Using Outcomes Information for Revalidation in Trauma and Orthopaedic Surgery

December 2013, with minor revisions January 2016

The Colleges and Surgical Specialty Associations believe that data on surgical outcomes is an important element of demonstrating that a surgeon meets the required standards of professionalism and practice. This framework provides guidance to surgeons working in trauma and orthopaedic surgery to help them produce relevant outcomes data for appraisal and revalidation.

Any queries relating to this framework should be addressed to revalidation@rcseng.ac.uk.

Section 1: Introduction and Explanation

Background

Revalidation is the new approach to the regulation of doctors, it commenced in December 2012. The process is centred on local annual appraisal. All doctors will need to be revalidated every 5 years in order to retain their licence to practise.

The Surgical Specialty Associations and Surgical Royal Colleges have developed the standards for surgical revalidation and specified the supporting information that trauma and orthopaedic surgeons will need to provide to their appraiser to facilitate a positive assurance of their fitness to practice and, at the end of the 5 year cycle, a recommendation for revalidation to the GMC. An important component of the supporting information required for revalidation is that relating to outcomes.

An important landmark in relation to transparency and openness in the NHS was achieved in 2013 with the publication of surgeon-level data from nine surgical audits. We see national clinical audit as the "gold standard" in relation to collection of data and measurement of outcome. The RCS fully supports the continuation and expansion of NHS England's programme of data transparency, whilst recognising that in some specialties, unit level data are more accurate than individual surgeon data. In relation to trauma and orthopaedics in particular, the British Orthopaedic Association strongly believes that (1) for elective orthopaedic surgery, publication at unit level is far more appropriate than at individual surgeon level, and (2) for trauma surgery, consultant level publication is not appropriate for NHFD and TARN, but hospital level publication is strongly supported."

The British Orthopaedic Association has defined the following measures for surgeons working within the specialty. Surgeons will only need to demonstrate their outcomes in their area(s) of practice. There is no requirement for trauma and orthopaedic surgeons to undertake common 'index procedures'.

You should note the following points:

National Clinical Audit

- Where there are identified national clinical audit(s) or registries that cover your area(s) of practice, it is essential that you participate. This will be mandatory for revalidation.
- If there is a national clinical audit that falls within NHS England's programme of consultant-level outcomes publication, your results will be made available publically.
- Your employer will need to facilitate the submission of data to the audit(s) or registries.
- It will be your responsibility to gather the relevant information from the audit (eg. reports/downloads) to present at appraisal.

Routinely Collected Data (HES, PEDW, HIS, ISD)

- These data are already collected by your NHS organisation and brought together on a national basis.
- We have identified key procedures in each sub-specialty area which should cover the majority of surgeons' practice.
- We have identified what should be measured and how.
- We expect that analyses of these data will be provided by your employer.
- Wherever possible your individual outcomes should be presented alongside all other surgeons in the country performing that procedure(s) (eg. in a funnel plot).
- We have identified the process of further investigation if it appears from these analyses that your outcomes are outside accepted norms (see below).

Local Audit

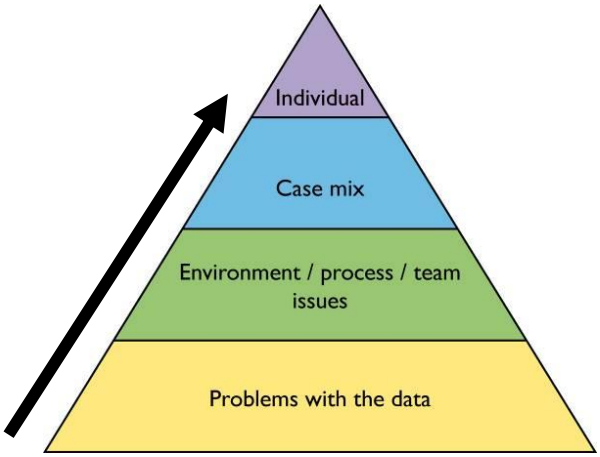
- Where your area of practice is not appropriately covered by a national audit or where routinely collected data will not assist in measuring outcomes, we recommend some form of local audit.
- This may be conducted by you personally, or form part of a wider unit/region-based audit.
- It will be your responsibility to conduct/participate in the audit and present the results at appraisal.
- Where you are obliged to undertake local audit, you are advised to audit a practice or procedure that is representative of your practice both in the NHS and in the private sector. The subject should be something that you undertake on a routine basis.

Structured Peer Review (of outcomes)

- For some highly specialised/low volume areas of practice which cannot be appropriately measured using the above methods, it may be necessary to have some form of structured peer review. Where this is identified as necessary, we will work with the relevant specialties to identify the methodology required so that the peer review process is fit for purpose for revalidation.

