Value-based surgical care: a view from the surgeon's knife

ABSTRACT

NHS trusts across the country are facing unprecedented financial pressures, along with rising levels of demand and widespread variation in surgical quality and cost. There is a moral and financial imperative to provide the most efficient use of resources in order to ensure sustainability of a system that is free at the point of use, and provide consistently high-value care for patients across the country. Delivering 'value' does not mean any reduction in the quality of care – it means achieving the same or higher quality at the same or lower cost.

Avoidable and costly incidents in surgery occur every day: patients do not receive the right care, procedures or tests are performed without real benefit, complications lead to prolonged hospital stays, to readmissions and re-interventions. Put simply: poor quality surgical care is expensive.

The concept of value-based health care is well known in the UK, yet its principles are not yet fully embedded in the health-care system, surgical training or practice. The shift towards better value-based care with a focus on delivery system reform (Getting It Right First Time), outcomes-based commissioning and payment reform (accountable care systems and integrated care systems) provides an opportunity to make significant improvements in surgical care.

Radical and immediate change is required, and everyone, from trainees at the frontline, to clinical leaders, trust chief executives, local commissioners and policy-makers, has vital roles to play. The health-care system needs to be designed, organized and paid for differently to deliver better surgical value for patients.

The NHS is facing unprecedented financial challenges – 66% of acute trusts were in deficit in 2015–16 and yet the Five Year Forward View outlined the 'Stevens challenge', to achieve £22 billion of efficiency savings by 2020–21 (NHS England, 2014; NHS Improvement, 2016). A survey comparing health systems' performance showed that while the UK ranks first overall out of 11 other high-income countries, scoring highly across access and equity, it is 11th out of 11 for health outcomes (Schneider et al, 2017). A focus on delivering better outcomes at lower or no additional cost has become imperative.

Surgery is common and costly, with over 10 million procedures performed in the UK in 2015–16; this following a 49.7% increase in the number of procedures performed between 2000 and 2010 (NHS Digital, 2016). Just the ten most common operations (and not the most expensive) cost a total of £3 billion per year (NHS Digital, 2016). The main challenges for surgery are:

Miss Alice CA Murray, London, NE Thames rotation General Surgery Registrar, Division of Colorectal Surgery, King George's Hospital, Ilford, Essex IG3 8YB (alice.murray@gmail.com)

1. Providing consistently high quality care that meets patients' needs
2. Reducing ongoing wasteful and unnecessary costly practices.

Quality varies widely across the country; 30-day mortality for emergency surgery ranges between 1.6 and 8% (Ozdemir et al, 2016), the incidence of in-hospital surgical site infections varies from 1–15% for colorectal surgery (Public Health England, 2017), and readmissions following emergency cholecystectomy range from 0–12% (Abercrombie, 2017). Costs of surgery also vary, as highlighted in Getting It Right First Time, with a total hip replacement costing £788 in some hospitals and £1590 in others (Briggs, 2015). In his review on productivity in the NHS, Lord Carter outlined a potential £5 billion in savings from a reduction of unnecessary variation across the country (Carter, 2016). The quality and cost of care for a surgical episode are inherently linked, but contrary to what many believe, surgeons who cost more do not necessarily deliver better outcomes (Birkmeyer et al, 2012; Tsai et al, 2016).

Surgeons can create value across the procedural episode in each of the four phases of care: from preoperative optimization, intraoperative care, postoperative hospitalization and post-acute or post-discharge care. Surgical morbidity and mortality are significant burdens to the taxpayer, providers and patients. All surgical teams, especially the lower performers, can and should do better.

As a system, procedures and tests that are performed without real benefit to patients, unnecessary hospital admissions and re-interventions, duplication of services as a result of communication failures, and a failure to deliver effective long-term recovery and rehabilitation are all potentially avoidable and costly occurrences.

Reducing unwarranted variation while preserving warranted patient variation involves the increasing standardization of practice according to best evidence, all the way from who receives care and how those services are provided, to the tools and techniques used, and is fundamental to improving value.

How can this be achieved?

Value can be created at the frontline with surgical teams delivering high quality, efficient, evidence-based, episodic in-hospital care. However, surgery often makes up just one key part of more complex disease care pathways, therefore requiring attention to a patient's coexisting medical, community, mental and social health care needs, as well as effective team work and integration across clinical siloes. Clinicians need to become more focused on delivering

care that meets patients' needs and is aligned with their personal health goals – this is where real value is created (Mulley, 2009).

