

## Appendix 8a London Choosing Wisely

### **Draft Policy Template: Subacromial decompression in the treatment of subacromial shoulder pain**

Version	Date	Notes
Draft for Task & Finish Group 1	30/04/18	Initial draft
Revised version post Task & Finish Group 1	08/05/18	Revised draft
Revised version for Task & Finish Group 2	15/05/18	Revised draft
Revised version post Task & Finish Group 2	22/05/18	T&F draft
Revised following "sense check" feedback	12/07/18	Revised T&F draft
Revised following LCW 30/07/18 meeting	2/08/18	Final
Further revised	20/08/18	Text added to evidence review approach section following discussion at July Steering group meeting

## COMMISSIONING STATEMENT

<b>Intervention</b>	Subacromial decompression in the treatment of subacromial shoulder pain
<b>Date Issued</b>	
<b>Dates of Review</b>	
<b>Pan-London Commissioning Recommendation</b>	<p><b>This policy relates to subacromial decompression in the treatment of adults with subacromial shoulder pain, as described in detail below.</b></p> <p><b>The following exclusions apply:</b></p> <ul style="list-style-type: none"> <li>• <u>Emergency referral (same day):</u> <ul style="list-style-type: none"> <li>– Acutely painful red warm joint- e.g. suspected infected joint</li> <li>– Trauma leading to loss of rotation and abnormal shape - unreduced shoulder dislocation</li> </ul> </li> <li>• <u>Urgent referral (&lt;2 weeks) to secondary care:</u> <ul style="list-style-type: none"> <li>– Shoulder mass or swelling – suspected malignancy</li> <li>– Sudden onset of acute pain and/or loss of ability to actively raise the arm (with or without trauma) – acute rotator cuff tear</li> <li>– New symptoms of inflammation in several joints – systemic inflammatory joint disease (refer to rheumatology)</li> </ul> </li> <li>• Paediatric patients</li> </ul> <p><b>In ordinary circumstances*, funding for subacromial decompression surgery is available for patients who meet ALL of the following criteria:</b></p> <p>Patient has had symptoms for at least 3 months from the start of treatment <b>AND</b></p> <p>Symptoms are intrusive and debilitating (for example waking several times a night, pain when putting on a coat) <b>AND</b></p> <p>Patient has been compliant with conservative management (education, rest, NSAIDs, simple analgesia, appropriate physiotherapy) for at least 6 weeks <b>AND</b></p> <p>A bursal injection has been considered** (if acceptable to the patient) <b>AND</b></p> <p>Following bursal injection (where given) above symptoms have returned***</p>

	<p>*If clinician considers need for referral/treatment on clinical grounds outside of these criteria, please refer to the CCG Individual Funding Request policy for further information.</p> <p>** This may be done in primary, community or secondary care.</p> <p>*** Where symptoms recur following bursal injection, this will usually be apparent by 8 weeks after injection.</p>	
<b>Prepared By</b>	London Choosing Wisely, Commissioned by NHSE	
<b>Approved By</b>	<b>Date Approved</b>	<b>Notes</b>
Shoulder decompression Task & Finish Group, London Choosing Wisely	19/07/2018	
LCW Steering Board	04/09/2018	

# Main Policy Document

## Policy Statement

London Choosing Wisely (LCW) was commissioned to carry out this work on behalf of all London Clinical Commissioning Groups (CCGs), in order to promote equitable access to certain treatments and the cost-effective use of healthcare resources. All London CCGs will commission the interventional treatments for subacromial shoulder pain in accordance with the criteria outlined in this document.

In creating this policy, LCW convened a Task and Finish Group focused on developing this policy and has reviewed this clinical condition and the evidence supporting treatment leading to this commissioning decision, **to propose specific criteria that describe when this intervention should be routinely commissioned**<sup>1</sup>.

## 1. Introduction

Shoulder problems are a common complaint in the UK, with approximately 1-2% of adults consulting their GP annually with new shoulder pain. Shoulder pain can be debilitating and may result in reduced capacity to work and difficulties performing activities of daily living. Subacromial shoulder pain accounts for up to 70% of shoulder pain presentations. Subacromial decompression is a procedure used in the management of severe and persistent subacromial pain where conservative measures have been unsuccessful and is being performed increasingly frequently in the UK. However there is a lack of high quality evidence to demonstrate its effectiveness. As with all surgical procedures, there are potential risks from undergoing shoulder decompression (for example infection, stiffness and anaesthetic complications).

There are currently no commissioning policies in place for shoulder decompression across the Healthy London Partnership. However there are policies in use by other CCGs nationally, which have been based on commissioning guidance published in 2014 by the British Orthopaedic Association, in conjunction with the Royal College of Surgeons and British Elbow & Shoulder Society.

This pan-London policy serves to standardise the commissioning criteria for subacromial shoulder pain and promote equal access to treatment.

## 2. Key Definitions

**Subacromial space:** An area of the shoulder made up of the rotator cuff tendons (tissue that connects the muscles around the shoulder joint to the top of the arm) and the subacromial bursa (fluid filled sac).

**Subacromial (shoulder) pain:** Pain felt on the top and outer aspect of the shoulder.

---

<sup>1</sup> At the end of this work, the national "Evidence based interventions programme" began a consultation on a range of interventions, and proposing that arthroscopic shoulder decompression surgery should be placed in the category of "only routinely commissioned when certain criteria are met". As such, we believe the two approaches are mutually compatible, whilst this policy was specifically intended for commissioning use.

Subacromial (shoulder) pain syndrome (including “shoulder impingement syndrome”): Refers to a spectrum of pathologies relating to structures in the subacromial space, often caused by rotator cuff tendinopathy. Pain may be worsened in certain positions of the arm (resulting in a “painful arc”).

Rotator cuff tendinopathy: Inflammation and swelling of the rotator cuff tendons.

Subacromial (shoulder) decompression: A surgical procedure designed to increase the subacromial space by removing bony spurs and affected soft tissue; often performed as an arthroscopic (keyhole) procedure.

Bursal injection: An injection into the subacromial bursa, which may be performed under ultrasound guidance, with the primary aim of providing pain relief. The injection typically contains corticosteroid and / or local anaesthetic medication.

Non-steroidal anti-inflammatory drugs (NSAIDs): A type of pain relief medication, commonly used orally or topically.

### 3. Aims & Objectives

Across London there are five Sustainability and Transformation Partnerships (STPs), including 32 CCGs, representing 1,400 GP practices serving our population of almost nine million Londoners. This policy aims:

- To reduce unwarranted variation in access to interventions for subacromial shoulder pain across London, removing the postcode lottery
- To ensure that interventions for subacromial shoulder pain are commissioned where there is acceptable evidence of clinical benefit and cost-effectiveness
- To promote the cost-effective use of healthcare resources for Londoners.