Managing Outliers

- Analysis of your outcomes provides one piece of the supporting information required for revalidation.
- If it appears that your outcomes are outside of the accepted norm, this should trigger a local investigation that closely examines the data for anomalies, looks at the environment and structure of the team/unit and your case mix before considering you as an individual (see diagram 1).
- We will be able to assist in the early stages of such an investigation.


Individual
Case mix
Environment / process / team issues
Problems with the data
Diagram 1

Section 2: Measuring Outcomes

2.1 General Orthopaedic Surgery - Hip fracture

2.2 Sub-specialist Orthopaedic Practice:

- 2.2.1 Paediatric Orthopaedic Surgery
- 2.2.2 Spinal Surgery
- 2.2.3 Oncological surgery
- 2.2.4 Limb reconstruction
- 2.2.5 Shoulder and Elbow Surgery
- 2.2.6 Hand Surgery
- 2.2.7 Hip Surgery
- 2.2.8 Knee Surgery
- 2.2.9 Foot and Ankle Surgery
- 2.2.10 Trauma Surgery

All orthopaedic surgeons will be expected to demonstrate their outcomes using the following methods:

- Where **national audits and registries** exist, participation will be **mandatory** and orthopaedic surgeons will need to demonstrate their participation/outcomes at appraisal.
- **Analysis of routinely collected data (HES, ISD, PEDW or HIS)** according to the criteria listed in this document. Presentation should be in the form of a funnel plot, showing comparison of your practice to all other surgeons in the country performing the same procedure.
- Where neither routinely collected data nor national audits apply, surgeons may conduct a **local audit** of their practice and present findings at appraisal. It is recommended that local audits are used to supplement routinely collected data at some point in the recertification cycle where the latter may be considered insensitive, and some examples are highlighted through this document.
- For highly specialised areas of practice, some form of **structured peer review** may be appropriate. We will work with the relevant sub-specialty bodies to identify where this might be required.

At each appraisal you will be expected to present information on the outcomes of **five procedures** in total, following the guidance given below.

- If you are involved in hip fracture management then this will count as **one** of the five procedures. You will need to present analysis of outcomes as described below.
- If you undertake joint replacements that can be logged on the **National Joint Registry then participation will be mandatory** and will count as **one** further procedure from the list of five.
- Thereafter, please select your most common procedures performed from the following sub-specialties to bring the total number of procedures to five. If you practice in more than one subspecialty field then select at least one procedure from each area

If you cannot find five procedures in the following tables that apply to your practice, please include the most important procedures that you perform and demonstrate that your practice is audited by bringing annual audit reports for these procedures to appraisal

Amendment: January 2016

Since this document was first published, seven orthopaedic registries have been initiated which are now collecting data in relation to certain surgical pathways (listed below). For all surgeons whose practice includes procedures that are covered by a registry, it should be considered essential to participate. This will be considered relevant for revalidation. At appraisal, surgeons should present data from the registry on their outcomes using relevant measures as appropriate to the procedure and, where possible, this should include comparison of their practice to all other surgeons. A fully revised version of this document incorporating these new registries will be published in due course.

Registry name	Website	Remit
National Ligament Registry (NLR)	uknlr.co.uk	(Currently) Primary Anterior Cruciate Ligament injury, repair and reconstruction
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
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). Predominately 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.
British Spine Registry (BSR)	bsrcentre.org.uk	All spinal procedures
UK Knee Osteotomy Registry (UKKOR)	www.ukkor.co.uk	Knee osteotomies (High Tibial Osteotomies – HTO; Distal Femoral Osteotomies – DFO)
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)

2.1 Hip Fracture Surgery

The majority of orthopaedic surgeons will be involved in the on-call rota for trauma and treat patients with hip fractures.

1. All surgeons admitting hip fractures must participate in the **National Hip Fracture** database. You will need to demonstrate your participation/outcomes at appraisal.

2. Additionally routinely collected data should be analysed to generate a picture of unit performance that can be discussed at appraisal. The previous year's performance should be examined, however, to be meaningful, it will also be necessary to view performance over the previous 5 years

Key Procedures	OPCS Codes	Measurement Criteria
Hip fractures	V22 V24 V25 V27 V44 V45	30 day mortality 28 day re-operation/reintervention 28 day unplanned readmission Length of Stay (median)

3. The National Hip Fracture database will provide information about the proportion of hip fractures operated on within 36 hours of admission and seen by an orthogeriatrician within 72 hours of admission. This information can be discussed at appraisal and may be used as a source of supporting information for your revalidation.

