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**EVOLVE: The Australian Rheumatology Association’s ‘top five’ list of investigations
and interventions doctors and patients should question**

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ABSTRACT

Background: The EVOLVE (evaluating evidence. enhancing efficiencies) initiative aims to drive safer, higher-quality patient care through identifying and reducing low-value practices.

Aims: To determine the Australian Rheumatology Association's (ARA's) 'top 5' list of low-value practices.

Methods: A working group comprising 19 rheumatologists and three trainees compiled a preliminary list. Items were retained if there was strong evidence of low-value and there was high or increasing clinical use and/or increasing cost. All ARA members (356 rheumatologists and 72 trainees) were invited to indicate their 'top 5' list from a list of 12 items via MonkeySurvey in December 2015 (reminder February 2016) .

Results: 179 rheumatologists (50.3%) and 19 trainees (26.4%) responded. The top 5 list (percent of rheumatologists including item in their top 5 list) was: Do not perform arthroscopy with lavage and/or debridement for symptomatic osteoarthritis of the knee nor partial meniscectomy for a degenerate meniscal tear (73.2%); Do not order ANA testing without symptoms and/or signs suggestive of a systemic rheumatic disease (56.4%); Do not undertake imaging for low back pain for patients without indications of an underlying serious condition (50.8%); Do not use ultrasound guidance to perform injections into the subacromial space as it provides no additional benefit in comparison to landmark-guided injection (50.3%); and Do not order anti dsDNA antibodies in ANA negative patients unless the clinical suspicion of SLE remains high (45.3%).

Conclusions: This list is intended to increase awareness among rheumatologists, other clinicians and patients about commonly used low-value practices that should be questioned.

Key words: EVOLVE, evidence-based practice, implementation, low-value care, rheumatology

Appendix 1 Recommendations included in the survey considered to be low-value care but did not make the ‘top five’ recommendations

Recommendation: Do not repeat dual energy x-ray absorptiometry (DEXA) scans more often than every two years in people with established osteoporosis

Strength of recommendation: C

NHMRC Level of evidence: III-2

Category of evidence: III

Serial bone mineral density (BMD) measurement with DEXA scans is not more predictive of subsequent fracture than the baseline measurement [44]. Due to limitations in the precision of testing, a minimum of two years is needed to reliably measure a change in BMD [45]. As a result of this evidence, many guidelines recommend a minimum of two years before re-testing BMD, and less frequent testing may be appropriate in patients with stable BMD or those at low risk of fracture [45-47].

The MBS already restricts the frequency of subsidised DEXA scans for most indications. Two MBS item codes are already restricted to no more than one service every two years (12306: to confirm low bone mineral density in a person with one or more minimal trauma fractures, or to monitor low bone mineral density proven by bone densitometry at least 12 months previously; and 12315: diagnosis and monitoring of bone loss associated with primary hyperparathyroidism, chronic liver and/or renal disease, proven malabsorptive disorder, rheumatoid arthritis and/or conditions associated with thyroxine excess) and two are restricted to no more than one service per year (12312: diagnosis and monitoring of bone loss associated with prolonged glucocorticoid therapy, conditions associated with excess glucocorticoid secretion, male hypogonadism and/or female hypogonadism lasting more than

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six months before age 45 years; and 12321: measurement of bone density 12 months following a significant change in therapy for established low bone mineral density or confirmation of presumptive diagnosis of low bone mineral density made on the basis of one or more fractures occurring after minimal trauma). There is one MBS item for people aged 70 and over that currently has no frequency or other restrictions (12323). However in their second report, the Diagnostic Imaging Clinical Committee of the MBS Review Taskforce (released August 2016), have recommended that there be a modification to item 12323 to restrict subsidised repeat testing of BMD for patients with normal or mild osteopenia to once every five years, and repeat testing for patients with moderate to marked osteopenia to once every two years.

Recommendation: Do not use ultrasound guidance to perform injections into the trochanteric bursa as it provides no additional benefit in comparison to landmark-guided injection for lateral hip pain

Strength of recommendation: C

Category of evidence: IV

Lateral hip pain, also referred to as greater trochanteric pain syndrome, gluteal tendinopathy and trochanteric bursitis is a common condition of middle age and older individuals with a female predominance [48]. Local steroid injection into the site of maximal pain or into the trochanteric bursa, while unproven in randomised placebo-controlled trials, is a commonly used treatment [49]. Similar to ultrasound-guided injections for shoulder pain, increased use of ultrasound guidance to inject into the trochanteric bursa has become increasingly popular despite a lack of high quality evidence supporting its superior efficacy over landmark guided injection or injection into the site of maximal tenderness. A randomised controlled trial comparing fluoroscopic-guided injections to landmark-based injections for people with

greater trochanteric pain syndrome did not report any between group differences in outcome [49].

There has been a large increase in subsidised ultrasound-guided injections (Figure 4, main paper) but as discussed above, the exact number and costs of subsidised ultrasound-guided injections for individual conditions is unknown.

Recommendation: Do not undertake shoulder ultrasound for diagnosis of non-specific shoulder pain, which on clinical evaluation is suggestive of rotator cuff pathology and in which surgery is not planned

Strength of recommendation: D

Category of evidence: IV

Asymptomatic individuals commonly have ultrasound evidence of shoulder pathology, and this increases with age [50-53]. For example, the prevalence of rotator cuff tears was observed to be 20.7% in the general population and 36% in patients with shoulder pain in one Japanese study [52]. This means that pathology detected on ultrasound in someone with shoulder pain may not be of clinical relevance. There is no evidence to suggest that ultrasound examination of the shoulder alters primary care management of shoulder pain or improves patient outcomes and may increase the risk of over-diagnosis and/or overtreatment.

There are four item numbers on the MBS for shoulder ultrasound. Two item numbers (55808 and 55809) are used for patients referred by a medical practitioner, while two items (55810 and 55811) are used when they are not. Both 55809 and 55811, introduced in 2011, specify that benefits are not payable when a patient is referred for non-specific shoulder pain alone and to the end of the 2016 financial year there were a total of only 143 Medicare payments

under these item numbers. The numbers of MBS-subsidised shoulder ultrasounds billed under 55808 and 55810 have more than doubled since 2004 from more than 193,000 to more than 466,000 (Appendix Figure 1) and the costs have similarly almost tripled from approximately \$16.4 million to approximately \$47.15 million over that period.

Recommendation: Do not use ultrasound to investigate lateral hip pain thought on clinical assessment to be related to gluteal tendon pathology

Strength of recommendation: D

Category of evidence: IV

There is no evidence that the use of ultrasound in lateral hip pain aids diagnosis, alters management or improves outcomes. While it is expected that ultrasound could lead to unnecessary therapy, there is no evidence to support this.

MBS has two item numbers for hip and groin ultrasound examination (55816 and 55817) and two for buttock and thigh (55824 and 55825). In the 2015/2016 financial year there were 246,973 hip/groin and 35,345 buttock/thigh ultrasounds reimbursed by Medicare at a cost of \$28.55 million. As shown in Appendix Figure 2 these ultrasounds in total have increased at an annual rate of almost 14.5% over the 2004 to 2015 period.

Recommendation: Do not order extractable nuclear antibodies (ENA) testing in patients with negative ANA

Strength of recommendation: D

Category of evidence: IV

International recommendations advise testing for antibodies to ENA only after detecting a positive ANA in patients with symptoms consistent with a rheumatic disease [25]. In patients

who are ANA negative, ENA testing should only be performed in clinical situations where the pre-test probability of a rheumatic condition such as Sjögren's syndrome or inflammatory myopathy is very high. There is no evidence that serial ENA testing is useful for monitoring.