### 4. Criteria for commissioning

#### **Exclusions from the policy**

- Emergency referral (same day):
  - Acutely painful red warm joint– e.g. suspected infected joint
  - Trauma leading to loss of rotation and abnormal shape - unreduced shoulder dislocation
- Urgent referral (<2 weeks) to secondary care:
  - Shoulder mass or swelling – suspected malignancy
  - Sudden onset of acute pain and/or loss of ability to actively raise the arm (with or without trauma) – acute rotator cuff tear
  - New symptoms of inflammation in several joints – systemic inflammatory joint disease (refer to rheumatology)
- Paediatric patients are excluded from the policy.

#### **Advice to Primary Care Practitioners**

- Subacromial pain and impingement syndrome are most typically seen in relatively active patients between 35-60 years of age.

- Shoulder impingement syndrome is an uncommon diagnosis in patients under 30 years or over 80 years and consideration should be given to alternative causes of symptoms.
- Assessment and diagnosis of subacromial shoulder pain should be clinically guided and imaging is not usually an essential component of assessment in primary care. However, where patients present with traumatic or sudden change to subacromial pain, referral and imaging are advisable.
- First-line management of most patients should be with conservative measures, including rest, education, simple analgesia, physiotherapy and a bursal injection (where locally available and acceptable to the patient).
- The majority of patients will not require a surgical procedure and can be successfully managed with conservative treatment in primary care.
- Many patients with subacromial shoulder pain will have pathology amenable to improvements with appropriate structured physiotherapy which should start to show benefits over a course of six weeks e.g. through postural correction and strengthening of the rotator cuff and scapula muscles.
- If patients have improved following six weeks of appropriate physiotherapy, it is reasonable to consider a second six week (or longer) course of physiotherapy.
- A bursal injection of steroid or local anaesthetic may provide pain relief for up to three months and allow patients to better engage with physiotherapy and rehabilitation (a maximum of two bursal injections can be offered).
- Prior to referral to secondary care, the primary care practitioner should ensure that patient wishes to discuss surgical treatment options.
- When making a referral for patients with subacromial pain, it is expected that this should be via the MSK interface services (where such pathways are in place).
- Evidence regarding the effectiveness of surgical management of subacromial pain is conflicting, however the procedure can be effective in certain circumstances and patient selection is key.
- Patients undergoing surgery for subacromial pain and shoulder impingement can expect a period of recovery and rehabilitation of up to six months. As neither conservative nor operative pathways seem to offer a faster restoration of function, patient involvement in decision making is crucial; and high quality decision support tools would be valuable.
- The risk profile of subacromial decompression is low and similar to other shoulder arthroscopy procedures; the commonest adverse events are:
  - Pain and stiffness: around 5 to 20 people in 100 will have some degree of ongoing pain and / or stiffness (including frozen shoulder),
  - Infection: most commonly a superficial infection and occurs in <1 in 100 people; deep infection is rare (c. 0.02%)
- Primary care practitioners should encourage smoking cessation and weight reduction (where appropriate), offering referral to appropriate services where required. These lifestyle changes have the potential to improve general health and wellbeing, as well as intervention success rates and enhance recovery times from surgery.
- Consider earlier referral to secondary care services in certain situations (for example patients who are wheelchair bound and / or patients with lower limb amputations).

<b>In ordinary circumstances*, funding for subacromial decompression surgery is available for patients who meet ALL of the following criteria:</b>
Patient has had symptoms for at least 3 months from the start of treatment <b>AND</b>
Symptoms are intrusive and debilitating (for example waking several times a night, pain when putting on a coat) <b>AND</b>
Patient has been compliant with conservative management (education, rest, NSAIDs, simple analgesia, appropriate physiotherapy) for at least 6 weeks <b>AND</b>
A bursal injection has been considered** (if acceptable to the patient) <b>AND</b>
Following bursal injection (where given) above symptoms have returned***

\*If clinician considers need for referral/treatment on clinical grounds outside of these criteria, please refer to the CCG Individual Funding Request policy for further information.

\*\* This may be done in primary, community or secondary care.

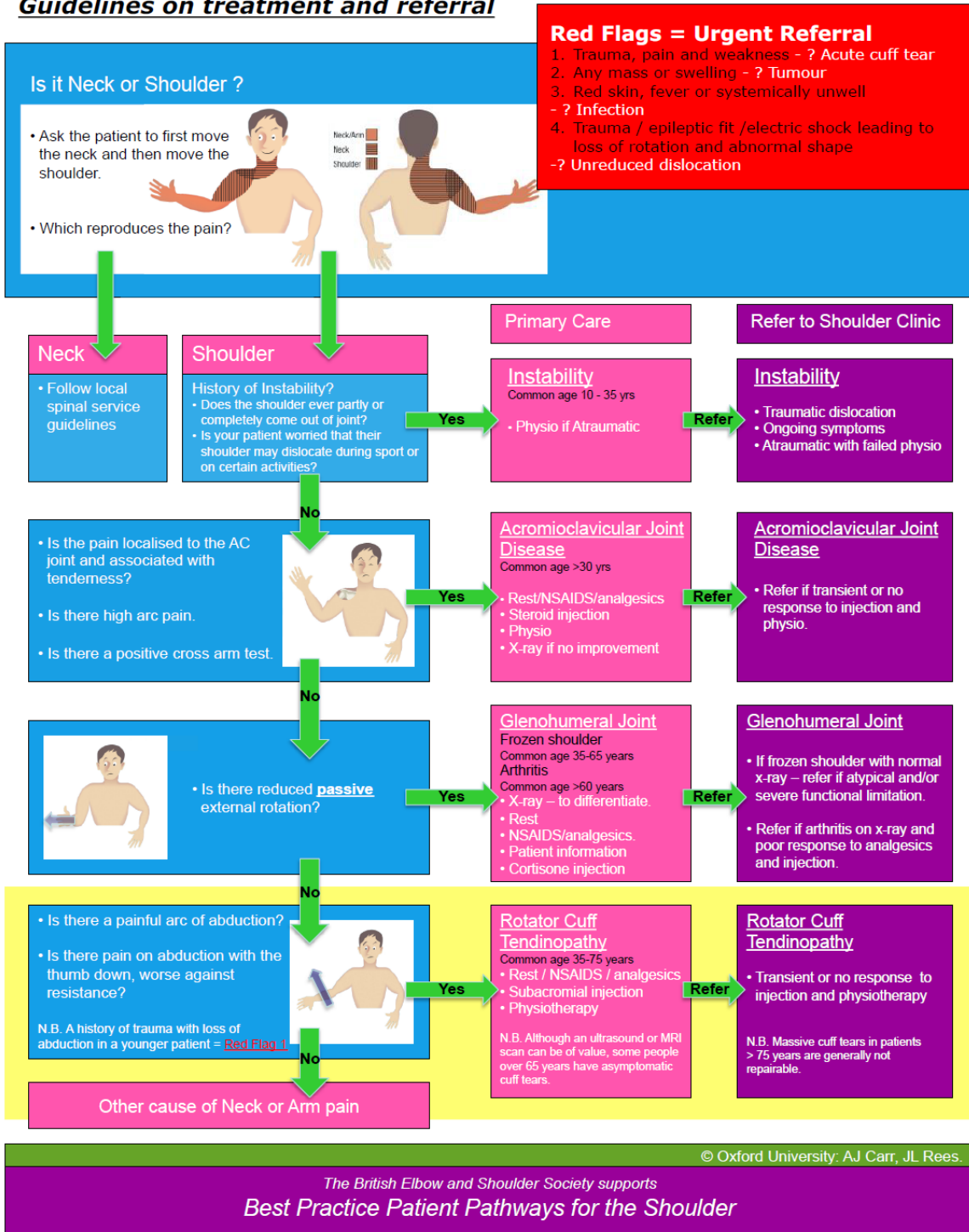
\*\*\* Where symptoms recur following bursal injection, this will usually be apparent by 8 weeks after injection.

