Outcome data, T&O surgeons and units: a background briefing and position statement from the BOA

Executive Summary

In recent years there have been various drivers for more collection, use and transparency of data on outcomes. T&O has been at the forefront of this, primarily because of the existence of well-established major datasets in our specialty. This is demonstrated by the inclusion of the National Joint Registry (NJR) in the first round of Consultant Outcome Publication (COP) in 2013.

In the past, the data that was collected was typically held and used within the profession. However, it is clear to us that the culture is changing and greater transparency is becoming the norm – we need to influence and engage with this to ensure the right balance and message.

As a specialty association we feel a professional obligation to support and champion collection and use of data. Only if we know our outcomes can we monitor and improve them, pick up and act on issues, and help patients consider and decide what is right for them. Furthermore, collecting and reporting data often leads to improved outcomes for patients in and of itself. However, it also raises a range of challenges and issues. We have reflected on this topic at some length, and have developed this document in which we present a BOA position on the following issues:

- Encouraging surgeons and units to contribute data to audits and use the data that results;
- The importance of data quality within all registries and audits and the NJR's current activities regarding this;
- 'Outlier' or 'variance' analysis; and
- Outcome publication, and in particular our view that unit-level publication is more appropriate that consultant-level publication.

Outcome data, T&O surgeons and units: background briefing

Introduction

Patient outcome data, its collection, use and public reporting have been a topic high on the agenda for T&O in recent years. It is a topic that has been regularly discussed at the BOA and in which we are actively involved. In this briefing, we aim to outline the current context and discuss the BOA position on the issues raised. The position statement following this briefing is intended as a stand-alone document, but the background and context are provided here to introduce this topic.

Background and context

In recent years there have been various drivers for more collection, use and transparency of data on outcomes. Certain major examples are outlined here:

- The Darzi report 'High Quality Care For All', published in 2008[1], included the following: *"For the first time we will systematically measure and publish information about the quality of care from the frontline up. Measures will include patients' own views on the success of their treatment and the quality of their experiences. There will also be measures of safety and clinical outcomes. All registered healthcare providers working for, or on behalf of, the NHS will be required by law to publish 'Quality Accounts' just as they publish financial accounts."*

- Revalidation for doctors began in 2012. GMC guidance on revalidation explains one of the elements required of doctors: 'For the purposes of revalidation, you will have to demonstrate that you regularly participate in activities that review and evaluate the quality of your work.'[2] Participation in clinical audit is identified as one of the main ways in which to fulfil this requirement, through following a process of actively participating in the audit, evaluating and reflecting on the results, taking action and subsequently demonstrating the outcome.

- *'The power of information: Putting all of us in control of the health and care information we need'* was published by the Department of Health in 2012.[3] This report described that "Better quality information and sharing information is critical to modernising the NHS and care services." Its conclusions included:
    - *"Alongside the Government's core role, a wide range of organisations will be encouraged to take a broader role in making information accessible and usable for people."*
    - *"More information will be publicly available about care at clinical or professional team level and information that enables [patients] to 'benchmark' services, such as clinical audit data."*
    - *"An information-led culture where all health and care professionals – and local bodies whose policies influence our health, such as local councils – take responsibility for recording, sharing and using information to improve our care."*

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[1] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/228836/7432.pdf

[2] General Medical Council (2012) Supporting information for appraisal and revalidation

[3] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/213689/dh_134205.pdf

- The 2013 Francis report in to Mid-Staffordshire[4] made 290 recommendations, of which 13 relate to collecting, analysing and using data. One section focused on these issues reads:

  > *'There is an urgent need in many areas for measures to be developed to allow the effectiveness of a service to be understood. In some areas, such as cardiac surgery, this is better developed than in others.* ***It should be considered the duty of all specialty professional bodies to develop measures of outcome in relation to their work.*** *While this will be more difficult in some areas than others, it should be possible in all. It should no longer be acceptable for treatment to be offered to patients without information being available on how effective it is and what it is reasonable to expect as an outcome. The rate at which such outcomes are in fact achieved by units and individuals can then be better understood, and, where necessary, corrective measures taken. The more such information is available to the staff providing treatment, the more likely is a culture of striving for evidence-based excellence to be adopted."* (Para 20.213)

- The 'Consultant Outcome Publication' (COP) initiative from NHS England was announced in late 2012 and first publication occurred in 2013. This was designed to pre-empt the publication of the Francis report and began with 10 specialties publishing outcomes on their audit website, including the NJR. The initiative expanded in 2014 and 2015, now covering 13 specialties, more outcome measures and including publication on NHS Choices as well as the audit website. The NJR also published expanded unit-level dashboards in early 2015.