MBS-funded ENA testing has increased at a rate of almost 8.2% p.a. over the 2004 to 2015 period (Appendix Figure 3), while the total MBS benefits paid out for ENA testing has more than doubled in the same period from \$1.4 million in 2004 to \$3.8 million in 2015. As this is not linked to clinical information or ANA testing, it is not known what proportion is low-value care.

Recommendation: Do not order antineutrophil cytoplasmic antibody (ANCA) testing for diagnosis of vasculitis unless one of the consensus guideline indications is present

Strength of recommendation: C

NHMRC Level of evidence: III-3

Category of evidence: III

International consensus recommendations advise testing ANCA when the diagnosis of primary systemic small vessel vasculitides is suspected based on clinical history and examination [54]. A US study retrospectively tested these consensus recommendations and found a 23% reduction in ANCA ordering when following these recommendations without missing one cause of ANCA vasculitis [55]. These findings were subsequently confirmed in a prospective UK study [56]. Serial ANCA testing can be considered for monitoring inflammatory activity in patients with primary systemic small vessel vasculitides [54]. However, ANCA levels do not always fluctuate with disease activity and the relevance of repeat testing should be evaluated on an individual patient basis [57].

Currently MBS-funded ANCA testing is growing at a rate of 11.3% per year (Appendix Figure 4), some of which may be serial ANCA testing in patients with ANCA vasculitis. Noteworthy is that the incidence of ANCA associated vasculitides has remained stable since the early 2000s in epidemiological studies [58]. The 2014-15 cost to the federal government of this MBS funded testing (which excludes public hospital pathology testing), was more than \$4.8 million.

Recommendation: Do not order glucocorticoid injections for non-specific low back pain, facet joint arthritis or spinal canal stenosis.

Strength of recommendation: A

NHMRC Level of evidence: I

Category of evidence: Ia

There is level I evidence that epidural injections for non-specific low back pain and spinal canal stenosis confer limited short term benefit [59-61] or no benefit at all [59, 62] and do not alter long term pain, disability or progress to surgery [59]. There is a risk of complications such as vertebral fractures from spinal epidural injections [63]. There is high quality evidence that intra-articular steroid injections into the facet joints are ineffective [62, 64-66].

The MBS have two item numbers that can be used for glucocorticoid injections into the spine but neither is specific. One item number 39013 can be used for glucocorticoid injection into one or more facet joints or costo-transverse joints or for injection into one or more primary posterior rami of spinal nerves; while 18232 can be used for intrathecal or epidural injections of substances other than anaesthetic, contrast or neurolytic solutions. Use of these two items has increased by 11.7% per annum from 2004 to 2015 (Appendix Figure 5). Total benefits

paid out for these services amounted to almost \$1.9 million in 2004 but grew to almost \$8.8 million in 2015.

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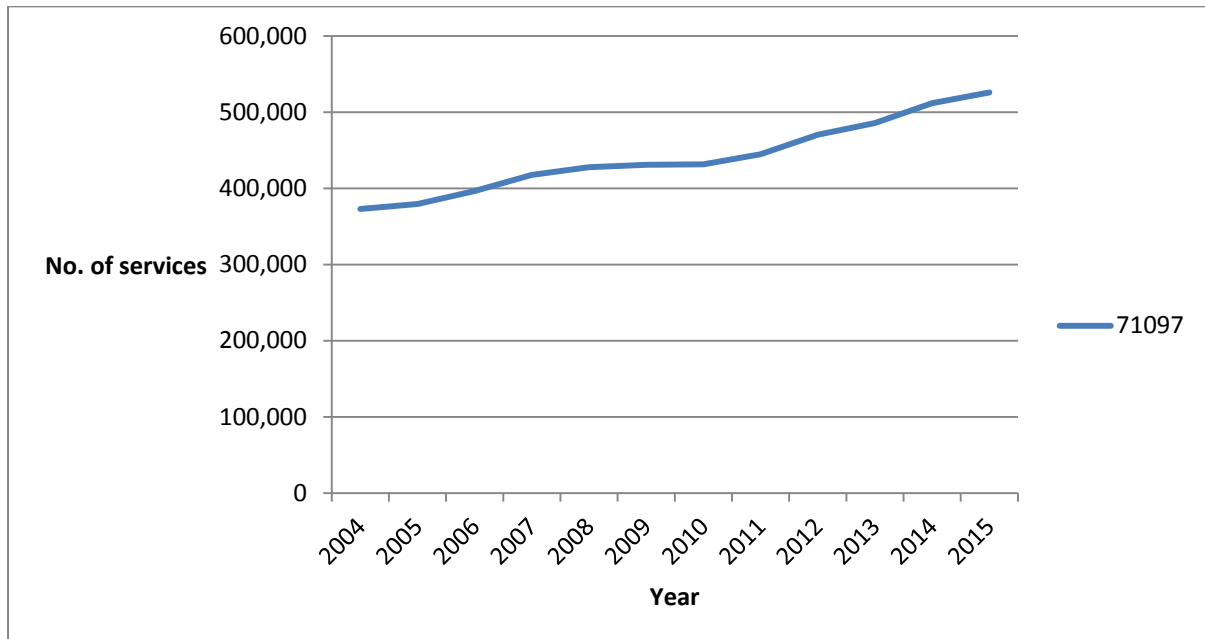
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Figure 2: Number of MBS-funded antinuclear antibody tests in Australia, 2004 to 2015

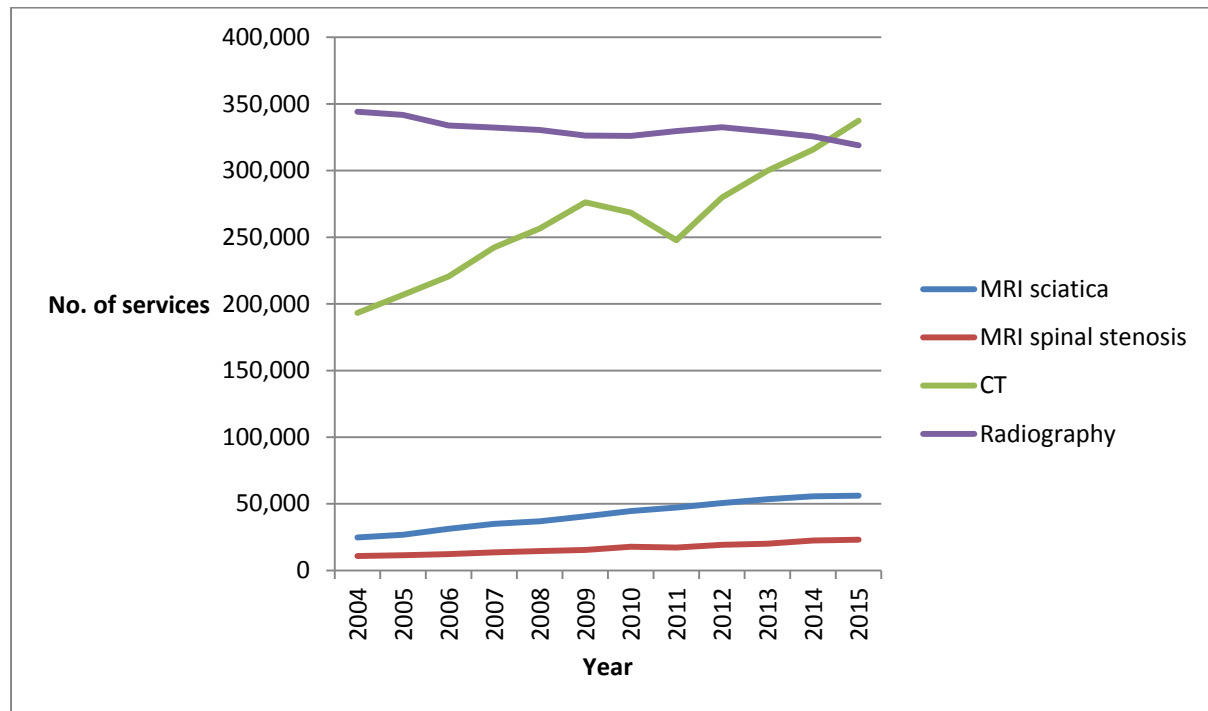
testing*



*MBS Item numbers included in Figure 2

71097: Antinuclear antibodies - detection in serum or other body fluids, including quantitation if required

