

PROCESS AND SYSTEMS

Perioperative medicine

Authors: Josh Wall,^A Jugdeep Dhesi,^B Chris Snowden^C and Mike Swart^D

ABSTRACT

Perioperative medicine delivers patient-centred, multidisciplinary, integrated care for patients from the contemplation of surgery throughout the surgical pathway to recovery. High-quality perioperative care reduces complications, improves outcomes, and leads to improved patient satisfaction and reduced healthcare costs. This article is based on key findings and recommendations from the Getting It Right First Time (GIRFT) national report on perioperative medicine and outlines key concepts of perioperative medicine; exploring how practice can be transformed to improve care. The GIRFT report was produced using information gathered from 72 visits and 119 surveys from NHS trusts in England. It illustrates examples of exemplary perioperative care across the country but also describes variation in access to and provision of perioperative care. To address this unwarranted variation and to tackle the implementation gap, transformation of perioperative care pathways ensuring a patient-centered approach, multi-professional collaboration and widespread adoption of best practice will be required.

KEYWORDS: surgery, perioperative care, GIRFT

DOI: 10.7861/fhj.2022-0051

Introduction

Improving the quality of care, experience and outcomes for patients having surgery requires exemplary perioperative care delivered by a multi-specialty, multidisciplinary team.^{1,2} It should commence at the contemplation of surgery in primary care, follow the patient through hospital admission and to recovery. The roles of clinicians (including anaesthetists, geriatricians, nurses and allied health professionals) in the surgical pathway are rapidly evolving, drawing on unique skillsets in the management of patients (often presenting with complexity) across the perioperative pathway.

Authors: ^Aanaesthetic registrar, London School of Anaesthesia and ICM, London, UK; ^Bconsultant geriatrician, Guy's and St Thomas' NHS Foundation Trust, London, UK; ^Cconsultant anaesthetist, The Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK; ^Dconsultant anaesthetist, Torbay and South Devon NHS Foundation Trust, Torquay, UK

High-quality perioperative care has been shown to minimise postoperative complications, reduce the requirement for critical care postoperatively and decrease postoperative length of hospital stay.³ Furthermore, seamless perioperative care provides improved patient experience, efficiency in delivery of care (for example, through reduced cancellations and improved flow) and cost savings.³ Despite these well documented benefits and guidelines to support delivery, there remains unwarranted variation in provision of perioperative care across the health service.^{4,5}

In February 2022, there were 6,183,203 patients waiting for elective treatment in the NHS in England; an increase of over 1.5 million in the last 2 years.⁶ Undoubtedly, the disruption in provision of elective surgery during the pandemic has contributed to a rapid increase in those waiting for surgery. This issue is further exacerbated by changing demographics, with the prevalence of conditions requiring surgery having increased with an ageing population.⁷ During the pandemic, and while waiting for surgery, many patients have experienced a deterioration in co-existing long-term conditions and mental health, missed opportunities for diagnosis of new conditions, and developed deconditioning.⁸ This has resulted in patients being at higher risk of cancellation of surgery and adverse postoperative outcomes.

Restoration and transformation of elective surgical services hinges upon high-quality perioperative care in both the elective and emergency setting and is an essential component of NHS England's delivery plan for tackling the COVID-19 backlog of elective care.⁹ The establishment of integrated care systems (ICSs) should be used as an opportunity for the accelerated transformation of perioperative care, which will need to use the 'existing skills and expertise within the NHS to reduce variation and improve patient outcomes after surgery.'¹ Given the unprecedented number of patients awaiting surgery, collaboration between healthcare professionals has the potential to deliver effective perioperative care and improve outcomes for many patients. Table 1 outlines what the future of perioperative care must deliver.

Pre-operative assessment and optimisation

A prospective observational study conducted prior to the pandemic estimated that 14% of surgeries are cancelled on the day.¹⁰ Although system challenges, such as lack of beds and workforce pressures, lead to short-notice cancellations, many patients change their mind at late notice or have their procedure cancelled due to a medical problem on the day of surgery. A large proportion of these non-service-related cancellations are avoidable and occur due to an oversight in pre-operative care.

