Evaluating quality in clinical care

William KL Cullen

Douglas West

Stuart W Grant

Abstract

Healthcare quality is under increasing attention and focus. Being able to effectively analyse quality is vital to driving improvement in outcomes. This article aims to discuss the historical background and development of healthcare quality assessment and discuss some common definitions and frameworks used today. We discuss the Royal College of Surgeons (RCS) recent guidance and the use of the Donabedian model – of structures, outcomes and processes – as a helpful way to assess quality. Using examples from national audits such as the Lung Cancer Clinical Outcomes Publication we will show how there is an increasing shift away from solely reporting mortality towards new outcomes, including patient reported outcome measures (PROMS) such as thirst and pain, in current practice. We also discuss how results from different units can be published and compared, for example on an individual or unit basis, which leads on to important topics related to healthcare quality such as case mix adjustment and outlier management.

Keywords Assessing quality; Audit; Healthcare quality; Outcomes; Processes; Quality improvement; Risk adjustment; Structures

Introduction

Healthcare quality is under sustained focus in both the professional and public spheres. After the failings at Mid-Staffordshire Hospital, the Francis Report (2013) called for a change of culture within the NHS, emphasizing openness and patient centred care. Other recent events such as the PIP breast implant scandal (2010) and the Ian Paterson case show that quality control in both National Health Service and independent hospitals remains flawed in places.

In recent years the NHS has been under sustained financial pressure; with squeezed budgets and an increased demand for services. The worst failure to meet A and E waiting targets since records began and even a 'planned' system-wide cancellation of non-urgent operations to deal with the winter pressure in NHS England have raised concerns about the system's capacity to provide care. The King's Fund in their recent report to stated that 'in some areas of the NHS, quality is deteriorating rather than improving'.[1]

In this article we discuss how to define and monitor quality in healthcare We will review common frameworks of quality, including the Institute of Medicine's (IOM) '6 domains of quality' and the 2017 guidance from Royal College of Surgeons (RCS), based on the outcomes, process and structure model first described by Avedis Donabedian in the 1960s. Examples of the national audits and reports such as Lung Cancer Clinical Outcomes Publication (LCCOP),[2] the Getting it Right First Time (GIRFT) report in cardiothoracic surgery,[3] and the new Perioperative Quality Improvement Programme (PQIP)[4] are discussed to explore how different aspects of quality can be evaluated and reported.

A historical perspective on healthcare quality assessment

Attempts to evaluate healthcare quality are not new. Florence Nightingale was an innovative statistician, using 'rose diagrams' to show the proportion of deaths due to preventable causes in the Crimean War, she was one of the first to use clinical data to lead an effective public call to improve care. Ernest Codman, a Boston surgeon, is considered one of the founders of quality improvement in modern healthcare. Frustrated by what he saw as a tendency in the profession to only publish positive results he started his own hospital: the 'End Result Hospital'. Doctors there specifically followed up their patients through to their 'final outcomes'. They kept notes of diagnoses, demographics, treatments and the ultimate clinical outcome of each patient. They published a publicly available annual report. He also called on other hospitals and surgeons to do the same. Unfortunately, he was subject to such a level of professional ostracism, that he has been described as 'a martyr of quality'.[5] His ideas, however, took hold, with increased academic interest in healthcare quality, driven in part by increased healthcare costs. One physician inspired was Avedis Donabedian, who in a 1966 publication discussed the areas of structure, process and outcome as a way to measure quality.[6]

A variety of frameworks have been described to analyse quality; to discuss them all in detail would be beyond the scope of this article. Some have been developed in healthcare and others have been adapted for use from other industries, such as manufacturing. Lean, Six Sigma, Kaizen and Plan Do Study Act (PDSA) are some of tools which have been developed. The Health Foundation's *Quality Improvement Made Simple*[7] provides a useful overview. The most appropriate model to use will vary depending on the aspect of quality and clinical setting that is being studied. This point is reinforced by the GMC who do not recommend any particular framework but state in *Good Medical Practice* that 'You must take part in systems of quality assurance and quality improvement to promote patient safety'.[8]

Defining quality in healthcare

There are many definitions of quality in healthcare. The one described by the Institute of Medicine in their 1990 guide to new 21st century medicine, is widely used '*[quality is] the degree to which health services for individuals and populations increase the*

***William KL Cullen** BSc MBChB is a Core Surgical Trainee in Cardiothoracic Surgery at University Hospitals Bristol, Bristol, UK. Conflicts of interest: none declared.*

***Douglas West** FRCS(CTh) is a Consultant Thoracic Surgeon at University Hospitals Bristol, Bristol, UK; Society for Cardiothoracic Surgery Thoracic Audit Lead. Conflicts of interest: none declared.*

***Stuart W Grant** MBChB (Hons) MRCS PhD is a Specialist Trainee in Cardiothoracic Surgery and Honorary Lecturer, Department of Academic Surgery, Institute of Cardiovascular Sciences Education and Research Centre, Wythenshawe Hospital, Manchester, UK. Conflicts of interest: none declared.*

