education

FROM THE JOURNALS Edited highlights of weekly research reviews on https://bit.ly/2PLtil8

Factors affecting sex related reporting in medical research

Have you ever conducted a study with 1.1 million citations? Researchers from the US and Canada did to answer several important questions: How often is sex reported in research studies? Has this reporting changed over time, are there differences among subfields, and do female authors tend to be associated with more reporting of sex? They found that, from 1980 to 2016, reporting of sex increased from 59% to 67% in clinical medicine; in public health research, sex reporting increased from 36% to 69%. Biomedical research still under-reports sex (31% in 2016). Papers with both first and last female authors were associated with a greater odds of reporting of sex (odds ratio 1.26, confidence interval 1.24-1.27), but reporting of both sexes was associated with a decreased impact factor.

Lancet doi:10.1016/S0140-6736(18)32995-7

Value based incentive programmes and catheter associated urinary tract infections

If you pay hospitals and doctors to do more of the "good things" and less of the "bad things," then you will presumably get more good than bad. So goes the common sense justification for value based payment programmes. Unfortunately, this is yet another area in which common sense does not seem to apply in healthcare. Questions abound: what is the right incentive; what should be incentivised; and how do you know whether it works? Among the value based payment programmes are two initiatives that target urinary tract infections associated with catheter use that are reported to the US Centers for Disease Control and Prevention. Using an interrupted time series design, the authors compared the levels and trends of three quality metrics associated with catheter associated urinary tract infections before and after implementing value based payment programmes: device associated infection rates, population based infection rates, and indwelling catheter device use. There was no difference. The authors say that there was already considerable work and progress on catheter associated urinary tract infections before the value based payment programmes. Thus it might not be the incentives that aren't working. Maybe it just takes them too long to get off the ground, and by the time they're operational it's too late.

JAMA doi:10.1001/jama.2018.18997

Compounded topical pain creams to treat localised chronic pain

Chronic pain is widespread and hard to treat. Many people with chronic pain, and their employers or supervisors, expect or hope that their condition will not render them unable to work. However, available treatments are not particularly effective and are associated with substantial adverse effects. All of these factors explain the skyrocketing use of compounded creams (that is, creams mixed in a pharmacy from multiple pharmaceuticals). Costs are through the roof—$6 million a day were spent on these medications in the first month of 2015. Researchers from the US Defense Health Agency carried out a randomised controlled trial to test the effectiveness of these creams on chronic, localised neuropathic and nociceptive pain. Across the board, there was no effect—even though some of these creams contain ingredients such as non-steroidal anti-inflammatory drugs (NSAIDs) and lidocaine, which are known to be effective in certain conditions. Perhaps the other ingredients interfered, and in any case the evidence for topical NSAIDs and lidocaine is best in situations where pain is closest to the surface. The patients in this trial, however, had chronic pain at a range of sites.

Ann Intern Med doi:10.7326/M18-2736

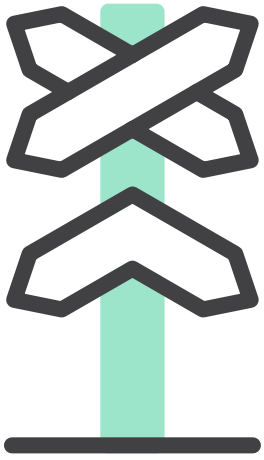
Association of type 1 diabetes with test scores in schoolchildren

Like other systemic diseases in children, diabetes can affect many domains of life. There are physiological reasons to think that hypoglycaemia or hyperglycaemia and diabetic ketoacidosis might affect cognitive function or the emotional states of children with diabetes. Researchers in Denmark used national databases of children with diabetes and data from national testing of public school children to investigate potential differences in test scores between kids with diabetes and those without. They found no difference, but acknowledge in their conclusion that test scores might not fully reflect school performance.

JAMA doi:10.1001/jama.2018.21819

Zackary Berger is an associate professor at Johns Hopkins School of Medicine in the division of general internal medicine, and core faculty in the Johns Hopkins Berman Institute of Bioethics, in Baltimore, Maryland.

The airway device research summary (p 255) is the first in our new series of critical study reviews published in collaboration with the National Institute for Health Research, to help doctors extract the information they really need from the more than 75 clinical trials published every day



EDITORIAL

NIHR's research signals in The BMJ

A new series of selected research summaries written for busy clinicians

Decisions in healthcare are complex and different for every person. Keeping up to date with new research and guidance is key to dealing with uncertainty and delivering high quality personalised care. Both clinicians and patients need robust summaries and shortcuts to help put the findings of new studies into the context of wider evidence and clinical guidelines. With at least 75 trials and 11 systematic reviews published every day (numbers are likely to have risen since this 2010 estimate),[1] filters and selection processes are needed.

The National Institute for Health Research (NIHR) is the largest public funder of health research in the UK, providing infrastructure support and funding for more than 350 substantive clinical, social care, and public health studies each year.[2]

NIHR programmes work with frontline healthcare staff and others to identify information gaps and develop high quality research to help fill them.[3] Focusing on uncertainties that have been identified as important by clinicians, managers, patients, and the public,[4] NIHR aims to maximise the value of research by asking the right question in the right way.[5] Recent studies informing common clinical problems include a randomised trial evaluating the safest position for labour in nulliparous women with an epidural[6] and a trial assessing the use of adrenaline for cardiac arrest out of hospital.[7]

Principles of good journalism

Recognising the need for filters and summaries, NIHR set up a dissemination centre in 2015 to help translate research results into practice. Every week, the centre produces three to five NIHR Signals: critical summaries of NIHR and other research, written following the principles of good journalism with declarative titles, prominent key findings, and direct, plain English.