Where are we in trauma and orthopaedics?

Trauma and Orthopaedics has a strong track record in collection and use of data, with the NJR, National Hip Fracture Database (NHFD), Trauma Audit Research Network (TARN) and the Scottish Arthroplasty Project (SAP) already being well-established. Nine further registries are currently in development across the T&O field (listed in table 1). Our strengths in this area are something that we as a profession can be proud of. They also mean that we at times are among the trailblazers in this area, as for example with COP. This is a position that is not always comfortable.

We recognise that the publication of individual NJR data in particular has been challenging, and as the NJR was one of the first audits included in COP, this has impacted our specialty from an early stage. We also recognise that outcome publication from the NJR has raised important issues, particularly regarding data quality and completeness, and publication at unit vs consultant level, and so on. (These issues are covered in the next section.) The BOA, along with specialist societies, has been heavily engaged on these issues, and continues to influence and champion them, though we appreciate that these things are not fully resolved.

In the past, the data collected was typically held and used within the profession. However, it is clear to us that the culture is changing and greater transparency is becoming the norm – we need to influence and engage with this to ensure the right balance and message. This includes the publication on NHS Choices of certain audit information, and in future the Private Healthcare Information Network (PHIN) plans to publish information for the private sector, having received a mandate from the Competition and Markets Authority to ensure customers have greater information about outcomes. Another development for T&O comes from across the globe in Australia, where there has been recent high profile criticism of the joint replacement registry by an eminent Judge who accuses them of 'failing patients by refusing to expose incompetent colleagues.'[5] This particular example highlights the importance of ensuring that data is used and acted upon where concerns may exist – again a topic that is covered in the next section.

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[4] http://www.midstaffspublicinquiry.com/

[5] Coverage in *The Australian*, under heading 'Surgeons slammed for failing to report rogues', 17 October 2015.

Overall, the Francis report in particular and the wider changing culture of the NHS more generally, places a responsibility on professional bodies such as the BOA in the area of collection and transparency of data (as highlighted in the quote above). Our view is that we the BOA and the profession have an important obligation to act upon this. We would like to see our specialty continuing at the forefront in this area: continuing to strive to understand patient outcomes following our procedures and how these can improve; continuing to detect areas of concern with implants, units or surgeons and support individuals and teams to identify and act on any issues; and continuing to use the data for review, reflection and improvement as widely as possible. Fundamentally, we see it as being in the patients' interests to do so. Only if we know our outcomes can we monitor and improve them, pick up and act on issues, and help patients consider and decide what is right for them. Furthermore, collecting and reporting data often leads to improved outcomes for patients in and of itself.