Figure 3: Number of MBS-funded plain radiographs and CT scans for low back pain and MRI for sciatica and spinal stenosis in Australia, 2004 to 2015*



*MBS Item numbers included in Figure 3

Radiography

58106 and 58111: SPINE, lumbosacral

Computed Tomography (CT)

56223, 56229: COMPUTED TOMOGRAPHY - scan of spine, lumbosacral region, without intravenous contrast medium

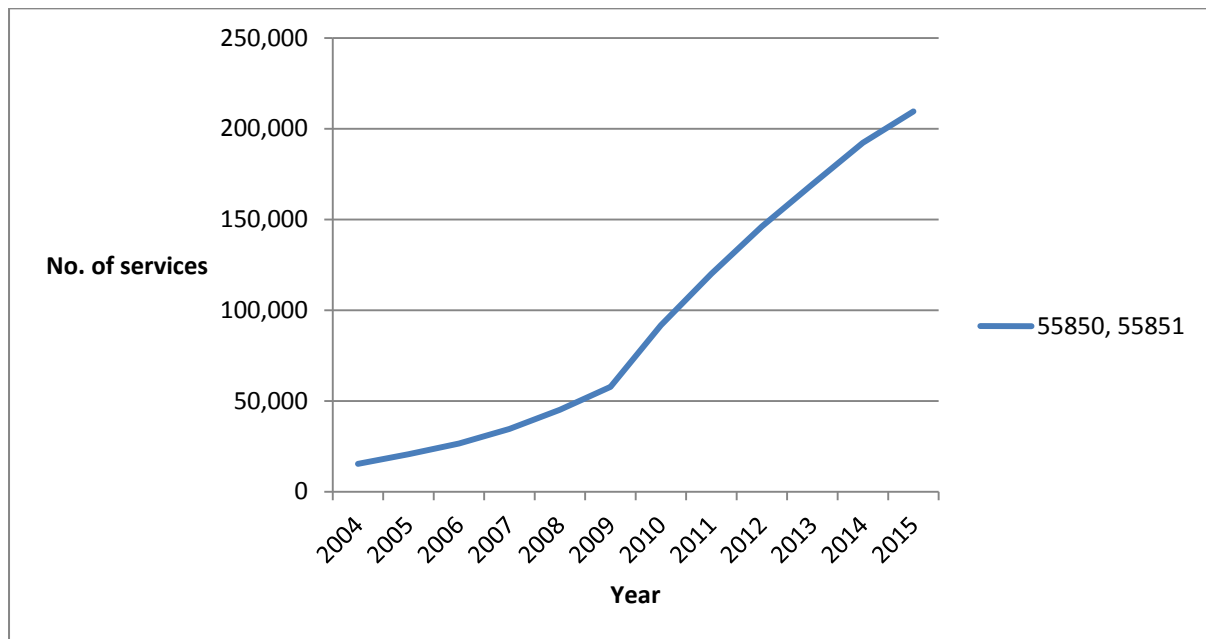
56226 and 56232: COMPUTED TOMOGRAPHY - scan of spine, lumbosacral region, with intravenous contrast medium and with any scans of the lumbosacral region of the spine prior to intravenous contrast injection when undertaken

Magnetic Resonance Imaging (MRI)

63176, 63191, 63234, 63262: sciatica

63179, 63192, 63237, 63263: spinal stenosis

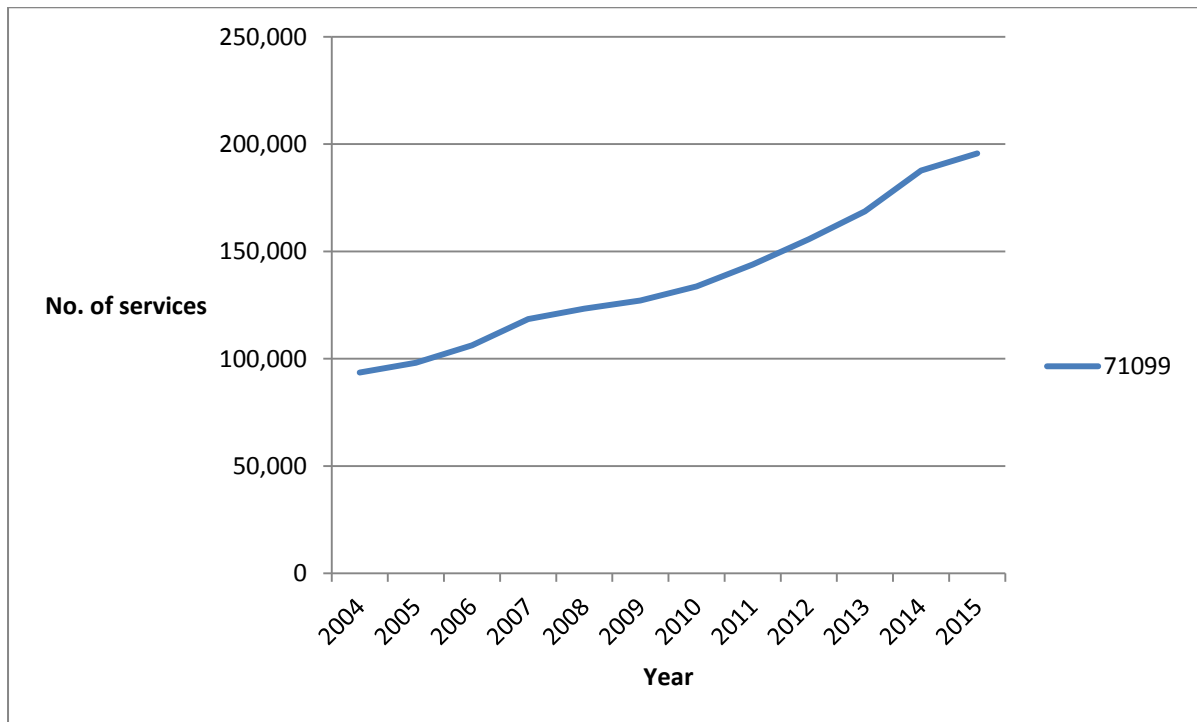
Figure 4: MBS-funded ultrasound-guided injections for all musculoskeletal indications in Australia from 2004-2015*



*MBS Item numbers included in Figure 4

55850, 55851: MUSCULOSKELETAL CROSS-SECTIONAL ECHOGRAPHY, in conjunction with a surgical procedure using interventional techniques, inclusive of a diagnostic musculoskeletal ultrasound service, where the referring practitioner has indicated on a referral for a musculoskeletal ultrasound that a ultrasound guided intervention be performed if clinically indicated.