Readers of *The BMJ* tell us that they need more and better information about relevant healthcare research in an easily accessible form. So this week, we are launching a collaboration between *The BMJ* and the NIHR Dissemination Centre, bringing a selection of these summaries to our readers.

It's a noisy world out there, and we hope the new series will help busy clinicians identify the research signals most likely to help their patients, inform their practice, and improve quality of care

The selection process for NIHR Signals includes an assessment of research quality using accepted critical appraisal checklists (https://casp-uk.net/), risk of bias tools, and careful consideration of the clinical implications of the findings, with reference to relevant guidelines and service context. The process is described in detail on the NIHR website.[8]

Publicly funded

All research abstracts that pass initial screening are then reviewed and rated for relevance and importance by raters drawn from a pool of more than 1400 clinicians, managers, and patients. Less than a quarter of all NIHR funded studies are selected for NIHR Signals, along with just 1-2% of the other reviews and landmark studies screened from selected journals. People can sign up to receive all signals or just those relating to their area of interest (https://www.dc.nihr.ac.uk/email-sign-up). All editorial staff involved in the creation of NIHR Signals adhere to *The BMJ*'s strict conflicts of interest policy for education content.[9]

This collaboration will help bring together high quality NIHR research published in a range of journals. We will focus on NIHR funded research as this has been funded to clarify areas of clinical uncertainty for the NHS identified by panels of scientists, clinicians, and patients. We will select for publication those summaries likely to be of greatest practical value to our diverse readership of clinicians and welcome your feedback to help inform this process.

It's a noisy world out there, and we hope the new series will help busy clinicians identify the research signals most likely to help their patients, inform their practice, and improve quality of care.

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Find the full version with references at http://dx.doi.org/10.1136/bmj.l513

New airway device as good as tracheal tube insertion for out-of-hospital resuscitation

The study

Effect of a strategy of a supraglottic airway device versus tracheal intubation during out-of-hospital cardiac arrest on functional outcome: the AIRWAYS-2 randomised clinical trial

Benger JR, Kirby K, Black S, et al

Published on 28 August 2018 *JAMA* 2018;320:779-91 This study was funded by the National Institute for Health Research Health Technology Assessment Programme (project number 12/167/102).

Why was this study needed?

Cardiac arrest out of hospital is usually fatal. The best way to keep an airway to the lungs when patients' breathing had stopped was uncertain.

Options include basic mouth to mouth breathing or bag and mask techniques. Tracheal intubation has been seen as the standard of care for advanced breathing assistance. However, it can only be done by paramedics with training who have the opportunity to maintain their skills.

More recently, paramedics have used a supraglottic airway device, which is placed in the throat above the vocal cords. It is quicker to insert and requires less training for reliable placement.

This study aimed to find out whether one device was more likely to lead to a good outcome than the other.

What did this study do?

The AIRWAYS-2 trial randomised 1523 paramedics to prioritise either intubation or use of supraglottic airway devices when they were called to an eligible patient. They enrolled 9296 patients when they were the first or second paramedic on the scene. Eligible patients were adults with a non-traumatic cardiac arrest out of hospital, which required advanced airways management (beyond mask and bag breathing assistance).

Paramedics were requested to make two attempts at their allocated technique before switching to the alternative option. They were able to use the non-allocated option if their clinical judgment suggested it would be preferable. Enrolled patients were followed up for 30 days, or until death or hospital discharge.

Paramedics were given training on their allocated technique; however, individual expertise may have influenced the results.

What did it find?

- In the supraglottic airway devices group, 311 patients (6.4%) had a good outcome after 30 days, compared with 300 patients (6.8%) in the intubation group. This was measured by scoring 0 to 3 on the modified Rankin Scale of neurological disability, where 0 represents no symptoms and 3 represents moderate disability but able to walk without assistance. The adjusted risk difference of −0.6% was not statistically significant (95% confidence interval −1.6 to 0.4).
- There was little difference in the number of patients who had died by 30 days—91.9% of the supraglottic airway devices group compared with 91.5% of the intubation group.
- The initial attempts at ventilation were more often successful when paramedics used supraglottic airway devices (87.4%) than when they used intubation (79.0%), adjusted risk difference 8.3% (95% confidence interval 6.3 to 10.2).
- There was no statistically significant difference in the potential complications of regurgitation (bringing up stomach contents) or aspiration (inhaling stomach contents) between the two procedures. Regurgitation occurred with 24.5% of attempts at intubation and 26.1% of attempts at supraglottic airway device placement. Aspiration occurred with 14.9% of attempts at intubation and 15.1% of attempts at supraglottic airway device placement.

What does current guidance say on this issue?

The 2015 Resuscitation Council guidelines say that clinicians should use the airway technique with which they are most experienced to provide adequate oxygenation and ventilation. The optimal airway technique for cardiac arrest is unknown and is likely to depend on the skills of the operator, the anticipated pre-hospital time, and patient-dependent factors.

A 2018 consensus statement on intubation from the College of Paramedics says that intubation should remain part of the training and skill set of paramedics.

