorkforceDataPack2018.pdf>

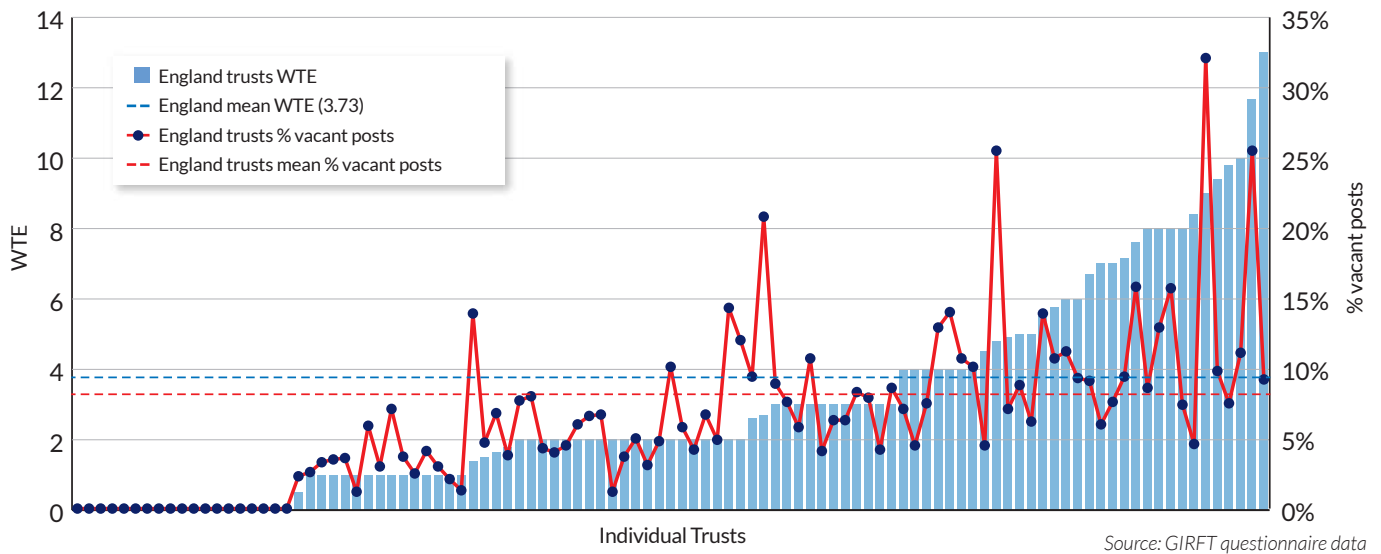
¹⁹⁴ NHS Digital. NHS Hospital & Community Health Service (HCHS) monthly workforce statistics - Provisional Statistics. July 2017. <https://digital.nhs.uk/data-and-information/publications/statistical/nhs-workforce-statistics/nhs-workforce-statistics-july-2017-provisional-statistics>

¹⁹⁵ Centre for Workforce Intelligence (2015) In-depth review of the anaesthetics and intensive care medicine workforce: final report, https://www.assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/507348/CfWI_Anaesthetics_ICM_main_report.pdf

¹⁹⁶ Royal College of Anaesthetists (2016), Medical workforce census report 2015, <https://www.rcoa.ac.uk/sites/default/files/documents/2019-07/CENSUS-REPORT-2015.pdf>; Royal College of Anaesthetists (2016), Workforce data pack 2016, <https://www.rcoa.ac.uk/sites/default/files/documents/2019-08/TRG-WorkforceDataPack2016.pdf>; Royal College of Anaesthetists (2018), Workforce data pack 2018, https://www.rcoa.ac.uk/sites/default/files/documents/2019-08/WorkforceDataPack2018_0.pdf; Royal College of Anaesthetists (2020), Medical workforce census report 2020, <https://www.rcoa.ac.uk/sites/default/files/documents/2020-11/Medical-Workforce-Census-Report-2020.pdf>

¹⁹⁷ Royal College of Anaesthetists (2018), Workforce data pack 2018, <https://www.rcoa.ac.uk/sites/default/files/documents/2019-09/WorkforceDataPack2018.pdf>

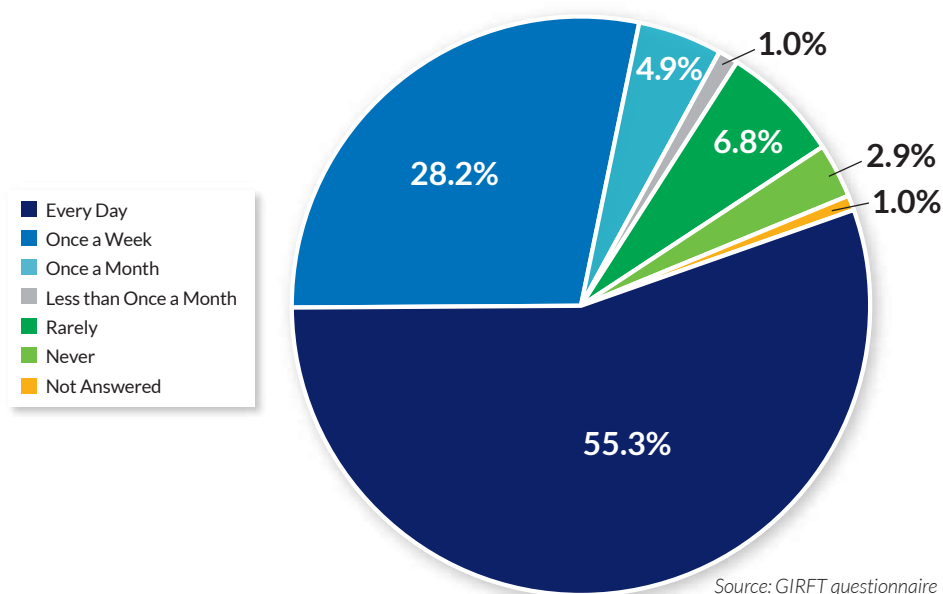
Figure 50: Unfilled consultant anaesthetist posts, England, 2018/19



These shortages indicate a significant workforce gap (i.e. those consultants that could be employed versus those actually employed), which has continued to increase from 4.4% in 2015,¹⁹⁸ 6.9% (in 2018)¹⁹⁹ to the current 8% indicated by our data.

The workforce gap creates significant pressure on departments. Overall, 89% of trusts have to fill rota gaps at least once a month, with 55% having to do so every day (see **Figure 51**), a widely acknowledged marker of workforce deficiencies. On average, 17 extra sessions per week are covered per department. In addition, theatres are delivering extra weekend sessions to deal with the high numbers of elective patients on waiting lists (63% of trusts reported >20 waiting list sessions in three months; a further 25% trusts reporting 10 to 20). Of these extra sessional responsibilities, 82% are being covered by existing consultants (locum anaesthetists were used in only 16%).

Figure 51: Frequency of extra consultant sessions (outside job plans) filled to cover rotas, 2018/19



¹⁹⁸ Royal College of Anaesthetists (2016), Medical workforce census report 2015, <https://www.rcoa.ac.uk/sites/default/files/documents/2019-09/CENSUS-REPORT-2015.pdf>

¹⁹⁹ Royal College of Anaesthetists (2018), Workforce data pack 2018, <https://www.rcoa.ac.uk/sites/default/files/documents/2019-09/WorkforceDataPack2018.pdf>

A consistent message emerged: although departments recognise a significant increase in consultant numbers in recent years, the extra demands being placed on them to deliver supplemental services and extra clinical sessions are having a detrimental impact, not only on efficiency and productivity but also on morale. In many cases, the level of demand was also preventing acceptable departmental recruitment, further worsening the problem.

In the future, simply relating anaesthetist numbers to surgical cases will not reflect the ways in which anaesthetists are applying expertise across the hospital. As the anaesthetist's role continues to broaden and expand into perioperative care, pressure on workforce will further increase. Anaesthetists must be freed up to some extent from routine theatre-based work and it is difficult to imagine how an increased focus on perioperative care can be fully introduced on sites where the specialism is understaffed.

That said, the impact of the COVID-19 pandemic in terms of dramatically increasing the elective surgical waiting lists will be a significant factor in the need to supplement the anaesthetic workforce during the NHS recovery phase. The NHS people Plan²⁰⁰ also highlights the importance of looking after staff in regard to both physical and mental health, and this has been further emphasised in a period of additional pressures on the workforce.

How could we address workforce shortfalls?

Anaesthesia has to embrace changing patterns of working, including the development of the perioperative care vision, to increase sustainability of the specialty within the future NHS. There are several measures, apparent from the information we collected during our deep dive visits, that could be addressed to enable the workforce to move forward with the perioperative vision without placing undue strain on current and future resources.

We must first improve the way we measure anaesthetic activity, including improvement in HES data recording of anaesthetic activity both within and external to the theatre environment (see *Clinical coding for anaesthetics and perioperative medicine*, page 115). It is also important that electronic rotas are in place in all anaesthetic departments (our questionnaire data showed that only 77% of trusts surveyed currently have these in situ) and ensure 100% job plan coverage to recognise the entire spectrum of work delivered by all staff.