Table 1. What the future of perioperative care must deliver

For patients awaiting surgery	<ul style="list-style-type: none"> > Assessment, advice and support on how to improve general health and underlying health conditions > An individualised pre-operative assessment with information on benefits, risks and alternatives to surgery. > Screening for conditions known to increase risk of adverse postoperative outcome (eg frailty or chronic pain) with access to specialist services and support > Shared decision making > A single point of contact for advice and information > Advice on patient role in improving postoperative outcome > A personalised, perioperative management plan for comorbidities
For professionals	<ul style="list-style-type: none"> > Access to education and training in perioperative care > Access to whole pathway guidelines, rather than specialty-specific guidelines > Resources to develop innovative models of care / teams to deliver perioperative care > Networks to share learning
For healthcare services	<ul style="list-style-type: none"> > Enhanced recovery pathways: standardised for all elective and emergency procedures > Utilisation of technology solutions (eg virtual consultations) to improve care, efficiency and work towards a net zero NHS. > Increase in outpatient-based procedures > Day-case surgery to be regarded as the default surgical pathway (aiming for only 15% of all elective surgery to be performed as an inpatient) > Optimal patient listing: 'right place, right time' > Reduce day case to inpatient conversion > Reduce reliance on critical care services and increase provision of enhanced care > Reduce length of hospital stay > Reduce cancellations on the day of surgery > Reduce patient harm, complaints and litigation

Patients require evidence-based pre-operative assessment and optimisation tailored to the individual and the surgical procedure. Assessment should incorporate screening for

predictors of adverse outcome (eg 'lifestyle' factors, poor physiological status, multimorbidity or frailty) as identification can prompt targeted interventions; for example, prehabilitation is a targeted pre-operative programme to address nutrition, physical activity and psychological issues.¹¹ Such programmes incorporate behaviour change interventions, including smoking cessation, alcohol reduction and weight management, during an important 'teachable moment' before surgery.¹² Prehabilitation programmes are being established across the NHS, with signals of positive impact, but have been variably implemented. In contrast, the high-risk population often requires optimisation across additional medical, functional, social and psychological domains. In such groups, there is evidence of clinical and cost effectiveness for innovative models of care, using comprehensive geriatric assessment (CGA) and optimisation methodology.^{13–15} Although there has been a substantial increase in CGA-based perioperative services over the past 10 years, again there is variable implementation due to shortage of expertise, education and training programmes, and funding.¹⁶

Many patients do not attend for surgery and one in seven patients express regret having had surgery.¹⁷ This suggests a lack of honest communication between patients and professionals about what matters to patients. As such, it is important to ensure clarity about the intended benefits and risks of surgery, alternative treatment options and to ground this in what the patient wants to achieve through a procedure. Many resources are available to support such shared decision making and certainly all 'high-risk' surgical patients (defined as having a predicted 30-day mortality risk >1%) should routinely be offered a shared decision-making consultation.^{5,18} In settings where this is offered, one in seven patients choose not to go ahead with high-risk surgery, with huge impact both for patients and for healthcare systems.¹⁹ A national approach to establishing such services is required and underway.

Diabetes

It is estimated that up to 15% of patients who have surgery also have diabetes.²⁰ Unfortunately, they are less likely to have successfully completed day-case procedures and have higher postoperative morbidity rates, longer hospital stays and higher readmission rates in comparison with those without diabetes.²¹ This is related to unwarranted variation in perioperative management of diabetes.²² The number of patients with diabetes having glycated haemoglobin (HbA_{1c}) measured pre-operatively is increasing, yet no specialty has >90% of diabetic patients with a HbA_{1c} <8.5% pre-operatively.²³

It is clear that the identification, management and monitoring of diabetes perioperatively needs to be improved, and this can be supported with 'whole pathway' guidelines, such as those published by the Centre for Perioperative Care (CPOC).²⁰ Case studies illustrate how such guidelines can be implemented to reduce pre-operative admissions, insulin errors and hypoglycaemic events, and improve patient experience.⁵ Another centre has developed a technological solution to enhance perioperative diabetic management, with an electronic system that allows monitoring of patients with diabetes through the perioperative period and facilitates timely specialist review where needed. This has reduced postoperative readmissions and saves 100 bed days per month.²¹