2.2 Sub-specialist Orthopaedic Practice

2.2.1 Paediatric Orthopaedic Surgery

1. The primary method of outcome measurement will be via analysis of routinely collected data (HES, ISD, PEDW, HIS). At appraisal we would hope that a surgeon's outcomes will be provided as a funnel plot showing comparison of their practice to all other surgeons in the country performing the same procedure(s), against the following criteria:

Key Procedures	OPCS Codes	Measurement Criteria
DDH conservative management	Diagnostic code Q65.0-6	30 day mortality 28 day unplanned readmission (coded for infection of operative site T81.4) 28 day reoperation/reintervention Length of stay (day case rate and median) 12 month reoperation rate for supracondylar fracture excluding removal of wires (W28.3) Local audit should be used to supplement this information using the standards outlined below
DDH open reduction	Z46.7, X22.1-2	
Club foot Ponseti treatment	Q660	
Club foot surgery	W91.2, X24.1-3	
SUFE	M930 W27.1,8,9	
Varus derotation osteotomy for hip subluxation	W10-13	
Supracondylar fracture of humerus	S42.4 W24	

2. Your unit should aim to provide information on:
   - Redislocation rate after open reduction of DDH <10%
   - Need for surgery after Pavlik harness treatment <20%
   - Need for surgery in non-syndromic cases of club foot treated <10% (excluding tenotomy or single tendon transfer)
   - Need for reoperation after SUFE treatment, apart from removal of metalwork, <10%, and late reconstruction

If this information is available you can use it as part of the supporting information about outcomes at appraisal. If not routinely available you should audit against these standards.

2.2.2 Spinal Surgery

The primary method of outcome measurement will be via analysis of routinely collected data (HES, ISD, PEDW, HIS). At appraisal we would expect that a surgeon's outcomes will be presented in a funnel plot showing comparison of their practice to all other surgeons in the country performing the same procedure(s), against the following criteria:

Key Procedures	OPCS Codes	Measurement Criteria
Lumbar decompression	V25.1-9,	30 day mortality 28 day reoperation/reintervention 28-day unplanned readmission (coded for infection of operative site (T81.4)) Discharge destination Length of stay (median) Requirement for second procedure at same site within 6 months (excluding planned 2 stage procedures)
Lumbar discectomy	V33.1-2 and 7, V52.1-2	
Spinal fracture stabilisation	V46.1-9	
Correction of spinal deformity with instrumentation	V41.1-9	
Prosthetic replacement of intervertebral disc	V36.1-9	

2.2.3 Oncological surgery

1. All surgeons undertaking oncological surgery must submit data to the **NSG Audit of Bone Tumour Surgery** and present results at appraisal.

2. All cancers must be reviewed at MDT.

3. Local recurrence rates can be measured using analysis of routinely collected data (HES, ISD, PEDW, HIS). At appraisal we would expect that a surgeon's outcomes will be presented in a funnel plot showing comparison of their practice to all other surgeons in the country performing the same procedure(s), against the following criteria:

Key Procedures	ICD10 Codes	Measurement Criteria
Sarcoma surgery	(ICD10 – C76.4,5 7 and 8)	Local recurrence rate <10%

4. In addition, surgeons involved in sarcoma surgery that undertake joint replacements must submit data to the National Joint Registry. This will be mandatory for revalidation.

2.2.4 Limb reconstruction surgery

The primary method of outcome measurement will be via analysis of routinely collected data (HES, ISD, PEDW, HIS). At appraisal we would expect that a surgeon's outcomes will be presented in a funnel plot showing comparison of their practice to all other surgeons in the country performing the same procedure(s), against the following criteria:

Surgeons may need to maintain own records of reconstruction patients treated as coding does not easily separate from general trauma patients and it is recommended that annual audit should be used to supplement the measures listed below. The BLRS will suggest standards for such complications as persistent infection, amputation after attempted reconstruction etc and these standards will be developed over time

Key Procedures	OPCS Codes	Measurement Criteria
Infected nonunion	W30	30 day mortality 28 day re-operation/reintervention 28 day unplanned readmission Length of Stay (median) Discharge Destination
Correction of malunion with external frame	W30	
Limb lengthening	W30	
Amputation of leg	X09.3-9	

2.2.5 Shoulder and Elbow Surgery

The primary method of outcome measurement will be via analysis of routinely collected data (HES, ISD, PEDW, HIS). At appraisal we would expect that a surgeon's outcomes will be presented in a funnel plot showing comparison of their practice to all other surgeons in the country performing the same procedure(s), against the following criteria:

Key Procedures	OPCS Codes	Measurement Criteria
Subacromial decompression	W08.2, Y76.6	30 day mortality 28 day re-operation/reintervention 28 day unplanned readmission Length of stay (median) Joints should be entered in the National Joint Registry when available for shoulder and elbow It is accepted that mortality will be an insensitive measure and that local audit will strengthen the supporting information. BESS will work to validate and publicise national standards for audit.
Rotator Cuff repair	T79.1, Y76.7	
Resurfacing shoulder hemiarthroplasty	W49, W50	
Total shoulder replacement	W96, W97	
Shoulder stabilisation	W77.1, Y76.7	
Total elbow replacement	W43, W44	
Ulnar nerve release	A67.1	

2.2.6 Hand Surgery

The primary method of outcome measurement will be via analysis of routinely collected data (HES, ISD, PEDW, HIS). At appraisal we would expect that a surgeon's outcomes will be presented in a funnel plot showing comparison of their practice to all other surgeons in the country performing the same procedure(s), against the following criteria:

Key Procedures	OPCS Codes	Measurement Criteria
Carpal tunnel decompression	A65.1	28 day re-operation/reintervention 28 day unplanned readmission Length of Stay (Day case and Median) Discharge Destination It is accepted that mortality will be an insensitive measure and that local audit will strengthen the supporting information. BSSH will work to validate and publicise national standards for audit.
Dupuytrens disease	T52.1, T54.1	
Trapeziectomy	W57.2	
Wrist fusion	60.1,8 and W61.1	

2.2.7 Hip Surgery

1. All surgeons must submit data to the National Joint Registry. This will be mandatory for revalidation.

2. In addition, outcome measurement should be undertaken via analysis of routinely collected data (HES, ISD, PEDW, HIS). At appraisal we would expect that a surgeon's outcomes will be presented in a funnel plot showing comparison of their practice to all other surgeons in the country performing the same procedure(s), against the following criteria:

Key Procedures	OPCS Codes	Measurement Criteria
Total hip replacement	W37.1,8 and 9, W38.1, 8 and 9, W39.1 and 9, W94.1, W94.1 and 9, W95.1, 8 and 9	30 day mortality 28-day readmission (coded for infection of operative site T81.4) Unplanned readmission within 1 year of hip replacement (coded for reduction of dislocation (W39.6))
Revision total hip replacement	W37.0,2,3,and 4, W38.0,2,3 and 4 W39.0,2,3 and 5, W93.1-3, W94.2 and 3, W95.0, 2 and 3	
Resurfacing hip replacement	W46.0,1,8 and 9. W47.1,8 and 9	

2.2.8 Knee Surgery

1. All surgeons must submit data to the National Joint Registry. This will be mandatory for revalidation.

2. In addition, outcome measurement should be undertaken via analysis of routinely collected data (HES, ISD, PEDW, HIS). At appraisal we would expect that a surgeon's outcomes will be presented in a funnel plot showing comparison of their practice to all other surgeons in the country performing the same procedure(s), against the following criteria:

Key Procedures	OPCS Codes	Measurement Criteria
Total knee replacement	W40.0,1,8 and 9 W41.1,8 and 9	30 day mortality 28 day unplanned readmission coded for infection of operative site T81. 28 day reoperation rate Length of stay (day case rate and median)
Revision total knee replacement	W40.2-4, W41.2-4	
Meniscectomy	W70.1-2, W821-2,	
ACL reconstruction	W84.1,2	

2.2.9 Foot and Ankle Surgery

The primary method of outcome measurement will be via analysis of routinely collected data (HES, ISD, PEDW, HIS). At appraisal we would expect that a surgeon's outcomes will be presented in a funnel plot showing comparison of their practice to all other surgeons in the country performing the same procedure(s), against the following criteria:

Key Procedures	OPCS Codes	Measurement Criteria
Hallux valgus surgery	W15.1-4, W79.1	28 day unplanned readmission coded for infection of operative site T81.4 28 day reoperation/reintervention Length of stay (day case and median) It is accepted that these are weak measures and that local audit will strengthen the supporting information. BOFAS will work to validate and publicise national standards for audit.
Correction of deformity of lesser toes	W03.1-9	
Calcaneal fracture fixation	W21	
Ankle fusion or replacement	W62	
Hindfoot fusion	W04.1-3	

2.2.10 Trauma Surgery

The primary method of outcome measurement will be via analysis of routinely collected data (HES, ISD, PEDW, HIS). At appraisal we would expect that a surgeon's outcomes will be presented in a funnel plot showing comparison of their practice to all other surgeons in the country performing the same procedure(s), against the following criteria:

Key Procedures	OPCS Codes	Measurement Criteria
Intramedullary nailing of the femur/tibia for diaphyseal fracture	W19.2, W24.2,	30 day mortality 28 day unplanned readmission coded for infection of operative site 28 day reoperation/reintervention Length of stay (day case and median)
ORIF ankle fracture	W20	
ORIF distal radius	W20, W21	
Tibial plateau	W21.1, 4	