Secondly, we must look at changing the patterns of demand by asking which activities really need consultant-level support or even any consultant anaesthetic presence (for example, cataract surgery under topical local anaesthetic generally does not). This will enable us to triage systems and rationalise the consultant medical role in clinical pathways. For example, if we consider the important role anaesthetists play in pre-assessment clinic to ensure patient investigations are reviewed in a timely manner, we see that although time spent at this stage is vital to set up the surgical pathway, this activity is frequently understaffed. Our deep dive visits revealed a positive approach overall in trusts. There is a real interest in reviewing the anaesthetist's involvement in wider care pathways and managers generally are enthusiastic about the importance of perioperative medicine. To this end, linkage with the Centre for Perioperative Care (CPOC) will be crucial.

Thirdly, we should look to alternative sources of workforce/specialisation. While **Specialty and Associate Specialist (SAS) doctors** provide an important source of workforce cover, GIRFT data shows that their average numbers remain around 20%, a level that has not changed since last census.²⁰¹ Similarly, Trainees provide extremely useful support within the specialty, but it is vital that they are themselves supported to ensure they stay the course and become consultants. The RCoA survey of clinical directors (2017)²⁰² showed that 48% of anaesthetic departments have advertised a consultant post they have been unable to fill. The RCoA also notes that between 2012 and 2018 the number of doctors in training in the anaesthetic specialty programme declined by 6.5% (from 2,844 to 2,660).²⁰³ Between 2010 and 2015, The RCoA estimates that there will need to be a supply of 430–650 new anaesthetists each year.²⁰⁴ The number of trainees beginning specialty training in anaesthesia over the last five years has averaged 340, hence the need to increase numbers of those specialising in anaesthesia in the coming years in order to meet workforce demands.

²⁰⁰ NHS (2020), *We are the NHS: people plan for 2020/2021 – action for all*, <https://www.england.nhs.uk/ournhspeople/>

²⁰¹ Royal College of Anaesthetists (2015), *Medical workforce census report 2015*, <https://www.rcoa.ac.uk/sites/default/files/documents/2019-09/CENSUS-REPORT-2015.pdf>; Royal College of Anaesthetists (2018), *Workforce data pack 2018*, <https://www.rcoa.ac.uk/sites/default/files/documents/2019-09/WorkforceDataPack2018.pdf>

²⁰² McLure, H., *England representative, RCoA Workforce Advisory Group (2017), Recruitment survey to clinical directors*.

²⁰³ <https://beta.rcoa.ac.uk/sites/default/files/documents/2019-10/Workforce-Infographic2019.pdf>

²⁰⁴ Royal College of Anaesthetists' response to the NHS Improvement's request for feedback for its Interim Workforce Implementation Plan: emerging priorities and actions, March 2019, <https://www.rcoa.ac.uk/sites/default/files/documents/2019-08/RCoA%20response%20to%20NHS%20Improvement%27s%20request%20for%20feedback%20its%20Interim%20Workforce%20Implementation%20Plan.pdf>

In order to develop fully optimised perioperative teams for the future it is vital that we look beyond these roles and increase focus on:

- **Anaesthesia Associates (AAs)**, who may prove vital in counteracting workforce shortages. AAs are not a new concept but represent a considerable culture change – opening up aspects of anaesthetic practice to other healthcare professionals. AAs' training was recently approved by the GMC, the RCoA plans to develop membership for AAs and they will be regulated by the GMC. However, their introduction has not occurred across all trusts, with our data showing that AA presence remained limited to only 24 trusts (24% of responders). AAs will, ideally, be employed, like some specialist nurses, in a variety of roles according to need and training.
- **Perioperative specialist nurses, advanced nurse practitioners and nurse consultants** play an invaluable role and will continue to do so. The take-up of specialty training among nurses involved in anaesthesia and perioperative care is to be encouraged.
- **Other roles** that make up the perioperative team will all become increasingly important as we expand the team and ensure multidisciplinary and multi-specialty cover.

A recent CPOC²⁰⁵ report states that multidisciplinary working is key to the success of perioperative care but also stresses the need for further research to explore the infrastructure and resources needed to strengthen and sustain multidisciplinary working around the time of surgery.

Finally, we must work to ensure that existing medical staff do not succumb to 'burnout' and early retirement. There has been a 28% increase in the number of consultants aged between 50 and 59 years, indicating an ageing consultant population.²⁰⁶ As the workforce ages, we must ensure that those who want to continue to work feel that this is the right choice, both in terms of workload and financial considerations.

Conclusions

As demand for anaesthetic services both within and outside the theatre environment continues to grow, especially with the development of perioperative care, the gaps in workforce capacity, previously defined and further supported by our current GIRFT data, are having a profound impact on morale.

Anaesthetists have been left filling rota gaps, providing extra sessional work outside normal job plans and will be further stretched in providing cover in the aftermath the COVID-19 pandemic.

There are no easy answers to current and future workforce issues. However, measuring anaesthetic activities appropriately, identifying which activities require specialist anaesthetic input, expanding the non-consultant workforce and ensuring the existing workforce does not leave the NHS earlier than necessary, may assist in bringing about the change in culture that is required.

²⁰⁵ Centre for Perioperative Care (2020) *Multidisciplinary working in perioperative care: rapid research review*, <https://www.cpoc.org.uk/about-cpoc-cpoc-policy/multidisciplinary-working-perioperative-care>

²⁰⁶ Royal College of Anaesthetists, *Workforce data pack 2018*, <https://www.rcoa.ac.uk/sites/default/files/documents/2019-09/WorkforceDataPack2018.pdf>

Recommendation: Workforce and capacity

Recommendation	Actions	Owners	Timescale
<p>15. Ensure that the workforce reflects the needs of a rapidly developing anaesthesia and perioperative service.</p>	<p>a Continue to examine the future staffing requirements for anaesthesia and perioperative care teams.</p>	<p>RCoA, NHS England and NHS Improvement, Health Education England</p>	<p>For immediate action</p>
	<p>b Ensure that all work undertaken by anaesthetists, whether or not it is within the theatre environment, is accurately recorded.</p>	<p>Trusts</p>	<p>For immediate action</p>
	<p>c Ensure that anaesthetists' job plans reflect the entire spectrum of work being delivered.</p>	<p>Trusts</p>	<p>Within 12 months of report publication</p>
	<p>d Implement electronic rota systems in all anaesthetic departments.</p>	<p>Trusts</p>	<p>Within 24 months of report publication</p>
	<p>e Consider how best to deploy Anaesthetic Associates, matching their skills and competences to the tasks required to ensure optimal functioning of the perioperative team.</p>	<p>Trusts</p>	<p>Within 24 months of report publication</p>
	<p>f Identify tasks that do not need to be undertaken by an anaesthetist but could be assigned to other staff.</p>	<p>Trusts</p>	<p>Within 12 months of report publication</p>

Clinical coding for anaesthetics and perioperative medicine

This section considers the urgent need to address a historic lack of anaesthetist-specific/detailed coding with regard to theatre-based work, to extend and improve coding around the activities undertaken by anaesthetists outside of the theatre environment and to improve the communication between clinicians and coders to ensure that all coding is undertaken as accurately as possible.

Background

Variation between trusts and clinical specialities in terms of clinical coding procedures is a common theme that runs throughout GIRFT reports. Unlike most other GIRFT specialities, however, most anaesthetic and perioperative activities have no specific data captured for them. Furthermore, clinical codes for anaesthetics and perioperative medicine are not mandated and, as such, do not affect trust income.

Historically, anaesthetic theatre activity has been implicitly included within the surgical pathway. Clinical codes that are available, contain minimal detail and are usually not assigned to the anaesthetic speciality by coding teams. There are some direct clinical coding opportunities already delivered outside the theatre environment, such as obstetric epidural insertions and some pain procedures performed by specialist anaesthetists with an interest in chronic pain. However, in general, the newer aspects of anaesthetics and perioperative care outlined in this report, including input to pre-assessment and perioperative ward rounds, are not captured.

In terms of hospital activity data and clinical coding, anaesthesia remains a 'silent majority' speciality. In essence, the largest single hospital speciality has the least hospital activity coded against it. On the other hand, this current deficit provides an obvious opportunity for the future, where the speciality can make an important contribution to improved clinical coding quality and to widespread care quality improvements.

The source of the problem

During our deep dives, within most anaesthetic departments we found minimal clinical understanding of the importance of accurate coding to the trust-based financial compensation that depends upon it. As a direct result there is also a notable lack of anyone with direct responsibility for coding within anaesthetic departments. The trust discussions also exposed a significant lack of an important communication link between clinicians and the staff responsible for clinical coding. In many situations, the presence of a coding team at the GIRFT visits was a surprise to both clinicians and in some cases to the trust managers. There was a significant lack of communication between clinicians and the staff responsible for clinical coding (who are normally non-clinical) and in many departments there was a noticeable lack of anyone with direct responsibility for coding.

We noted the considerable difficulties faced by coding staff in making a judgement as to whether a patient had a specific co-morbidity, when this was being calculated from a value (e.g. obesity based on a BMI level and perioperative anaemia based on haemoglobin level). Only where the notes specified in text form (e.g. 'obesity' or 'anaemia') was this co-morbidity being recognised and coded correctly. This interpretation of the information importantly does not allow for adequate cross-referencing of perioperative outcomes, especially with the increasing number of co-morbidities seen in the surgical population. There are significant financial consequences to such data not being captured.