Table 1: T&O new and emerging registries

Name	**Website or contact**	**Remit**
British Orthopaedic Foot and Ankle Society (BOFAS) registry	www.bofas.org.uk/Outcomes	1- First MTPJ fusion; 2-ankle fusion
British Society for Children's Orthopaedic Surgery (BSCOS) audit	bscos.org.uk/registry	1- Slipped Capital Femoral Epiphysis, 2- Ponseti Management of Club feet, 3- Supracondylar fracture of humerus (Future release planned to cover: 4- Developmental dysplasia of the hip, 5- Perthes' Disease and potentially one further area regarding treatment of cerebral palsy)
British Society for Surgery of the Hand (BSSH) Audits	bssh.nuvola.co.uk	Basal thumb arthritis; dupuytrens; ulnar nerve decompression in elbow; wrist joint salvage for inflammatory arthritis; wrist joint salvage for non-inflammatory arthritis
British Spine Registry (BSR)	bsrcentre.org.uk	All spinal procedures
National Ligament Registry (NLR)	uknlr.co.uk	(Currently) Primary Anterior Cruciate Ligament injury, repair and reconstruction
Non-arthroplasty hip registry (NAHR)	britishhipsociety.com/main?page=NAHR	Any type of hip condition and/or surgery other than arthroplasty and the treatment of acute fracture (including those who do not have surgery). Predominantly arthroscopic treatment of femoro-acetabular impingement and labral tears but also includes predominantly open surgery for the adult consequences of childhood hip disease such as hip dysplasia and Perthes' disease.
UK Knee Osteotomy Registry (UKKOR)	www.ukkor.co.uk	Knee osteotomies (High Tibial Osteotomies – HTO; Distal Femoral Osteotomies – DFO)
Not yet launched for data collection, but enquiries welcome		
British Limb Reconstruction Society (BLRS) audits	James Fernandes, President of BLRS, James.Fernandes@sch.nhs.uk	1-Fibular hemimelia; 2-Tibial Pilon fractures; 3-Tibial non-unions; 4-Intramedullary limb lengthening nails
National Bone & Joint Infection Registry	Mike Reed, mike.reed@nhs.net	1- Chronic community-acquired, post-trauma, or healthcare-associated 'native' joint or bone infections; 2- Chronic post-operative orthopaedic device related infections

BOA Position Statement Regarding Collection and Use of Data

Given the importance of the issues above, we have set out the following principles as the BOA's position statement regarding data collection and use. Comments on this position statement are welcome.

Regarding the role of individual clinicians and units in data collection and use

Principles:

- All surgeons/teams should submit data to any registry that is relevant to their area of practice, whether or not submission is 'mandated'. This comes from a professional obligation to ensure clinicians 'review and evaluate the quality of your work'.

- All surgeons should present their individual data from the audits such as NJR for reflection and discussion at their annual appraisal. Where there are other audits on a national basis which are sufficiently well-established to give meaningful data on which to reflect, these should also be presented and discussed at the appraisal, e.g. those listed in Table 1 above. Where the appraiser is not familiar with this type of output or comes from another specialty, it would be appropriate for such discussions also to occur within the T&O department itself, with the Lead Orthopaedic clinician or other senior member of the specialty.

- All units should regularly review and reflect upon the data for that unit, and data for all individuals within the unit should be shared internally for the purposes of peer-to-peer review and support within the unit – for example at a six-monthly GIRFT/audit meeting. This should include discussion of unit-based audits such as NHFD, TARN and Infection data as well as the more surgeon specific audits. Some units already have such internal sharing and review processes, and typically find these very useful, and we consider that all units should undertake this sort of regular review.

- Registry data can be enormously valuable for quality improvement and we encourage individuals and surgeons to consider ways that they could use their data for improvement purposes.

Regarding registries and audits role in data governance, data quality and reporting

Principles:

- Registries and audits should make reporting readily available to the individual clinicians and the hospitals that submit the data. This should be available in a timely fashion and should as a minimum enable comparisons with others and overall trends. Suitable methods of analysis and presentation should be developed as appropriate to the subspecialty area.

- All registries and audits should track the quality of the data held and implement measures to improve data quality as needed. Data quality monitoring should include rates of compliance, which should be available alongside any reports.

- The BOA supports the NJR's work on data quality and we urge all members, their teams and hospitals to regularly review their data and contribute to NJR data quality initiatives; for each round of COP we publicise to members the opportunity to validate their data and strongly encourage them to undertake this.

- Registries and audits must ensure data governance and security is in place that is appropriate to the sensitivity of the data held and satisfying all relevant legislation and NHS principles of best practice.