Cite this as: *BMJ* 2019;364:k5324

Find the full version with references at http://dx.doi.org/10.1136/bmj.k5324

Competing interests: *The BMJ* has judged that there are no disqualifying financial ties to commercial companies. Further details of other interests, disclaimers, and permissions can be found on bmj.com

NIHR | National Institute for Health Research

NIHR Signals provide decision makers in the NHS, public health, and social care with the latest important research from the NIHR and other health research organisations.

To read the full NIHR Signal go to: https://bit.ly/2G080iX

CPD READING

0.5 HOURS

What are the implications?

Supraglottic devices are in widespread use among emergency paramedics because earlier studies have shown they are easier to place correctly than tracheal tubes. This is the first study large enough to show that people treated with supraglottic airway devices are no less likely to have a good outcome than those treated with intubation. Supraglottic airway devices do not represent a lesser standard of care.

It is likely that these results will inform future guidance and training in advanced airways management for paramedics.

Supraglottic airway devices are no less likely to have a good outcome than intubation

EDITORIAL

Subacromial decompression surgery for shoulder pain

Approach with caution

The guideline panel (pp 288-290) on treating shoulder pain strongly recommends against the use of surgery as it "provides no important benefit on pain, function, quality of life, and global perceived effect." But **Nick Aresti** and **Livio Di Mascio** (right) argue that before ASD is labelled worthless, methodology concerns need to be addressed, and they urge doctors to continue to offer patients all available options and evidence

We read the linked *BMJ* Rapid Recommendation by Vandvik and colleagues[1] with interest. The benefit of arthroscopic subacromial decompressions (ASD) for shoulder impingement has divided opinion among healthcare professionals for years. Despite good evidence against its efficacy, including a *BMJ* study by Brox and colleagues in 1993, which showed no difference between ASD and an exercise programme,[2] its use has increased dramatically over the past quarter of a century. The past decade alone saw an increase of 746% in the number of procedures across the UK.[3]

Several high profile papers have recently been published questioning the efficacy of ASD. These include the Oxford based CSAW study,[4] the Finish FIMPACT trial,[5] and a series of systematic reviews.[6 7] These studies show a statistically significant difference in shoulder scores between patients treated surgically (with ASD or control arthroscopy) and patients treated without surgery (usually physical therapy). However, they find no difference in outcome between ASD and control arthroscopy. The authors conclude that any benefit is due to a placebo effect of surgery rather than the therapeutic effect of decompression. Questions over the efficacy of ASD have led to more scrutiny, with further analysis demonstrating substantial regional variations in use,[8] and questionable cost effectiveness.[9] The NHS has labelled ASD a procedure of limited value and is consulting on decommissioning it altogether.[10]

Clearly, ASD is overused. The benefit to patients is questionable and may not be better than physiotherapy alone. However, while we must pay close attention to this body of work, and to Vandvik and colleagues' recommendations, we must also remain objective and mindful of the methodology used before determining ASD to be worthless.

To begin with, inconsistent terminology is used interchangeably to describe "impingement" across the aforementioned studies. These terms include subacromial pain, bursitis, impingement syndrome, and pain syndrome. This itself may be a symptom of our poor understanding of the many pathologies that can lead to non-specific shoulder pain radiating to the deltoid insertion—an "impingement type pain." Primary inflammation of the bursal tissue is often the cause, but pain may also be caused by pathology of the rotator cuff, instability, abnormal scapula kinematics, calcium deposition within the shoulder, arthritis of the acromioclavicular joint, an unstable os acromiale, or even a traumatic incident. Further, trial participants are not representative of real world patient populations, who have a higher prevalence of co-pathologies and comorbidities.

It is too easy, and inaccurate, to label the many presentations of shoulder pain as subacromial impingement, and one type of surgical intervention cannot be panacea. More should be done to differentiate between the causes of impingement type pain in trial participants, to avoid the overly broad inclusion criteria used in many of the studies that currently inform our practice.

Small sample sizes

Other common methodological concerns include short term follow-up periods of around two years, when longer term studies have suggested a positive benefit after 10 years plus.[11] Concerns remain over small sample sizes, group crossover, low numbers of procedures per surgeon, and a failure to standardise surgical technique. Arthroscopy control interventions include instrumentation and irrigation of the subacromial bursa with pressurised fluid, whose effect has not been satisfactorily addressed. Similarly it's often unclear whether control arthroscopy includes evaluation of the rotator cuff, which would require at least partial removal of the overlying bursa: an important pain generator in the shoulder. Finally, the morphology of the acromion is rarely considered in participant assessment, despite this being known to influence rates of impingement and rotator cuff tears.[12]

The recent CSAW and FIMPACT trials use a more robust placebo controlled design, and this is a welcome move in a specialty that has perhaps lagged behind others in evidence based practice. They show that the way ASD is currently used in the UK may not be beneficial to patients. These studies are asking the right questions, but their purpose should be to inform rather than dictate. Individual treatment decisions must be made in partnership with patients, after discussion of all available evidence. Healthcare professionals should be more cautious in their approach to ASD, but the current evidence base is not strong enough to condemn it.