The effects of not coding

The lack of activity data capture for the speciality has far-reaching, direct and indirect effects. For example:

- results in a lack of recognition of the anaesthesia speciality and perioperative teams to the functioning hospital, including elective surgery recovery from the COVID-19 pandemic;
- makes future flexible workforce planning, efficient use of the existing workforce and financial compensation for recruitment of all grades of clinical staff more difficult at both a national and local level;
- limits the availability of data on effectiveness of the speciality activities generally;
- leads to a lack of evidence for any incentivisation for departmental innovation, investment or recruitment;
- perpetuates a limited understanding of the relevance of the coding mechanisms within departments;
- leads to coding on pre-assessment findings (especially for co-morbidities) being checked and input by others at a later stage on the patient pathway.

Understanding the coding opportunities for anaesthesia and perioperative medicine

Specific perioperative activities where formal and/or improved coding would increase anaesthetic and perioperative activity visibility include but are not limited to:

- outpatient/non-theatre based activities, including sedation and anaesthesia within radiology departments;
- preoperative assessment delivery;
- perioperative medicine clinics;
- Cardiopulmonary Exercise Testing (CPET) (preoperative);
- administration of intravenous iron for preoperative anaemia;
- emergency resuscitation;
- acute pain ward rounds;
- involvement in obstetric speciality including caesarean sections and labour epidural pain regimes;
- perioperative acute pain activity;
- chronic pain involvement to perioperative pathways in opioid de-prescribing;
- prehabilitation and postoperative rehabilitation;
- postoperative, perioperative medicine care, including involvement in enhanced perioperative care areas.

Recommendation: Clinical coding for anaesthetics and perioperative medicine

Recommendation	Actions	Owners	Timescale
16. Mandate a specific dataset which effectively captures the hospital activity and input for the anaesthetic and perioperative medicine team as a priority.	a Ensure surgical pathway coding is appropriate, especially concerning admission on an intended day case pathway, to be differentiated from elective inpatient admission.	Trusts	Within 12 months of report publication
	b Investigate the need for inclusion of codes to record perioperative activity.	NHS Digital – specifically the Terminology and Classification Delivery Service (TCDS)	Within 12 months of report publication
	c Ensure that there is collaboration between GIRFT and NHS England and NHS Improvement to develop a list of new mandated data items for currently uncoded anaesthetic care in theatres with a view to this being implemented by NHS Digital.	GIRFT, NHS England and NHS Improvement, NHS Digital	Within 24 months of report publication
	d Review and improve processes for clinical data capture and code assignment to ensure that no clinical factors that can be captured using the clinical classifications are missed (with particular reference to pre-admission data/co-morbidities and the operation record).	Trusts	Within 24 months of report publication
	e Use all relevant data captured within theatre systems to produce information on the volume and quality of anaesthetic activity conducted, and use the electronic patient record to improve coding wherever possible.	Trusts	Within 24 months of report publication
	f Investigate and improve the accuracy of procedural coding for caesarean sections as necessary, using a regular process of data validation involving a responsible named clinician and a clinical coding team representative.	Trusts	Within 24 months of report publication

Procurement and sustainability

Climate change and sustainability

Climate change is now generally considered to be a healthcare issue, so great is its potential impact on human life. Healthcare accounts for around 6% of England's entire CO₂-equivalent emissions,²⁰⁷ the majority being related to the supply chain involved in the procurement and production of healthcare resource and delivery. Supply chain system initiatives at national, regional, and local level are now focusing on this issue.

The wider NHS has committed to a 'net zero' approach to carbon emissions.²⁰⁸ We fully support this direction of travel. GIRFT has been analysing the data provided to the NHS Spend Comparison Service (SCS) to better understand unwarranted variation in products and brands used, and prices paid across NHS trusts. GIRFT has also been working with the new NHS operating model for NHS procurement, including the new Category Towers, to develop plans for helping trusts and clinicians address variation and improve value for money.

Although not apparent at the time of our deep dives visits, data on the climate impact of anaesthesia and perioperative medicine has since emerged to indicate that our speciality's commitment to reducing its carbon footprint is urgently relevant. We note with approval the growing number of anaesthesia sustainability network groups and advisory panels (e.g. those developed by the Association of Anaesthetists, the RCoA, and so on) considering how best to reduce the speciality's environmental impact.

Perioperative/anaesthetic system opportunities

A sustainable healthcare environment requires balancing patient outcomes with the economic, environmental and social costs of healthcare. There are opportunities to increase the sustainability of healthcare through both procurement/supply chain decisions and also through human activities.

Supply chain opportunities relating to anaesthesia and perioperative care include;

- Reducing and recycling waste - disposable items such as gloves, aprons, intravenous cannulae and syringes are used in vast quantities across the NHS, but especially in anaesthetic and surgical applications. There is also huge variation in plastic waste and recycling across NHS trusts.²⁰⁹ We feel there is an overlooked opportunity for savings in the purchase and use of these items. The financial implications of this was posted in a written question in the House of Commons (October 2019) posed by Philip Davies MP for Shipley about this type of NHS England spending which received the following answer: 'All National Health Service trusts as autonomous entities record their data locally. NHS Improvement and NHS Digital have been working to centralise purchase order and invoice data centrally to provide better national data visibility on common goods and supplies (everyday hospital consumables; high value healthcare consumables; common goods and capital equipment). Spend is reported by NHS trusts on the NHS Spend Comparison Service for England; common goods and supplies contains £5.6 billion of expenditure'²¹⁰

Behaviour changes unrelated to procurement that could increase sustainability of healthcare include:

- Reducing the need for staff, patients and their families to travel to hospital by ensuring efficient day case processes, preventing unnecessary hospital visits, avoiding cancellations and preventing readmissions.
- Increasing telephone and teleconference consultancy with virtual facilities, especially where related to outpatient activity (e.g. pre-assessment clinics).
- Where hospital visits are required, encouraging greater synchronisation, so that multiple appointments can be coordinated or, preferably, the use of one-stop clinics with MDT staffing in line with the perioperative care model.
- Educating clinicians and all healthcare staff in sustainability is to be strongly encouraged.

²⁰⁷ McGain, F., Muret, J., Lawson, C. et al. (2020) Environmental sustainability in anaesthesia and critical care, *British Journal of Anaesthetics*, 125(5), <https://www.bjanaesthesia.org.uk/article/S00070912203547X/abstract>.

²⁰⁸ NHS (2020), Delivering a 'net zero' health service, <https://www.england.nhs.uk/greenernhs/publication/delivering-a-net-zero-national-health-service/>

²⁰⁹ NHS (2020), Delivering a 'net zero' health service, <https://www.england.nhs.uk/greenernhs/publication/delivering-a-net-zero-national-health-service/>

²⁰⁹ Rizan, C., Mortimer, F., Stancliffe, R. et al. (2020), Plastics in healthcare: time for re-evaluation, *Journal of the Royal Society of Medicine*, & February, 113(2): 49-53, <https://www.journals.sagepub.com/doi/abs/10.1177/0141076819890554>

²¹⁰ <https://www.parliament.uk/business/publications/written-questions-answers-statements/written-question/Commons/2019-10-29/7108/>

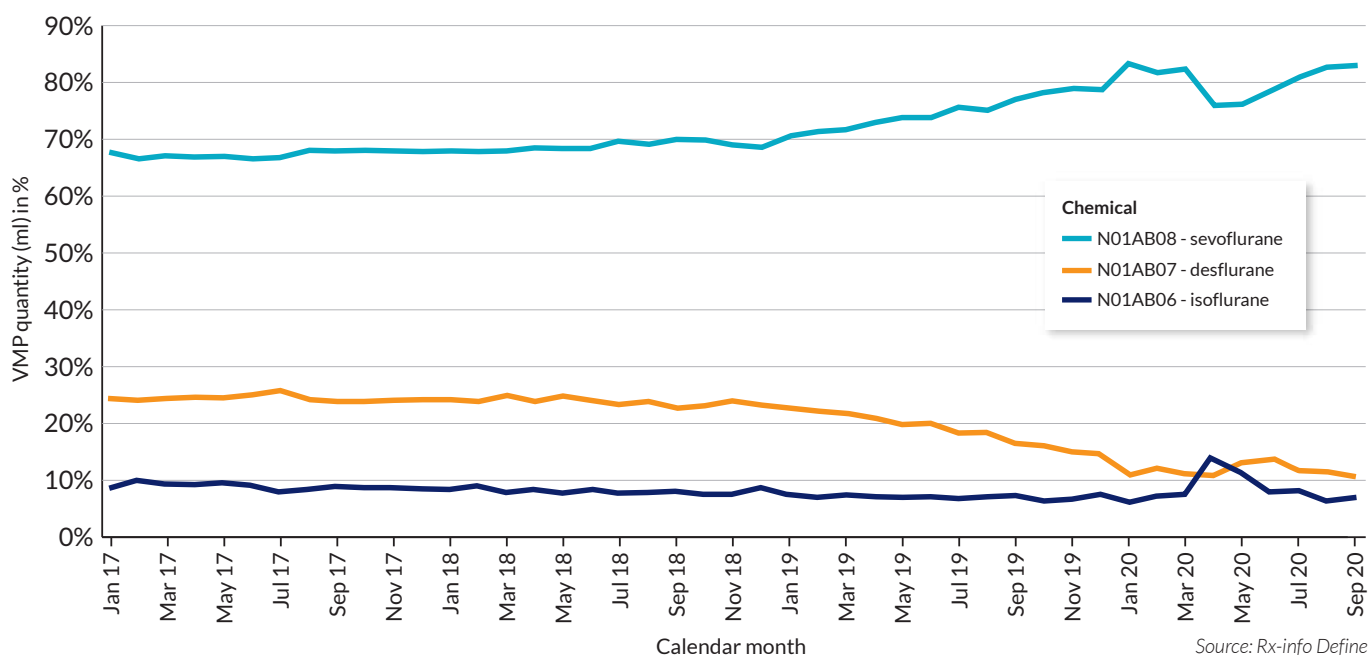
Specific relevance of greenhouse gas emissions for anaesthetics