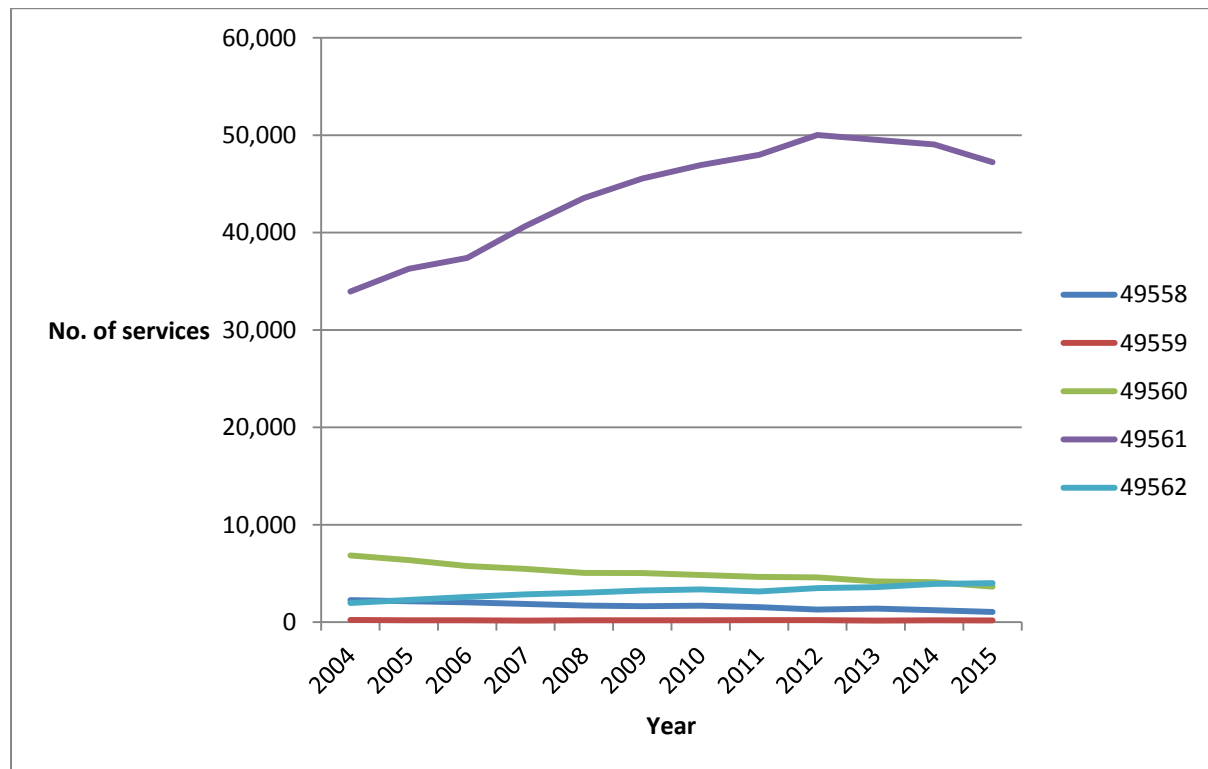
Figure 5: MBS-funded dsDNA testing in Australia from 2004 to 2015*



*MBS Item numbers included in Figure 5

71099: Double-stranded DNA antibodies - quantitation by 1 or more methods other than the Crithidia method

Figure 1: MBS-funded arthroscopic washout, debridement and/or partial meniscectomy*



*MBS Item numbers included in Figure 1

49558: (KNEE, arthroscopic surgery of, involving 1 or more of: debridement, osteoplasty or chondroplasty – not associated with any other arthroscopic procedure of the knee region)

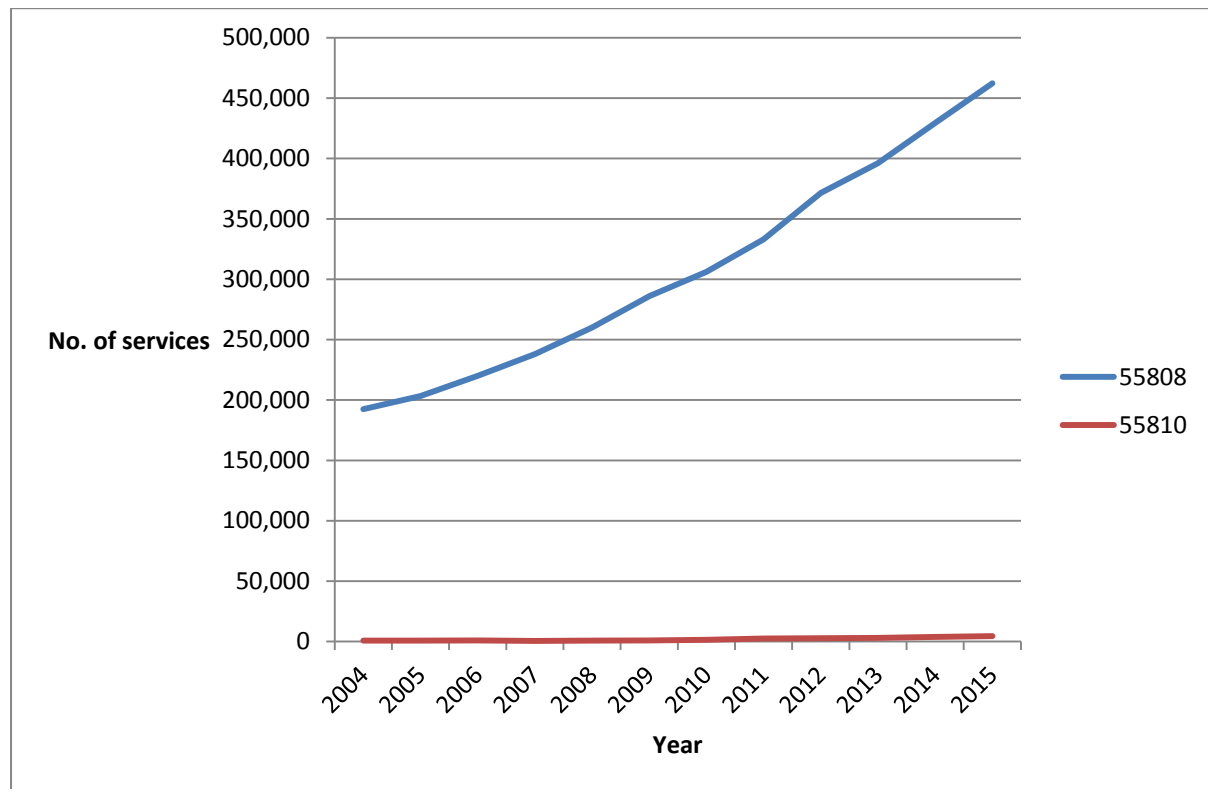
49559: (KNEE, arthroscopic surgery of, involving chondroplasty requiring multiple drilling or carbon fibre (or similar) implant; including any associated debridement or osteoplasty – not associated with any other arthroscopic procedure of the knee region)

49560: (KNEE, arthroscopic surgery of, involving 1 or more of: partial or total meniscectomy, removal of loose body or lateral release – not being a service associated with any other arthroscopic procedure of the knee region)

49561: (KNEE, ARTHROSCOPIC SURGERY OF, involving 1 or more of: partial or total meniscectomy, removal of loose body or lateral release; where the procedure includes associated debridement, osteoplasty or chondroplasty – not associated with any other arthroscopic procedure of the knee region)