Perioperative blood management

One-third of patients presenting for surgery have anaemia, which is a predictor of perioperative morbidity and mortality.²⁴ Perioperative blood management (PBM) pathways provide a systematic approach to the diagnosis and management of anaemia and are evidenced to reduce perioperative transfusion rates.⁵ However, the recent perioperative quality improvement programme (PQIP) report shows that 68% of anaemic patients are still not receiving treatment for anaemia prior to surgery.²³

The Getting It Right First Time (GIRFT) programme has found unwarranted variation in criteria for anaemia diagnosis, availability of diagnostic tests for anaemia, treatment of anaemia and reporting of local transfusion rates.⁵ Results from a GIRFT survey demonstrated that only 60% of trusts have cell salvage equipment that are key to intraoperative blood conservation strategies and reducing perioperative use of blood products. However, there are sites of exemplary practice, illustrating how implementation of a comprehensive perioperative anaemia pathway for patients undergoing surgery with a haemoglobin level <130 g/L can reduce perioperative transfusion rates and reduce length of hospital stay.⁵ Another site has routinely used cell salvage in obstetric theatres since 2007 and offers a competency-based in-house training programme for all anaesthetic practitioners. Up to 40% of collections are sufficient to be processed and, in 2019, the obstetric department transfused only 300 units of blood.⁵ They have demonstrated that the routine use of cell salvage is cost effective and safe.

Day-case surgery

Converting elective inpatient surgical care to day-case activity offers important opportunities to healthcare services, including increased bed capacity and reduced on-the-day cancellation of surgery. This, in turn, helps to tackle waiting lists, allows continuation of elective surgery during periods of service pressure (for example, in winter) and reduces service costs.⁵ More importantly, day-case pathways are well accepted by patients as they offer shorter waiting times, reduced risk of hospital-acquired infection and improved outcomes. Although nationally the proportion of surgical interventions undertaken on a day-case basis continues to increase, there remains variation in the proportion of total elective surgical admissions delivered as day cases between individual NHS trusts, ranging from 44%–89% and within individual specialties.^{5,25} Effective perioperative care is essential in helping to facilitate the expansion in day surgery to ensure that:

- > there is robust patient selection and management of comorbidities to deliver same-day discharge and prevent unanticipated inpatient admission
- > best practice is incorporated for pre-emptive standardised analgesia, antiemetics and hydration regimens to facilitate early discharge
- > comorbidities that may have previously prevented day-case admission (such as obstructive sleep apnoea, obesity and dementia) are no longer maintained as absolute contraindications; indeed, only patients with an American Society of Anesthesiologists' Physical Status Score (ASA) IV or those with severe unstable or unmanaged systemic disease should not be considered for day-case surgery²⁶

- > there is a robust management plan in place for pre-operative issues that are recognised to cause difficult postoperative management (for example, patients with pre-operative chronic pain need a proactive management plan formulated in collaboration with the pain team to facilitate effective day-case surgery).²⁷

The benefits of day-case surgery combined with advancements in less invasive forms of surgical intervention and a change in culture towards acceptance of day-case procedures as the default are set to see day-case surgery rates increase. Local data can be used to influence practice, as demonstrated at a unit that successfully reduced their admission rate following planned day-case surgery by 5% through embedding a quality improvement programme. Key changes included improved scheduling, enhanced nurse-led discharge protocols, implementation of a postoperative urinary retention policy, improved pain management and implementation of a 'sip until we send' policy to prevent pre-operative dehydration. Sharing learning between units is necessary to support uptake of such processes.

The elective surgical population

Despite the benefits of day-case surgery, patients with multiple comorbidities or undergoing complex major surgery often require elective inpatient admission. Unfortunately, there remains widespread unwarranted variation across all specialties in postoperative length of stay, in turn, affecting flow through the hospital. 'High-risk' patients, defined either by the surgical procedure or patient-level factors, are particularly at risk of preventable postoperative complications and prolonged admission.²³ The occurrence, severity and duration of such complications can be prevented through quality pre-operative assessment, optimisation, shared decision making and planning of the perioperative period including attention to treatment escalation and advanced care planning.¹⁴