There are acknowledged environmental issues around the anaesthetic gases used for the provision of general anaesthesia. The Global Warming Potential (GWP) is a measure of how much heat a greenhouse gas traps in the atmosphere over a specific time, relative to carbon dioxide. The higher the score the greater the global warming potential. The agents commonly used in anaesthesia score as follows:

- desflurane 2540;
- isoflurane 510;
- nitrous oxide 265–295;
- sevoflurane 130.

As can be seen in **Figure 52** below, this evidence has already had profound effects on the overall use of desflurane. Since the start of 2019, its use has fallen from 25.5% of all volatile usage by volume to around 10%. The data also shows an expected concomitant increase in the use of sevoflurane, with limited change in the use of isoflurane, which remained low throughout the data collection period, except during the peak of the first wave COVID-19 pandemic.

Figure 52: Use of volatile agents by volume, 2017 to 2020

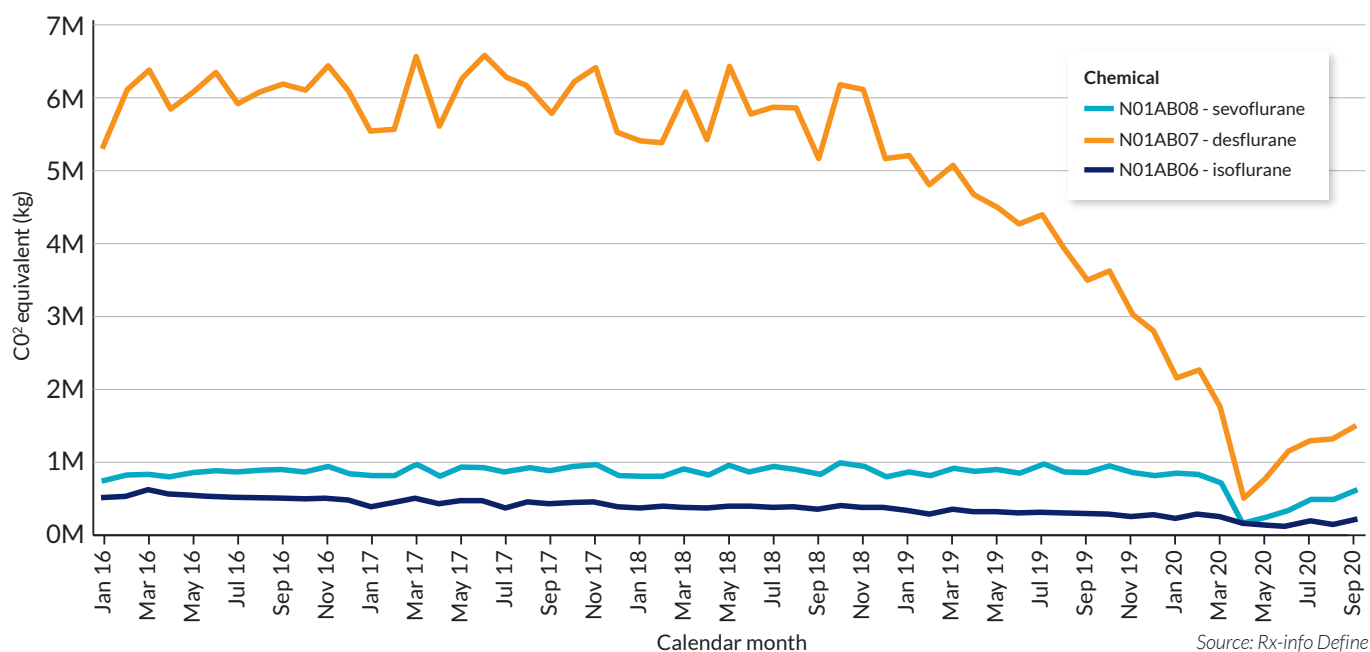


Source: Rx-info Define

Note: Drugs ATC: N01AB06 - isoflurane, N01AB07 - desflurane, N01AB08 - sevoflurane. Specialties: Internal (ex. stock, sales) 245 of 250. Prescription types: All

The reduction in desflurane use has had even more impressive effects in terms of overall CO₂ emissions, even before the COVID-19 epidemic (see **Figure 53** below). This data clearly demonstrates the importance that the perioperative and anaesthetic community place on their speciality-based carbon footprint.

Figure 53: Use of volatile agents by CO² equivalent, 2017 to 2020



Note: **Drugs ATC:** N01AB06 - isoflurane, N01AB07 - desflurane, N01AB08 - sevoflurane. **Specialties:** Internal (ex. stock, sales) 245 of 250. **Prescription types:** All

Nitrous oxide is also used as an analgesic. Overall usage of N₂O is difficult to quantify, since it comes through mixed supply routes and in different forms and is purchased by trusts' supplies departments individually. Entonox, an N₂O/air mix is commonly used in obstetrics, emergency departments and by paramedics). Trust limitation of the use of N₂O, would help further reduce greenhouse gas emissions.

Various changes to anaesthetic practice have already targeted the reduction of anaesthetic greenhouse gas emissions, all of which we would support where appropriate, and include;

- use of low-flow inhalational anaesthesia wherever possible;
- use of total intravenous anaesthetic (TIVA), assuming appropriate destruction of plastic waste and unused drug;
- incorporating regional techniques into anaesthetic practice;
- increased use of augmented capture and recycling systems.

In addition, we would suggest:

- further reduction in the use of desflurane (and isoflurane) with the use of alternative forms of anaesthetic delivery wherever appropriate;
- removal of N₂O cylinders from anaesthetic machines in theatres (obstetrics excluded);
- decommissioning of N₂O manifolds (obstetrics excluded).

Since a certain level of volatile agents/N₂O use will inevitably continue, it is important to note that there are techniques for the capture/recycle of these substances. Trusts should check delivery and disposal as well as use of these agents to ensure the most environmentally friendly techniques are used and to avoid cylinders or systems being vented to the atmosphere.

Recommendation: Procurement and sustainability

Recommendation	Actions	Owners	Timescale
17. Use data on sustainability of surgical and anaesthetic practice to drive down the environmental impact of surgery.	a Develop strategies to reduce the use of volatile anaesthetic agents and nitrous oxide in anaesthesia.	Trusts	Within 12 months of report publication
	b Develop sustainable procurement of anaesthetic consumables, including waste recycling.	Trusts	Within 12 months of report publication

Litigation

Each GIRFT programme team has been asked to examine the impact and causes of litigation in their field – with a view to reducing the frequency of litigation and more importantly reducing the incidents that lead to it. Ensuring clinical staff have the opportunity to learn from claims in conjunction with learning from complaints, serious untoward incidents (SUIs)/Serious Incidents (SIs)/Patient Safety Incidents (PSI) and inquests will lead to improved patient care and reduced costs both in terms of litigation itself and the management of the resulting complications of potential incidents.

Data obtained from the NHS Resolution shows that clinical negligence claims in anaesthesia and perioperative medicine were estimated to cost between £23m to £37m per year over the last five years.

Table 6: Volume and cost of medical negligence claims against anaesthesia and perioperative medicine notified to NHS Resolution 2013/14 to 2017/18

Notification year	Total no. of claims	% change in claims	Total claim cost (£)	% change in cost
2013/14	176	-	26.5m	-
2014/15	154	13%	37.1m	40%
2015/16	136	-12%	23.0m	-38%
2016/17	121	-11%	24.9m	8%
2017/18	145	20%	26.9m	8%
Grand Total	732	-	138.4m	-

There is not a clear trend in either claim numbers notified to NHS resolution or cost of total claims in the five years analysed. There was a noticeable outlier with total costs in the year 2014/2015 at £37m, over 30% more than the yearly average over the time period. This can be attributed to the relative high number of high cost claims in that year including one claim costing over £6m and 5 claims at over £2m, which were all associated with permanent adverse patient outcomes.

However, when this variation is considered in the context of the activity conducted by anaesthesia (that is often poorly coded against the speciality), the national average estimated cost of litigation was very low, at £5 per number of total anaesthetic cases.