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Find the full version with references at http://dx.doi.org/10.1136/bmj.l586

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Subacromial decompression surgery for adults with shoulder pain: a visual summary

Population

Including:

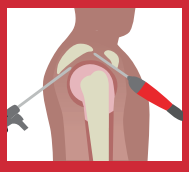
- Subacromial pain syndrome (SAPS)
- Rotator cuff disease (RCD)

Does not apply to patients with:

- Traumatic shoulder pain
- Other differential diagnoses

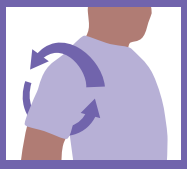
Interventions compared

Subacromial decompression surgery
Arthroscopic subacromial decompression plus nonoperative management



or

Nonoperative management only
Including guided physical therapy, exercise programmes, NSAIDs, and steroid injections



Recommendation

Strong | Weak | Weak | Strong

We recommend against subacromial decompression surgery

Comparison of benefits and harms

Favours surgery | No important difference | Favours management

After 1 year		Visual analogue scale (0–10)		Evidence quality
Pain (Mean)	2.6	No important difference	2.9	★★★★ High
		Constant score scale (0–100)		
Function (Mean)	72	No important difference	69	★★★★ High
		EQ-5D scale (-0.59–1)		
Quality of life (Mean)	0.70	No important difference	0.73	★★★★ High
		Events per 1000 people		
Global perceived effect	699	No important difference	635	★★★☆ Moderate
At work	859	No important difference	818	★★☆☆ Low
Within 30 days		**Events per 1000 people**		
Serious harms	6	6 fewer	0	★★★☆ Moderate

Key practical issues

Surgery

- Day surgery with general anaesthesia and/or nerve block
- After surgery, 2 weeks off work are typically needed
- Avoid heavy lifting for 1 to 3 weeks, overhead activities for 3 months

Both interventions

- Recovery time varies from months to years and may include sick leave

Values and preferences

The panel believes that all or almost all patients would place a high value on avoiding even minimal risk of complications and burden from surgery, if it is not helpful.

See an interactive version of this graphic online

https://bit.ly/BMJrrSh

Subacromial decompression surgery for adults with shoulder pain: a clinical practice guideline

Per Olav Vandvik,[1 2] Tuomas Lähdeoja,[3 4] Clare Ardern,[5 6] Rachelle Buchbinder,[7] Jaydeep Moro,[8] Jens Ivar Brox,[9] Jako Burgers,[10 11] Qiukui Hao,[12 13] Teemu Karjalainen,[7] Michel van den Bekerom,[14] Julia Noorduyn,[14] Lyubov Lytvyn,[13] Reed A C Siemieniuk,[13] Alexandra Albin,[15] Sean Chua Shunjie,[16] Florian Fisch,[17] Laurie Proulx,[18] Gordon Guyatt,[13] Thomas Agoritsas,[19] Rudolf W Poolman[14]

Full author details on bmj.com.
Correspondence to: R W Poolman rwp@jointresearch.org

CPD READING
0.5 HOURS

Abstract

Clinical question Do adults with atraumatic shoulder pain for more than 3 months diagnosed as subacromial pain syndrome (SAPS), also labelled as rotator cuff disease, benefit from subacromial decompression surgery?
Recommendation The guideline panel makes a strong recommendation against surgery.
The evidence Surgery did not provide important improvements in pain, function, or quality of life compared with placebo surgery or other options. Frozen shoulder may be more common with surgery.
Understanding the recommendation The panel concluded that almost all informed patients would choose to avoid surgery because there is no benefit but there are harms and it is burdensome. Subacromial decompression surgery should not be offered to patients with SAPS. However, there is substantial uncertainty in what alternative treatment is best.

Subacromial pain is the most common form (up to 70%) of shoulder pain. Most patients presenting with subacromial pain, without a history of trauma, receive a diagnosis of subacromial pain syndrome (SAPS), shoulder impingement, or rotator cuff disease. Each of these labels describe similar clinical presentations, but there is inconsistency about how they are defined and overlap between these diagnoses. Here, we use the term SAPS. This recommendation addresses the role of surgery for adults with symptoms lasting more than three months, who approach health professionals for treatment.

This *BMJ* Rapid Recommendation is in response to two recent trials[12 13] which found that subacromial decompression surgery provided no benefit over placebo surgery. The recommendation is based on two linked systematic reviews on benefits and harms of subacromial decompression surgery and minimally important differences in patient reported outcome measures for shoulder pain, function and quality of life.[14 15] The main infographic provides an overview of the relative and absolute benefits and harms of surgery in standard GRADE format. Box 2 in the full article on bmj.com shows all of the articles and evidence linked in this Rapid Recommendation package.

Details of subacromial pain syndrome (SAPS)

Common symptoms—Pain at the upper outer arm when lifting the arm (classically a painful arc through shoulder abduction), difficulty moving the arm (especially with forward flexion, external rotation, and abduction), reduced strength in the arm, and sleep problems due to pain[7 8]

Key differential diagnoses—Adhesive capsulitis ("frozen shoulder") and glenohumeral osteoarthritis[8 9]

Imaging—Patients with SAPS can have degeneration and partial thickness rotator cuff tears or abnormalities in the subacromial bursa on imaging. These imaging findings are also common in people without symptoms[10]

Pathophysiology—Remains poorly understood. Cadaver studies suggested that pain might occur from rotator cuff tendons being caught ("impinging") between the acromion or coracoacromial ligament and the humerus.[11] These studies provided the initial rationale for subacromial decompression surgery

HOW PATIENTS WERE INVOLVED IN THE CREATION OF THIS ARTICLE

Four people with lived experience of subacromial pain syndrome and shoulder surgery were full panel members. These panel members identified important outcomes and participated in the teleconferences and email discussions on the evidence and the recommendation. They contributed to the identification of practical issues related to the decision to have surgery and met all authorship criteria for the present article. We thank them for their time and contribution.