Enhanced recovery (ER) programmes, designed to expedite surgical recovery, promote optimal outcomes and prevent prolonged postoperative hospital admissions were introduced into the NHS over 15 years ago.²⁸ Although the evidence of benefit is clear, GIRFT has observed reduced emphasis on delivery and development of ER pathways.^{29,30} Additionally, there is unwarranted variation across surgical sub-specialties in enrolment to ER programmes, despite a high number of commonalities in pathways between specialties.⁵ A simplified and generic enhanced recovery concept has been developed to improve early postoperative recovery by focusing on early drinking, eating, and mobilising (DREAMing).³¹ Although DREAMing concentrates on three easily measurable outcomes, several factors, such as pain control and hydration, must be appropriately maintained before successful DREAMing is achieved.²³

In recent years, other innovative models of care have been established to support delivery of quality perioperative care for patients with coexisting multimorbidity and frailty. Patients with such pathophysiological profiles are more likely to experience postoperative complications, of which, the majority occur from postoperative day 3 onwards and are 'medical' in nature (for example, delirium, respiratory complications or acute kidney injury). These evidenced models of care utilise CGA and optimisation methodology; they are increasingly advocated and adopted in the NHS and internationally.¹⁶ Such programmes have

highlighted the need for collaborative working between physicians, surgeons and anaesthetists to ensure perioperative care is patient centred rather than specialty centred.^{32,33}

The emergency surgical population

Emergency surgical admissions account for less than 20% of all surgical admissions, yet they have a major impact on the efficient running of elective surgical services. Interestingly, of those admitted on an emergency surgical take, only 40% proceed to surgery during that admission, with 15% of operations occurring within 24 hours. Within the whole cohort, emergency surgery is more common in those aged 85 years or above than any other age group.⁵ As the number of pre-existing medical comorbidities and frailty also increases with age, it is not surprising that this cohort has the highest level of postoperative complications, prolonged hospital stays and elevated mortality rates of all surgical patients.^{5,34–36}

Indeed, in 2020, 30-day mortality following emergency surgery for neck of femur fracture was 8.3% and 1-year mortality was up to 30%.^{37,38} This is not dissimilar to the 1-year mortality seen post-emergency-laparotomy or in patients who presented to urological services with acute urinary retention requiring intervention.^{34,39} However, there is significant variation in short- and long-term outcomes for the emergency surgical population, with units employing orthogeriatric teams or CGA-based frailty teams for emergency laparotomy patients demonstrating better outcomes.^{13,33,40} Unfortunately, despite the evidence for orthogeriatric models of care, National Institute for Health and Care Excellence (NICE) guidance and a Best Practice Tariff, there remains huge variation in provision of services.^{37,41,42} It is, therefore, not surprising that, although National Emergency Laparotomy Audit (NELA) reports an increase in the number of older people undergoing laparotomy being reviewed by a geriatric medicine team over the past 5 years, this figure remains low in the absence of clear financial incentives.

Critical care and enhanced care

Prior to the pandemic, approximately 170,000 patients per annum were admitted to critical care in England and Wales following surgery.⁵ The benefits of early critical care admission compared with ward-level care include higher staffing ratios, recognition of early deterioration, and availability of advanced treatment modalities. Unfortunately, there remains widespread inequity of access to critical care for post-surgical patients due to a shortage of critical care capacity, increasing demand and differences in admission criteria/cultures between providers.⁴³ Lack of postoperative critical care capacity is a leading cause of late-notice surgical cancellations, and patients often experience delays in treatment of post-surgical complications while they await transfer to a critical care unit.¹⁰

Enhanced care services may provide a solution, having been developed to bridge the gap between traditional ward-level care (level 0) and critical care (levels 2/3). These services (more recently termed 'level 1') are staffed by a skilled workforce and provide higher levels of monitoring, and intervention than is routinely available on a surgical ward.⁴⁴ This level of care is distinct from critical care but can support early identification of the deteriorating post-surgical patient and commence treatments,

such as haemodynamic support without delay.⁵ To support efficient surgical delivery, pre-operative assessment (for elective patients) or on-admission assessment (for emergency admissions) should include a documented decision on whether the patient will require level 1, 2 or 3 care postoperatively and form part of treatment escalation plans.

Enhanced care services established in this manner have reduced length of hospital stay, critical care utilisation and complication rates.⁴³ Further development of these services is hoped to reduce the number of planned and unplanned critical care admissions, reduce on-the-day cancellation of surgery and provide a better postoperative experience for patients.⁴⁵

Conclusion

Herein, we have highlighted the progress that has been made in perioperative care over recent years and describe examples of best practice, but also illustrate unwarranted variation in the provision of perioperative care. The GIRFT programme is committed to reducing unwarranted variation to provide patients with the correct treatment, at the right time, by the right team, in the right place and to a high standard with minimal complications. High-quality, perioperative services are integral to achieving these ambitions and many of the GIRFT national reports have referred to this.