It is relevant to this low level of litigation that claims are seldom made directly against anaesthesia in operative cases, especially when compared to the related surgical specialties. Litigation claims data also include critical care involvement rather than theatre based anaesthesia alone

The most common causes for litigation in anaesthesia and perioperative medicine are listed in **Table 7**. There is often more than one cause attributed to each claim.

Table 7: Top five causes for litigation in anaesthetic related claims (including critical care) notified to NHS Resolution 2013/14 to 2017/18

Cause	No. of cases	% of total	Total litigation cost (£m)
Intubation	121	17%	2.7
Epidural/Spinal anaesthesia	96	13%	23.6
Medicines error	81	11%	15.0
Awareness	55	8%	2.8
Consent	48	7%	8.8

Previous studies into litigation in anaesthesia in the NHS have highlighted the dominance of claims related to obstetric anaesthesia.²¹¹ From the data used from NHS Resolution between 2013 and 2018, there seems to have been a reduction in claims made against this area of the speciality, with only 25 litigation cases involving obstetric anaesthesia. This may represent a combination of a reduction in claims as well as more claims being apportioned to obstetrics as an overall speciality, rather than anaesthesia per se.

Over half the claims related to intubation as the primary cause for anaesthetic litigation were associated with dental injury (69 cases with a total cost of £1.3m), whilst other claims involved injury to the oropharynx and oral cavity.

Epidural/Spinal anaesthesia represented only the second most frequent cause but with the largest total litigation costs. This is to be expected where the claims increase proportionally with the severity of patient outcome. Individual cases resulting in partial paralysis often result in costs of over £1m. The Royal College of Anaesthetists National Audit Project into regional anaesthesia (NAP 3) have also drawn attention to the relatively high proportion of complications related to epidurals and have stressed the importance of a care bundle to ensure safe delivery of this form of anaesthesia.²¹²

Although consent accounts directly for a relatively small proportion of claims in anaesthesia, it may be linked to other claims related to adverse outcomes including awareness during anaesthesia or claims brought against the involved surgical specialty. The nature of the consent process has changed since the Montgomery ruling²¹³ and the Association of Anaesthetists of Great Britain and Ireland have produced consent recommendations.²¹⁴ In addition, the development of perioperative medicine requires advanced preoperative shared decision making processes in high risk patients to provide patients with information regarding anaesthesia prior to admission for elective procedures and ensuring that the details of the discussion with the patient are recorded in the patients record, noting the risks, benefits and alternatives (including no treatment).

Conclusions

Litigation in anaesthesia is relatively low, especially considering the number of anaesthetic cases that are undertaken. The National Audit Projects and other guidance have reviewed airway management, awareness in anaesthesia and regional anaesthesia²¹⁵ and provide anaesthetists guidance for safe practice in these areas which will hopefully also translate to a reduction in litigation.

²¹¹ Cook, T. M., Bland, L., Mihai, R. et al. (2009), *Litigation related to anaesthesia: an analysis of claims against the NHS in England 1995-2007*, *Anaesthesia*, Jul, 64(7):706-18. doi: 10.1111/j.1365-2044.2009.05913, <https://www.ncbi.nlm.nih.gov/19624625/>

²¹² Cook, T. M., Counsell, D. and Wildsmith, J. A. W. on behalf of The Royal College of Anaesthetists Third National Audit Project (2009). *Major complications of central neuraxial block: report on the Third National Audit Project of the Royal College of Anaesthetists*. *Br J Anaesth* 2009, 102 (2):179-190, DOI: 10.1093/bja/aen360, <https://www.ncbi.nlm.nih.gov/19139027/>

²¹³ Clarkin L. (2016) *Changes to the law on consent following Montgomery vs Lanarkshire Health Board*. *Br J Hosp Med (Lond)*, Jun, 77 (6):355-7, DOI: 10.12968/hmed.2016.77.6.355, <https://www.ncbi.nlm.nih.gov/27269751/>

²¹⁴ Yentis, S. M., Hartle, A. J., Barker, I. R. et al. (2017), *AAGBI: Consent for anaesthesia 2017: Association of Anaesthetists of Great Britain and Ireland*, *Anaesthesia* Jan, 72(1):93-105, DOI: 10.1111/anae.13762, <https://www.ncbi.nlm.nih.gov/27988961/>

²¹⁵ <https://www.rcoa.ac.uk/research/national-audit-projects>

Recommendation: Litigation

Recommendation	Actions	Owners	Timescale
<p>18. Reduce litigation costs by application of the GIRFT programme's five-point plan (this is the standard litigation guidance that applies to all GIRFT reports).</p>	<p>a Clinicians and trust management to assess their benchmarked position compared to the national average when reviewing the estimated litigation cost per activity. Trusts will have received this information in the GIRFT 'Litigation data pack'.</p>	Clinicians and trust management	For immediate action
	<p>b Clinicians and trust management to discuss with the legal department or claims handler the claims submitted to NHS Resolution to confirm correct coding to that department. Inform NHS Resolution of any claims which are not coded correctly to the appropriate specialty via CNST.Helpline@resolution.nhs.uk</p>	Clinicians and trust management	Upon completion of A
	<p>c Once claims have been verified, clinicians and trust management to further review claims in detail including expert witness statements, panel firm reports and counsel advice as well as medical records to determine where patient care or documentation could be improved. If the legal department or claims handler needs additional assistance with this, each trusts panel firm should be able to provide support.</p>	Clinicians and trust management	Upon completion of B
	<p>d Claims should be triangulated with learning themes from complaints, inquests and serious untoward incidents (SUI)/serious incidents (SI)/Patient Safety Incidents (PSI) and where a claim has not already been reviewed as SUI/SI we would recommend that this is carried out to ensure no opportunity for learning is missed. The findings from this learning should be shared with all front-line clinical staff in a structured format at departmental/directorate meetings (including Multidisciplinary Team meetings, Morbidity and Mortality meetings where appropriate).</p>	Trusts	Upon completion of C
	<p>e Where trusts are outside the top quartile of trusts for litigation costs per activity GIRFT we will be asking national clinical leads and regional hubs to follow up and support trusts in the steps taken to learn from claims. They will also be able to share with trusts examples of good practice where it would be of benefit.</p>	Trusts	Ongoing

Notional financial opportunities

NHS capacity across the entire healthcare system was considerably strained even before the onset of the COVID-19 pandemic. Widespread vaccine rollout will eventually prevent further surges in demand for hospital admission due to COVID-19, at which point the provision of a safe and effective environment for the sustained recovery from the effects of postponed elective surgery and reduced referrals will become a priority.

The integration of the recommendations included in this report around perioperative care into all surgical pathways will have a significant beneficial impact on patient care within the NHS. It will provide an opportunity to improve the use of limited resources, by:

- decreasing inappropriate surgical demand;
- increasing efficiency of the surgical process and supply of surgery;
- better utilising existing hospital beds;
- creating more appropriate, less intensive environments for patients to recover from surgery;
- reducing the impact on the environment.

Where providers create top-decile performing perioperative care systems and pathways, the potential financial savings will enable significant reinvestment opportunities leading to improved patient care.

Table 8 below includes examples of areas identified within the national report where there is potential to make significant pathway changes that would contribute to this financial opportunity.

It should be noted that the savings below are calculated on the basis of GIRFT Anaesthesia and Perioperative Medicine index procedures only or on a single pathway when, in fact, our proposals are much wider-ranging and the potential savings therefore much greater than those detailed below.

The financial benefits of developing day case procedures and maintaining these as safe and effective pathways when surge situations occur are clear. However, where elective inpatient care is appropriate due to surgical complexity or patient comorbidity, the impact of a top-decile performance, will also lead to significant financial benefits.

We understand that these examples will in some cases duplicate elements that have been identified as potential opportunities within other GIRFT national reports. However, it has always been our intention to demonstrate the cross cutting, multidisciplinary aspects of perioperative care and we have consulted with the clinical leads working on other national reports to this end.