### **Shared decision making**

Patients must have the opportunity to engage with a shared decision making process prior to surgical intervention. There are currently no decision tools for subacromial decompression surgery validated for clinical use, and the development of such support would be of great help to both patients and clinicians.

# Algorithm for management of shoulder pain in primary care

## Diagnosis of Shoulder problems in Primary Care: Guidelines on treatment and referral



Extracted from "Commissioning guide: Subacromial shoulder pain" published by BESS/BOA 2014.



## 5. Evidence Summary

The full evidence review can be found in Appendix 1, and a shorter summary of findings has also been included. Evidence relating the cost-effectiveness of subacromial decompression was not identified.

## 6. Rationale behind Policy Statements

In considering and drafting this commissioning policy, the Task and Finish Group drew from the evidence presented, commissioning policies currently in use by other CCGs, and their clinical experience.

The Task & Finish group noted that there is a paucity of high quality evidence demonstrating the effectiveness of any treatment option for subacromial shoulder pain and the evidence for effectiveness of subacromial decompression is conflicting.

The Task & Finish group highlighted the ongoing Finnish Subacromial Impingement Arthroscopy Controlled Trial (FIMPACT), a randomised trial comparing arthroscopic subacromial decompression vs. diagnostic arthroscopy vs. exercise therapy in participants with shoulder impingement syndrome. The trial will look at pain, arm movement, function, patient satisfaction and reoperations / treatment conversions at two years following randomisation. The results of the trial are currently awaited and due to be published in the coming year.

## 7. Adherence to NICE Guidelines

There is currently no NICE guideline for the management of subacromial shoulder pain. However NICE have published a Clinical Knowledge Summary (CKS) on the management of shoulder pain. The British Orthopaedic Association and British Elbow and Shoulder Society published a commissioning guide in 2014 "Subacromial Shoulder Pain".

This policy is aligned with the recommendations provided in both the NICE CKS and BOA / BESS commissioning guideline.

## 8. Codes for procedures

Recommended OPCS and ICD-10 Codes covered within this policy.

Note: This list is not exhaustive and can be added to at CCG level during implementation of policy.

OPCS Codes (Procedure codes)		
OPCS4	O291	Subacromial decompression

For the following ICD-10 codes:

ICD-10 codes diagnosis codes	
M75.3	Calcific tendinitis of shoulder
M75.4	Impingement syndrome of shoulder
M75.5	Bursitis of shoulder

## Equality & Equity Statement

The Equality and Equity Assessments for this policy will be undertaken at CCG level. Please contact the relevant London CCG for further details of their Equality Impact Assessment.

## Governance statement

In mid-2017, London's CCG Chief Officers supported a pan London programme to ensure equitable treatment access for all Londoners that is consistent, clinically appropriate and based on robust evidence that supports improved patient outcomes for certain treatments across London.

NHS England (London) commissioned Healthy London Partnership (HLP) to facilitate the programme management and communications work of the programme, known as 'London Choosing Wisely'. A London Choosing Wisely Steering Group was formed, chaired by the NHSE (London) Medical Director, Dr Vin Diwakar, and included clinical leaders representing each sustainability and transformation partnership (STP), the clinical leads appointed to the review of each area of care, patient representatives, and public health experts.

The London Choosing Wisely programme specifically looked at the following eight procedures: the surgical removal of benign skin lesions; hip arthroplasty; knee arthroplasty; knee arthroscopy; interventional treatments for back pain; varicose vein procedures; shoulder decompression and cataract surgery.

Six Task and Finish Groups were established to review the evidence and draft the policy documentation for each of the eight identified procedures (with hip and knee policies being considered together). Each group was chaired by a primary care clinical lead, who also sat on the Steering Group. All groups included primary and secondary care clinicians and patient representatives from across the London region and were supported by independent public health experts. Upon consideration of the evidence, the Task and Finish Group drafted and agreed the commissioning policy which was subsequently presented to the Steering Group for approval. The Steering Group's role was to ensure that a robust and rigorous review process had been carried out and to agree a final draft for each pan London policy.

## London Choosing Wisely

### Evidence Review Summary: **Shoulder Decompression**

Version	Date	Notes
Draft for PH and T&F Chair	19/04/2018	Initial
Draft for T&F Group	20/04/2018	Updated
Revised version post T&F 1	02/05/2018	To include details of search terms from search strategy document, following LCW steering group meeting of 30/07/18
Amended	20/08/2018	Text added to evidence review method section following discussion at July Steering group meeting

## 1.0 Introduction

<p>What?</p>	<p>The aim of this review is to present the available evidence and current guidance on subacromial decompression to the task and finish group in order to support decision making regarding the commissioning policy.</p> <p>Shoulder decompression is a surgical procedure used in the management of subacromial shoulder pain. It is typically performed arthroscopically as a day-case procedure.</p> <p>Patients with acute trauma or suspected infection should be referred as an emergency under an alternative pathway. Patients with suspected malignancy, sudden loss of ability to actively raise the arm (suggesting an acute rotator cuff tear) or symptoms suggestive of systemic inflammatory joint disease should be referred urgently under alternative pathways.</p> <p>The evidence review and policy will focus on the procedure of "subacromial shoulder decompression", with OPCS code "O291". The review will therefore not focus on patients receiving other shoulder procedures or receiving this procedure in addition to another procedure (e.g. rotator cuff repair with or without subacromial decompression). However the OPCS codes for inclusion are preliminary and additional codes can be added to the policy as required. The relevant ICD-10 codes for the procedure are outlined in Appendix 4.</p>
<p>Who for?</p>	<p>The review applies to adult patients with subacromial pain.</p>
<p>Why?</p>	<p>Shoulder problems are a common complaint in the UK, with approximately 1-2% of adults consulting their GP annually with new shoulder pain<sup>1</sup>. Shoulder pain can be debilitating and may result in reduced capacity to work and difficulties performing activities of daily living. Subacromial pain accounts for up to 70% of shoulder pain presentations. Subacromial decompression is typically used in the management of severe and persistent subacromial pain where conservative measures have been unsuccessful. The most common treatment aims are to reduce pain and improve shoulder function.</p>
<p>Why an issue?</p>	<p>Subacromial decompression is a procedure which is being performed increasingly frequently in the UK (there was an eightfold increase in patients undergoing the procedure in England from 2000 to 2010<sup>2</sup>). However this is despite there being a lack of high quality evidence to demonstrate its effectiveness. As with all surgical procedures, there are potential risks from undergoing shoulder decompression (for example infection, stiffness and anaesthetic complications).</p> <p>The recently published "Can Shoulder Arthroscopy Work?" (CSAW) trial has demonstrated no clinically significant improvement with subacromial decompression compared with no treatment.</p> <p>In light of the available evidence, CCGs will need to make an assessment of the benefits and cost effectiveness of subacromial decompression in comparison to alternative (non-surgical) treatments.</p>
<p>Who else does what?</p>	<p>There are currently no commissioning policies in place for subacromial shoulder decompression across the Healthy London Partnership.</p>

	<p>There are policies in use by other CCGs nationally (see appendix 2 for further detail). These policies are broadly similar in their specifications and appear to be based upon the Commissioning Guide produced by the British Elbow and Shoulder Society (BESS) and British Orthopaedic Association (BOA) in 2014. However it should be noted that this commissioning guidance is not based on high quality evidence and predates the recent publication of the CSAW trial.</p>
--	---

## 2.0 Search strategy

The London Choosing Wisely team drafted the proposed scope, following which views were sought from the wider membership; this included GP and consultant representatives from across London.