Perioperative care pathways can be complex to navigate for both patients and professionals and, as such, a core principle in the ongoing development of perioperative services involves listening to and appreciation of the patient voice at all stages of the perioperative pathway. GIRFT, CPOC and other partners provide a platform for shared learning with case studies and clinical support networks for perioperative medicine leads. Such work across organisations is essential to influence national policy and transform the delivery of future perioperative care, such that all patients in the near future can expect the same access to and quality of care across the NHS.

Although there are small changes that can be embedded by every individual and team to provide the best outcome for every surgical patient, major transformation in the delivery of perioperative care is required across the health service. Addressing issues, such as the perioperative management of diabetes and anaemia where confusion still exists regarding who should take responsibility across the pathway, can only be solved through true collaboration and joint ownership between professionals. This requires increased investment, improved education and a cultural shift to prioritise high-quality perioperative care. We have evidence to support innovative approaches and examples of good practice but lag in scale up of such approaches has limited impact.

In addition to transforming services by implementing established best practice, there is a need to develop new innovations that will enhance the delivery of perioperative care. Embracing novel healthcare technology and artificial technology in a timely fashion to support the perioperative pathway will be paramount. A robust framework to assess the effectiveness and cost of such resources will be essential. Furthermore, successful innovation will need to be carefully implemented to ensure all regions have access to new technologies. The NHS Clinical Entrepreneur Programme is an excellent example of how the NHS workforce is being supported to develop innovative solutions and rethink the delivery of care to benefit patients. ■