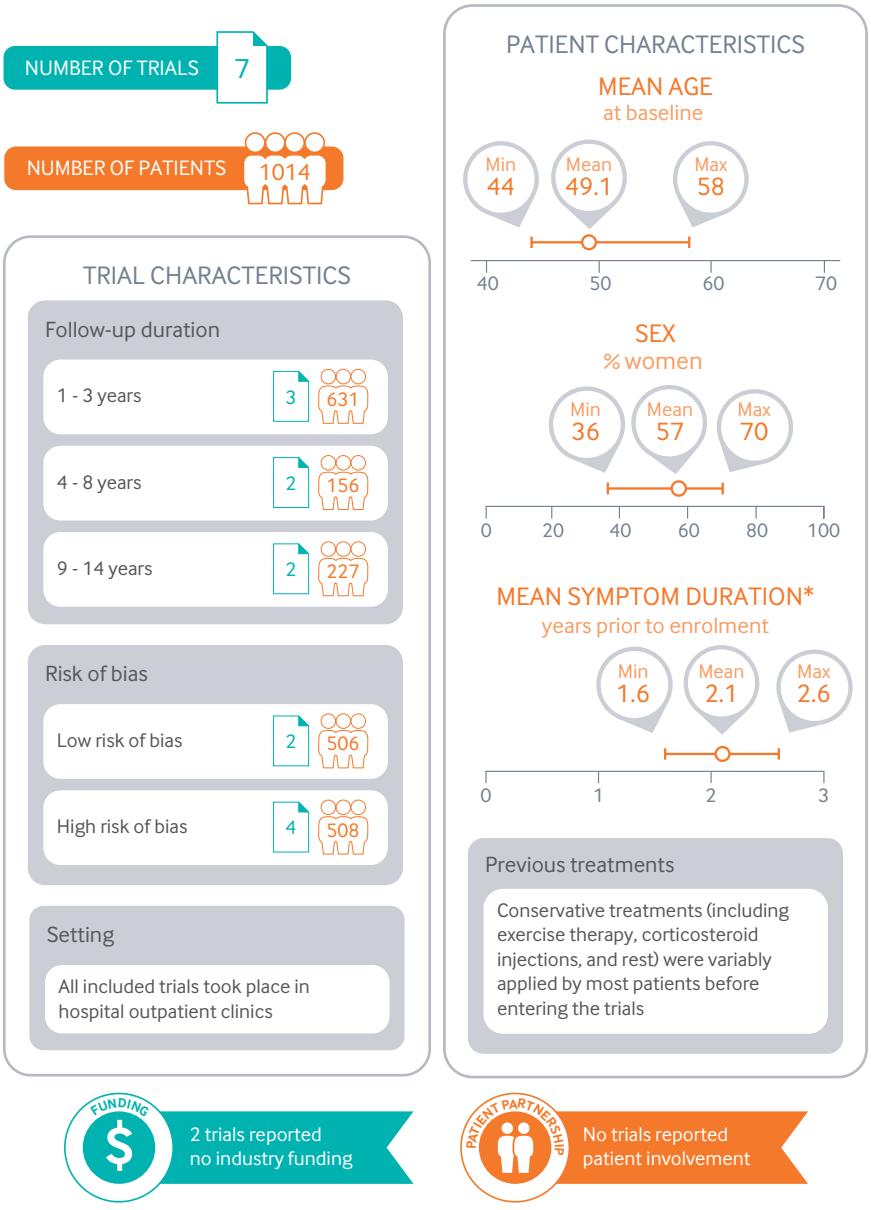


Fig 2 | Characteristics of participants and trials included in the systematic review of the effects of surgery for subacromial pain syndrome (SAPS)

Current practice

First line treatment options for SAPS include simple analgesia, such as paracetamol, non-steroidal anti-inflammatory drugs (NSAIDs), glucocorticoid injections, and exercise therapy.[8] Subacromial acromial decompression surgery is a second line treatment option for patients with more longstanding symptoms. Current guidelines provide inconsistent recommendations. Such surgery includes removal of the subacromial bursa (bursectomy) and removal of bone from the under surface of the acromion (acromioplasty).[8] Surgeons initially performed subacromial decompression surgery as an open procedure. It evolved to less invasive keyhole surgery: arthroscopy.

Despite trials dating back to 1993[18] and systematic reviews failing to demonstrate benefit from surgery,[19] the number of arthroscopies performed has risen dramatically, although there is substantial geographical variation.[20 21]

The evidence

What is the minimum difference in symptoms and function important to patients?

The systematic review of minimally important differences (MIDs) identified 22 original studies of 5562 patients.

The panel were, due to credible estimates, confident that patients valued

- A difference in pain of at least 1.5 units as important (visual analogue scale 0-10)
- A difference in function of at least 8.3 units as important (constant score 0-100)

The panel were less confident in the difference in health related quality of life reported by patients to be important (EQ 5-D, MID 0.07 units, low credibility median estimate).

What are the benefits and harms of subacromial decompression surgery?

In general, the patients included in the trials are representative of patients with SAPS presenting to primary care centres and outpatient clinics (fig 2). Participants were around 49 years old and had had symptoms for around two years.

Planned evaluation of trials at lower risk of bias

The panel planned to focus on evidence at lower risk of bias. At one year after treatment, they showed that surgery did not have meaningful benefit over placebo surgery.

