National Clinical Strategy for Orthopaedics (NCSOS) Report 2b - Guidelines and Recommendations Shoulder & Elbow Surgery

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1. Executive Summary

Shoulder & Elbow Surgery is one of the lower volume Orthopaedic subspecialties. Nonetheless, it still has a comparable theatre time load to the far higher volume of hand surgery due to longer procedure times.

It has well established specialist society guidelines for the management of rotator cuff dysfunction, which is responsible for a large proportion of referrals for shoulder pain. Existing guidelines are also well integrated within care pathways nationally, but gaps and needs exist in terms of imaging and therapies provision; combining these recommendations with the other Orthopaedic subspecialties will lead to transformative pathway re-design. It is complemented by the NCSOS report 2a – *“General Strategic Pathway Recommendations”* and will feed into the NCSOS final report 3 *“The National Blueprint for Orthopaedic Surgical Delivery”.*

A significant number of the action points and recommendations in this document require HB level intervention and accountability and are well within limits of feasibility. Other actions need central intervention and can only be led clinically, through the development of a National Shoulder and Elbow Clinical Reference Group (NSECRG) working within the governance structure of a fully resourced Welsh Orthopaedic Network (W.O.N) with authority to implement and deliver change at scale. The NSECRG and W.O.N will be discussed further in NCSOS report 3.

The whole Shoulder & Elbow pathway is considered within this document. It requires transformative change in parts to deliver a seamless journey for the patient. Allied health staff, in particular specialist shoulder physiotherapists are key to this. This staffing group should be integrated within all stages of the pathway from primary care through triage to secondary and tertiary care clinics.

Secondary and tertiary infrastructure requires urgent attention. Achieving estates standards in all HBs for OPD services such as access to shoulder therapists and radiology support for same day imaging is the bare minimum; we should be striving for far more for our patients and developing gold standard and innovative pathways at scale on a national level via the NSECRG and W.O.N, e.g. hydrodilatation pathways.

S&E is predominately daycase based and needs a national network of suitably resourced day case units with fully trained staff, laminar flow and implants. There is a more complex pathway and patient group that may need inpatient and regional approaches e.g. shoulder and elbow arthroplasty. This will be discussed further in NCSOS report 3 following a full consultant workforce and demand capacity review.

2. Background

The delivery of orthopaedics has been challenging in Wales for decades. The National GiRFT (Getting it Right First Time) review of services was commissioned in 2014 by Welsh Government ahead of the formation of the National Planned Care Programme and the Welsh Orthopaedics Board. However, the recommendations made by GiRFT and supported by clinicians to provide dedicated elective Orthopaedic ring fenced beds through the development of cold elective sites within each Health Board, were not implemented. As a result, services continued to be impacted by regular and frequent unscheduled care pressures.

The Pandemic has exposed this failing system and resultant capacity shortfalls within orthopaedics to the fullest. In September 2021, Welsh Government (WG) commissioned the National Clinical Strategy project for Elective Orthopaedics Surgery (NCSOS) with the primary objective of developing a surgically focused redesign and blueprint for the future state of elective Orthopaedic surgery delivery in Wales, unconstrained by Health Board (HB) boundaries. Alongside this, GiRFT were commissioned to undertake a parallel review in co-ordination with the NCSOS project to provide recommendations for recovery and redesign of services in the short term. It should be noted that Paediatric Orthopaedics and Spinal Surgery services are being considered separately as part of the WHSSC programme of commissioning.

At the outset of the NCSOS project, it was clear that its scope needed to include review of the whole pathways of care feeding into the surgical services. Reviewing surgical delivery alone would not enable the comprehensive transformation required to provide the scale of change needed to deliver high quality and sustainable Orthopaedic care for the population of Wales. This is especially pertinent for Shoulder & Elbow Surgery, which has numerous interdependencies with other pathways of care.

The NCSOS team have therefore developed a suite of reports to cover the work that has been undertaken within the project:

NCSOS Report 1 – "*Orthopaedic Recovery, Urgent - For Immediate Action"*. As part of the project processes, many critical and major risks were identified that needed immediate response, outside of the scope of the strategic role of the NCSOS. At the request of clinicians across Wales, the NCSOS team agreed to provide this interim auxiliary report.