### Core search questions

- 1) What evidence is there regarding the effectiveness of subacromial shoulder decompression surgery?
- 2) Is there evidence that subacromial shoulder decompression surgery is superior to non-surgical treatment options?
- 3) Does the evidence suggest specific clinical circumstances where subacromial shoulder decompression surgery would provide therapeutic benefit?
- 4) Are there any comorbid conditions where subacromial shoulder decompression surgery would be indicated?
- 5) Is there any evidence of harm or deterioration in quality of life through not providing subacromial shoulder decompression surgery?

### Search terms

The literature search was performed using the following search terms: "arthroscopic subacromial decompression", "acromioplasty", "shoulder impingement surgery", "arthroscopy", "arthroscopic", "arthroscope", "arthroscopies", "shoulder", "rotator cuff", "acromioclavicular".

### Exclusions

Patients with confirmed or suspected malignancy

Patients with acute trauma or suspected infection

Patients with symptoms suggestive of a systemic inflammatory joint disorder

Paediatric patients

## 2.1 Search Method

An initial search was undertaken of national guidelines and other CCG policies (where available). In line with the scope agreed for this work, the literature review was intended

to focus on collating information across existing CCG policies and reviewing approximately 10 research papers (level 2 policy group).

The literature review was then conducted according to the following table, with Level 1 evidence sought first, continuing through the levels of evidence where necessary in the absence of higher quality evidence.

<b>Level 1</b>	Meta-analyses, systematic reviews of randomised controlled trials
<b>Level 2</b>	Randomised controlled trials
<b>Level 3</b>	Case-control or cohort studies
<b>Level 4</b>	Non-analytic studies e.g. case reports, case series
<b>Level 5</b>	Expert opinion

Using the above search terms, the following sources were searched for relating to subacromial decompression:

- National Institute of Clinical Excellence (NICE)
- Policies in use by other CCGs (where publically available)
- Cochrane Library
- PubMed/MEDLINE
- British Orthopaedic Association (BOA)
- British Elbow and Shoulder Society (BESS)
- Royal College of Surgeons

The evidence review has focused on treatment for patients with subacromial shoulder pain i.e. researching the effectiveness of surgical and non-surgical options. Only publications relating to adult patients have been reviewed. Non-English language publications have been excluded.

Where possible, evidence from systematic reviews and meta-analyses has been included. However the review has highlighted that there are few high-quality randomised trials looking at the effectiveness of subacromial decompression and therefore the evidence and reviews based on these trials should be treated with caution.

The review references the recently published results of the CSAW trial, a multicentre placebo-controlled randomised surgical intervention trial for subacromial shoulder pain, which published in the Lancet in November 2017.

BESS and BOA have co-produced national guidance in the form of patient pathways and a commissioning guide and these have been referred to throughout the review. These documents have formed the basis for policies in use by other CCGs. However these publications predate the results of the CSAW trial and are based on the evidence available at the time.

## 3.0 Background

Shoulder pain can result in significant functional impairment, including the capacity to work and carry out activities of daily living<sup>3</sup>. Subacromial pain accounts for up to 70% of shoulder presentations and is usually felt on the top and lateral (outer) aspect of the shoulder, with pain often worse during overhead movements and at night<sup>4</sup>. Patients with glenohumeral shoulder pain e.g. due to frozen shoulder and osteoarthritis are covered by different patient pathways and therefore have not been included in this review.

The subacromial space is an area of the shoulder made up of the rotator cuff tendons (tissue that connects the muscles around the shoulder joint to the top of the arm) and the subacromial bursa (fluid filled sac). "Shoulder impingement syndrome" is a commonly used term to describe a spectrum of pathologies to the structures in the subacromial space, but predominantly rotator cuff tendinopathy (swelling or thickening of the tendon). Shoulder impingement syndrome is a clinical diagnosis and there are different theories regarding the aetiology and pathogenesis (root cause and development) of the injury.

The BESS/BOA Patient Care Pathways document outlines the red flags for shoulder pain requiring emergency referral<sup>4</sup>:

- Suspected infected joint
- Unreduced dislocation
- Suspected tumour or malignancy
- Acute traumatic rotator cuff tear

In addition, patients with subacromial pain where the signs and symptoms are more suggestive of a systemic inflammatory joint disorder should be referred urgently according to local rheumatology pathways.

## 4.0 Summary of findings

As mentioned previously, the highest levels of evidence have been used to inform the review where possible. Additional detail regarding the evidence referenced can be found in Appendix 1.

	Summary of grade of evidence used					Other	
	Level 1	Level 2	Level 3	Level 4	Level 5	National guidelines	Other CCG Policies
Subacromial decompression	✓	✓				✓	✓

### 1) What evidence is there regarding the effectiveness of subacromial shoulder decompression surgery?

There is limited evidence to support the effectiveness of subacromial decompression surgery. There is a shortage of high quality randomised trials and much of the evidence available gives conflicting results regarding the effectiveness of the procedure.

An important trial looking at the effectiveness of subacromial decompression has recently been published in the Lancet (November 2017)<sup>5</sup>. The “Can Shoulder Arthroscopy Work?” (CSAW) trial is the largest study so far to compare subacromial decompression surgery with no treatment. The trial was a multicentre, randomised, placebo-controlled surgical intervention trial at 32 hospitals across the UK. Participants were patients with at least a three month history of subacromial pain with intact rotator cuff tendons, who were eligible for arthroscopic surgery, and had previously completed a non-operative management programme including exercise therapy and at least one steroid injection. Patients were randomly assigned to the following groups:

- Arthroscopic subacromial decompression,
- Arthroscopy only,
- No treatment (attendance of one reassessment appointment with a specialist shoulder clinician three months after study entry, but no intervention).

Patients in the surgical groups were not told which intervention they had received.

Patients were followed up at six months following randomisation, with the Oxford Shoulder Score used as the outcome measure (analysed by intention to treat). This score categorises patients into four groups based on symptoms and level of interference with daily activities. All three study cohorts had similar initial scores indicating the presence of moderate to severe problems. At the six month follow up:

- All three groups showed improvement in Oxford shoulder scores – moving from the “moderate to severe” category to the “mild to moderate” category,
- Both surgical groups showed a similar but greater benefit compared with no treatment in terms of mean Oxford Shoulder Score,
- Removal of bony spurs and soft tissue conferred no clear benefit.