Table 8: Financial opportunities

DAYCASE PATHWAY							
Recommendation 1,2: Ensure that day case surgery is the default for all suitable elective surgical procedures.							
Cost estimated based on average excess bed day cost - surgical specialties (17/18 ref costs uplifted to 20/21 prices)							
Base data: April 18- Mar 19							
Surgery Type		Standard			Target		
		Target	Activity opportunity* (bed days)	Gross notional financial opportunity**	Target	Activity opportunity* (bed days)	Gross notional financial opportunity**
Elective surgery		75% shift towards BADs rates for elective DC surgery	188,100	£83.29m	BADs rates for elective DC surgery	250,600	£110.94m
Emergency surgery		75% shift towards BADs rates for emergency day surgery	33,900	£13.58m	BADs rates for emergency day surgery	45,100	£18.07m

Daycase Notes:

Opportunity = Reduce bed days (note: All procedures where BADs make day case recommendations*** are included in calculation here)

Table 8: Financial opportunities

ELECTIVE PATHWAY							
Recommendations 3, 4: Deliver enhanced recovery ¹ across all elective inpatient surgical pathways.							
Cost estimated based on average elective excess bed day cost - GIRFT index procedures (17/18 ref costs uplifted to 20/21 prices)							
Base data: HES April 18- Mar 19							
Procedure	National average (mean) length of stay (for info)	Standard			Target		
		Target Best Quartile for average length of stay	Activity opportunity* (bed days)	Gross notional financial opportunity**	Target Best Decile / GIRFT Gateway for average length of stay	Activity opportunity* (bed days)	Gross notional financial opportunity**
Primary hip replacement	4.13 days	3.79 days	22,900	£8.38m	2.7 days	71,600	£26.19m
Primary knee replacement	4.09 days	3.63 days	33,800	£13.06m	2.7 days	82,900	£32.04m
Colectomy	9.21 days	7.92 days	19,500	£7.59m	6.91 days	30,800	£11.99m
Rectal resection	9.89 days	8.4 days	18,800	£7.36m	7.16 days	30,200	£11.82m
Nephrectomy and/or nephroureterectomy	4.69 days	3.81 days	6,600	£2.68m	2.97 days	11,300	£4.59m
Open hysterectomy	3.01 days	2.26 days	21,100	£11.92m	1.89 days	29,300	£16.56m
Cystectomy	12.06 days	9.35 days	5,200	£1.91m	8.3 days	6,800	£2.5m
Caesarean section@	3.37 days	2.98 days	65,000	£39.17m	2.83 days	85,700	£51.64m

Elective Notes:

Opportunity = Reduce elective length of stay for surgical procedures (note: GIRFT enhanced recovery index procedures**** only included in calculation here)

@Opportunity = Reduce caesarean section length of stay. Cost estimated based on NZ50/51 HRGs (c-section) - average excess bed day cost (17/18 ref costs uplifted to 20/21 prices)

¹ Enhanced recovery is a patient pathway that prioritises quality of care and patient participation in their own care, to enable patients to recover more quickly following elective surgery and to allow early, safe discharge with minimal readmission rates. It begins with preoperative assessment and continues until the patient is discharged

Table 8: Financial opportunities

EMERGENCY PATHWAY							
Recommendation 6: Ensure effective multidisciplinary input into emergency surgery pathways. Cost estimated based on HE1.1 HRGs (hip fracture) - non elective excess bed day cost (17/18 ref costs uplifted to 20/21 prices) Base data: HES April 18- Mar 19							
Procedure	National average (mean) length of stay (for info)	Standard			Target		
		Target Best Quartile for average length of stay	Activity opportunity* (bed days)	Gross notional financial opportunity**	Target Best Decile for average length of stay	Activity opportunity* (bed days)	Gross notional financial opportunity**
Hip Fracture Repair	17.7 days	15.1 days	188,500	£58.71m	13 days	296,300	£92.28m

Emergency Notes:

Opportunity = Reduce emergency surgeries length of stay (note: Single procedure only - hip fracture - included in calculation here)

Note: Hip fracture has been chosen as an illustrative case for opportunities available in emergency surgical pathways with greater multidisciplinary collaboration across emergency pathways. The drivers of the LoS variation is multi-factorial and arrangements for step down would be a significant driver of that. As such, the orthopaedic trauma report will look at this opportunity further to provide additional guidance on how to realise length of stay reductions in Hip Fracture.

Table 8: Financial opportunities

ENHANCED CARE							
Recommendation 7: Develop and provide enhanced care ² to the appropriate elective and emergency surgical patients. Cost estimated based on Average adult critical care less HDU ward admission (18/19 ref costs uplifted to 20/21 prices) Base data: ICNARC April 18- Mar 19							
		Standard			Target		
		Target Clinical view	Activity opportunity* (CCU admissions)	Gross notional financial opportunity**	Target Clinical view	Activity opportunity* (CCU admissions)	Gross notional financial opportunity**
Critical Care admissions		80% reduction in surgical CCU admissions with LoS 1-3 days	7,500 CCU admissions	£11.86m	95% reduction in surgical CCU admissions with LoS 1-3 days	8,900 CCU admissions	£14.07m

Enhanced Notes:

Opportunity = Reduce short stay (1-3 day) critical care admissions for post-surgical patients (the above calc includes some vascular and colorectal procedures only)

² Enhanced care is a level of care above that offered by a standard acute ward but below that of critical care. It is particularly suitable for patients after surgery, who may require close monitoring

Table 8: Financial opportunities

DIABETES PATHWAY							
Recommendation 12: Ensure effective perioperative care for patients with diabetes.							
Cost estimated based on on HRG KB01/02 (diabetes) average elective excess bed day cost (17/18 ref costs uplifted to 20/21 prices)							
Base data: HES April 18- Mar 19							
		Standard			Target		
		Target Best Quartile	Activity opportunity* (bed days)	Gross notional financial opportunity**	Target Best Decile	Activity opportunity* (bed days)	Gross notional financial opportunity**
Conversion of daycase to inpatient for patients with diabetes		3.1% conversion rate (DC to IP)	10,100	£3.25m	2.2% conversion rate (DC to IP)	15,100	£4.85m

Diabetes Notes:

Opportunity = Reduce unnecessary overnight stays for patents with diabetes

Table 8: Financial opportunities

SUMMARY		Standard Gross notional financial opportunity**	Target Gross notional financial opportunity**
Daycase Pathway		£96.87m	£129.01m
Elective Pathway		£92.07m	£157.33m
Emergency Pathway		£58.71m	£92.28m
Enhanced Care		£11.86m	£14.07m
Diabetes Pathway		£3.25m	£4.85m
Overall Total		£262.76m	£397.54m

Provider opportunity range (Acute Trusts only - excluding specialist trusts)

£0.2 to £7.7m (average £2m)

£0.5 to £10m (average £3m)

* Activity opportunities are annual figures, based on one year of activity data. Unless specified, activity shown in table would be avoided.

** Gross notional financial opportunity: unless otherwise stated, cost estimates are based on MFF adjusted national average 17/18 excess bed day reference costs, uplifted to 20/21 pay and prices using tariff inflation. Note: excess bed day costs are not split out from 2018/19 HRG costs

*** For detailed information related to BADs recommendations see: <https://www.daysurgeryuk.net/en/shop/directory/bads-directory-of-procedures-6th-edition/>

**** Refer to appendix 3 for a list of GIRFT day case and enhanced recovery index procedures and BADS procedures)

About the GIRFT programme

Getting It Right First Time (GIRFT) is a national programme designed to improve treatment and care by reviewing health services. It undertakes clinically-led reviews of specialties, combining wide-ranging data analysis with the input and professional knowledge of senior clinicians to examine how things are currently being done and how they could be improved.

Working to the principle that a patient should expect to receive equally timely and effective investigations, treatment and outcomes wherever care is delivered, irrespective of who delivers that care, GIRFT aims to identify approaches from across the NHS that improve outcomes and patient experience, without the need for radical change or additional investment. While the gains for each patient or procedure may appear marginal, they can, when multiplied across an entire trust – and even more so across the NHS as a whole – deliver substantial cumulative benefits.

The programme was first conceived and developed by Professor Tim Briggs to review elective orthopaedic surgery to address a range of observed and undesirable variations in orthopaedics. In the 12 months after the pilot programme, it delivered an estimated £30m-£50m savings in orthopaedic care – predominantly through changes that reduced average length of stay and improved procurement.

The same model has been applied in more than 40 different areas of clinical practice. It consists of four key strands:

- a broad data gathering and analysis exercise, performed by health data analysts, which generates a detailed picture of current national practice, outcomes and other related factors;
- a series of discussions between clinical specialists and individual hospital trusts, which are based on the data – providing an unprecedented opportunity to examine individual trust behaviour and performance in the relevant area of practice, in the context of the national picture. This then enables the trust to understand where it is performing well and what it could do better – drawing on the input of senior clinicians;
- a national report, that draws on both the data analysis and the discussions with the hospital trusts to identify opportunities for improvement across the relevant services;
- an implementation phase where the GIRFT team supports providers to deliver the improvements recommended.

GIRFT and other improvement initiatives

GIRFT is part of an aligned set of workstreams within NHS England and NHS Improvement. It is the delivery vehicle for one of several recommendations made by Lord Carter in his February 2016 review of operational efficiency in acute trusts across England.

The programme has the backing of the Royal Colleges and professional associations and has a significant and growing presence on the Model Hospital portal, with its data-rich approach providing the evidence for hospitals to benchmark against expected standards of service and efficiency. The programme also works with a number of wider NHS programmes and initiatives which are seeking to improve standards while delivering savings and efficiencies.

Implementation

GIRFT has developed an implementation programme designed to help trusts and their local partners to address the issues raised in trust data packs and the national specialty reports to improve quality. The GIRFT team provides support at a local level through the NHS England regional teams, advising on how to reflect the national recommendations into local practice and supporting efforts to deliver any trust specific recommendations emerging from the GIRFT visits. GIRFT also helps to disseminate best practice across the country, matching up trusts who might benefit from collaborating in selected areas of clinical practice. Through all its efforts, local or national, the GIRFT programme strives to embody the ‘shoulder to shoulder’ ethos that has become GIRFT’s hallmark, supporting clinicians nationwide to deliver continuous quality improvement for the benefit of their patients.

Glossary

AAs (Anaesthesia Associates) (previously known as PA(A)s – physician’s assistants (anaesthesia))

Anaesthesia associates are trained healthcare professionals who are members of multidisciplinary anaesthetics or perioperative teams.