NCSOS Report 3 – *"The National Blueprint for Orthopaedic Surgical Delivery in Wales"* will be published and submitted to WG and Health Board Executive teams

in April 2022. This will provide a detailed set of recommendations required to redesign orthopaedic surgery based on clinical pathways and networks, consultant workforce profile and a comprehensive demand and capacity review. It will articulate the required capacity needed to remove the surgical backlog and provide sustainable services at subspecialty and procedure/ pathway specific level. It will provide options of delivery to inform national capacity planning and investment decision-making.

NCSOS Report 2a-f – *"…Pathway recommendations".* These reports comprise of general recommendations (2a) that relate to the Orthopaedic system as a whole while sub reports (2b-f) will focus on specific sub-speciality requirements. These reports will feed into NCSOS report 3 and form the basis of collaborative national pathway development in conjunction with other professional groups. The aim is to create a standardised pathway framework through which care is provided across Wales, which has the ability to adapt for necessary local and regional considerations.

3. Shoulder & Elbow Surgery – Methodology

This document has been developed in conjunction with the national sub-specialty Shoulder & Elbow clinical reference group (S&ECRG), and is based on local, regional and national considerations, including WG strategy where relevant, and sub-specialty guidelines on best practice. E.g. Getting It Right First Time (GIRFT), British Elbow & Shoulder Society (BESS).

Section 3 outlines the key recommendations from the S&E clinical reference group.

Section 4 reviews the patient pathway which has been broken down into the ten component parts outlined below, in order to standardise the methodology for all of the orthopaedic sub-specialties.

1) Primary Care
2) Initial Triage
3) Pre-Hospital intervention
4) OPD review
5) Diagnostics
6) Return OPD
7) Listing/ Waiting for Surgery
8) Pre-Assessment
9) Surgery
10) Post-operative

Section 5 details the NHS England (NHSE) commissioning classifications of Specialised and Non-specialised shoulder and elbow surgical procedures. The Shoulder & Elbow CRG has reviewed these distinctions and their clinical applicability for NHSW. The CRG recommended output categories will underpin the data analysis phase feeding into NCSOS report 3.

Section 6 provides an initial workforce review of shoulder and elbow consultant level provision in Wales, matched against the specialised and non-specialised procedure demands nationwide, to allow a consultant sustainability review on horizon scanning.

4. Identified National pathway issues for Shoulder & Elbow

4.1 Primary care

Attempts at conservative treatment must have been made for at least 3-6 months, depending on pathology specific guidance.

In addition to the generic minimum referral dataset outlined in NCSOS report 2a, specific S&E sub-specialty referral information, as determined by the S&E CRG, should be provided to facilitate triage decisions.

The majority of shoulder pain is related to rotator cuff dysfunction and we recommend that the BESS best practice guidance adopted by GIRFT(Annex 1) is embedded within the national All-Wales pathway and that attempts at non-operative treatment must be exhausted (unless clinical circumstances are exceptional), prior to referral. In addition, the embedded imaging guidance should also be followed.

Appropriately trained therapists should provide assessment and treatment within an integrated treatment pathway under the direction of secondary care shoulder and elbow sub specialists, agreed nationally and implemented by local HBs or regional networks within a primary or secondary care setting as appropriate.

A lead shoulder physiotherapist should be appointed in each HB or Network to work alongside sub-specialist shoulder and elbow consultants and existing therapists to influence all stages of the treatment pathway.

Action 1: Existing BESS & GIRFT guidance, including non-operative management guidance to be implemented nationally within primary care.

Action 2: Trial of non-operative management must have been considered prior to referral, utilising therapists and APP's with shoulder and elbow training under supervision of shoulder and elbow sub-specialty consultant.

Action 3: Establish lead Shoulder APP in each HB and ensure integration into all stages of the pathway.

Action 4: Minimum data set should be provided in referral to secondary care – NSECRG to define dataset which will inform nationally commissioned sub specialty clinical prioritisation tool.

4.2 Initial triage

Specific sub-specialty shoulder and elbow referral guidelines and pathways are required to allow for more effective triage into secondary care. Specific referral pathways for acute presentation of shoulder pain following trauma must be in place in each HB. Necessary resource and minimum standards for timeliness of review and surgical intervention should be agreed nationally and implemented in all HB's/regional networks.

