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Invited Commentary

Improving measurement 1: Harnessing the PROMise of outcome measures



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Patient reported outcome measures (PROMs) are completed by patients to capture one or more aspects of their health and wellbeing, typically taking the form of standardised and validated questionnaires.¹ They are broadly divided into generic PROMs and site, disease or condition-specific.² Their psychometric robustness is of paramount importance, the methods of which and how to assess for this are described in detail in this journal and elsewhere.^{2,3} The number of PROMs available and their profile amongst clinicians is rising, such as with the recent Royal College of Surgeons advice for the routine collection of PROMs for all those undergoing cosmetic surgery as part of their Cosmetic Surgery Standards.^{4,5} It is therefore important that as a speciality we engage with PROMs and identify areas in which PROMs can be most effectively harnessed to improve patient care.

The potential applications of PROMs are broader than we think. While there is no doubt that asking the patients' perspectives on their condition and treatment is the 'right thing to do', there is also considerable potential to deploy PROMs in innovative ways. PROMs have the potential to generate a positive impact across the patient care journey - informing the patient, clinician and shared decision-making between the two, in addition to affecting the health care system it-

self from quality assurance to influencing its financial architecture. The breadth of roles for PROMs will be considered in this piece, and ways to overcome barriers and realise these opportunities will be discussed in the accompanying article ("Part 2").

Informing referrals and surgical decisions

PROMs can be harnessed to improve patient care in the pre-surgical decision-making process. This is already coming into clinical practice in orthopaedics to support decision-making around large joint arthroplasty. The Arthroplasty Candidacy Help Engine (ACHE) incorporates outcome measures such as the Oxford Hip and Knee Scores and evidence based thresholds for treatment benefit to predict which patients will actually benefit from arthroplasty.⁶ The tool has been deployed to inform shared decision-making, where it is used during the surgical consultation and can inform both the patient and the surgeon of the mathematical likelihood of the patient benefiting from surgery. It could also play a key role in primary care, guiding referral to secondary care, reducing unnecessary referrals, preventing unnecessary surgical intervention for those that are likely to benefit least and ultimately improving cost efficiency. Similar systems could be achievable and beneficial in areas of plastic surgery such as Dupuytren's contracture and post-mastectomy breast reconstruction. These conditions both

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have a similar non-life threatening, but life altering, status to large joint osteoarthritis. We are under pressure to justify treatments that we provide, and many plastic surgery interventions have been labelled with terms like “Procedures of Limited Clinical Effectiveness”. Facing the reality of needing to justify value for money spent on plastic surgery, systems like this can support on-going access to treatment for patients who will benefit from them. If there is not the resource to fund present or previous numbers of procedures, then rather than stopping that treatment entirely, why not ensure that those who will benefit from it most retain access? This goes beyond “rationing” as such approaches can stop low value and unbeneficial treatments, even if resource were plentiful.

Optimising and individualising follow-up

Similarly, the post-operative period is open to improved efficiency and better quality from the incorporation of PROMs, through the remote monitoring of recovery and progress in line with expected recovery. At present, follow-up appointments are often made after arbitrary lengths of rehabilitation and may be unnecessary. This is costly to the health care system, to broader society (through loss of productivity and earnings) and to the patient.

Furthermore, monitoring PROMs for general wellbeing and psychological health could be important in identifying those who are struggling emotionally with their surgery and health state. This approach has been introduced for children and their parents with chronic illnesses in the Netherlands. Through the KLIK (Kwaliteit van Leven In Kaart - Quality of Life in Clinical Practice) programme, PROMs are routinely collected via a web application and allow early identification of problems.⁷ Over 10,000 children and parents use this system for diverse conditions, ranging from inflammatory bowel disease to cleft lip and palate. This approach is applicable to much of plastic surgery practice, especially in areas with long-term follow up, like congenital hand surgery or hidradenitis.