The study found that in all three groups subacromial pain improved significantly from baseline with subacromial decompression, arthroscopy alone and with no treatment.



There was no difference in Oxford score at six months between the two surgical groups (arthroscopic subacromial decompression vs arthroscopy alone). However both surgical groups showed a small improvement over the no treatment group which, while statistically significant, was not deemed to be clinically important as all three groups had scores in the same clinical category. The authors suggested that this small benefit seen in both surgical groups could be the result of a placebo effect or postoperative physiotherapy (as the no treatment group did not receive physiotherapy). While there were limitations to the study (see appendix 1 for further detail), this trial did not find evidence of a clinical benefit from subacromial decompression compared to no additional treatment.

Prior to the publication of the CSAW trial, BESS and BOA had published a review of the available evidence<sup>4</sup> (up to 2009) in their "Patient Care Pathways: Subacromial Shoulder Pain" document in 2015. Where relevant, some of the studies referenced in this document have been included in this evidence review. The document concluded that surgery for subacromial shoulder pain was likely to be beneficial, despite acknowledging that the evidence of effectiveness was limited.

## **2) Is there evidence that subacromial shoulder decompression surgery is superior to non-surgical treatment options?**

There is limited high quality evidence demonstrating the effectiveness of both surgical and non-surgical treatments for subacromial pain and a lack of evidence showing superiority of one treatment over the other<sup>6-8</sup>. The previously mentioned CSAW trial looked at arthroscopic subacromial decompression vs arthroscopy vs control, and did not compare surgery with conservative treatment.

According to NICE, non-surgical management options for the treatment of shoulder impingement include<sup>9</sup>:

- Conservative measures such as analgesia, rest, exercise and modification of activities should be used in the acute phase
- Physiotherapy for 6 weeks to retrain and strengthen the rotator cuff and muscles
- Corticosteroid injection into the subacromial space (typically only one to maximum two injections should be considered, as repeated injections can cause damage to the tendons)

According to the BESS/BOA guidance, if there is symptomatic improvement after 6 weeks of physiotherapy, it is recommended that the patient receives another 6 weeks of therapy. Both the BESS/BOA commissioning guidance<sup>10</sup> and NICE recommend referral to secondary care if symptoms have not improved after 6 weeks of non-surgical management or if the diagnosis is uncertain.

Two systematic reviews<sup>6,7</sup> (see appendix 1 for further detail) have assessed the effectiveness of non-surgical treatments (in particular shoulder-specific exercise) in the management of shoulder impingement.

A systematic review<sup>6</sup> published by Hanratty *et al.* in 2012 looked at the effectiveness of exercise in the management of patients with subacromial impingement syndrome. The primary outcomes assessed were improvements in pain, function and quality of life. The results from the qualitative synthesis showed that exercise reduced pain and improved function in the short-term and that functional improvements were sustained in the long-term for participants with shoulder impingement. There were limitations to the review, primarily because of a shortage of high quality RCTs with small numbers of participants. In addition there was heterogeneity between the trials in terms of exercise protocols used, outcome measures, reporting and follow up. Despite these limitations the review

concluded that exercises are effective for patients with subacromial impingement syndrome, although the treatment effects were relatively small and there were contradictions between qualitative and quantitative results.

In a meta-analysis and systematic review published in the BMJ<sup>7</sup>, Steuri *et al.* looked at the effectiveness of non-surgical interventions for patients with shoulder impingement, in terms of improvements in pain, active range of motion (AROM) and function. Interventions were compared against different control groups such as other treatments, usual care or sham treatments. The analysis found that:

- Exercise, and in particular specific exercise, was found to be effective in improving pain, function and AROM
- NSAIDs and corticosteroid injection were effective in comparison to placebo

The review concludes that shoulder-specific exercise should be used in the management of all patients with shoulder impingement. NSAIDs can be helpful, if necessary, in addition to exercise. Corticosteroid injections may be a valid alternative only when exercise or other modalities are not possible. However caution should be used in interpreting the results and conclusions of this review, due to the poor quality of the underlying RCTs.

Another systematic review<sup>8</sup> published by Dorrestijn *et al.* in 2009 looked at conservative vs surgical management for patients with subacromial impingement syndrome. Four RCTs met the inclusion criteria, with a total of 323 participants. Participants were adult patients with a clinical diagnosis of shoulder impingement, who had not improved after three months of conservative management. Subacromial decompression was compared with various non-surgical treatments, including supervised exercises, education and physiotherapy with NSAIDs and corticosteroid injections.

The results of the study showed no difference in outcomes in terms of pain and shoulder function between patients treated surgically and conservatively. However of the four RCTs included, two were of low quality and two were of medium quality. Therefore the authors advised caution in interpreting the results, due to the small number of patients, small number of low to medium quality RCTs and heterogeneity between the trials.

The available evidence reviewed indicates that non-surgical management with shoulder specific exercises and NSAID pain relief is effective for improving shoulder impingement symptoms and there is no evidence of superiority of surgical management over non-surgical management in the treatment of subacromial shoulder pain.

### **3) Does the evidence suggest specific clinical circumstances where subacromial shoulder decompression surgery would provide therapeutic benefit?**

As mentioned previously, there is limited evidence that demonstrates the effectiveness of subacromial decompression surgery.

The BESS/BOA commissioning guidance recommends that surgery is indicated for patients with persistent or significant subacromial pain and loss of function, despite appropriate conservative management. However this publication predates the evidence from the recent CSAW trial, which demonstrated no clinically significant improvement in symptoms from subacromial decompression surgery compared with no treatment, in patients with chronic subacromial shoulder pain following a course of non-surgical management.

### **4) Are there any comorbid conditions where subacromial shoulder decompression surgery would be indicated?**

There is insufficient evidence to answer this research question.

The review has highlighted that in some instances subacromial decompression may be performed as a concurrent procedure, for example where a rotator cuff repair is the primary indication for surgery. The BESS/BOA commissioning guide advises that a rotator cuff repair should be considered in patients with an acute tear or those with persistent pain and weakness despite conservative management, with radiological findings indicating a full thickness cuff tear. However again there is a lack of high quality evidence to demonstrate the effectiveness of this approach. The evidence of the CSAW trial (although full thickness tears were excluded) raises the question of whether subacromial decompression is a necessary or beneficial step in a rotator cuff repair procedure.

### **5) Is there any evidence of harm or deterioration in quality of life through not providing subacromial shoulder decompression surgery?**

There is insufficient scientific clinical evidence to fully answer this question.

There is a paucity of high quality evidence to demonstrate effectiveness of subacromial decompression surgery and therefore whether it prevents harm or deterioration in quality of life. Research into subacromial decompression typically focuses on symptomatic improvements in pain and function as the desired outcomes.