49562: (KNEE, ARTHROSCOPIC SURGERY OF, involving 1 or more of: partial or total meniscectomy, removal of loose body or lateral release; where the procedure includes chondroplasty requiring multiple drilling or carbon fibre (or similar) implant and associated debridement or osteoplasty – not associated with any other arthroscopic procedure of the knee region)

Figure 1: Number of MBS-funded shoulder ultrasounds in Australia from 2004 to 2015*



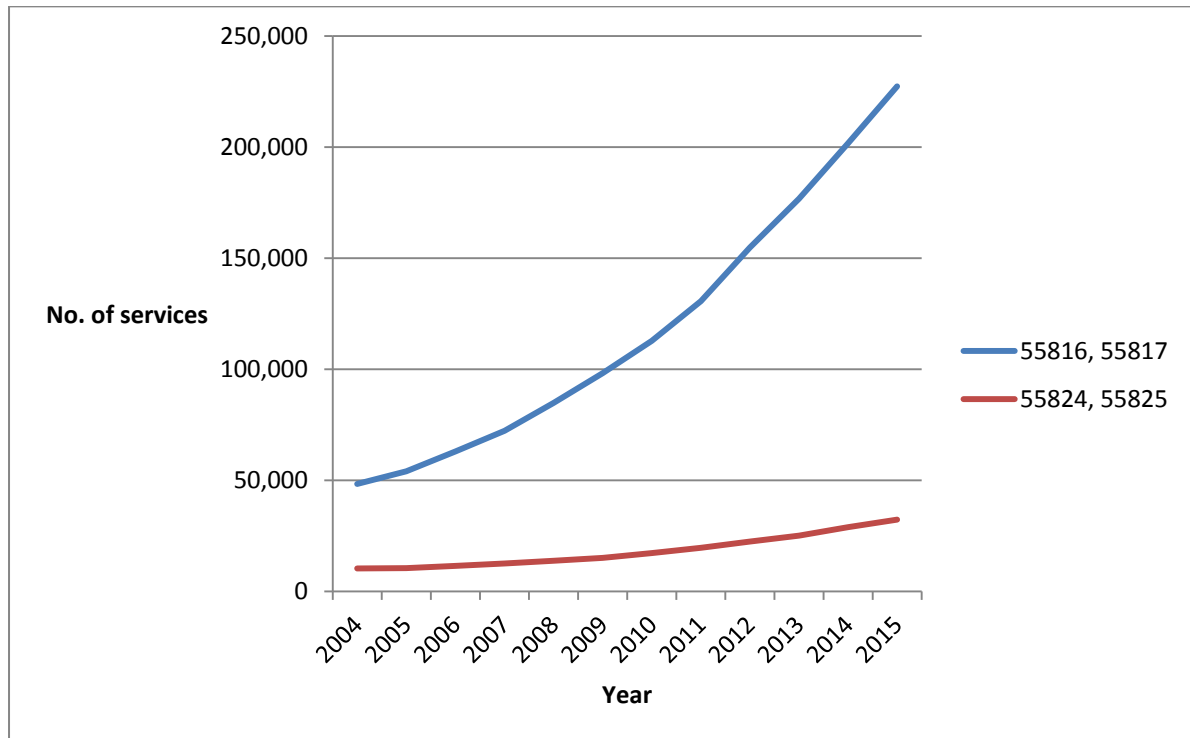
*MBS Item numbers included in Figure 6

55808: SHOULDER OR UPPER ARM, 1 or both sides, ultrasound scan referred by medical practitioner (not a radiologist) for the evaluation of injury to tendon, muscle or muscle/tendon junction, rotator cuff tear/calcification/tendinosis, biceps subluxation, capsulitis and bursitis, evaluation of mass including ganglion, occult fracture and/or acromioclavicular joint pathology

55810: same but not referred by a medical practitioner

NB: Between the 2011/2 and 2015/6 financial year, Medicare paid for 28 ultrasounds under item 55809 and 115 under item 55811. These benefits are not payable when referred for non-specific shoulder pain alone.

Figure 2: Number of MBS-funded hip/groin and buttock/thigh ultrasounds in Australia, 2004-2015*



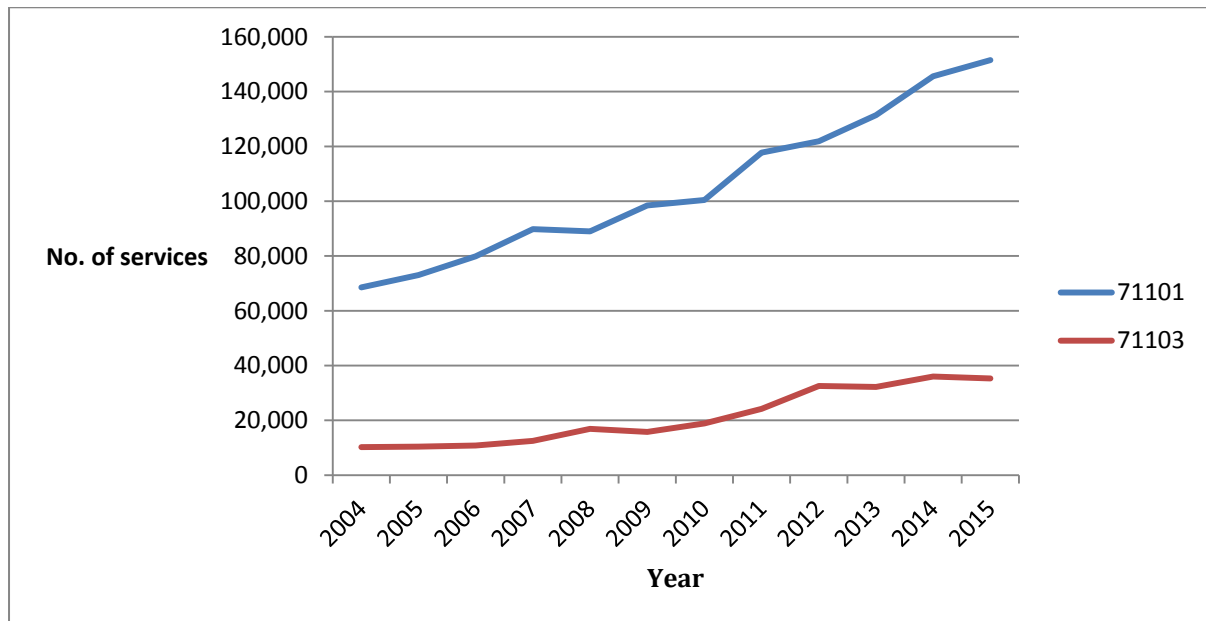
*MBS Item numbers included in Figure 7

55816 and 55817: HIP OR GROIN, 1 or both sides

55824 and 55825: 55824: BUTTOCK OR THIGH, 1 or both sides

NB: These items are only applicable if requested by medical practitioners other than radiologists.