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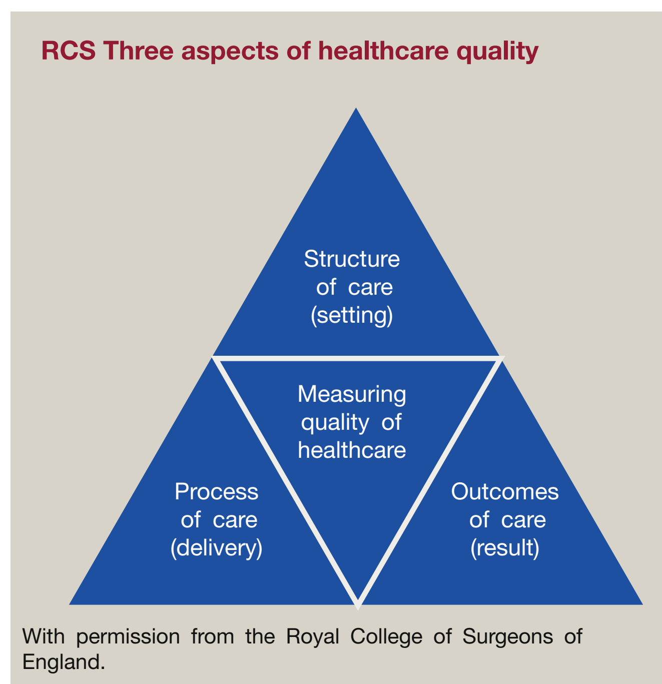
Please cite this article in press as: Cullen WK, et al., Evaluating quality in clinical care, Surgery (2018), https://doi.org/10.1016/j.mpsur.2018.07.002

likelihood of desired health outcomes and are consistent with current professional knowledge'.[9] The Institute expanded on their definition to specify six domains of quality in healthcare; for healthcare to be good quality it should be:

- safe
- patient centred
- equitable
- efficient
- timely
- effective.

The World Health Organization uses almost the same definition, although they talk about person-centred rather than patient-centred care.[10] Other organizations go further to include continuous improvement as a 'required end-point' in good quality healthcare[11] with the Health Foundation defining continuous improvement as 'a systematic approach that uses specific techniques to improve quality'.[7]

In 2017, the Royal College of Surgeons of England published a professional guide to good practice on using data to improve quality in surgery.[11] They use an adaptation of the Donabedian model (Figure 1), which breaks down measurement of healthcare quality into three broad categories which can be applied to practice at both individual and organizational levels: (i) **outcomes**, the results of healthcare delivery; (ii) **process**, how healthcare is delivered; and (iii) **structure**, the setting in which healthcare is delivered. They point out that it is important to use a combination of these factors, as focussing solely on patient outcomes risks missing out on important positives and negatives in the patient journey. By assessing the setting and processes in which healthcare is delivered a more rounded approach to measurement of quality is achieved. We will use the Donabedian classification to assess current efforts to evaluate quality.



With permission from the Royal College of Surgeons of England.

Figure 1

Evaluating quality: outcomes

Outcome reporting has been one of the primary roles of the national clinical audits. Clinical audits are one of the most frequently utilized technique for quality evaluation and have 'some of the best evidence base for facilitating improvement'.[11] Participation in audit is a requirement of good medical practice. The GMC states doctor's must '*take part in regular reviews and audits of your own work and that of your team, responding constructively to the outcomes, taking steps to address any problems and carrying out further training where necessary*'.[8]

The number of national audits has significantly increased over the last decade. In England, the National Clinical Audit and Patient Outcomes Programme (NCAPOP) is a group of national clinical audits, commissioned by NHS England and currently provided by the Healthcare Quality Improvement Partnership (HQIP). HQIP is an independent body, set up to improve quality in healthcare in the English NHS. Most NCAPOP audits are relevant to surgery, including the NICOR audit group (covering paediatric and adult cardiac surgery amongst other areas), the National Joint Registry (NJR), the National Emergency Laparotomy Audit (NELA) and the Lung Cancer Clinical Outcomes Publication (LCCOP). There are 64 current audits and clinical outcome projects registered with HQIP for 2018/19.[12] Broadly similar efforts in the devolved nations include the Scottish Government's Quality Performance Indicators Programme.

National clinical audits often focus on outcomes reporting. Perioperative mortality is almost universally reported, for example in adult cardiac surgery, and there are several examples of an association between the introduction of outcomes reporting and survival improving.[13] Intuitively this makes sense; making benchmarked outcomes available should encourage poorly performing clinical teams and healthcare providers to reflect on their performance and make changes to improve their care. This could improve care in several ways. Poorly performing providers may choose to withdraw from providing a clinical service altogether, while units with better performance grow as patients and commissioners seek them out. By identifying good performers, it may be possible to identify and spread good practice.

The NHS England Getting it Right First Time (GIRFT) project is an example of a quality Improvement programme that has attempted to identify and then disseminate best practice across several surgical specialties.

Surgeon-specific or team-specific?

Although reporting outcomes is central to evaluating quality, there are controversies about how this should be done. Outcomes can be reported at the level of the individual surgeon, or at the level of surgical units, and there are examples of both in current audit practice. While the National Adult Cardiac Surgical Audit reports outcomes by the individual consultant surgeon responsible for an operation, the National Emergency Laparotomy Audit (NELA) reports hospital-level outcomes, and LCCOP uses a mix of hospital-level outcomes and individual consultant procedure volumes. This is an area of debate, with advocates of individual surgeon reporting arguing that it holds senior clinicians to account directly, is transparent and prevents a poorly performing clinician being 'masked' by working in an otherwise high-performing team. Against this, many factors affecting outcomes

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Please cite this article in press as: Cullen WK, et al., Evaluating quality in clinical care, Surgery (2018), https://doi.org/10.1016/j.mpsur.2018.07.002

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