



Contents lists available at ScienceDirect

International Journal of Surgery

journal homepage: www.journal-surgery.net

Review

Publication of surgeon specific outcome data: A review of implementation, controversies and the potential impact on surgical training



P.D. Radford, L.F. Derbyshire, J. Shalhoub, J.E.F. Fitzgerald*,
On behalf of the Council of the Association of Surgeons in Training

Association of Surgeons in Training 35 – 43 Lincoln's Inn Fields, London, WC2A 3PE, United Kingdom

HIGHLIGHTS

- Government-mandated named surgeon outcomes have been published in England.
- Concerns surround data quality, risk adjustment, interpretation, and case selection.
- Data reflect the individual surgeon, but also the wider hospital team and resources.
- The potential impact on surgical training has largely been overlooked.
- The most appropriate outcome measures and adjustments need to be studied and refined.

ARTICLE INFO

Article history:

Received 4 November 2014

Received in revised form

21 November 2014

Accepted 27 November 2014

Available online 10 December 2014

Keywords:

Education

Training

Surgery

Outcomes

ABSTRACT

Government-mandated publication of named surgeon-specific outcome data (SSD) has recently been introduced across nine surgical speciality areas in England. This move is the first time that such national data has been released in any country, and it promises to provide a significant advancement in health service transparency. Data is derived from nine preexisting national surgical audit databases. However, eight of these were not originally designed for this purpose, and there is considerable controversy surrounding data quality, risk adjustment, patient use and interpretation, and surgeons' subsequent case selection. Concerns also surround the degree to which these results truly reflect the individual consultant, or the wider hospital team and accompanying resources. The potential impact on surgical training has largely been overlooked. This paper investigated the background to SSD publication and controversies surrounding this, the potential impact on surgical training and the response to these concerns from medical and surgical leaders. As SSD collection continues to be refined, the most appropriate outcomes measurements need to be established, and risk adjustment requires ongoing improvement and validation. Prospective evaluation of changes in surgical training should be undertaken, as any degradation of will have both short and long-term consequences for patients and surgeons alike. It is important that the literature supporting the safety of supervised trainee practice is also promoted in order to counterbalance any potential concerns that might detract from trainee operating opportunities. Finally, it is important that outcomes data is communicated to patients in the most meaningful way in order to facilitate their understanding and interpretation given the complexities of the data and analysis involved.

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1. Introduction

In recent years there have been increasing calls for greater transparency and disclosure within healthcare, in order to provide patients with information on the performance of their clinicians and the hospital where they are being cared for. Given its

Abbreviations: ASiT, The Association of Surgeons in Training; EWTR, European Working Time Regulations; HQIP, Healthcare Quality Improvement Partnership; NHS, National Health Service; SSD, Surgeon Specific Outcome Data.

* Corresponding author. Association of Surgeons in Training, 35 – 43 Lincoln's Inn Fields, London, WC2A 3PE, UK. Twitter: @ASiTofficial.

E-mail address: edwardfitzgerald@doctors.org.uk (J.E.F. Fitzgerald).

<http://dx.doi.org/10.1016/j.ijssu.2014.11.049>

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procedural and higher-risk nature, surgical outcomes have been central in this. Within the United Kingdom (UK), a significant stimulus was provided by the Kennedy Inquiry into high death rates following paediatric cardiac surgery at Bristol Royal Infirmary [1]. Here, disciplinary action was brought against two surgeons whose mortality rates were significantly higher than those of colleagues at comparable units. This moved the government to mandate the reporting of surgeon specific mortality data for all cardiothoracic surgery units in the UK. Following on from this, the Society of Cardiothoracic Surgeons of Great Britain and Ireland published the activity and mortality rates of all consultants undertaking adult cardiac surgery in the UK in 2004 [2]. Transparency within surgery was accelerated further when in 2005, the Freedom of Information Act came into force and the Guardian newspaper requested information on all the outcomes of cardiac surgeons [3].

In the years since the Kennedy Inquiry, the National Health Service (NHS) has been challenged with further scandals around patient care, particularly the failings at Mid Staffordshire Hospital. The subsequent Francis report [4] resulted in the publication of the NHS Commissioning Board's document "Everybody Counts" in 2012 [5]. This further underlined the need for greater transparency in the NHS for patients, from both staff and the groups commissioning services from the NHS. The document called for units to publish "activity, clinical quality measures and survival rates from national clinical audits for every consultant practicing" across nine specified surgical speciality areas, together with interventional cardiology. The benefits of this were cited as aiding identification of 'outliers' with higher mortality rates, improving surgical care and aiding transparency and patient decision making [6]. This work has been led by the Healthcare Quality Improvement Partnership (HQIP) under the auspices of the NHS Medical Director, Professor Sir Bruce Keogh.