Similar results were seen at six months, two years, and at five year follow-up, with the latter supported by low certainty evidence due to imprecise estimates from unblinded trials.[15]

Planned evaluation of surgery compared with exercise therapy

This analysis compared subacromial decompression surgery (including postoperative exercise therapy) with exercise therapy alone. Six trials reported such comparisons, and all were at high risk of bias due to lack of blinding. Some had imprecise estimates of effect. Compared with exercise therapy, there was no important benefit of surgery on pain, function, quality of life, global perceived effect, and return to work.[15]

Harms

The risk of serious harms after mixed shoulder arthroscopic procedures was 0.5% (95% confidence interval 0.4% to 0.7%) during years 2006-11 and 0.6% (0.5% to 0.7%) during 2011-13. Reported harms included events such as major bleeding, deep infections, serious anaesthetic complications, venous thromboembolism, and peripheral nerve injury.

Understanding the recommendation

The panel concluded that almost all well informed patients would decline surgery and therefore made a strong recommendation against subacromial decompression surgery. The panel was confident that surgery provides no important benefit on pain, function, quality of life, and global perceived effect informed by moderate to high certainty evidence in a one year timeframe. Surgery also comes with burdens and the risk of harm (see main infographic).

Although we did not take costs and resources into account beyond direct costs to patients (such as out-of-pocket costs), surgery cannot be cost effective given the lack of important benefit, potential for harm, and associated costs.

Fig 3 includes the practical issues linked to surgery, compared with physical therapy because this was the key comparison in the trials and a relevant treatment option.'

Uncertainty

Clinicians and patients might question what other therapies could be offered to patients diagnosed with SAPS or rotator cuff disease and whether any therapy is effective. For guidance on treatment alternatives beyond surgery, we point readers to a clinically focused overview article and to guidelines with a broader scope (table 1 in full version on bmj.com).[8]

The whole area of best management of SAPS is uncertain, as reflected in the following brief summary on available treatment options:

- Glucocorticoid injections and NSAIDs may provide moderate to small short term benefits on shoulder pain compared with placebo.[8 24]
- Exercise, manual therapy, and electrotherapies are of uncertain benefit to patients compared with watchful waiting, and guidelines vary in their recommendations.[25 26]
- A holistic approach to care, with appropriate communication including reassurance and education, is likely to benefit patients but is poorly studied.[27]

Key research questions to inform decision makers and future guidelines include:

- What are the best strategies to de-implement inefficient and potentially harmful subacromial decompression surgery for SAPS?
- How can we educate patients and clinicians to understand and adopt evidence, particularly when it goes against accepted beliefs?

Competing interests: All authors have completed the *BMJ* Rapid Recommendations interest disclosure form and a detailed, contextualised description of all disclosures is reported in appendix 1 on bmj.com. As with all *BMJ* Rapid Recommendations, the executive team and *The BMJ* judged that no panel member had any financial conflict of interest. Professional and academic interests are minimised as much as possible, while maintaining necessary expertise on the panel to make fully informed decisions..

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Find the full version with references at http://dx.doi.org/10.1136/bmj.l294