References

- 1 The Royal College of Anaesthetists. *Perioperative medicine: the pathway to better surgical care*. RCoA, 2015. <https://cpoc.org.uk/sites/cpoc/files/documents/2019-11/RCoA%20Perioperative%20Vision%20Document%202014.pdf>
- 2 Centre for Perioperative Care. *Multidisciplinary working in perioperative care*. CPOC, 2020. <https://cpoc.org.uk/sites/cpoc/files/documents/2020-09/Multidisciplinary%20working%20in%20perioperative%20care%20-%20rapid%20review.pdf>
- 3 Centre for Perioperative Care. *Impact of perioperative care on healthcare resource use*. CPOC, 2020. www.cpoc.org.uk/sites/cpoc/files/documents/2020-09/Impact%20of%20perioperative%20care%20-%20rapid%20review%20FINAL%20-%2009092020MW.pdf
- 4 The Royal College of Anaesthetists. *A teachable moment: delivering perioperative medicine in integrated care systems*. RCoA, 2019. <https://cpoc.org.uk/sites/cpoc/files/documents/2019-11/Integrated%20Care%20Systems%202019.pdf>
- 5 Getting It Right First Time. *Anaesthesia and perioperative medicine national speciality report*. NHS, 2021. <https://future.nhs.uk/GIRFTNational/view?objectId=112160581>
- 6 NHS England. *Consultant-led referral to treatment waiting times*. NHS. www.england.nhs.uk/statistics/statistical-work-areas/rtt-waiting-times
- 7 Fowler AJ, Abbott TEF, Prowle J, Pearse RM. Age of patients undergoing surgery. *Br J Surg* 2019;106:1012–8.
- 8 Independent Age. *Patiently waiting: Older people's experience waiting for surgery*. Independent Age, 2021. https://www.independentage.org/sites/default/files/2021-09/Patiently%20waiting_2.pdf
- 9 NHS England and NHS Improvement. *Delivery plan for tackling the COVID-19 backlog of elective care*. NHS, 2022. www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2022/02/C1466-delivery-plan-for-tackling-the-covid-19-backlog-of-elective-care.pdf
- 10 Wong DJN, Harris SK, Moonesinghe SR et al. Cancelled operations: a 7-day cohort study of planned adult inpatient surgery in 245 UK National Health Service hospitals. *Br J Anaesth*. 2018;121:730–8.
- 11 Macmillan Cancer Support. *Prehabilitation for people with cancer: Principles and guidance for prehabilitation within the management and support of people with cancer*. Macmillan Cancer Support, 2019. <https://cdn.macmillan.org.uk/dfsmedia/1a6f23537f7f4519bb0cf14c45b2a629/1532-10061/prehabilitation-for-people-with-cancer-tcm9-353994>
- 12 Centre for Perioperative Care. *Delivering prevention through perioperative care*. CPOC, 2019. www.rcoa.ac.uk/sites/default/files/documents/2019-11/CPOC-delivering-prevention-periopcare.pdf
- 13 Eamer G, Taheri A, Chen SS et al. Comprehensive geriatric assessment for older people admitted to a surgical service. *Cochrane Database Syst Rev* 2018;1:CD012485.
- 14 Partridge JS, Harari D, Martin FC et al. Randomized clinical trial of comprehensive geriatric assessment and optimization in vascular surgery. *Br J Surg* 2017;104:679–87.
- 15 Partridge JSL, Healey A, Modarai B, Harari D, Martin FC, Dhese JK. Pre-operative comprehensive geriatric assessment and optimisation prior to elective arterial vascular surgery: a health economic analysis. *Age Ageing* 2021;50:1770–7.
- 16 Joughin AL, Partridge JSL, O'Halloran T, Dhese JK. Where are we now in perioperative medicine? Results from a repeated UK survey of geriatric medicine delivered services for older people. *Age Ageing* 2019;48:458–62.
- 17 Wilson A, Ronnekleiv-Kelly SM, Pawlik TM. Regret in surgical decision making: a systematic review of patient and physician perspectives. *World J Surg* 2017;41:1454–65.
- 18 National Institute for Health and Care Excellence. *Shared decision making: NICE guideline [NG197]*. NICE, 2021. www.nice.org.uk/guidance/ng197
- 19 Lochrie N, Shabab R, Moppett I, DasGupta P, Dhese JK. Comprehensive geriatric assessment prompted interventions in elective surgery. Unpublished data, 2022.
- 20 Centre for Perioperative Care. *Guideline for perioperative care for people with diabetes mellitus undergoing elective and emergency surgery*. CPOC, 2021. <https://cpoc.org.uk/sites/cpoc/files/documents/2021-05/CPOC-Diabetes-Guideline2021.pdf>
- 21 Getting It Right First Time. *Diabetes: GIRFT Programme national speciality report*. NHS, 2020. www.gettingitrightfirsttime.co.uk/wp-content/uploads/2022/01/GIRFT-diabetes-report.pdf
- 22 National Confidential Enquiry into Patient Outcome and Death. *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*. NCEPOD, 2018. www.ncepod.org.uk/2018pd/Highs%20and%20Lows_Full%20Report.pdf
- 23 Perioperative Quality Improvement Programme. *Perioperative Quality Improvement Programme Report 3: August 2019 – July 2021*. Royal College of Anaesthetists, 2021. https://pqip.org.uk/FilesUploaded/PQIP-Annual-Report_2021.pdf
- 24 Munting KE, Klein AA. Optimisation of pre-operative anaemia in patients before elective major surgery - why, who, when and how? *Anaesthesia* 2019;74(Suppl 1):49–57.
- 25 Appleby J. Day case surgery: a good news story for the NHS. *BMJ* 2015;351:h4060.
- 26 Getting It Right First Time. *National day surgery delivery pack*. NHS, 2020. www.gettingitrightfirsttime.co.uk/wp-content/uploads/2020/10/National-Day-Surgery-Delivery-Pack_Sept2020_final.pdf
- 27 Royal College of Anaesthetists. *Surgery and opioids: best practice guidelines 2020*. RCoA, 2020. https://fpm.ac.uk/sites/fpm/files/documents/2020-09/Surgery-%26-Opioids_version-for-open-consultation-Sep-2020.pdf
- 28 Ljungqvist O, Scott M, Fearon KC. Enhanced recovery after surgery: a review. *JAMA Surg* 2017;152:292–8.
- 29 Fawcett WJ, Mythen MG, Scott MJ. Enhanced recovery: more than just reducing length of stay? *Br J Anaesth* 2012;109:671–4.
- 30 Nelson G, Wang X, Nelson A et al. Evaluation of the implementation of multiple enhanced recovery after surgery pathways across a provincial health care system in Alberta, Canada. *JAMA Netw Open* 2021;4:e2119769.
- 31 Levy N, Mills P, Mythen M. Is the pursuit of DREAMing (drinking, eating and mobilising) the ultimate goal of anaesthesia? *Anaesthesia* 2016;71:1008–12.
- 32 National Emergency Laparotomy Audit. *Sixth patient report of the National Emergency Laparotomy Audit*. NELA, 2020. www.nela.org.uk/downloads/The%20Sixth%20Patient%20Report%20of%20the%20NELA%202020%20-%20Executive%20Summary%20November%202020.pdf
- 33 Aitken RM, Partridge JSL, Oliver CM et al. Older patients undergoing emergency laparotomy: observations from the National Emergency Laparotomy Audit (NELA) years 1-4. *Age Ageing* 2020;49:656–63.
- 34 National Emergency Laparotomy Audit. *Fourth patient report of the National Emergency Laparotomy Audit*. NELA, 2018. www.nela.org.uk/downloads/The%20Fourth%20Patient%20Report%20of%20the%20National%20Emergency%20Laparotomy%20Audit%202018%20-%20Full%20Patient%20Report.pdf
- 35 Barnett K, Mercer SW, Norbury M et al. Epidemiology of multi-morbidity and implications for health care, research, and medical education: a cross-sectional study. *Lancet* 2012;380:37–43.
- 36 British Geriatrics Society. *Fit for frailty: part 1: Consensus best practice guidance for the care of older people living in community and outpatient settings*. BGS, 2017. www.bgs.org.uk/sites/default/files/content/resources/files/2018-05-23/fff_full.pdf
- 37 National Hip Fracture Database. *Facing new challenges: The National Hip Fracture Database report on 2020*. NHFD, 2021. [www.nhfd.co.uk/FFFAP/Reports.nsf/0/220AC3A08F5AC22080258789007CCC92/\\$file/NHFD_2021_Report.pdf](http://www.nhfd.co.uk/FFFAP/Reports.nsf/0/220AC3A08F5AC22080258789007CCC92/$file/NHFD_2021_Report.pdf)