The eventual publication of SSD has been controversial throughout [7–9], particularly given the risks of career damage or prosecution associated with underperforming outlier identification [10]. Proponents argue that non-public reporting does not necessarily drive quality improvement, and openly publishing this data may reduce mortality and enhance patient outcomes [11]. However, only a small number of studies have linked the publication of performance data with actual improvement in health outcomes, and low levels of data use by healthcare consumers have been reported [12,13]. Critics argue that 'gaming' occurs, with risk-averse surgeons passing difficult cases on to colleagues [14], or worse in that more complex cases will not be undertaken at all. The training of junior surgeons may also be adversely affected if surgeons seek to protect their individual outcomes [15].

Others have cautioned that surgeon specific mortality data does not accurately reflect the multi-disciplinary care patients receive before, during and after their surgery, and so unit-specific data is more appropriate [16]. Making the surgeon solely accountable may serve to accentuate stereotyped hierarchies that are counterproductive for patient safety, and subordinate the role of anaesthetists and intensive care physicians [17]. While such individual responsibility may be a strong incentive for quality improvement, this is contrasted by evidence suggesting flattened hierarchies, team responsibilities and blame-free cultures facilitate improved outcomes [18,19].

This paper reviews the background to SSD publication and the controversy surrounding this, the potential impact on surgical training and the response to these concerns from medical and surgical leaders. Looking to the future, a number of suggestions are made to facilitate communicating SSD to patients and media, and to ensure surgical training is monitored and protected to improve quality and future patient safety.

2. Implementation and controversies

Eight existing national surgical audit databases were selected to provide the initial SSD data, in addition to that already provided for cardiac surgery, giving nine surgical specialities covered in total. Outcome data from interventional cardiology was also selected, however this non-surgical specialty is not considered further in this review. Further details regarding these surgical audits are provided in Table 1. As a minimum, each speciality was required to provide surgeon-specific procedural volume and the mortality rates, in addition to national averages. This initiative currently applies only to NHS England, however it is likely this will be expanded over time given that some of these audits already cover surgeons working other the UK regions of Wales, Scotland and Northern Ireland.

An important feature of this data publication is that the national audit databases do not cover every surgical procedure performed; the data to be published has been specified for each speciality. This therefore means that surgeons not performing an included procedure will not be captured within the published data. Currently, SSD does not therefore provide a definite standard for all practicing surgeons, with just under half being absent from the published outcomes data.

Due to data protection legislation, consultant surgeons had to agree to the publication of their audit data. Fewer than 30 surgeons (less than 1%) refused due to various concerns [20]; these decisions were not supported by the Secretary of State or the Royal College of Surgeons of England [21,22] and the names of these surgeons together with the justifications for withholding their data was made publicly available online on the NHS Choice website [23]. These reasons typically related to concerns surrounding the quality of the data collected (particularly correct identification of the surgeon and attribution of cases) and the methods of risk adjustment. At the hospital level, data from one included audit database (colorectal surgery) previously suggested that higher postoperative mortality rates were seen for those not reporting data voluntarily [24]. However, from the initial data sets it was noted that none of those who withheld consent had mortality rates that were higher than expected [23].

Concern was also expressed over the hurried manner in which these figures were introduced and collated [25]. The national surgical audits harnessed to provide the outcome data were not necessarily designed for this purpose, and data submitted was not entered with this in mind. Inaccurate data entry and coding, together with difficulty in retrospectively risk adjusting, has therefore raised issues regarding validity and interpretation. This has required considerable work to address, including a review of data quality and validation, and issues have arisen over the inadequate funding and resources available to undertake and administer this.

The resulting adverse media coverage in response to the first tranche of data released, including reference to crude mortality rates and league tables, added to this controversy. Despite efforts to communicate with the media in advance in order to assist with data interpretation, public 'naming and shaming' and ranking of consultant surgeons by mortality rates resulted in dramatic and sensationalist national newspaper headlines (e.g. "The surgeons whose patients were up to 30 times likelier to die" [26]).

The demand for publication of SSD across surgical specialities also reignited the wider debate about their value and potential implications. Proponents have argued that publishing this data despite its current shortcomings serves to focus resources on responsible collection, analysis and dissemination together with resulting performance improvement [27]. However, current studies of other surgeon-specific reporting schemes suggest only half of participating surgeons comprehend data validity, accuracy or

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