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Editorial

Measuring health-related benefit and quality of care in oral and maxillofacial surgery: British Association of Oral and Maxillofacial Surgeons Outcomes Project

Why should BAOMS embark upon a quality improvement initiative?

There is widespread recognition that the trajectory of increase in expenditure on healthcare in developed economies is not sustainable, and this has manifested as an acute squeeze on NHS funding since the financial crisis of 2008. Policy-makers and the public have also recognised that surgical outcomes vary. Commissioners of services are under increasing pressure to ensure that expenditure is directed towards care that delivers a demonstrable benefit in health-related wellbeing to patients and, in choosing providers, commissioners seek to direct funding to those services that provide the highest quality of care ("value-based purchasing").

Currently, there is little in the way of systematic collection of data that indicate effectiveness or quality of care across oral and maxillofacial surgery, and there is no consensus on appropriate measures. To reflect these realities, the President of BAOMS for 2018, Mr Ian Martin, and its Council, have decided that the Association should lead the response to this. It is the President's view that implementing systematic quality improvement in oral and maxillofacial surgery, and showing that effective care is provided, are the keys to the continued successful development of maxillofacial surgical care in the NHS, and reflect the core culture of the Association.

We also recognise that commissioners, in their deliberations about purchasing, are likely to take a negative view when there is an absence of data to show that interventions do deliver measurable benefits to patients, and that providers can show that the quality of the services is assured.

What form should a BAOMS surgical quality improvement initiative take?

While there is considerable ongoing debate about which measures best reflect the quality of surgical care, there is a reasonable consensus about what broad measurements should be used. The US Agency for Healthcare Research and Quality.[1] defines quality in healthcare as: "doing the right thing for the right patient, at the right time, in the right way to achieve the best possible results". In general, a high-quality provider is one who provides care that is safe, effective, efficient, patient-centred, and is committed to continuous improvement in each of those domains.

For patients who have oral and maxillofacial operations that might be regarded as discretionary, it is necessary that there is a clear, health-related benefit associated with that activity if sustained funding is to be ensured. This is likely to take the form of Patient Reported Outcome Measures (PROMS). The selection of PROMS can be guided by the recommendations of the Patient Reported Outcome Measurement Group endorsed by the Department of Health.[2]

Effective quality improvement is synonymous with comparative measures of quality that have four characteristics: first, that is reliably and clearly measurable; secondly, that it can be actioned by the surgical team; thirdly, that there should be evidence of variation around the measurement (there is no value in measuring a performance indicator that is almost universally met); and, finally, that the improvement in quality must have an impact on the patients' outcome.[3]

This activity, which will require the investment of time and effort on the part of the members, must be sustainable. It is therefore proposed that there will be a maximum of three quality measures for any given surgical activity. Each participating department will receive a report annually that details the observed performance of that unit compared with those of all departments (observed:expected performance) against each of the measures. Outstanding performance on any measure of quality by a department will be shared using case studies, which will allow good care practices to be generalised. Selected measures will be reviewed every three years. The addition of a new measurement must be accompanied by

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the loss of a previously-used measurement, so that there is no overall increase in the associated burden of work.

The 20th century model of delivery of surgical care whereby highly experienced and trained surgeons, doing a broad range of procedures to the best of their ability and with relative autonomy, was characterised by little regard for the need for a system of quality management. Persistence of this outdated perception of healthcare may account for some of the unwarranted variations in the care that patients are given,[4] but also informs the desire to publish details of individual surgeons' outcomes. Modern surgical care should be viewed as a process whereby groups of specialists interact in teams that aim to minimise variability in the delivery of care, and maximise safety, effectiveness, and efficiency. To reflect contemporary oral and maxillofacial surgical care the emphasis will be on gathering and reporting measurements for surgical teams that function within an acute hospital, and not on reporting an individual surgeon's results. This is much more likely to yield meaningful values and have the additional effect of fostering cohesion within the team.

How could we achieve this?

Selection of measurements

Engagement with the membership in the selection of measures of quality, as well as appropriate PROMS to measure health-related benefit, is an inception and on-going requirement. That portion of the care process directly actionable by the surgical team is limited, but will be the focus of measurement and benchmarking in this initiative. Birkmeyer et al[5] provided a summary of measurement of the quality of surgical care with the appropriate use of measures of structure, process, and direct outcome (Fig. 1).

Structural measures: are variables that describe the system or setting in which the care is provided. Commonly-used examples are volume of procedures as a surrogate for quality. A cumulative body of publications have shown that high-volume providers experience lower perioperative mortality, fewer complications, or better long-term survival after some operations, compared with their lower volume counterparts. Nouraei et al[6] used Hospital Episode Statistics (HES) to show that mortality and morbidity were lower among patients having major head and neck surgery in high volume hospitals within the English NHS. Subspecialty training also seems to be associated with improved outcomes.[7]

The principle advantage of structural variables is that they can be assessed easily and inexpensively, often from data that are already collected by the NHS. The disadvantages are that the published papers focus on a small number of variables (such as volume) and outcome measures (such as mortality). The relations between structural variables and non-fatal adverse events has not been well studied to our knowledge, and perioperative mortality as a measure for oral and maxillofacial surgery as a specialty is applicable only to major head and neck surgery. In addition, most structural measures cannot readily be changed by the oral and maxillofacial surgical team.

Process measures describe the care that patients receive. Practices related to perioperative care for which there is evidence of efficacy include care of central venous catheters, prevention of venous thromboembolism, and appropriate use of prophylactic antibiotics in clean–contaminated operations. Procedure-specific processes may explain apparent associations between structural variables and outcomes. For example, Hannan et al[8] published a prospective study of patients having carotid endarterectomy at six hospitals in the US, and found that vascular surgeons experienced a lower 30-day rate of stroke or death than general surgeons or neurosurgeons. However, that difference was explained in large part by the use of intra-arterial shunting, eversion endarterectomy techniques, arteriotomy patching, and the use of protamine by the vascular surgeons. This example illustrates a key objective of this initiative: the identification of superior outcomes is the first step in establishment of the key care processes (including technical), which result in improved outcomes across a range of procedures.

The advantages of process measures are that they are actionable by the surgical team and reflect the care that patients actually receive, whereas the disadvantages include the need for the entire eligible population to be identified (denominator), which implies the collection of considerable amounts of data by already hard-pressed clinical teams. A considerable problem with measures of process is the lack of evidence that identifies the care practices that are important for specific procedures. Serious adverse events in the postoperative period will arise from technical problems with the operation itself and these are poorly studied in oral and maxillofacial surgery.

Direct outcome measures include mortality, complication rates, duration of hospital stay, unscheduled return to theatre, patients' satisfaction, functional health state, and other measures of health-related quality of life. There are a number of large scale initiatives aimed specifically at measuring and improving surgical outcomes (Perioperative Quality Improvement Project –PQIP,[9] free flap registry, National Emergency Laparotomy Audit, National Joint Registry) in the UK and many more internationally.

Their advantages are that outcomes for patients are the "bottom line" for surgeons, and are therefore likely to be most enthusiastically adopted. In addition, measurement alone may improve outcomes. This was shown most notably by the dramatic decline in morbidity (45%) and mortality (27%) in the decade that followed the introduction of the National Surgical Quality Improvement Program (NSQIP) in the US Veterans' Administration health care system.[10] Hospitals and surgeons had only to see that their performance was inferior relative to their peers to make the changes necessary to improve outcomes.

Their most important limitation relates to sample size. For most operations few hospitals or surgeons have suffi-

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