The recent CSAW trial found that subacromial pain improved significantly from baseline, regardless of treatment group (subacromial decompression, arthroscopy alone and no treatment). Therefore the "no treatment" arm demonstrated symptomatic improvement over six months, despite not receiving even conservative management during the study period. In addition, there is some evidence that non-surgical treatment measures may be effective.

In some cases shoulder impingement can cause severe pain and functional impairment, which can have significant effects on quality of life. One paper states that impingement may result in serious rotator cuff damage and destruction of the joint requiring subsequent joint replacement, however the evidence base for this statement has not been stated<sup>11</sup>. Furthermore, as there is no consensus around the aetiology and mechanisms of injury in shoulder impingement syndrome, there is also no agreement on the progression of disease and how this could be avoided.

## Appendix 1 – References

This section lists the references used to inform the review. Where it is relevant to provide further context or detail, content of the publication has been included in a condensed form with the intention of making it easier for task and finish group members to assimilate information. Full text can be found in the source documents.

Reference	Evidence level	Source	Citation or Title	Content
1	Other	Annals of the Rheumatic Diseases	Urwin M, Symmons D, Allison T, et al. Estimating the burden of musculoskeletal disorders in the community: the comparative prevalence of symptoms at different anatomical sites, and the relation to social deprivation. <i>Annals of the Rheumatic Diseases</i> 1998;57(11):649-55.	Reference to inform background information.
2	Other	The Bone & Joint Journal	Judge, A, Murphy, RJ, Maxwell, R, Arden, NK, and Carr, AJ. Temporal trends and geographical variation in the use of subacromial decompression and rotator cuff repair of the shoulder in England. <i>Bone Joint J.</i> 2014; 96-B: 70-74	Reference to inform background information.
3	Other	BMJ	Mitchell Caroline, Adebajo Ade, Hay Elaine, Carr Andrew. Shoulder pain: diagnosis and management in primary care <i>BMJ</i> 2005; 331 :1124	Reference to inform background information.
4	Other	BESS/BOA	Subacromial Shoulder Pain Patient Care Pathways Shoulder & Elbow, 2015	Reports of the outcome of arthroscopic subacromial decompression surgery are conflicting and evidence for effectiveness is unclear. An assessment of the cost of treatment of impingement suggests that the addition of surgery, in comparison to exercise treatment alone, is not cost effective. The management of partial tears is particularly controversial and patients with such tears have commonly been treated conservatively. Favourable results have been reported after debridement of partial tears in association with subacromial decompression. Partial tears are most commonly managed without repair but some studies advocate repair to prevent progression to full-thickness tears. The evidence supporting this approach is weak. There is conflicting evidence regarding the effectiveness of open or arthroscopic repair. The volume of arthroscopic subacromial decompression has increased significantly over time. Recent figures from the USA report a 254% increase (from 30.0 to 101.9 per 100, 000 people per year) in use of the procedure in New York State between 1996 and 2006. This compares to a 78.3% increase in ambulatory orthopaedic surgery overall. Observational studies of

				<p>subacromial decompression surgery show positive results in terms of pain reduction and functional outcome with high patient satisfaction rates. Good outcomes have also been noted in two studies following patients who had arthroscopic rotator cuff debridement or open rotator cuff repair in the absence of a subacromial decompression. Some comparative studies of subacromial decompression versus non-operative treatment options, such as physiotherapy, have not shown any significant difference in outcome between the two treatment modalities. There are a growing number of studies that have attempted to assess the effectiveness of subacromial decompression with a rotator cuff repair against a control. Two studies randomized patients undergoing rotator cuff repair to groups including or excluding subacromial decompression in their operative treatment; neither demonstrated any difference in outcome between the groups. A randomized controlled trial of subacromial decompression plus subacromial bursectomy versus bursectomy alone reported no significant difference in clinical outcome between the two groups.</p>
5	Level 2	The Lancet	<p>Beard, David JAhrens, Philip et al. Arthroscopic subacromial decompression for subacromial shoulder pain (CSAW): a multicentre, pragmatic, parallel group, placebo-controlled, three-group, randomised surgical trialThe Lancet , Volume 391 , Issue 10118 , 329 - 338</p>	<p>This was a placebo controlled randomised surgical trial for subacromial shoulder pain  Multicentre, randomised, pragmatic, parallel group, placebo-controlled, three-group trial at 32 hospitals in the UK with 51 surgeons.  Participants were patients who had subacromial pain for at least 3 months with intact rotator cuff tendons, were eligible for arthroscopic surgery, and had previously completed a non-operative management programme that included exercise therapy and at least one steroid injection.  Exclusion criteria included a full-thickness torn rotator cuff.  Patients were randomly assigned to arthroscopic subacromial decompression, investigational arthroscopy only, or no treatment (attendance of one reassessment appointment with a specialist shoulder clinician 3 months after study entry, but no intervention).  Patients in the surgical group were not told which type of surgery they would receive  Patients were followed up at 6 months and 1 year following randomisation, with the Oxford Shoulder Score used as the outcome measure analysed by intention to treat  This has been the largest study comparing surgery with no treatment and the first published trial for shoulder surgery to include a placebo comparison  Surgical groups had better outcomes for shoulder pain and function compared with no treatment but this difference was not clinically important. Additionally, surgical decompression appeared to offer no extra benefit over arthroscopy only. The difference between the surgical groups and no treatment might be the result of, for instance, a placebo effect or postoperative physiotherapy.  Removal of bony spurs and soft tissue conferred no clear benefit  This study assesses the effectiveness of surgical management vs placebo/no treatment and does not assess superiority over non-surgical management  Limitations which make the differences in effect difficult to assess included a</p>

				relatively high level of non-compliance between the treatment groups and long waiting lists for surgery (of up to 4 months). This meant that potentially patients who were 2 months post-operative were being compared to patients who were 6 months with no treatment.
6	Level 1 (However caution regarding quality of underlying studies)	Seminars in arthritis and rheumatism	Hanratty, Catherine E. et al. The Effectiveness of Physiotherapy Exercises in Subacromial Impingement Syndrome: A Systematic Review and Meta-Analysis Seminars in Arthritis and Rheumatism , Volume 42 , Issue 3 , 297 - 316	<p>The aim of this review was to assess the effectiveness of exercise in the management of patients with subacromial pain in terms of improving pain, function and quality of life.</p> <p>Included RCTs were those investigating exercise in management of Stage I or II subacromial impingement syndrome or rotator cuff tendinopathy. Trials were excluded if they included rotator cuff ruptures, alternative diagnoses or postoperative patients. Trials were also excluded if exercise formed only a minor component of the management strategy.</p> <p>The qualitative analysis included 16 RCTs with a total of 1162 participants between 1997 and 2010. The authors noted that amongst the trials included, there was variation in the outcomes assessed and how they were measured. There was also variation in the types of exercised used. Four of the 16 RCTs had a substantial risk of bias. The analysis suggested exercise was effective in reducing pain and improving function 6-12 weeks following treatment. Improvements in function were maintained at long-term follow up. However, caution should be used in interpreting these effects, due to effects of bias, as well as the variable quality of the underlying trials.</p> <p>Six of these studies were then included in the quantitative meta-analysis. Four of the studies demonstrated no effect on short-term pain from exercise. Exercise had a small effect in improving long-term patient reported function. However again caution should be taken in interpreting these effects, due to variation in the exercises, as well as reporting measures and follow up protocols.</p> <p>The authors concluded that exercises are effective for patients with subacromial impingement syndrome, although the treatment effects were relatively small and there were some contradictions between qualitative and quantitative results. The lack of high quality research and variations between the underlying trials were key limitations to the review.</p>
7	Level 1 (However caution regarding quality of underlying studies)	British Journal of Sports Medicine (Published by BMJ)	Steuri R, Sattelmayer M, Elsig S, et al Effectiveness of conservative interventions including exercise, manual therapy and medical management in adults with shoulder impingement: a systematic review and meta-analysis of RCTs Br J Sports Med 2017;51:1340-	<p>A review examining the effectiveness of all non-surgical interventions on patients with shoulder impingement syndrome (according to a minimal set of diagnostic criteria). The review assessed improvements in pain, active range of movement (AROM) and function. Trials were included if surgery was compared with conservative interventions but not if only different types of surgery or postoperative interventions were compared. Trials that included patients with calcifying tendinitis, frozen shoulders, treatments after surgery and secondary impingement were excluded. Each intervention was compared against different control groups such as other treatments, usual care or sham treatments.</p>