Initial triage for the sub-specialty of shoulder and elbow should be an MDT process with involvement of shoulder physiotherapists and clinicians from CMATS/MCAS and core physiotherapy, alongside sub-specialist shoulder and elbow consultants. Consultant supervised MDT triage will ensure that governance around triage decisions is robust and allow the streaming of case-mix towards non-operative management pathways e.g. hydrodilatation, identification of acute presentations of shoulder pain and functional loss following trauma.

Action 5: All HBs must establish an MDT triage at an early stage of the pathway comprised of sub-specialty shoulder & elbow trained therapists and APPs, led by Consultant Surgeon & Elbow Surgeons.

Action 6: Every HB must immediately provide acute shoulder pathways to include OPD, diagnostics and surgical provision all to NSECRG defined national standard including parallel “hot imaging”.

4.3 Pre-hospital intervention

We recommend that CMATS/MCAS practitioners have specific roles in the MDT triage & treatment of shoulder and elbow referrals in line with recommendations made above so as to ensure compliance with recognised treatment guidelines e.g. BESS subacromial pain pathway (Annex 2).

Action 7: Implement BESS guidelines for subacromial pain.

4.4 Outpatient Review

Appropriate clinic rooms should be provided to support MDT working for shoulder and elbow, supported by dedicated, appropriately trained nurses and support staff in co-located facilities.

Minimum standards for the constituent parts of the OPD shoulder and elbow MDT must be agreed at a national level via sub-speciality CRG, then implemented and funded locally by HBs or within a Regional Network; this would include provision of therapists and same day diagnostics.

Action 8: All OPDs should be multi-disciplinary to include nationally agreed standardised constituents agreed by NSECRG e.g. shoulder therapist and diagnostic provision.

Action 9: Joint consultant clinics should be employed wherever possible to promote regional shoulder and elbow Network MDT.

4.5 Diagnostics

All HBs must have appropriate provision of imaging, particularly for patients with acute presentations.

Provision of a parallel "hot imaging" list alongside an acute shoulder clinic would result in the most efficient use of resource and avoid delays to treatment; this should be available within all HB's/regional networks.

Requests for shoulder imaging from primary care should not be prevented if requested in line with imaging guidance.

Please refer to 2a re: MSK imaging MDT.

Action 10: Imaging protocols to support primary care should be developed through the NSECRG.

Action 11: Acute imaging provision (USS or MRI) must be available in all HB's in timescales as agreed by NSECRG.

4.6 Return OPD

It is recommended that the majority of follow up appointments are virtual where clinically appropriate and that sub-specialty follow up protocols are agreed nationally by the shoulder and elbow CRG. However, monitoring of performance metrics for virtual clinics must be rolled out nationally. This can be co-ordinated by the existing National Outpatient Transformation programme.

Initial post-operative review should be standardised according to clinical condition or procedure and undertaken by specialist shoulder therapist working within an MDT setting with availability to access immediate consultant review.

The long-term follow-up of shoulder and elbow joint replacement should be undertaken virtually utilising a digital platform with automatic agreed imaging surveillance and automatic collection of PROMS and PREMS.

Action 12: Virtual long term FUP where applicable with automated imaging and PROMS collection.

4.7 Listing/ Waiting for Surgery

In some HBs it is recognised that non consultant grade surgeons or specialist shoulder physiotherapists list the patient for surgery. In such circumstances, processes should be in place such that a team approach is employed; a Consultant (FRCS T&O) must be involved in the shared decision making process with the patient, of listing for surgery via sub-specialist HB MDT.

A Clinical prioritisation tool for hand and wrist should be developed as per NCSOS Report 2a generic recommendations. This will require a national work-stream through the S&E sub-specialty CRG.

Advice and support from experienced administrative waiting list staff with understanding of the sub-specialty of shoulder and elbow should be in place in each HB. This will reduce inefficiency by optimising theatre list scheduling, reducing unnecessary appointments and minimising the need for administrative validation (which can result in duplicate and inaccurate entries).

All patients should have PROMS/PREMS at all stages of the treatment pathway and be placed on the NJR where appropriate.

Action 13: NSECRG developed clinical prioritisation tool applied at time of listing.