Figure 3: MBS-funded ENA tests in Australia, 2004-2015

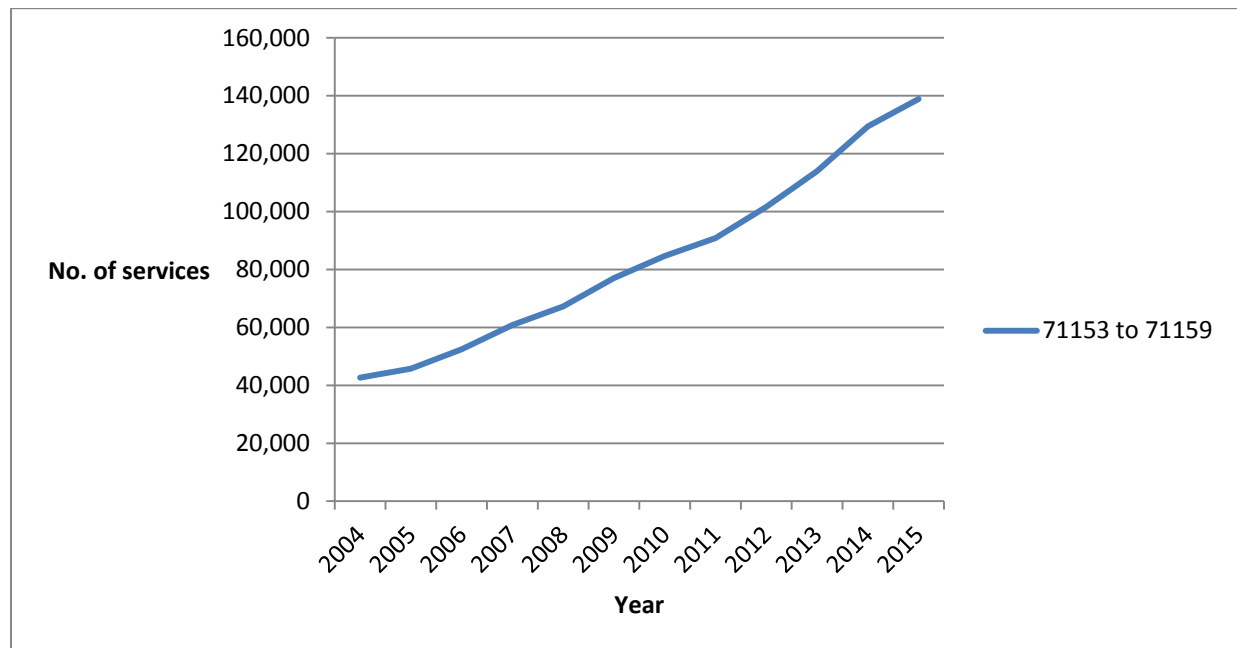


*MBS Item numbers included in Figure 8

71101: Antibodies to one or more extractable nuclear antigens - detection in serum or other body fluids

71103: Characterisation of an antibody detected in a service described in item 71101 (including that service)

Figure 4: MBS funded ANCA tests in Australia, 2004-2015*



*MBS Item numbers included in Figure 9

71153: Investigations in the assessment or diagnosis of systemic inflammatory disease or vasculitis - antineutrophil cytoplasmic antibody immunofluorescence (ANCA test), antineutrophil proteinase 3 antibody (PR-3 ANCA test), antimyeloperoxidase antibody (MPO ANCA test) or antiglomerular basement membrane antibody (GBM test) - detection of 1 antibody

71154: A test described in item 71153, if rendered by a receiving Australian Pathology Practitioner (APP), where no tests in the item have been rendered by the referring APP - 1 test.

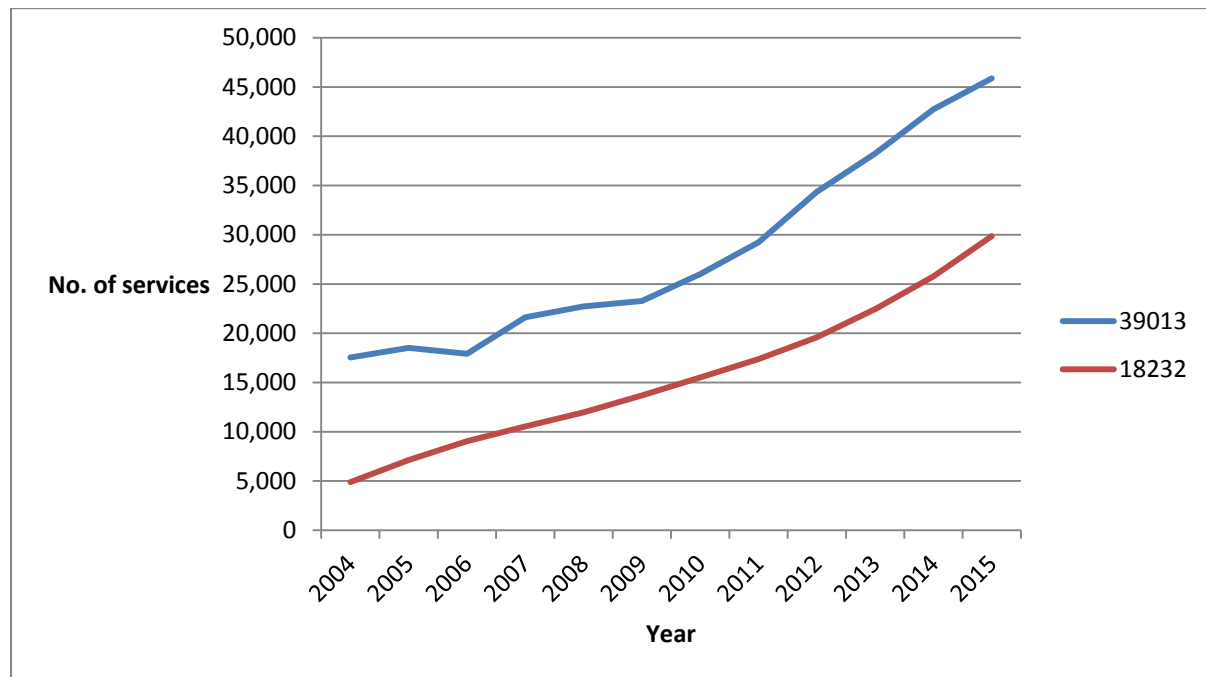
71155: Detection of two antibodies described in item 71153

71156: Tests described in item 71153, other than that described in 71154, if rendered by a receiving APP – each test to a maximum of 3 tests

71157: Detection of three antibodies described in item 71153

71159: Detection of four or more antibodies described in item 71153

Figure 5: Number of MBS-funded spinal injections in Australia, 2004-2015



*MBS Item numbers included in Figure 10

39013: INJECTION UNDER IMAGE INTENSIFICATION with 1 or more of contrast media, local anaesthetic or corticosteroid into 1 or more zygo-apophyseal or costo-transverse joints or 1 or more primary posterior rami of spinal nerves (Anaes.)

18232: INTRATHECAL or EPIDURAL INJECTION of substance other than anaesthetic, contrast or neurolytic solutions, not being a service to which another item in this Group applies

Introduction

The cost of health care in Australia is growing faster than population growth. For example there was a near doubling of health expenditure over the decade 2001-02 to 2011-12.¹ This has placed an increased focus on health care quality, affordability and value. The Royal Australasian College of Physicians (RACP) EVOLVE (evaluating evidence. enhancing efficiencies) initiative is a clinician-led partnership between the College and its specialty societies. It aims to drive safer, higher-quality patient care through identifying and reducing low-value medical care, defined as tests, treatments or procedures that are overused, inappropriate or of limited effectiveness and/or potentially harmful.²

Modelled on Choosing Wisely initiatives in the United States and other countries,³ and working in conjunction with Choosing Wisely Australia,⁴ specialist physicians from over 20 medical specialities have completed or are developing their EVOLVE ‘top five’ lists of low-value clinical practices.² The guiding principles of EVOLVE are that the ‘top five’ list should be within or significantly impact the specialists’ domain of practice with the potential to make a real impact in reducing low-value care; the practices should be either growing in use or currently commonly used; and use of the Delphi consensus method,⁵ as the overarching methodology for identifying a ‘top-five’ list.