			1347.	<p>200 RCTs were included in the review – 177 were used in the quantitative analysis and 23 were used in the qualitative analysis.</p> <p>For all comparisons and outcomes the quality of evidence was graded as very low, due to high risk of bias, lack of precision, lack of consistency and clinical heterogeneity.</p> <p>The review concluded:</p> <ul style="list-style-type: none"> <li>• Exercise, and in particular specific exercise, was found to be effective in improving pain, function and AROM.</li> <li>• NSAIDs, corticosteroid injection and manual therapy were all effective</li> </ul> <p>The authors state that shoulder-specific exercise should be used in the management of all patients with shoulder impingement. Corticosteroid injections may be a valid alternative only when exercise or other modalities are not possible while NSAIDs can be helpful, if necessary, in addition to exercise.</p>
8	Level 1	Journal of Shoulder and Elbow Surgery	Dorrestijn O, Stevens M, Winters JC, van der Meer K and Diercks RL. Conservative or surgical treatment for subacromial impingement syndrome? A systematic review. J Shoulder Elbow Surg 2009; 18: 652–60.	<p>Eligible patients were &gt;18 years old and had not improved with conservative management after three months</p> <p>Trials looking at rotator cuff tears, adhesive capsulitis and shoulder instability were excluded.</p> <p>Diagnosis of subacromial impingement made on clinical presentation (pain on shoulder abduction) together with a positive result on impingement test</p> <p>All outcome measures for shoulder function and pain were included</p> <p>Arthroscopic subacromial decompression was compared with conservative treatment (supervised exercises, education, physiotherapy, physiotherapy with NSAIDs and corticosteroid injections, and detuned soft laser treatment).</p> <p>Four RCTs were included, two of low quality and two of medium quality</p> <p>The review found no evidence of a difference in outcomes (pain and shoulder function) between conservative and surgical management of subacromial impingement syndrome.</p> <p>The review was based on the evidence available and caution should be used in interpreting the findings, as there was a small number of trials (and patient numbers) and a lack of high quality trials.</p>
9	Other	NICE	Shoulder pain (Clinical Knowledge Summary), 2017	Reference to inform background information.
10	Other	BESS/BOA/RCSeng/NICE	Commissioning guide: Subacromial Shoulder Pain 2014	<p>Arthroscopic subacromial decompression (acromioplasty) involves excision of the bony spur on the antero-inferior surface of the acromion, the bursal tissue on the under surface of the acromion and release of the coraco-acromial ligament.</p> <p>Surgery is indicated for persistent or significant pain and loss of function despite appropriate non-operative treatment.</p> <p>The procedure aims to increase the volume of the subacromial space thereby reducing the painful mechanical irritation of the rotator cuff tendons.</p> <p>It should be considered for patients with:</p> <ul style="list-style-type: none"> <li>• Impingement pain in the absence of a rotator cuff tear</li> </ul>

				<ul style="list-style-type: none"> <li>• Impingement pain with an irreparable rotator cuff tear</li> <li>• Impingement pain with a cuff tear that the patient chooses not to have repaired</li> <li>• Failure of appropriate conservative management</li> </ul> <p>It is mainly conducted as a day case procedure as long as more extensive surgery is not needed and there are no significant patient morbidities or social reasons to admit the patient overnight.</p> <p>In some cases the acromio-clavicular joint (ACJ) contributes to subacromial pain and may need an additional procedure of excision arthroplasty of the ACJ (open or arthroscopic). This decision should be made by the surgeon based on the clinical findings and after correlation with imaging.</p> <p>In some cases if indicated, a subacromial depression may need to be performed in association with tendon repair (for patients with an acute cuff tear or persistent subacromial shoulder pain and weakness with ultrasound or MRI findings indicating a full thickness rotator cuff tear after adequate and appropriate conservative treatment)</p>
11	Level 5	Human movement science	Veeger, Dirkjan & Cutti, Andrea. (2012). Special issue: Progress in shoulder biomechanics. Human movement science. 31. 383-5. 10.1016/j.humov.2012.04.002.	Reference to inform background information.