Patients cannot be expected to overcome the failures of a fragmented and complex system, so care needs to be organized and delivered around patients to produce the best possible outcomes for the individual, and to achieve better health for a population.

In the NHS there are pockets of great innovation and success, but better value surgical care needs to be embedded across the system. This article discusses an overarching strategy outlining the organizational, delivery and reimbursement structures to deliver value-based care in the NHS and how it applies to surgery.

Using Michael Porter and Thomas Lee's strategy from their seminal paper in 2013 as an underlying framework (Porter and Lee, 2013), this article discusses some of the current barriers to delivering a value agenda in the NHS (*Table 1*), and how better value surgical care could be achieved. Providers should be held accountable for that care by reimbursing based on delivering value, not volume of services. Better value can be achieved by focusing on real multidisciplinary teams working across the complete cycle of care for a condition, bridging clinical siloes and building integrated networks of providers across locations to expand their geographical reach.

Barriers

Ineffective use of data

Delivering better value is founded on a high degree of organizational transparency. However, the level of frontline awareness of quality and costs is low, with a lack of widely disseminated actionable information for clinical staff.

Vigorous, iterative quality improvement should be based on measurement of the quality of surgical decision making (Mulley et al, 2012), surgical technical performance (Birkmeyer et al, 2013) and patient-reported outcome measures (McGlynn et al, 2014). These assessments of quality and outcomes should be directly integrated into workflow and care delivery (McGlynn et al, 2014). High-level data on provider charges should be replaced with more granular and accurate patient-level costs, made available to frontline staff (Kaplan and Porter, 2011).

In England there is a tendency to focus on quality assurance, using resources to report local and national audit data, but rarely using this information for frontline quality improvements. 'Quality improvement' is often limited to informal reporting, and non-technical discussions around surgical complications at departmental morbidity and mortality meetings. Metrics used within payment by results schemes relate to processes of care and measures of efficiency or activity, i.e. early discharge rates from hospital or venous thromboembolism assessment completion, which can improve care delivery, but often fail to reflect the whole circumstances of the patient and are slow to bring about change. The system needs to move to focus on a small set of disease-specific outcomes that really matter to patients.

The NHS has a nationally representative administrative dataset that covers every patient hospital admission across the country (Hospital Episode Statistics), as well as robust national surgical audits (for example, the National Bowel Cancer Audit), clinical registries (National Joint Registry, the National Clinical Audit Programme; Healthcare Quality Improvement Partnership, 2018) and standardized patient-reported outcome measures for selected procedures. These resources are simply not used enough at a local systems level to generate improvements. The level of awareness and clinician engagement with surgeon-, departmental- or hospital site-specific outcomes is far too low. If clinicians and clinical teams do not know how well or poorly they are doing, how can they possibly improve their practice?

While hospital finance departments have some information on costs, this is not at the patient level and is rarely shared with clinical teams. When teams have access to meaningful outcomes and costs data, they are well placed to make informed decisions on value.

At the start, this will involve using data that are already available, linking datasets across clinical siloes and putting them in the hands of people who will use them responsibly and are able and willing to act on them. Results should be used for local improvement, without fear of retribution (Armstrong et al, 2018). Clinical leaders need to address the widespread, deep-seated fears and lack of trust in the use of surgeons' data (Westaby et al, 2007). Managing concerns over inaccuracies in coding, variable quality data collection and entry, analytic methodologies used (sufficient risk adjustment for patient and operative complexity) and fear of abuses of its use requires constant clinical involvement in data collection and reporting.

Table 1. Barriers to delivering a value agenda in the NHS

Problem	Solutions
Ineffective use of data	Systematically measure patient outcomes and costs
	Develop and collect newer disease-based metrics
	Embed measurement in care delivery
Reimbursement for volume	Re-align reimbursement strategies to support better health, rewarding value not volume
	Bundled payments
	Patient population segmentation, disease-based global budgets
Clinical silos and care fragmentation	Develop integrated practice units
	Focus on care across complete disease pathways
	Build team care around patients, not doctors or buildings
Fixed locations of care	Create networks and polycentric systems across separate facilities and around patient conditions
	Expand use of expertise across geography
Limited IT capabilities	Invest in supportive, integrated electronic health records with comprehensive functionality

Moving forward, new, standardized outcomes that really matter to patients need to be collected, defined and measured based on homogenous patient segments and need to cover the full course of their disease. This will facilitate interpretability, shared accountability for performance and successful commissioning based on achieving those outcomes (for example, the International Consortium for Health Outcomes Measurement (2018) standard sets; *Table 2*). Patients undergoing colorectal cancer surgery will probably want to know their risk of surgical site infection, but perhaps more important might be how long they will be off work or how likely they are to suffer postoperative depression?