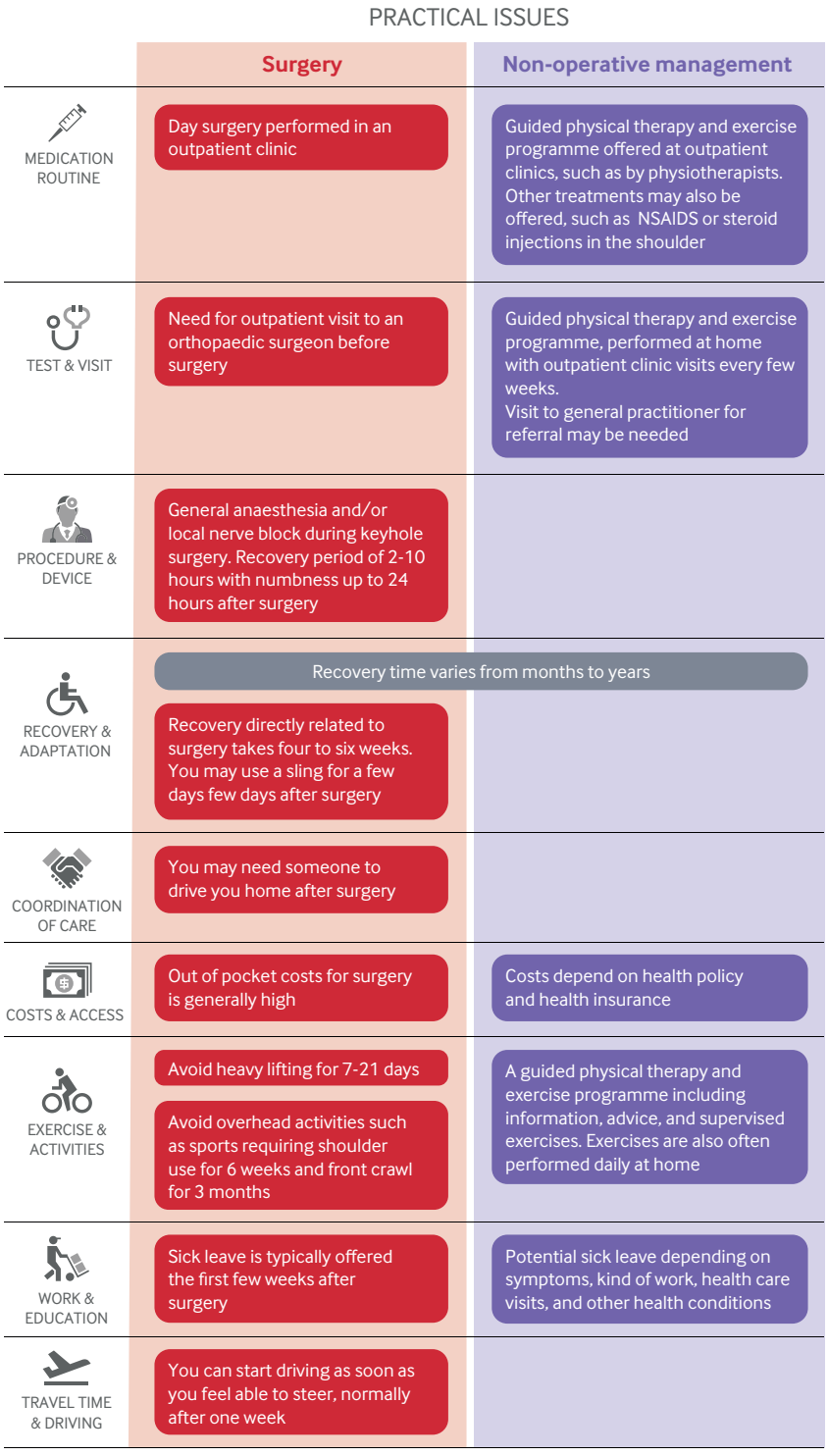


Fig 3 | Practical issues for surgery and nonoperative management of subacromial pain syndrome (SAPS)

HOW THIS GUIDELINE WAS CREATED

A guideline panel including patients, clinicians, and methodologists produced this recommendation in adherence with standards for trustworthy guidelines and the GRADE system. The recommendation is based on two linked systematic reviews on (*a*) the benefits and harms of subacromial decompression surgery and (*b*) the minimally important differences for patient reported outcome measures. Recommendations are made actionable for clinicians and their patients through visual overviews. These provide the relative and absolute benefits and harms of surgery in multilayered evidence summaries and decision aids available in MAGIC (www.magicapp.org) to support shared decisions and adaptation.

CASE REVIEW A man with a painful and swollen left testicle

A 34 year old man was referred to the emergency department by his general practitioner with a three day history of painful swelling of his left testicle and lethargy. He had first noticed the swelling five weeks earlier. He had also noticed an intermittent dull ache over that time but he had not sought medical attention. The patient had no urinary symptoms, history of fevers, vomiting, or weight loss. He had no clinically significant medical or family history, worked as a civil engineer, and was a non-smoker. Observations were within the expected range for all parameters except for pyrexia of 38.2°C. Examination showed an enlarged firm left testicle of approximately 5 × 4 × 4 cm with an irregular superior pole and a thickened tender spermatic cord. The abdomen was normal.

Scrotal Doppler ultrasound showed a mixed echogenic lesion measuring 4.5 × 3.4 × 3.4 cm containing a cystic component measuring approximately 2 cm and marked hyperaemia in the left testicle. Mid stream and first pass urine samples were sent for urinary and genitourinary bacteriology and the patient was admitted to the urology ward.

Blood test results

Blood test	Normal range	Result
Haemoglobin	13.5-18.0 g/dL	17.1 g/dL
White cell count	4.0-11.0 × 10^9/L	14.5 × 10^9/L
C-reactive protein	<6	86
Alpha fetoprotein (AFP)	0.0-5.9 kU/L	383.7 kU/L
Lactate dehydrogenase (LDH)	0-250 U/L	212 U/L
β human chorionic gonadotrophin (HCG)	0-3 U/L	31 U/L

1 **What is the most likely explanation for these symptoms?**
2 **What would you cover when discussing diagnosis with the patient?**
3 **How would you investigate and take the first steps in management?**

Submitted by William Maynard and Sarah Reid

Patient consent obtained.

Cite this as: *BMJ* 2019;364:l334

If you would like to write a Case Review or Spot Diagnosis for Endgames, please see our author guidelines at http://bit.ly/29HCBAL and submit online at http://bit.ly/29yyGSx

answers

For extra material, including patient outcome, go to bmj.com/endgames

CASE REVIEW A man with a painful and swollen left testicle

1 What is the most likely explanation for these symptoms?

A painful swollen testicle with pyrexia is most commonly caused by epididimo-orchitis. However, history of a mass preceding the onset of pain, and palpation of an irregular mass are red flags for testicular cancer. A mixed density lesion on ultrasound and raised β HCG and AFP tumour markers suggest that the diagnosis is primary germ cell tumour with unrelated concurrent infection.

2 What would you cover when discussing diagnosis with the patient?

Have an early discussion regarding the likely diagnosis. There are excellent outcomes of treatment with orchidectomy if there is no metastatic disease. Discuss the patient's preference for fertility preservation. Risk factors for reduced fertility following treatment are age, pre-treatment oligozoospermia, and cisplatin chemotherapy as part of treatment. Cryopreservation of sperm is effective and cost effective.

3 How would you investigate and take the first steps in management?

- Antibiotics if infection is suspected, as in this case
- Perform computed tomography of the chest, abdomen, and pelvis for staging
- Assess fertility by measuring testosterone, follicle stimulating hormone, and luteinising hormone plasma levels
- Perform prompt inguinal orchidectomy for tissue diagnosis
- If there are life threatening lung metastases, perform immediate chemotherapy and delay orchidectomy.