In this article we present the Australian Rheumatology Association (ARA) ‘top five’ list of the low-value practices.

Materials and Methods

The EVOLVE ARA working group comprised 19 rheumatologists and 3 advanced rheumatology trainees formed after a call for interested ARA members. At a face-to-face

meeting in 2015, the guiding EVOLVE principles were discussed and it was agreed that items should be included if they were either primarily a rheumatologist issue or an issue that rheumatologists should advocate for on behalf of their patients.

A preliminary list of low-value clinical practices was created based upon the working group's clinical experiences, as well as consideration of potentially relevant items identified from lists generated by others.⁶⁻¹⁰ The working group reduced the initial list to twelve items, noting that some items included multiple components. Two items were excluded (Do not prescribe bisphosphonates for patients at low risk of fracture, and Do not perform whole body bone scans for diagnostic screening for peripheral and axial arthritis in the adults), as these were not considered relevant to the Australian context.

Small teams for each topic were formed to review the evidence and determine if the preliminary list of low-value practices met all of the following criteria:

- i) Strong evidence of low-value clinical practice from a literature review; and
- ii) Evidence of high or increasing clinical use and significant and/or increasing cost to the Australian community based upon publicly available Medicare Benefits Schedule (MBS) item usage and cost data relating to each statement from 2004 to 2015.¹¹

Medicare Statistics provides data for MBS item numbers divided by the number of Medicare participants enrolled at the end of each month. For this project, usage data are expressed as number of services per financial year, and costs are expressed as total benefits paid out for these services by financial year. The number of services and costs included in the Medicare Statistics data only relate to services that are performed by a registered provider, qualify for the Medicare benefit, and for which a claim has been processed by Medicare Australia. They

do not include services provided by hospital doctors to public patients in public hospitals or services that qualify for a benefit under the Department of Veterans' Affairs National Treatment Account. Another important caveat of MBS data is that some single items can be used for multiple indications and the specific indication for which that item is used is not collected. For example, while there are MBS item numbers for ultrasound-guided injections, these do not differentiate between ultrasound guided injections for different body parts. In most, but not all instances we excluded item numbers for diagnostic imaging if the site being imaged was not specified.

One item, 'Do not order an HLA-B27 unless spondyloarthritis is suspected based on specific signs or symptoms', was removed from the list after the review revealed it did not fulfil the criteria of high or increasing usage or high cost in Australia. Following review of the evidence, a new item was included: 'Do not order anti-neutrophil cytoplasmic antibodies (ANCA) testing for diagnosis of vasculitis unless one of the consensus guideline indications is present'. We retained two items, 'Do not use ultrasound guidance to perform injections into the sub-acromial space (or trochanteric bursa), as it provides no additional benefit in comparison to landmark-guided injection', because even though it wasn't possible to extract the exact number and cost of these subsidised ultrasound-guided injections, consensus among the working group was that a large and increasing number of ultrasound-guided injections are being performed (inappropriately) into these sites.

The working group refined the 'do-not-do' statements, and wrote brief summaries of the evidence in support of it being a low-value clinical practice using the NHMRC recommendations for summarising the level of evidence, strength of recommendation and quality.¹²

An anonymous survey was created in SurveyMonkey.¹³ All ordinary (356 rheumatologists) and associate (72 rheumatology trainees) ARA members were invited to participate via email on 10 December 2015 with a reminder sent 17 February 2016. The ARA Board approved the survey and ethical approval was not sought.

Respondents were provided with the survey purpose and background information about EVOLVE, presented with the 12 proposed recommendations for not undertaking a particular test, treatment or procedure and a summary of the evidence for each recommendation. They were asked to select the five recommendations for which they considered the evidence to be the strongest. They could also provide comments for any of the statements in free text.

Finally they were asked to provide some demographic and clinical practice details: gender, setting in which the majority of hours are worked (public, private, academic, retired, other), fellowship status (fellow for <10 years, 10-20 years, 21-30 years or >30 years), and practice location (urban/metropolitan, large rural centre, small rural centre, remote). For the purposes of our 'top five' list we excluded trainee responses.

Results

Respondents included 179 rheumatologists (50.3% response rate) and 19 trainees (26.4% response rate). The majority of rheumatologists were male (n=115, 64.3%, 4 missing responses) and just over half worked primarily in private practice (n=95, 53.1%, 5 missing responses).

Table 1 presents the proportion of rheumatologists who put each of the 12 statements into their 'top five' list in order of ranking. Endorsement of individual statements ranged from

20.7 to 73.2% of respondents. The highest endorsement was for not performing arthroscopic treatments for knee osteoarthritis and/or degenerative meniscal tears (73.2%), while over half endorsed not performing ANA testing for patients without rheumatic symptoms (56.4%), imaging for low back pain in those without specific indications (50.8%), and ultrasound guidance for shoulder injections (50.3%). Nearly all of the comments indicated that respondents would have liked to endorse more than five statements. Trainee responses were similar with four of the same recommendations chosen in the top 5 although there was even stronger endorsement for not performing arthroscopic treatments for knee osteoarthritis and/or degenerative meniscal tears (84.2%) and not performing ANA testing for patients without rheumatic symptoms (73.7%).

The top five recommendations together with a summary of the evidence that they are a low-value test or treatment and their current use/cost is summarised below. The remaining seven recommendations are described in Appendix 1.

Recommendation one: Do not perform arthroscopy with lavage and/or debridement or partial meniscectomy for patients with symptomatic osteoarthritis of the knee and/or degenerate meniscal tear

Strength of recommendation: A

NHMRC Level of evidence: I

Category of evidence: Ia

There is consistent evidence to indicate that arthroscopic lavage and/or debridement to treat people for symptomatic knee osteoarthritis, and/or partial meniscectomy for patients with a degenerate meniscal tear (with or without underlying osteoarthritis), is no more effective than placebo surgery or non-operative alternatives.¹⁴⁻¹⁹ There appears to be a high rate of

conversion from knee arthroscopy to total knee arthroplasty, which rises with increased age, further suggesting arthroscopic surgery should be avoided in people over the age of 50 years.²⁰⁻²² Additionally, arthroscopy is associated with peri and post-operative risks and considerable cost.^{18, 23}

To determine the trend in performance of knee arthroscopic treatment for knee osteoarthritis over time we considered 5 of 9 MBS codes for knee arthroscopic washout, debridement and/or partial meniscectomy (Figure 1). In total these item numbers, in people with private health insurance, increased in usage from 2004 to 2012 financial years, then appeared to plateau, and reduced by 5.9% between 2012 and 2015. Over the entire period there was an almost 2% p.a. increase. The total benefit paid out for these services was \$17.3 million in 2004 and almost \$27.1 million in 2015, corresponding to an annual growth rate of 4.15%.

Recommendation two: Do not order anti-nuclear antibody (ANA) testing in patients without symptoms and/or signs suggestive of a systemic rheumatic disease

Strength of recommendation: B

Category of evidence: III-2

ANAs are present in healthy individuals and ANA testing is only useful in patients with symptoms and/ or signs of a rheumatic disease where it can aid in the confirmation or exclusion of systemic connective tissues diseases. ANA testing has a very high negative predictive value for excluding connective tissue diseases. However a positive ANA does not have a high positive predictive value for diagnosing these conditions in isolation, and further sub-serology testing is needed to accurately diagnose and classify these conditions.^{24, 25}

Despite guidelines and recommendations not to perform an ANA test in patients without symptoms and/or signs suggestive of a connective tissue disease,²⁶⁻³⁰ there has been a steady increase over the last decade in the number of MBS-funded ANA tests ordered (Figure 2). The total benefits paid out for these services has increased from \$7.76 million in the 2004 financial year to \$10.96 million in the 2015 financial year, corresponding to an annual growth rate of 3.2%.