Regarding variance issues

One use of registry data is to look at issues of variance, for example where performance is particularly strong or weak or where particular patterns of outcomes emerge. Many clinical audits use the term 'outlier analyses for this approach. The BOA considers that it is preferable to describe this as 'variance analysis', and to look at both positive and negative variation from the norm. There may be different reasons for any variance and depending on the reason this may or may not be a cause for concern and further action. We are conscious that the term 'outlier' can be seen to have a stigma associated with it, but the principle of variation is entirely to be expected and warrants further assessment, but should not in itself be seen as a problem. We are also keen to promote the concept that many individuals or units may have variation from the norm, perhaps not as significant as being an 'outlier' but which still warrants further understanding and assessment. Overall we hope to foster a culture in which variation analysis is a routine part of data review, with the focus always on understanding it and, if appropriate, addressing it for the purpose of patient benefit. Where variance analysis identifies problems, we are keen to provide support to those affected, particularly where they are BOA members, and see this as part of our role as a specialty association.

Principles:

- All registries should, once sufficient data of adequate quality is collected, undertake analysis of variance in outcomes between units and (where collected) between individual consultants. This is a professional obligation of those running registries to ensure that variance issues can be highlighted to those affected for assessment.

- All individuals or units that are highlighted as having variance issues in the registry's analysis must act upon this information to review their data, consider the reasons for variation and whether any further action or alteration to practice is required.

- The BOA intends to make available support to individuals and units that have data variance issues, which will include general support about how to approach this initially and support from senior clinicians regarding any specifics of a particular situation and handling of these.

Regarding publication of data

There is a clear culture change towards increasing publication of outcome data, and the BOA feels that we as a profession must step up to the plate alongside colleagues from all specialties. However, publication must be handled sensitively and providing context and information to aid understanding.

Principles:

- For elective orthopaedic surgery, the BOA strongly believes that open publication at unit level is far more appropriate than at individual surgeon level. We have widely communicated this view as part of the COP programme. This is for three main reasons:
    - Patients are more likely to have opportunities for choice over the hospital or unit where they will be treated, than over the individual surgeon, and therefore a patient choice argument for consultant-level publication is difficult to justify;
    - Surgeons do not work in isolation but are always part of a team;

    - The data available at the unit level is generally more robust, and therefore more reliable and relevant for comparative uses. Recent input we have received from both Prof. David Spiegelhalter and Prof. Paul Aylin has cast considerable doubt on the capacity of much of this data at Consultant level ever to reach the level of statistical significance required to make legally robust comparisons between surgeons functioning satisfactorily and those functioning poorly, and therefore publication of such comparisons could be misleading.

  This should not be used as an excuse to ignore such data for the purposes of professional review. There may very well be clear and important differences in the level of outcomes achieved by surgeons operating in the best portion of the graph in comparison to those at the less good end, and it is vital to make use of such information for positive improvement of outcomes.

- Regarding trauma, we do not feel that consultant level publication is appropriate for NHFD and TARN, but we strongly support hospital level publication. This is for two reasons:
    - The results of both major trauma and hip fractures procedures are generated by a multidisciplinary team. Major trauma patients present with multisystem pathology, and neurosurgeons, T&O surgeons, general surgeons and plastic surgeons are often involved in their care. In addition, anaesthetists and intensive care units often play a pivotal role. As such the results are dependent on a team functioning at the highest level.
    - These databases are based on patient disease rather than patient intervention (such as joint replacement surgery or cardiac surgery), they are conditions that present as emergencies and patients do not have the choice of where they are treated.

- Before publication, consideration must be given as to the robustness of the data and analysis to ensure that it will be helpful and not misleading. For this reason, with new registries it may be some considerable time before any information is published as the amount and quality of data matures.

Conclusion

We would like to see our specialty continuing at the forefront in the area of collection and use of data: continuing to strive to understand patient outcomes; continuing to detect areas of concern with implants, units or surgeons and support individuals and teams to identify and act on any issues; and continuing to use the data for review, reflection and improvement as widely as possible. This is because we see it as being in patients' interests to do so.

We are very aware of the challenges and issues that are posed by this, and that care that must be taken to get the policies and messages right. We therefore hope this position statement on the BOA's views, along with the background briefing preceding it, is helpful in outlining the issues and where we stand on them.

We warmly welcome comments regarding this, and envisage that this position statement may continue to evolve as the landscape further develops.