LEARNING POINTS

- Testicular cancer can present with concurrent infection but usually presents as a painless testicular mass/swelling
- Scrotal Doppler ultrasound is the gold standard for imaging in all patients with a suspicious mass on examination; 95% of masses are malignant tumours, 100% if tumour markers are raised
- Overall survival from testicular cancer is excellent; with about 90% 5 year survival, increasing to 95% survival in stage one seminomas
- Lung metastases with high tumour markers suggest life threatening, widespread metastatic testicular cancer.

PATIENT OUTCOME

The patient underwent inguinal orchidectomy and declined preoperative sperm cryopreservation. He was discharged from hospital the next day. Histological analysis showed a mixed germ cell tumour with no lymphovascular invasion. Staging computed tomography showed no lymphatic or solid metastasis, and the overall stage was classified as 1S. He remains well and continues to have follow-up checks.

CPD READING
0.5 HOURS

You can record CPD points for reading any article. We suggest half an hour to read and reflect on each.

LEARNING MODULE

Articles with a "learning module" logo have a linked BMJ Learning module at http://learning.bmj.com.

MINERVA

Periorbital oedema caused by profound primary hypothyroidism

An older woman presented with marked periorbital oedema, thickened skin, coarsened facial features, and brittle hair (typical myxoedema appearances) (right); she also described intolerance of cold and hoarsening of her voice.

Her thyroid stimulating hormone levels were raised at 47.2 mIU/L (reference range 0.3-5.0 mIU/L) and T4 markedly reduced at <3.2 pmol/L (reference range 7.9-16 pmol/L), confirming primary hypothyroidism.

Such marked oedema is unusual but is resolved with levothyroxine.

Use levothyroxine cautiously; it may induce angina, atrial fibrillation, and/or adrenal crisis in patients with underlying heart disease and/or adrenal insufficiency.

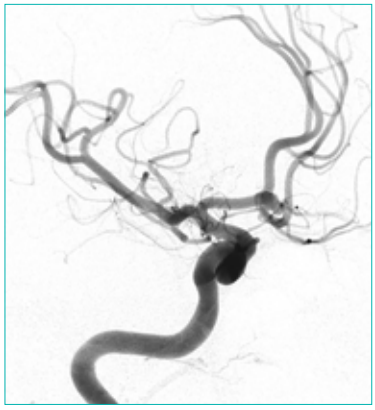
Periorbital swelling can also be caused by infection, allergy, skin disorders, heart failure, and renal failure.

Martin Kent (docmart@btinternet.com), Westcliff on Sea, Essex, UK; Katie Griffiths, Brighton and Sussex Medical School

Patient consent obtained. Cite this as: *BMJ* 2019;364:l279

If you would like to write a Minerva picture case, please see our author guidelines at http://bit.ly/29HCBAL and submit online at http://bit.ly/29yyGSx

Unruptured intracranial aneurysms



The increasing use of brain imaging means that increasing numbers of unruptured intracranial aneurysms are being identified. Many are likely to remain asymptomatic but some will rupture—with potentially devastating effects. A systematic review tries to assess the risks of preventive intervention, which are far from negligible (*JAMA Neurol*). For endovascular procedures, the pooled risk for any complication was around 5% with a case fatality of 0.3%. For neurosurgical interventions, the risk of complications was around 8% with a case fatality of 0.1%. The highest risks were for aneurysms in the posterior cerebral circulation.

Medical harms

Twenty years ago, the Harvard Medical Practice Study drew attention to the number of patients who suffered harm as a direct result of medical errors (*N Engl J Med*). Its findings provoked a wave of initiatives to improve patient safety. An analysis of death certificates from the US suggests that they have been moderately successful. Age standardised mortality from the adverse effects of medical treatment has fallen by around 20% since 1990 (*JAMA Netw Open* doi:10.1001/jamanetworkopen.2018.7041). Older people are at the highest risk. Mortality from adverse medical events was 20 times higher in people aged 70 and older than in people below 50.

Flashing lights and sirens

Emergency response ambulances frequently use flashing lights and sirens to warn other drivers and demand right of way. Several studies have shown that this doesn't save much time. Except in rare circumstances such as airway obstruction or uncontrolled haemorrhage, any benefits for patients are probably small. A nationwide survey from the US finds that ambulances operating with lights and sirens are more likely to be involved in crashes, especially during transport of patients to hospital. It calls for research to quantify the trade off between the risks of the journey and the potential benefits of faster transport. (*Ann Emerg Med*).

Cite this as: *BMJ* 2019;364:l581

Writer's cramp

Writer's cramp and musician's cramp are dystonias of the hand and forearm that are specific to particular tasks. Despite involving the same muscles, performance of other motor tasks is often unimpaired. These dystonias are disabling and hard to treat. A report of a large series of cases from a Japanese neurosurgical unit claims that unilateral stereotaxically placed lesions in the ventro-oral nucleus of the thalamus are a safe and effective intervention (*Neurology*). The procedure is carried out under local anaesthetic and there's a remarkable photograph of a patient holding a violin while surgery is in progress.

Dapsone for chronic urticaria

How do you help patients with chronic idiopathic urticaria when treatment with high doses of H1-antihistamines fails? Dapsone might be the answer, according to a review of a series of 79 patients treated at a tertiary care centre in New York. More than three quarters of those treated with dapsone experienced some improvement and around a third became symptom free (*JAMA Dermatol*).