4.8 Pre-assessment

A multi-disciplinary process within PAC must be re-established in all HBs to recognise the importance of specific modifiable factors which may require particular sub-specialist attention in a patient undergoing shoulder and elbow surgery.

A significant volume of shoulder and elbow surgical cases could be undertaken within a daycase setting and the use of regional anaesthetic could be increased. Adequate provision of regional anaesthetic techniques must be in place in all HB’s.

Action 14: Every HB must reinstate PAC with subspecialty MDT input.

4.9 Surgery

4.9.1 Future state

It is recognised that the majority of Shoulder and Elbow surgery can be delivered via short stay units and these units should remain ring-fenced from unscheduled care pressures at all times. Those patients who require an obligatory inpatient stay should be afforded the same standards of care as other obligatory inpatients, namely a ring-fenced elective facility, ideally within a site without unscheduled care demand. Consideration also needs to be given to the long-term potential for the anticipated increased volume of day case Shoulder and Elbow arthroplasty.

4.9.2 Resource requirements

All shoulder and elbow surgical procedures should be performed by, or under the supervision of a consultant. The surgeon must be able to demonstrate regular performance of specialised procedures through nationally standardised and regulated registry data, audit, and formal governance processes for all Orthopaedics.

All arthroscopic shoulder and elbow surgery should be undertaken within orthopaedic theatre complexes specifically designed for orthopaedic surgery.

Action 15: All shoulder and elbow arthroplasty procedures must be performed in Laminar flow theatres contained within an orthopaedic theatre complex.

4.10 Post-operative

Whilst the majority of shoulder and elbow surgery is performed within a short stay setting, we recommend that the cohort of obligatory inpatients be afforded the same standard of inpatient care as outlined in NCSOS Report 2a. general recommendations.

Increased short stay workload during the recovery period and increased daycase arthroplasty mandates additional post-operative support in terms of pain management and therapist support; we recommend suitably qualified pain management specialist nurses are allocated to recovery facilities in all HB's to ensure prompt discharge.

Discharge criteria should be in place to ensure routine goal determined nurse led discharge; standardised discharge information packs for patients and community/primary care services should be provided on discharge.

FUP protocols for all patients should be agreed nationally by the sub-specialty group and applied locally. For Shoulder & Elbow surgery the initial post-operative follow-up should be AHP led with hot access to a consultant review and any subsequent follow-up should be via a digital virtual platform allowing PROMS/PREMS to be collected automatically.

Action 16: Initial post-operative reviews should be standardised according to clinical condition or procedure and undertaken by specialist shoulder and elbow APP working within an MDT setting with availability to access immediate remote or F2F consultant review.

5. Specialised, non-specialised and procedure specific considerations.

The NHSE specialised prescriber manual was reviewed by the Shoulder and Elbow CRG. It was recognised that whilst the terminology may be applicable for commissioning within the NHSE framework (and in turn may be of relevance if NHSW commissioning evolves) it is not fully usable for clinical strategic planning.

The consensus of the CRG is that all Shoulder & Elbow procedures are *subspecialist*, including those that are categorised as non-*specialised*, and therefore should be performed by an Orthopaedic Surgeon with dedicated Shoulder & Elbow training. This will comprise of recognised Shoulder & Elbow fellowship training for prospective appointments, but recognising and respecting that in the current state, there are highly trained and experienced surgeons with a Shoulder & Elbow subspecialist interest who have not had formal fellowship training but who form an integral part of the national S&E Network.

The procedures beyond the commissioning terms appear to have fallen into three potential baskets.

a) Procedures that should be performed by all S&E surgeons and units.

b) Procedures that may need to be provided through local surgeon networks so that they can be delivered in all HBs.
c) Procedures that may need regional network collaboration, regional delivery units or both.

The table below sets out how this can be delivered for Shoulder & Elbow.