Certain outstanding trusts have made great gains, but for broader change across the NHS a higher degree of local clinical involvement and leadership is needed, along with greater internal transparency, better training and expertise, sharing of best practices and provision of dedicated resources.

Clinical siloes and care fragmentation

In common with most global health-care systems, the NHS is fragmented with little true integration of patient care across the complete continuum. This theoretically can result in greater duplication of services, delays to patient flow, poor patient experience, as well as lack of overall accountability for the outcomes achieved by the users of health-care services.

Care is currently segmented around doctors' specialties and historic care settings, not patients' needs or their conditions. Each provider often acts on an individual basis, accountable only for his/her direct contribution, with sometimes differing and potentially clashing organizational objectives for delivering care for his/her part of the patient's care pathway. The current system is focused on expensive hospital-based care, but better integrated care is needed across the whole surgical care pathway (Institute of Medicine Committee on Quality of Health Care in America, 2001).

When a patient sees his/her GP for back pain, he/she may need anything from reassurance, simple analgesia, physiotherapy, tests to rule out sinister pathology, or rheumatology or orthopaedics input. The patient may see one specialist, only to return back to the GP and be re-referred to another. If care was based around patients and designed to be intuitive to users of the system, the patient might instead be referred to a 'back pain service'. Here, teams are based around patients' needs, not a doctor's training, and around patient conditions, not specialties. An expert multidisciplinary team works together in a co-located unit, managing high volumes of similar patients, assessing and managing each patient efficiently and effectively.

The design of integrated practice units will vary by condition, for both specialist and non-specialist services, as well as by patient group. Surgery is one key part of the care cycle of a patient's disease and surgeons have a vital role to play. However, they alone cannot determine value because the ultimate success of patient care depends on the interdependence of a number of key players before and after surgery. It is known that expert teams working at greater volume to manage complex surgical patients deliver better results (Birkmeyer et al, 2002; Porter, 2009). Value is maximized when teams work together every day, improving their ability to manage a particular set of problems. It is a collective effort that determines the overall result. Expert teams are in a key position to define the value of a service for the patients and populations that they serve.

Table 2. A proposed standard outcome set for inflammatory bowel disease

Symptoms, function and quality of life	Change in bowel symptoms
	Pain and discomfort
	Normal activities
	Energy and fatigue
	Weight
Disutility of care	Steroid use
	Complications of intervention
Health-care utilization	Hospitalizations and emergency visits
Survival and disease control	Overall and cause-specific survival
	Colorectal cancer
	Disease activity and remission
	Anaemia

From International Consortium for Health Outcomes Measurement (2016)

Misaligned reimbursement practices

While there are numerous different reimbursement mechanisms across the NHS, activity or case-based payments (health-related group payments, payment by results) are predominant for acute and emergency care. This means that there is often little incentive for trusts to reduce the volume of services provided, shift care from higher cost to more efficient care settings, or to incentivize lower cost preventative measures over treatment. Activity-based reimbursement serves to increase fragmentation, focusing on individual providers performing their own tasks rather than integrating care across clinical areas, and on single episodes of care as opposed to a view of the whole patient pathway (Schroeder and Frist, 2013).

Payment mechanisms and financial incentives for providers should be aligned with the goals of achieving better patient outcomes at the same or lower costs, in order to reinforce better value care delivery. Newer financial models cover payment for extended patient episodes (bundled payments) and/or whole conditions or patient segments (global budgets). Different providers then must work together to deliver care across clinical settings, under a fixed budget (retaining any savings, but absorbing risk for any losses) while meeting quality thresholds. This rewards

successful integration and innovative as well as cost-effective approaches to patient management. In the USA, value-based payments such as mandatory 30- or 90-day orthopaedic and cardiac surgery bundled payments have shown promise, with reductions in episodic costs, particularly in the post-discharge (post-acute) phase of care, while still maintaining quality (Dummit et al, 2016). Accountable care organizations also show some early successes, although to date they have only shown marginal reductions in costs (McWilliams et al, 2016). There are significant opportunities for population-level value surgical care including: teams working to effectively manage chronic medical conditions thereby reducing the need for interventions (e.g. improving diabetic control with resultant downstream reduction of limb amputations), understanding the utilization of low and high-value interventions (Malik et al, 2018) and focusing on longer-term recovery and rehabilitation rather than short-term outcomes.