Breathing life into big data

The importance of big data analytics in plastic surgery should not be overlooked in the application of PROMs. If routine PROMs data is collected via digital means a large dataset will soon develop. Linkage of this data with their general electronic health records will open up an exciting new area for data analysis. The potential for discovering new associations and monitoring treatment outcomes on an individual, departmental, national and international level is great.

Driving reduction in undesirable variation in care

The Atlas of Variation has mapped variation in clinical care for a range of conditions, with variation documented for some aspects of plastic surgery too.⁸ Routine entry of procedures into registries may help to document and describe

variation, which can be supported by using PROMs. Two of the most relevant registries for plastic surgery are the UK Hand Registry and the UK Flap Registry, and both involve routine collection of PROMs. In order to gain the greatest benefit from routine PROMs data collection, standardisation and consensus on the most appropriate outcome measures must be sought. The development of Core Outcome Sets (COS), agreed upon minimum and standardised sets of outcomes that should be reported on for studies of a specific condition, will aid this.⁹

Changing perspectives in life and death scenarios

PROMs are, however, not the panacea for every aspect of healthcare management and decision-making. Their role in life and death decision-making, such as with a large burn, is likely to be limited. However, PROMs data collected on survivors of massive burns could help inform discussions with family members during the early stages of patient management.

Stimulating interest and driving research agendas

Data arising from routine collection of PROMs can be used to answer existing research questions and may also inspire further questions. The development and refinement of PROMs themselves is also a research-intensive and necessary exercise. For example, one problem with PROMs currently is the degree of responder burden associated with many of them.¹⁰ This is off-putting to patients and clinicians alike. This is an area of weakness that must be addressed through developments in outcome measurement science. These include the use of item response theory to validate outcome measures, and to ensure that measurement is interval-scaled. Some of the details of this have been discussed recently.^{2,3} Related to this, computerised adaptive testing (CAT) is a technique being used to reduce responder burden by selectively delivering questions based on the previous responses, so that only questions that will gain more information are used. In practice, this is akin to a situation where someone responds that their hand function is ‘normal’, then there is little to be gained from asking them increasingly granular questions about hand problems, which may be more appropriate to someone who has ‘non-normal’ hand function. This will be further improved through the incorporation of routine digital collection (moving away from paper based questionnaires), the use of artificial intelligence and potentially voice recognition software to avoid the need for manual form filling.

Who should be responsible for driving change in PROM use in the plastic surgery community? We believe that we all have a responsibility to engage with and encourage the use of PROMs for our patients. Not only because of the many exciting benefits as outlined above, but also because our patients are asking for it. The enthusiasm for further research into the development and performance of PROMs has been clearly identified as a major research priority in the recent

James Lind Alliance exercise for hand surgery.¹¹ Furthermore, as clinicians we should use PROMs to advocate for treatments that show significant psychological and global quality of life gains, but that are low on a funder's priority list. Examples of this include massive weight loss surgery and autologous breast reconstruction, where PROMs have demonstrated these procedures as delivering positive gains for patients.^{12,13} National bodies such as the Royal College of Surgeons and BAPRAS, along with the Department of Health, should also drive forward the increased use of PROMs. Their increased use will not only lead to better patient care, but in a world of value-based healthcare,¹⁴ will help provide the best outcomes for patients at the most cost effective price. PROM data is already used in health technology assessment, where the cost effectiveness of treatments is measured by calculating the incremental cost effectiveness ratio, which is the additional cost incurred by a new treatment, relative to the gain achieved. This gain achieved is often measured in quality-adjusted life years (QALYs), which typically combines overall survival with health status or the utility.¹⁵ These latter elements are calculated using PROM data. It has also been suggested that future health reimbursement systems could be based on PROM data,¹⁶ something that funders in the United States of America are currently investigating.¹⁷

PROMs can play an important role in clinical decision-making, measuring the effectiveness of interventions and improving the treatments we offer. In order for the plastic surgery community and our patients to truly benefit from this revolution in healthcare we must identify areas of greatest benefit and novel applications for their use.

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