## Appendix 2 – Existing commissioning policies

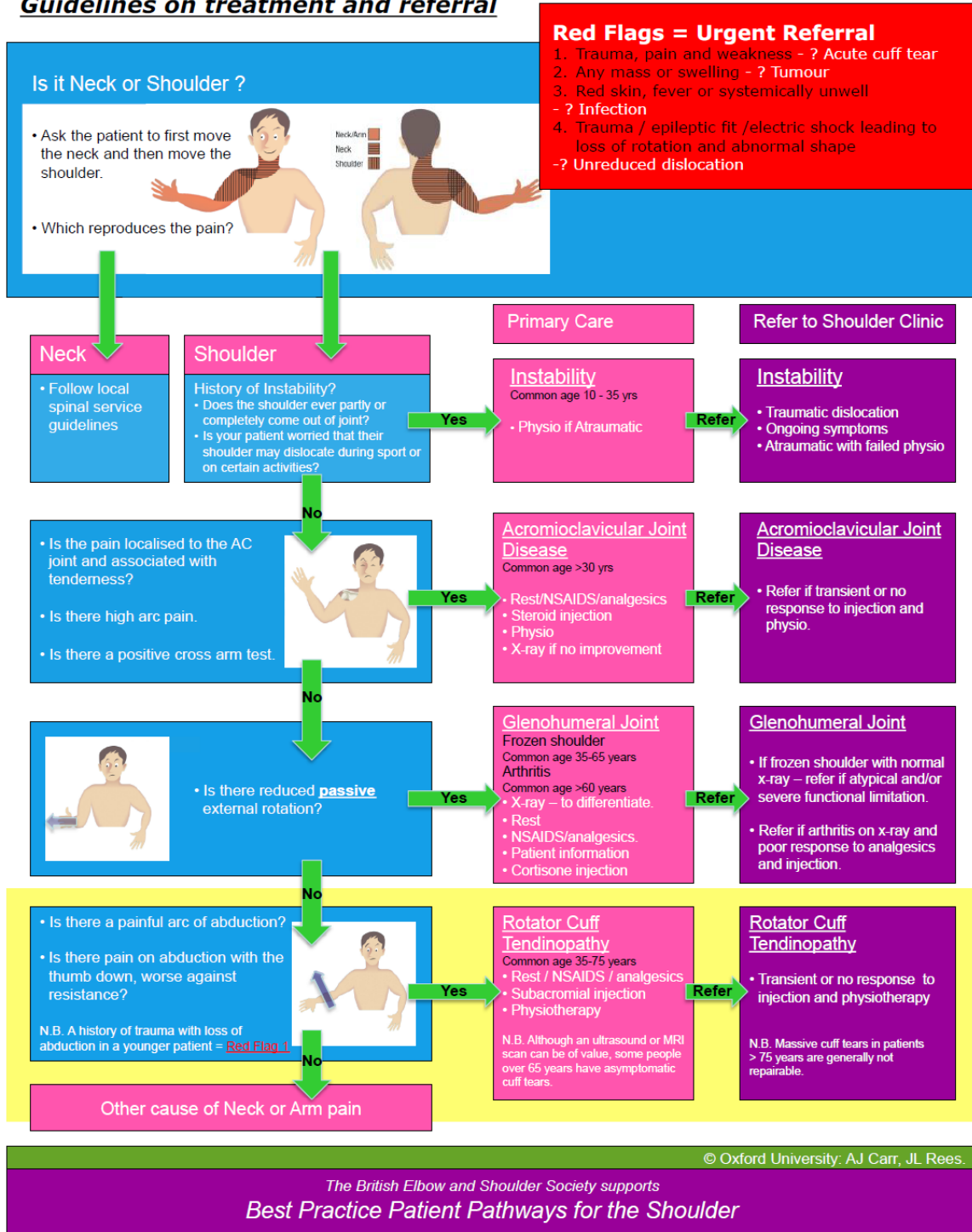
There are currently no policies in place for shoulder decompression across the Healthy London Partnership. There are policies in use by other CCGs nationally (found using an Internet search where publically available), examples of which have been summarised below:

Thames Valley	South Yorkshire and Bassetlaw CCGs	Chorley and South Ribble CCG and Greater Preston CCG
Latest Policy February 2017	Latest Policy January 2018	Latest Policy January 2018
<p>The Thames Valley Priorities Committee has considered the evidence for clinical and cost effectiveness of subacromial decompression of the shoulder and recommends primary care referral can be considered for surgical opinion for patients who meet all of the following criteria: Patient has had symptoms for at least 3 months from the start of treatment Symptoms are intrusive and debilitating (for example waking several times a night, pain when putting on a coat) Patient has been compliant with conservative intervention (education, rest, NSAIDs, simple analgesia, appropriate physiotherapy) for at least 6 weeks Patient has initially responded positively to a steroid injection but symptoms have returned despite compliance with conservative management Referral is at least 8 weeks following steroid injection Patient confirms they wish to have surgery. Primary subacromial decompression in isolation is not normally funded unless the patient has a massive subacromial spur scoring the muscle and may otherwise require a cuff repair. Red flag symptoms: Emergency referral - same day: · Acutely painful red warm joint- e.g. suspected infected joint. · Trauma leading to loss of rotation and abnormal shape - unreduced shoulder dislocation. Urgent referral (&lt;2/52) to secondary care: · Shoulder mass or swelling - suspected malignancy · Sudden loss of ability to actively raise the arm (with or without trauma) - acute cuff tear. · New symptoms of inflammation in several joints - systemic inflammatory joint disease (rheumatology referral). Potentially exceptional circumstances may be considered by a patient's CCG where there is evidence of significant health status impairment (e.g. inability to perform activities of daily living) and there is evidence that the intervention sought would improve the individual's health status.</p>	<p>The CCG will only fund Arthroscopic Subacromial Decompression of the Shoulder (ASAD) when the following criteria are met:</p> <p>In ordinary circumstances*, referral should not be considered unless the patient meets ALL of the following criteria.</p> <p>Patient has had symptoms for at least 3 months from the start of treatment AND Symptoms are intrusive and debilitating (for example waking several times a night, pain when putting on a coat) AND Patient has been compliant with conservative intervention (education, rest, NSAIDs, simple analgesia, appropriate physiotherapy) for at least 6 weeks AND Patient has initially responded positively to a steroid injection but symptoms have returned despite compliance with conservative management AND Referral is at least 8 weeks following steroid injection AND Patient confirms that they wish to discuss surgical treatment options</p> <p>*If clinician considers need for referral/treatment on clinical grounds outside of these criteria, please refer to the CCG Individual Funding Request policy for further information.</p> <p>Primary Subacromial decompression in isolation is not normally funded unless the patient has a massive subacromial spur scoring the muscle and may otherwise require a cuff repair.</p>	<p>The Commissioning Organisation will only commission surgery for Subacromial Decompression (SAD) when all of the following criteria are satisfied:</p> <ul style="list-style-type: none"> <li>• Patient has had symptoms for at least 3 months from the start of treatment</li> <li>• Symptoms are intrusive and debilitating (for example waking several times a night, pain when putting on a coat)</li> <li>• Patient has been compliant with conservative intervention (education, rest, NSAIDs, simple analgesia, appropriate physiotherapy) for at least 6 weeks</li> <li>• Patient has initially responded positively to a steroid injection but symptoms have returned despite compliance with conservative management</li> <li>• Referral is at least 8 weeks following steroid injection</li> <li>• Patient confirms they wish to have surgery.</li> </ul> <p>The Commissioning Organisation will only commission surgery for Rotator Cuff Repair (RCR) when there is a</p> <ul style="list-style-type: none"> <li>• Confirmed diagnosis of a full thickness rotator cuff tear</li> </ul> <p>OR</p> <p>All of the following criteria have been satisfied</p> <ul style="list-style-type: none"> <li>• Patient has had symptoms for at least 3 months from start to treatment.</li> <li>• Symptoms are intrusive and debilitating (for example waking several times in the night, pain when putting on a coat, significant impact on ability to carry out activities of daily living)</li> <li>• Patient has been compliant with conservative intervention (education, rest, NSAID, analgesia and appropriate physiotherapy).</li> <li>• Patient confirms they wish to have surgery</li> </ul>

# Appendix 3 – Algorithm for management of shoulder pain in primary care

Source: Produced by Oxford University, extracted from "Commissioning guide: Subacromial shoulder pain" published by BESS/BOA 2014

## Diagnosis of Shoulder problems in Primary Care: Guidelines on treatment and referral



## Appendix 4 - ICD-10 codes

Below outlines the proposed ICD-10 codes for inclusion in the policy.

Note: This list can be added to at CCG level during implementation of policy.

ICD-10 codes	Description
M75.3	Calcific tendinitis of shoulder
M75.4	Impingement syndrome of shoulder
M75.5	Bursitis of shoulder