Fixed locations of care

Centres performing higher volumes of certain complex procedures deliver better outcomes with associated efficiency savings (Birkmeyer et al, 2002) yet some centres in England still perform very low volumes of higher acuity surgery, with poorer outcomes as a result (Briggs, 2015). Care that is lower acuity can be provided closer to patients' homes in lower cost settings without compromising quality, yet in the UK, for example, simple lipomas are often still removed in the same costly hospital settings that manage complex cancers. Patients are still required to travel for much routine care, as opposed to safely being assessed through cheaper virtual platforms or newer telehealth solutions not requiring travel (Pearl, 2014). Linking sites of care over multiple provider locations through expanding networks is an efficient way to fully use resources and expertise, and generate volume across a greater distance. Care can be reorganized far better so that it is delivered at the most convenient, low cost and high quality location at each step of a patient's journey.

Limited IT capabilities

Currently the NHS has a fragmented electronic health record that does not allow the retrieval of patients' notes from distant sites or across clinical settings, nor does it enable safe and efficient communication with other specialist or community providers. Electronic health record functionality is limited in most acute trusts, with health-care professionals unable to order medications or tests online, minimal clinical decision support integrated into workflow and no ability to access records outside of the acute setting (Moore et al, 2010; Borab et al, 2017). In addition, patients do not have access to their notes, which may limit engagement in their health and health-care decisions (Esch et al, 2016). Building better IT capabilities requires significant investment, resources and coordination between systems, but ultimately is a critical building block required for delivering long-term value.

UK examples of value-based health-care delivery in surgery

The UK has a finite (and among other Organisation for Economic Co-operation and Development countries, comparatively small) national health budget, which necessitates considerations to providing total population value – including how resources are allocated and used effectively between different patient segments and for different conditions. As such, 'value' has been discussed differently in the UK to the USA (Gray et al, 2017). Surgeons can work to define and clarify the role of surgery in population health, particularly ensuring that patients who would benefit from surgery have access to that care, identifying high and low value services, as well as understanding the role of the surgical episode within a more complex disease pathway.

Value-based health-care delivery has been gaining traction in the UK over the last decade, with a number of national initiatives in place, as well as pockets of local delivery system innovation, to ensure the NHS delivers appropriate, high quality, cost-effective surgical care. A few select examples are given below which demonstrate elements of a value-based health-care delivery agenda, although there are doubtless many more.

Getting It Right First Time

The Getting It Right First Time initiative was established by the Royal National Orthopaedic Hospital in conjunction with the British Orthopaedic Association to address unwarranted variation in the clinical practice, management approach and procurement, as well as variable quality of clinical outcomes, for lower extremity joint replacements. Low volume services were redeployed, ensuring providers performed a minimal number of procedures to maintain high quality patient care. The Getting It Right First Time team provided standardized price ranges for hip and knee prostheses, thereby empowering clinicians to re-evaluate their selection. This resulted in a reduced length of stay for patients having primary hip or knee replacements, with a total reduction of 50 000 bed days as well as reduced orthopaedic litigation claims and savings of £20–30 million. Getting It Right First Time is now being extended to cover medical and surgical specialties, with the report on general surgery published (Abercrombie, 2017).

Integration around diseases

Patients with fractured neck of femur represent a high-risk group, often frail and with complex medical and social care needs. Fractured neck of femur is one of the most common reasons for emergency admission and is associated with high 30-day mortality. Historically, patients with neck of femur fractures had their entire pathway managed by orthopaedic surgeons. However, King's Health Partners reorientated services around the patient and condition, establishing an integrated practice unit.

Patients are triaged according to a specific review and referral system, then referred to an orthopaedic surgeon,

orthogeriatric physician and a neck of femur clinical nurse specialist. The multidisciplinary team works within a specialist neck of femur ward area to standardized care pathways based on national guidelines. Early preoperative anaesthetic review allows optimization and enables surgery within 24 hours using standardized techniques. Following surgery, patients return to the specialist ward and are stepped down when safe to provide capacity for incoming patients. The hospital published its clinical outcomes for selected services in booklets which are then made available to the public.