ACCs (Acute Care Collaborations)

A group of NHS trusts working together to improve their clinical and financial viability in delivering acute care, reducing variation in care and efficiency. For example, hospitals working together as groups or chains, specialty franchises and clinical networks.

Part of NHS England’s new care models programme.

<https://www.england.nhs.uk/new-care-models/about/acute-care-collaboration>

ACSA (Anaesthesia Clinical Services Accreditation)

A voluntary scheme for NHS and independent sector organisations that offers quality improvement through peer review.

<https://www.rcoa.ac.uk/safety-standards-quality/anaesthesia-clinical-services-accreditation>

Association of Anaesthetists

Professional body for anaesthetists

<https://www.anaesthetists.org>

BADS (British Association of Day Surgery)

BADS is an association of doctors, nurses and allied health professionals who promote day surgery. Among other work, BADS supports research and quality improvement projects and provides information about day and short-stay surgery.

BAETS (British Association of Endocrine and Thyroid Surgeons)

Representative body of British Surgeons with an interest in surgery of the endocrine glands.

<https://www.baets.org.uk>

BAUS (British Association of Urological Surgeons)

Professional body for urological surgeons

<https://www.baus.org.uk>

Casemix

The type or mix of patients, categorised by a variety of measures, including: demographics, disease type and severity, and the diagnostic or therapeutic procedures performed.

Category towers

The procurement function of the NHS Supply Chain operating model. There are 11 category towers, with each one specialising in a particular area of products or services, for example medical equipment.

CCGs (Clinical Commissioning Groups)

Clinically led statutory NHS bodies responsible for the planning and commissioning of healthcare services for their local area.

<https://www.nhscc.org/ccgs/>

CCMDS (Critical Care Minimum Dataset)

In England, a Critical Care Minimum Data Set is mandated for patients receiving critical care. This captures the organ support on a daily basis for each patient receiving critical care.

CCU (Critical Care Unit)

A unit offering care at Levels 2 and 3 for critically ill patients in secondary care.

Clavien–Dindo system

A graded system for classifying surgical complications, developed in 2004 and in widespread use. Classifications range from I (minor deviation from normal postoperative course not requiring surgical, radiological or endoscopic intervention) to V (death of the patient).

Clinician

An umbrella term for skilled professionals providing care to patients, such as medical and nursing staff and allied health professionals. The term can be used when referring to one type of clinician, or several.

Cold site (see also hot site)

A hospital site with facilities for planned surgery and clinical care but which does not provide emergency care.

Commissioning

The various processes that identify the health needs of a population, such as a local area, and purchase services to meet those needs.

Co-morbidity

The presence of one or more chronic (long-term) diseases or conditions in a patient.

CPOC (Centre for Perioperative Care)

Cross-specialty centre dedicated to the promotion, advancement and development of perioperative care.

<https://www.cpoc.org.uk>

CQUIN (Commissioning for Quality and Innovation)

NHS framework supports improvements in the quality of services and the creation of new, improved patterns of care.

<https://www.england.nhs.uk/nhs-standard-contract/cquin/>

Critical Care

The specialty that cares for critically ill patients (typically but not exclusively those with one or more failing organ systems) in dedicated units, usually known as intensive care (ICU) or high-dependency (HDU) units.

Day case surgery

Surgery where the patient is admitted and discharged on the same day and thus does not become an inpatient.

Day case unit

Dedicated site or area that provides day case surgery.

DOSA (Day of Surgery Admission)

Admission to hospital on the same day that surgery takes place.

ECIST (Emergency Care Intensive Support Teams)

A clinically led national NHS team designed by clinicians to help health and care systems deliver high-quality emergency care.

Elective (surgery or care)

Surgery or care that is planned rather than carried out as an emergency (non-elective).

Emergency laparotomy

Surgical procedure whereby a large incision is made into the abdominal wall to gain access to the abdominal cavity.

Enhanced care

A level of care above that offered by a standard acute ward but below that of critical care. It is particularly suitable for patients after surgery, who may require close monitoring.

Enhanced recovery

A patient pathway that prioritises quality of care and patient participation in their own care, to enable patients to recover more quickly following elective surgery and to allow early, safe discharge with minimal readmission rates. It begins with preoperative assessment and continues until the patient is discharged.

ENT (Ear, Nose and Throat)

The surgical specialty that treats these parts of the body.

FESS (Functional Endoscopic Sinus Surgery)

Surgical procedure performed through the nose.

FICM (Faculty of Intensive Care Medicine)

The professional and statutory body for the specialty of intensive care medicine, the doctors who lead critical care services and Advanced Critical Care Practitioners.

FPM (Faculty of Pain Medicine)

Professional body for specialists in the management of pain.

<https://www.fpm.ac.uk>

HES (Hospital Episode Statistics)

Data on all admissions, out-patient appointments and A&E attendances at NHS hospitals in England. HES data aims to collect a detailed record for each 'episode' of admitted patient care commissioned by the NHS and delivered in England, by either an NHS hospital or the independent sector. HES data is used in calculating what hospitals are paid for the care they deliver.

Hot site (see also cold site)

A hospital site that provides emergency and urgent care.

HRG (Healthcare Resource Group)

Standard groupings of clinically similar treatments that use common levels of healthcare resource. HRGs help organisations to understand their activity in terms of the types of patients they care for and the treatments they undertake.

HSRC (Health Service Research Centre)

The national centre of excellence for health services research to define, evaluate and improve quality in anaesthesia, perioperative care and pain management.

<https://www.niaa-hsrc.org.uk>

ICNARC (intensive Care National Audit and Research Centre)

Registered charity that manages audits and research on critical care provision in the UK.

<https://www.icnarc.org>

ICS (Integrated Care Systems)

NHS organisations, in partnership with local councils and others, taking collective responsibility for managing resources, delivering NHS standards, and improving the health of the population they serve.

<https://www.england.nhs.uk/integratedcare/integrated-care-systems>

LoS (Length of Stay)

The length of an inpatient episode of care, calculated from the day of admission to day of discharge, and based on the number of nights spent in hospital.

MDT (Multidisciplinary Team)

A team of healthcare professionals from different disciplines.

Model Hospital

A free digital tool provided by NHS Improvement to enable trusts to compare their productivity and identify opportunities to improve. The tool is designed to support NHS provider trusts to deliver the best patient care in the most efficient way.

<https://www.model.nhs.uk>

NCEPOD (National Confidential Enquiry into Patient Outcome and Death)

A national charity that reviews the management of patients, undertakes confidential surveys and research, maintains and improves the quality of patient care and publishes and generally making available the results of such activities.

<https://www.ncepod.org.uk>

NCIP (National Clinical Improvement Programme)

A programme to provide both team- and clinical-level activity and metrics about the whole of a clinician's practice. It aims to provide a single point of access to existing information from Hospital Episode Statistics (HES), audit and registry, and private sector.

<https://www.gettingitrightfirsttime.co.uk/associated-projects/ncip/>

NELA (National Emergency Laparotomy Audit)

An audit carried out by the National Institute of Academic Anaesthesia (NIAA)/Health Service Research Centre (HSRC) on behalf of the Royal College of Anaesthetists (RCoA).

<https://www.nela.org.uk>

NFHD (National Hip Fracture Database)

Part of the Falls and Fragility Fracture Audit Programme.

<https://www.nhfd.co.uk>

NIAA (National Institute of Academic Anaesthesia)

Promotes the translation of research findings into clinical practice; develops and maximises anaesthesia's academic profile; facilitates high-profile research; facilitates and supports training and continuing professional education in academia.

<https://www.niaa-hsrc.org.uk>

NICE (National Institute for Health and Care Excellence)

Provides evidence-based guidance, advice, quality standards, performance metrics and information services for health, public health and social care.

<https://www.nice.org.uk>

NHS Resolution (formerly NSH Litigation Authority)

Provides expertise to the NHS to resolve negligence concerns, share learning for improvement and preserve resources for patient care.

NHS Resolution is an 'arm's length' body of the Department of Health and Social Care. This means it is an independent body, but can be subject to ministerial direction.

<https://www.resolution.nhs.uk>

NHS RightCare

An NHS England programme that works locally with systems (bodies involved in delivering services) to diagnose issues, develop solutions and deliver improvements.

<https://www.england.nhs.uk/rightcare>

NHS Supply Chain

An organisation that provides healthcare products and supply chain services to the NHS, including procurement, logistics, e-commerce, and customer and supplier support.

<https://www.supplychain.nhs.uk>

Non-elective (surgery or care)

Surgery or care that is carried out as an emergency rather than being planned (elective).

PACU (Post Anaesthetic Care Unit)

An area within an operating theatre complex where patients are taken immediately after surgery and before being discharged home or to a surgical ward (also called 'recovery area').

Patient Level Information and Costing Systems (PLICS)

A system of collecting and deriving costs at the patient level.

PBM (Patient Blood Management)

A multidisciplinary, evidence-based approach to optimising the care of patients who might need a blood transfusion.

PbR (Payment by Results)

The payment system in England used by healthcare commissioners to pay healthcare providers for each patient seen or treated. The system takes account of the complexity of the patient's healthcare needs.