- 38 Johansen A, Tsang C, Boulton C, Wakeman R, Moppett I. Understanding mortality rates after hip fracture repair using ASA physical status in the National Hip Fracture Database. *Anaesthesia* 2017;72:961–6.
- 39 Armitage JN, Sibanda N, Cathcart PJ, Emberton M, van der Meulen JH. Mortality in men admitted to hospital with acute urinary retention: database analysis. *BMJ* 2007;335:1199–202.
- 40 Oliver CM, Bassett MG, Poulton TE *et al*. National Emergency Laparotomy Audit collaborators. Organisational factors and mortality after an emergency laparotomy: multilevel analysis of 39 903 National Emergency Laparotomy Audit patients. *Br J Anaesth* 2018;121:1346–56.
- 41 National Institute for Health and Care Excellence. *Hip fracture: management: Clinical guideline [CG124]*. NICE, 2017. www.nice.org.uk/guidance/cg124
- 42 NHS. *Consultation on 2021/22 national tariff payment system*. NHS, 2021. www.england.nhs.uk/wp-content/uploads/2021/03/21-22NT_Annex-DtC-Best-practice-tariffs.pdf
- 43 Getting It Right First Time. *Adult critical care national speciality report*. GIRFT, 2021. <https://future.nhs.uk/GIRFTNational/view?objectId=112034405>
- 44 The Faculty of Intensive Care Medicine. *Enhanced care: guidance on service development in the hospital setting*. FICM, 2020. www.ficm.ac.uk/sites/ficm/files/documents/2021-10/enhanced_care_guidance_final_-_may_2020-.pdf
- 45 Centre for Perioperative Care. *Delivering on opportunities for better health and perioperative care in the COVID-19 era*. CPOC, 2020. <https://cpoc.org.uk/sites/cpoc/files/documents/2020-08/Opportunities%20in%20the%20COVID-19%20Era.pdf>

Address for correspondence: Dr Josh Wall, NHS England & NHS Improvement, Wellington House, 133–155 Waterloo Road, London SE1 8UG, UK.
Email: josh.wall@nhs.net
Twitter: [@Anaesdrjosh](https://twitter.com/Anaesdrjosh)