After the introduction of service changes, time to admission to a specialist ward reduced, as well as time to surgery, length of stay and 30-day mortality. The annual savings to the trust were projected to be £2 million (King's Health Partners, 2018).

Enhanced recovery after surgery

Enhanced recovery after surgery is widespread in colorectal surgery, orthopaedics and upper gastrointestinal surgery, but the principles can be applied more widely. A *Health Service Journal* award for value was given to the Somerset spinal surgical service and improvement network. This team focused on introducing a multidisciplinary enhanced recovery programme to decrease length of stay and improve quality of care, while maintaining high patient satisfaction. The team focused on standardizing the care pathway for patients, improving team communication and improving pain management in order to reduce length of stay by 52%, saving 780 bed days per year (Health Service Journal, 2017).

Time-driven activity-based costing

If clinicians are required to engage and influence efficiencies in the NHS then access to accurate costing is fundamental. Time-driven activity-based costing is a costing method originally described by Robert Kaplan to account for the total costs of all resources used by a patient as she or he traverses the system. While time-driven activity-based costing has not been widely applied in the UK, NHS Improvement has committed to the transformation of costing information with patient-level costing data, which is being introduced across acute trusts (Ford, 2016).

Using geography

Concentrating volume in centres of expertise while expanding the geographical reach of that expertise has been implemented for trauma and stroke in the NHS. Re-thinking the sites of care delivery across a complete disease cycle and building care networks has dramatically improved the quality of care provided for these conditions in the UK (Cole et al, 2016). The London Stroke Network saw a significant decrease in mortality and morbidity through the re-design of place-based care (Morris et al, 2014). There are opportunities to successfully extend networks across other disease states as well as for much of elective surgery (for example this is changing in orthopaedics as part of Getting It Right First Time). The ongoing reorganization of emergency services also has the potential to bring about significant change in the management and outcomes of acute emergency surgical conditions.

Payment reform

In 2014, Bedfordshire Clinical Commissioning Group signed a 5-year contract with Circle Partnership as prime contractor to deliver musculoskeletal services for a population. Under this scheme payments consist of two parts: a fixed part (bundled) and a variable part (outcomes-based). The variable part (2.5%) incentivizes excellence in quality and is calculated based on five quality criteria:

1. Innovative use of technology
2. Integrated care
3. Improved patient outcomes
4. Quality of patient experience
5. Production of an annual report.

While the results have not yet been published, projected savings are expected to be significant, mainly through reducing individual service utilization and pathway redesign.

Conclusions

The NHS is on a trajectory towards better value-based surgical care. Clinicians need to be committed to change at both the system level and at the frontline. Frontline clinicians are at a crunch point; the systematic measurement of outcomes and costs used to drive real improvements in care is critical. New care models, sustainability and transformation plans and integrated care systems have the potential to align incentives, uniting stakeholders around the same goal of better value for each patient and the population. More flexible, integrated systems will be able to drive local change, focus on regional priorities, and engender a culture of accountability, commissioning cost-effective and efficient services based on outcomes that matter to patients. **BJHM**

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Abercrombie J. 2017. General Surgery - GIRFT Programme National Specialty Report. (accessed 30 May 2018) http://gettingitrightfirsttime.co.uk/wp-content/uploads/2017/07/GIRFT-GeneralSurgeryReport-Aug17v1.pdf

Armstrong N, Brewster L, Tarrant C, Dixon R, Willars J, Power M, Dixon-Woods M. Taking the heat or taking the temperature? A qualitative study of a large-scale exercise in seeking to measure for improvement, not blame. Soc Sci Med. 2018 Feb;198:157–164. https://doi.org/10.1016/j.socscimed.2017.12.033

Birkmeyer JD, Siewers AE, Finlayson EVA et al. Hospital volume and surgical mortality in the United States. N Engl J Med. 2002 Apr 11;346(15):1128–1137. https://doi.org/10.1056/NEJMsa012337

Birkmeyer JD, Gust C, Dimick JB, Birkmeyer NJO, Skinner JS. Hospital quality and the cost of inpatient surgery in the United States. Ann Surg. 2012 Jan;255(1):1–5. https://doi.org/10.1097/SLA.0b013e3182402c17