Delivery model	Procedure/ Pathway
All S&E surgeons locally	• Most non-specialist arthroscopic procedures • Routine rotator cuff repair • Subacromial decompression • Shoulder stabilisation • Routine shoulder replacement • Soft tissue procedures around the elbow
HB network/ MDT	• Complex primary, revision and custom implants • Revision or complex arthroscopic procedures • Humerus non union surgery • Reverse polarity shoulder replacement for trauma sequelae
Regional	• Gleno-humeral joint fusions • Major tendon transfers around the shoulder • Deformity correction (congenital) • Scapulo-thoracic fusions • Sternoclavicular joint arthroscopy and stabilisation • Complex primary and revision elbow replacement • Post traumatic elbow replacement • Ligament reconstructions for elbow instability • Revision fracture fixation surgery • Treatment of post-traumatic elbow stiffness • Allograft bone reconstruction for bone loss in upper limb • Deformity correction • Elbow arthroscopy
Other	

Table 2. S&E CRG Procedure Analysis

Further detail on the outcome of the S&E CRG analysis by procedure can be found at Annex 3

Action 17: NSECRG to support and develop HB and regional networks for specific pathway and procedures in line with this document – Table 2.

5.1 Network arrangements

The majority of Shoulder & Elbow surgery is daycase and unspecialised. It should be provided as local to the patient has possible through daycase delivery networks. Specialist arthroplasty of the shoulder and elbow and low volume specialised procedures identified by the sub-specialty group require a robust MDT process. The volume of shoulder arthroplasty lends itself more to a clinical network approach rather than regional delivery approach but this will be discussed further after the data analysis phase in NCSOS Report 3. However, it is recognised by the S&E CRG that Wales lacks surgeons with an interest specifically for elbows, and the upper limb community should move towards elbow appointments in North and South Wales. This will need to be reviewed by the Upper limb CRGs through an overarching orthopaedic network.

The sub-specialty shoulder and elbow CRG have agreed a monthly HB MDT, quarterly regional MDT and Annual national MDT. The MDT must be supported by therapies, administrative support and recognised within clinician job plans.

It is recognised that some clinicians may be part of multiple MDTs. In order not to overwhelm job plans, it is recommended that all subspecialty CRGs, working within a National Orthopaedic Network, define service specifications for the required MDT and TOR to ensure maximal quality and efficiency/ performance.

Action 18: HB and regional clinical and delivery networks should be established for primary shoulder Arthroplasty to avoid silo working in HBs with more than one Orthopaedic unit.

Action 19: Regional and supra-regional networks to be developed for complex shoulder and elbow arthroplasty and low volume specialised procedures; recognised within consultant job plans.

6. Consultant Workforce Review

There are currently 182 Consultant Surgeons working within Orthopaedic Directorates in Wales. Within this there are 23 who report a declared Shoulder and Elbow sub-specialty interest.

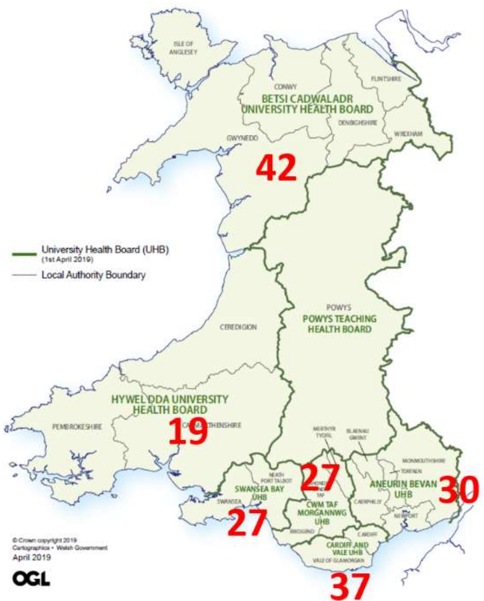

Fig. 1. Distribution of Orthopaedic Surgeons in Wales. (inc spines/paeds/trauma)

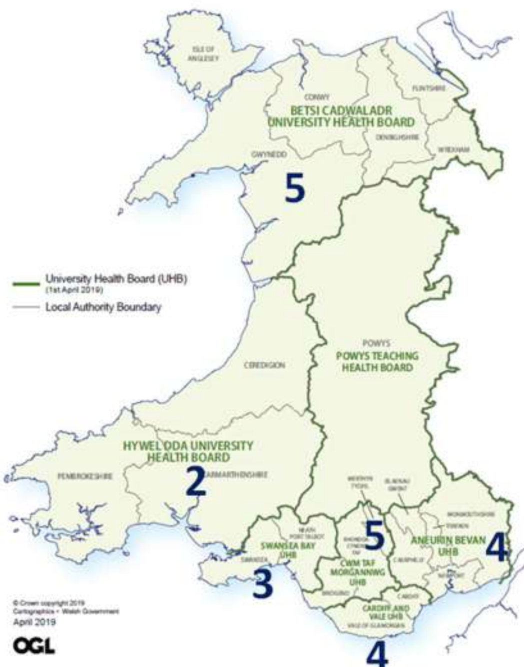

Fig.2. Distribution of Shoulder & Elbow Surgeons in Wales.