Recommendation three: Do not undertake imaging for low back pain in patients without indications of a serious underlying condition

Strength of recommendation: A

NHMRC Level of evidence: I

Category of evidence: Ia

Most episodes of low back pain (~90%) do not require imaging. Imaging may identify irrelevant incidental findings and increase the risk of exposure to unnecessary, and sometimes invasive treatment, in addition to increasing costs.³¹⁻³³ For patients with low back pain and no suggestion of serious underlying conditions there are no significant differences in pain or disability outcomes between immediate imaging as compared with usual care without imaging.^{34,35}

MBS-funded imaging for low back pain has been increasing consistently since 2004 primarily due to increased numbers of CT and MRI scans (Figure 3). The total MBS benefit paid out for MRI imaging has grown from \$14.76 million in 2004 to almost \$27.96 million in 2015, an annual growth rate of almost 6%. The total benefit paid out for the other imaging modalities of CT imaging and radiography has also grown from \$58.4 million in 2004 to \$99.08 million in 2015, an annual growth rate of 4.9%.

Recommendation four: Do not use ultrasound guidance to perform injections into the sub-acromial space, as it provides no additional benefit in comparison to landmark-guided injection

Strength of recommendation: A

NHMRC Level of evidence: I

Category of evidence: Ia

Currently there is no high quality evidence to support the superiority of ultrasound-guided subacromial injections compared with injections guided by landmarks alone. Based upon moderate evidence from five trials, a Cochrane review was unable to find any advantage of ultrasound-guided injection over either landmark-guided or intramuscular injection.³⁶ These results are consistent with a more recent trial.³⁷ In view of the currently available data and the significant added cost, there is little clinical justification in using ultrasound to guide injections for shoulder pain.

The exact number and costs of subsidised ultrasound-guided injections into the subacromial space is unknown as there are two MBS item numbers that include an ultrasound-guided intervention and neither specify a body site. We consider that a substantial number of these procedures are likely to have been performed for shoulder pain. There has been an annual increase of 26.8% in the number of ultrasound-guided injections for the period 2004 to 2015 (Figure 4). In the 2014/2015 financial year the total benefits paid through the MBS for ultrasound-guided injection was almost \$27.5 million.

As a comparison the total benefits paid through the MBS for landmark-guided joint injections (MBS items 50124 and 50125) in the 2008/2009 financial year was \$12.8 million. These

were removed from the MBS on the 1st November 2009 due to a Budget decision by the government that these services are minor and routine in nature and can be delivered as part of a standard consultation. While removal of this MBS item may have resulted in a reduction in landmark-guided injection in primary and secondary care, it may have also contributed to the observed increase in more expensive image-guided injections. Several respondents made comments about the lack of reimbursement for injection, subsequent deskilling of GPs, long wait times for public rheumatology clinics, and radiologist-driven referrals as possible reasons for the increase in image-guided injection.

Recommendation five: Do not order anti-double-stranded (ds) DNA antibodies in ANA negative patients unless clinical suspicion of systemic lupus erythematosus (SLE) remains high

Strength of recommendation: B

Category of evidence: III-2

International recommendations advise testing for anti-dsDNA antibodies only after detecting a positive ANA in patients with symptoms consistent with SLE.²⁵ In patients who are ANA negative, anti-dsDNA should only be ordered in clinical situations where the pre-test probability of SLE is very high.³⁰ Where positive, repeating anti-dsDNA antibodies titres is a useful test for monitoring disease activity, especially in lupus nephritis.³⁸

The number of MBS funded anti-dsDNA tests performed over 2004 to 2015 has steadily increased (Figure 5), and the total benefits paid out for these tests more than doubled in the last decade from \$2.1 million dollars in 2004 to \$4.4 million dollars in 2015. This amounts to an average per annum growth of almost 7%. There is no epidemiologic data suggesting that the incidence of SLE is rising. For example over roughly the same time period for which

hospital separations data are available (2004 to 2014), the number of hospital separations with a principal diagnosis of SLE increased by less than 2.8% p.a.³⁹

Discussion and Conclusion

In this paper we report the top five evidence- and consensus-based recommendations for tests and procedures that Australian rheumatologists consider to be low-value care. An additional eight recommendations, while not included in the top five, were also endorsed by a significant number of rheumatologists. The most endorsed recommendation regarding arthroscopy osteoarthritis of the knee and/or degenerate meniscal tear is consistent with the recently launched Australian Clinical Care Standards for Osteoarthritis of the Knee,⁴⁰ as well as new clinical practice guideline published in the BMJ.⁴¹

While we also include similar recommendations regarding ANA, ENA, dsDNA testing and frequency of BMD monitoring to some other countries, other recommendations were not transferrable to the Australian context. For example items such as testing for Lyme disease and prescribing biologic agents prior to methotrexate were not deemed applicable to Australia due to differences in disease prevalence and mandated Medicare restrictions. This highlights the importance of creating recommendations based on local clinical practices.

In order for our 'top five' recommendations to be implemented into daily practice consideration of enablers and barriers will be required. As a first step we intend to disseminate our recommendations widely to clinicians through peer-review publication, news sites, conferences and presentations; and to consumers through the use of social media such as twitter. Additionally, some of our recommendations may be supported by other initiatives that are already taking place such as the MBS review,⁴² and new models of care for back

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pain.⁴³ While this means that we will not be able to determine the precise impact of the ARA EVOLVE initiative, we plan to monitor the uptake of our recommendations using Medicare statistics data.

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Table 1. Support for inclusion of each recommendation to be in the top 5 list by all rheumatologists and by gender and public private practice, and by trainees*

Recommendations	Rheumatologists (N = 179) %	Male (N = 115) %	Female (N = 60) %	Public (N = 78) %	Private (N = 95) %	Trainees (N = 19) %
Arthroscopy for symptomatic OA or degenerate meniscal tear	73.2	80	63.3	66.7	82.1	84.2
ANA testing without rheumatic symptoms	56.4	56.5	53.3	57.7	52.6	73.7
Imaging for low back pain without red flags	50.8	47.8	60.0	64.1	43.2	42.1
Ultrasound guided shoulder injections	50.3	52.2	46.7	46.2	52.6	36.8
Anti-dsDNA testing in ANA negative patients	45.3	44.4	45.0	43.6	44.2	52.6
DEXA scans more often than 2-yearly	44.1	39.1	55.0	47.4	43.2	31.6
Ultrasound guidance to perform trochanteric bursa injections	39.1	39.1	38.3	32.1	45.3	42.1
Shoulder ultrasound to diagnose non-specific shoulder pain	36.3	40.9	28.3	37.2	34.7	31.6

Ultrasound to investigate lateral hip pain	31.3	32.2	30.0	30.8	32.6	21.1
ENA testing in patients with negative ANA	27.9	28.7	25.0	21.8	31.6	42.1
ANCA testing for diagnosis of vasculitis	24.6	22.6	25.0	24.4	22.1	26.3
Glucocorticoid injections for non-specific low back pain, facet joint arthritis or spinal canal stenosis	20.7	16.5	30.0	28.2	15.8	15.8

*The percentage in each cell relates to the proportion of respondents that rated the item in their 'top five'