Birkmeyer JD, Finks JF, O'Reilly A et al; Michigan Bariatric Surgery Collaborative. Surgical skill and complication rates after bariatric surgery. N Engl J Med. 2013 Oct 10;369(15):1434–1442. https://doi.org/10.1056/NEJMsa1300625

Borab ZM, Lanni MA, Tecce MG, Pannucci CJ, Fischer JP. Use of

computerized clinical decision support systems to prevent venous thromboembolism in surgical patients. JAMA Surg. 2017 Jul 01;152(7):638–645. https://doi.org/10.1001/jamasurg.2017.0131
Briggs PT. 2015. A national review of adult elective orthopaedic services in England - Getting It Right First Time. (accessed 30 May 2018) https://www.boa.ac.uk/wp-content/uploads/2015/03/GIRFT-National-Report-Mar15..pdf
Carter L. 2016. Operational productivity and performance in English NHS acute hospitals: Unwarranted variations. (accessed 30 May 2018) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/499229/Operational_productivity_A.pdf
Cole E, Lecky F, West A, Smith N, Brohi K, Davenport R; ELoTS Study Collaborators. The impact of a pan-regional inclusive trauma system on quality of care. Ann Surg. 2016 Jul;264(1):188–194. https://doi.org/10.1097/SLA.0000000000001393
Dummit LA, Kahvecioglu D, Marrufo G et al. Association between hospital participation in a Medicare bundled payment initiative and payments and quality outcomes for lower extremity joint replacement episodes. JAMA. 2016 Sep 27;316(12):1267–1278. https://doi.org/10.1001/jama.2016.12717
Esch T, Mejilla R, Anselmo M, Podtschaske B, Delbanco T, Walker J. Engaging patients through open notes: an evaluation using mixed methods. BMJ Open. 2016 Jan;6(1):e010034. https://doi.org/10.1136/bmjopen-2015-010034
Ford R. 2016. Patient-level costing: case for change. Costing transformation programme. (accessed 30 May 2018) https://improvement.nhs.uk/documents/36/CTP_PLICS_case_for_change.pdf
Gray M, Wells G, Lagerberg T. Optimising allocative value for populations. J R Soc Med. 2017 Apr;110(4):138–143. https://doi.org/10.1177/0141076817698653
Healthcare Quality Improvement Partnership. 2018. The National Clinical Audit Programme. (accessed 30 May 2018) https://www.hqip.org.uk/national-programmes/a-z-of-nca/
Health Services Journal. 2017. Trust introduces a spinal enhanced recovery programme to decrease length of stay and improve quality of care, reducing length of stay by 52% and achieving high patient satisfaction. (accessed 1 February 2018) https://solutions.hsj.co.uk/story.aspx?storyCode=7016258&preview=1&hash=FE79B8E934138D3AB30451BDBACCD47D
Institute of Medicine (US) Committee on Quality of Health Care in America. 2001. Crossing the Quality Chasm: A New Health System for the 21st Century. Washington (DC): National Academies Press
International Consortium for Health Outcomes Measurement. 2016. Inflammatory bowel disease. (accessed 31 May 2018) http://www.ichom.org/medical-conditions/inflammatory-bowel-disease/
International Consortium for Health Outcomes Measurement. 2018. Our standard sets. (accessed 1 February 2018) http://www.ichom.org/medical-conditions
Kaplan RS, Porter ME. 2011. The Big Idea: How to Solve the Cost Crisis in Health Care. Harvard Business Review. (accessed 30 May 2018) https://hbr.org/2011/09/how-to-solve-the-cost-crisis-in-health-care
King's Health Partnership. 2018. Delivering value based healthcare. (accessed 31 May 2018) https://www.kingshealthpartners.org/assets/000/001/995/Case_studies_4.05_06_original.pdf?1526038330
Malik HT, Marti J, Darzi A, Mossialos E. Savings from reducing low-value general surgical interventions. Br J Surg. 2018 Jan;105(1):13–25. https://doi.org/10.1002/bjs.10719
McGlynn EA, Schneider EC, Kerr EA. Reimagining quality measurement. N Engl J Med. 2014 Dec 04;371(23):2150–2153. https://doi.org/10.1056/NEJMp1407883
McWilliams JM, Hatfield LA, Chernew ME, Landon BE, Schwartz AL. Early performance of accountable care organizations in Medicare. N Engl J Med. 2016 Jun 16;374(24):2357–2366. https://doi.org/10.1056/NEJMsa1600142