Periprosthetic fracture

A fracture that occurs in the bones around an artificial joint.

PPIB (Purchase Price Index and Benchmarking)

A system to collect procurement data from NHS trusts that enables trusts to compare and benchmark data.

PQIP (Perioperative Quality Improvement Programme)

Ongoing programme to improve outcomes for surgical patients run by the Royal College of Anaesthetists (RCoA)/National Institute of Academic Anaesthesia Health Service Research Centre in conjunction with The Health Foundation and UCL Surgical Outcomes Research Centre (SOURCE).

<https://www.pqip.org.uk>

RCN (Royal College of Nursing)

The UK's largest union and professional body for nursing.

<https://www.rcn.org.uk>

RCoA (Royal College of Anaesthetists)

The professional body for anaesthetists throughout the UK.

<https://www.rcoa.ac.uk>

RCOG (Royal College of Obstetricians and Gynaecologists)

Professional association for those working in the fields of pregnancy, childbirth and female sexual and reproductive health.

<https://www.rcog.org.uk>

RCP (Royal College of Physicians)

An independent, patient-centred, clinically led organisation that drives improvements in health and healthcare through advocacy, education and research.

<https://www.rcplondon.ac.uk>

RCS (Royal College of Surgeons of England)

Professional membership organisation and charity that supports improved patient care through education, research and the development of policy and guidance.

<https://www.rcseng.ac.uk>

Reference costs

The average unit cost to the NHS of providing defined services to NHS patients in England in a given financial year. They show how NHS providers spend money to provide healthcare to patients. NHS providers submit reference costs annually.

Spell

A period of healthcare, for example a period spent in hospital or admission to hospital.

STPs (Sustainability and Transformation Partnerships)

Partnerships between NHS providers, Clinical Commissioning Groups, local authorities and other health and care services to develop proposals for how local areas will work together to improve health and care for their local population.

There are 44 STPs.

<https://www.england.nhs.uk/integratedcare/stps>

TURBT (Transurethral resection of bladder tumour)

Surgical procedure to remove a bladder tumour through the urethra.

TURP (Transurethral resection of the prostate)

Surgical procedure to remove a section of the prostate through the urethra.

UKRETS (United Kingdom Registry of Endocrine and Thyroid Surgery)

Thyroid and endocrine surgery audit for the United Kingdom (owned and managed by BAETS).

<https://www.baets.org.uk/audit/>

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We're particularly grateful to the many colleagues in trusts across the country who took part in our deep dives visits for contributing their time and experience. We understand that this was a big ask, but the willingness for clinical staff to engage, as shown by the above 80% response rate to our questionnaire, demonstrated the level of commitment towards promoting the clinically-led GIRFT programme.

Anaesthetists were not considered in the first wave of GIRFT specialities. It was only through the insight and support of the RCoA at the time, especially Dr Liam Brennan and Professor Monty Mythen, that we became involved. We thank them for the initial insight they demonstrated in insisting that we should be an integral part of the programme. In completing this report, we continue to value the support of both the RCoA and the Association of Anaesthetists.

The GIRFT analytics team (alongside Methods Analytics) played a crucial role in preparing the data packs for each trust we visited. James Murphy requires special thanks for making sure the analysis, as it evolved through the COVID crisis, was kept up to date and relevant.

The support from the GIRFT Anaesthesia and Perioperative Medicine team has been outstanding. Project Manager Sara Wallcraft (assisted latterly by Neha Patel), who organised all of our hospital visits and travelled with us, requires a special mention. Thanks also go to Lisa Hevey (Policy Manager) and Diane Stafford (Editor) who have toiled over multiple drafts of the report and turned it into something we are both very proud to be delivering.

Finally, as practising anaesthetic and perioperative consultants, we'd like to thank our own respective trusts in Newcastle and Torbay for allowing our secondment to GIRFT to be fulfilled and for understanding the importance of what we were doing. This is even more relevant as we also attempted to deliver anaesthetic and critical care required throughout management of the current pandemic. Without their ongoing commitment we would not have been able to set our scene for the recovery and future sustainability of surgical services in a changed environment.

Chris Snowden and Mike Swart

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Scott Pryde – Benchmarking Specialist, Operational Productivity Lead;

Melanie Proudfoot – Head of Communications;

Michelle Carter – Communications and Media Relations Manager.

Appendix 1: List of trusts visited

The 72 trusts we were able to visit before the COVID-19 pandemic are listed below. Please note that the trusts appear as they existed at the time of our visits.

Airedale NHS Foundation Trust	Northern Lincolnshire & Goole Hospital NHS Foundation Trust
Ashford & St Peter's Hospitals NHS Foundation Trust	Northumbria Healthcare NHS Foundation Trust
Barnsley Hospital NHS Foundation Trust	Poole Hospital NHS Foundation Trust
Bradford Teaching Hospitals NHS Foundation Trust	Portsmouth Hospitals NHS Trust
Buckinghamshire Healthcare NHS Trust	Queen Victoria NHS Foundation Trust
Calderdale and Huddersfield NHS Foundation Trust	Royal Berkshire NHS Foundation Trust
Countess of Chester Hospital NHS Foundation Trust	Royal Cornwall Hospitals NHS Trust
County Durham and Darlington NHS Foundation Trust	Royal Devon and Exeter NHS Foundation Trust
Croydon Health Services NHS Trust	Royal Free London NHS Foundation Trust
Dartford and Gravesham NHS Trust	Royal Surrey County Hospital NHS Foundation Trust
Doncaster and Bassetlaw Trust	Royal United Hospitals Bath NHS Foundation Trust
Dorset County Hospital NHS Foundation Trust	Salford Royal NHS Foundation Trust
East Kent Hospitals NHS Trust	Sheffield Teaching Hospitals NHS Foundation Trust
East Sussex Healthcare NHS Trust	South Tees Hospitals NHS Foundation Trust
Epsom and St Helier University Hospitals NHS Trust	South Tyneside and Sunderland NHS Foundation Trust
Frimley Health NHS Foundation Trust	St George's Healthcare NHS Trust
Gateshead Health NHS Foundation Trust	Stockport NHS Foundation Trust
Gloucestershire Hospitals NHS Foundation Trust	Taunton and Somerset NHS Foundation Trust
Great Western Hospitals NHS Foundation Trust	The Mid Yorkshire Hospitals NHS Trust
Guy's and St Thomas' NHS Foundation Trust	The Newcastle upon Tyne Hospitals NHS Foundation Trust
Hampshire Hospitals NHS Foundation Trust	The Pennine Acute Hospitals NHS Trust
Harrogate and District NHS Foundation Trust	The Rotherham NHS Foundation Trust
Homerton University Hospital NHS Foundation Trust	The Royal Bournemouth & Christchurch Hospitals NHS Foundation Trust
Hull University Teaching Hospitals NHS Trust	The Royal Marsden NHS Foundation Trust
King's College Hospital NHS Foundation Trust	The Royal National Orthopaedic Hospital NHS Foundation Trust
Kingston Hospital NHS Trust	Torbay and South Devon NHS Foundation Trust
Lewisham & Greenwich NHS Trust	University Hospital Southampton NHS Foundation Trust
London North West Healthcare NHS Trust	University Hospitals Bristol NHS Foundation Trust
Maidstone and Tunbridge Wells NHS Trust	University Hospitals Plymouth NHS Trust
Manchester University NHS Foundation Trust	West Hertfordshire Hospitals NHS Trust
Medway NHS Foundation Trust	Western Sussex Hospitals NHS Trust
Milton Keynes Hospital NHS Foundation Trust	Weston Area Health NHS Trust
North Bristol NHS Trust	Whittington Health NHS Trust
North Cumbria University Hospitals NHS Trust	Yeovil District Hospital NHS Foundation Trust
North Middlesex University Hospital NHS Trust	York Teaching Hospital
North Tees and Hartlepool Hospitals	
Northern Devon Healthcare NHS Trust	

Appendix 2: Index procedures used in our analyses

Day case index procedures

- all breast surgery (except for reconstruction);
- trans urethral resection of bladder tumour (TURBT);
- trans urethral resection of the prostate (TURP);
- all orthopaedic arthroscopies (including knee, shoulder and hip);
- primary inguinal hernia repair;
- minor anal lesions (haemorrhoids, fissures, skin tags);
- anterior and posterior vaginal repair;
- anterior cruciate ligament repair (ACL);
- hemithyroidectomy (lobectomy or partial thyroidectomy);
- tonsillectomy (adults);
- vitrectomy.

Enhanced recovery index procedures

- primary hip replacement;
- primary knee replacement;
- colectomy;
- rectal resection;
- nephrectomy and/or nephroureterectomy;
- open hysterectomy;
- cystectomy;
- caesarean section.

For more information about GIRFT,
visit our website: www.GettingItRightFirstTime.co.uk
or email us on info@GettingItRightFirstTime.co.uk

You can also follow us on Twitter [@NHSGIRFT](https://twitter.com/NHSGIRFT) and
LinkedIn: www.linkedin.com/company/getting-it-right-first-time-girft

The full report and executive summary are also available to download as
PDFs from: www.GettingItRightFirstTime.co.uk