Figs. 1 and 2 illustrate the national orthopaedic surgeons and Shoulder and Elbow surgeons establishment respectively (Note that some Surgeons have more than one subspecialist interest hence this data is only reflective of available consultant skill set, not available time).

A trainee survey is being conducted to horizon scan for future Shoulder and Elbow surgeons with an interest in working in NHSW. The output of this survey is included in the final report.

The table below demonstrates the number of surgeons per 100,000 population, together with the number of shoulder & elbow surgeons the same, for each HB. The table also includes a 5 and 10-year horizon scan, taking into consideration potential retirements.

HB	Orthopaedic surgeon per 100,000 population	Shoulder Surgeon per 100,000 population	0-5 yrs horizon scanning	5-10 yrs horizon scanning
AB	5.0	0.67	0.5	0.2
BC	6.0	0.71	0.6	0.6
CAV	7.3	0.80	0.80	0.6
CTM	6.0	1.11	0.0	0.7
HD	4.9	0.51	0.0	0.5
SB	6.9	0.77	0.0	0.5

Table 3. Orthopaedic surgeons per 100,000 population

7. Conclusion

This document represents the collaborative work of all the Shoulder and Elbow specialists in Wales, aggregated with existing UK guidance, to produce the best practice sub-specialist clinical pathways considered through the lens of the needs of the patient population throughout Wales.

There is concern that extraordinarily long Orthopaedic surgical waiting lists in NHSW are increasingly causing patient harm, disability and healthcare inequality compared with patients residing in England. Whilst difficult to quantify, clinicians are noting a significant uptrend in cases of harm. For Shoulder and elbow surgical patients this may involve having to live with severe pain, loss of normal day to day function and loss of dignity for patients with degenerative conditions. In addition, those patients with time dependent pathology such as acute rotator cuff tears following trauma, are experiencing loss of occupation as a result of the absence of a treatment pathway for this most urgent cohort.

There is a clear recommendation for integrated pathways and associated MDT triage utilising APP clinicians and specialist shoulder therapists. In producing sub-specialty level pathways collaboratively with surgical colleagues across Wales, it is hoped that these can be implemented as part of a national approach to transform musculoskeletal services.

The lack of anaesthetic support to provide regional anaesthesia techniques threatens future sustainability for the sub-specialty of Shoulder and Elbow. This is a key interdependency that requires immediate HB level review, supported by national level intervention to address, which again would be most effectively co-ordinated through a national network approach.

The geographical spread, demand and high turnover of arthroscopic shoulder surgery combined with its predominantly day case model, will necessitate every HB to provide this service for its patient population in line with "A Heathier Wales" design principles. However, there are also higher complexity lower volume (HCLV) procedure/ pathways which will require a collaborative and network approach.

It is required that these recommendations be integrated with the other sub-specialty CRG recommendations and implemented as part of a national approach to transform musculoskeletal services to deliver high quality patient care adhering to prudent and value based principles. The final NCSOS report 3 "The National Blueprint for the delivery of Orthopaedic Surgery in Wales" details this integrated service model.

8. Summary Key Actions S&E (Annex 4)

9. Acknowledgements

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10. Appendices

Annex 1 **BESS/GiRFT guidance**	BESS SA pain and rotator cuff repair p
Annex 2 **BESS Subacromial pain pathway**	Subacromial_Shoulder_Pain.pdf SubacromialShoulderPain-A5Booklet.pc
Annex 3 **S&E CRG procedure analysis**	Annex 3 S&E CRG Procedure Analysis.c
Annex 4 S&E Summary Key Actions	NCSOS Report 2b Annex 4 Summary Ke