Moore LJ, Turner KL, Todd SR, McKinley B, Moore FA. Computerized clinical decision support improves mortality in intra abdominal surgical sepsis. Am J Surg. 2010 Dec;200(6):839–843; discussion 843–844. https://doi.org/10.1016/j.amjsurg.2010.07.036
Morris S, Hunter RM, Ramsay AI et al. Impact of centralising acute stroke services in English metropolitan areas on mortality and length of hospital stay: difference-in-differences analysis. BMJ. 2014 Aug 5;349:g4757. https://doi.org/10.1136/bmj.g4757
Mulley AG. Inconvenient truths about supplier induced demand and unwarranted variation in medical practice. BMJ. 2009 Oct 20;339 oct20 2:b4073. https://doi.org/10.1136/bmj.b4073
Mulley AG, Trimble C, Elwyn G. Stop the silent misdiagnosis: patients' preferences matter. BMJ. 2012 Nov 8;345:e6572. https://doi.org/10.1136/bmj.e6572
NHS Digital. 2016. Hospital Admitted Patient Care Activity, 2015-16. (accessed 1 February 2018) http://www.content.digital.nhs.uk/catalogue/PUB22378
NHS England. 2014. Five Year Forward View. (accessed 30 May 2018) https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf
NHS Improvement. 2016. Quarterly Performance of the Provider Sector as at 31 December 2016. (accessed 1 February 2018) https://improvement.nhs.uk/resources/quarterly-performance-nhs-provider-sector-quarter-3-1617/
Ozdemir BA, Sinha S, Karthikesalingam A et al. Mortality of emergency general surgical patients and associations with hospital structures and processes. Br J Anaesth. 2016 Jan;116(1):54–62. https://doi.org/10.1093/bja/aev372
Pearl R. Kaiser Permanente Northern California: current experiences with internet, mobile, and video technologies. Health Aff. 2014 Feb 01;33(2):251–257. https://doi.org/10.1377/hlthaff.2013.1005
Porter ME. A strategy for health care reform--toward a value-based system. N Engl J Med. 2009 Jul 09;361(2):109–112. https://doi.org/10.1056/NEJMp0904131
Porter ME, Lee TH. The Strategy That Will Fix Health Care. Harv Bus Rev. 2013;91(10):50–70.
Public Health England. 2017. Surveillance of surgical site infections in NHS hospitals in England April 2016 to March 2017. (accessed 30 May 2018) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/666465/SSI_annual_report_NHS_hospitals_2016-17.pdf
Schneider EC, Sarnak DO, Squires D, Shah A, Doty MM. 2017. Mirror, Mirror 2017: international comparison reflects flaws and opportunities for better U.S. health care. (accessed 30 May 2018) http://www.commonwealthfund.org/interactives/2017/july/mirror-mirror/
Schroeder SA, Frist W; National Commission on Physician Payment Reform. Phasing out fee-for-service payment. N Engl J Med. 2013 May 23;368(21):2029–2032. https://doi.org/10.1056/NEJMsb1302322
Tsai TC, Greaves F, Zheng J, Orav EJ, Zinner MJ, Jha AK. Better patient care at high-quality hospitals may save Medicare money and bolster episode-based payment models. Health Aff (Millwood). 2016 Sep 1;35(9):1681–1689. https://doi.org/10.1377/hlthaff.2016.0361
Westaby S, Archer N, Manning N et al. Comparison of hospital episode statistics and central cardiac audit database in public reporting of congenital heart surgery mortality. BMJ. 2007 Oct 13;335(7623):759. https://doi.org/10.1136/bmj.39318.644549.AE

KEY POINTS

- The main challenges for surgical care in the UK are providing consistently high quality care that meets patients' and the population's needs, as well as reducing ongoing wasteful and unnecessary costly practices.
- Delivering better surgical value for patients means the health-care system needs to be designed, organized and paid for differently.
- Current barriers to better value care in the NHS need to be addressed.
- Strategies to deliver value at the system level include: the measurement of outcomes that are meaningful to patients, as well as the cost of that care, reimbursements based on delivering value, not volume, a focus on real multidisciplinary teams working across the complete cycle of care for a condition, building integrated networks of providers using different locations and expanding their geographical reach, and building supportive IT systems.