BMJ RapidRecs: Arthroscopic surgery for degenerative knee disease

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Language
en

Start Date
15.12.2016

Last Edit
15.12.2016

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Sections

Summary of recommendations

1 - Arthroscopic surgery for degenerative knee disease

Strong Recommendation AGAINST

We recommend against arthroscopic knee surgery in patients with degenerative knee disease.

1 - Arthroscopic surgery for degenerative knee disease

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Introduction
Degenerative knee disease, which many understand as knee osteoarthritis, is one of the most prevalent chronic diseases in middle aged and elderly persons. The limited evidence on the direct correlation between radiological findings and patient reported symptoms has led to differing treatment practices. Both operative and non-operative treatment options are available. Currently, arthroscopic surgery is a widespread practice, despite a fairly recent systematic review by Thorlund et al. *[1]* questioning the net long-term effect and value.

We have systematically reviewed the effects of arthroscopic irrigation, debridement and/or partial meniscectomy versus non-operative management or placebo in patients with symptomatic degenerative knee disease. We have evaluated the benefit on patient important outcomes such as pain, function and quality of life and considered the potential harms. The estimates of effect are measured in units of minimal important difference, defined as the smallest difference in score informed patients perceive as important *[2]*.

Below you will find the recommendations with evidence summaries (GRADE Summary of Findings-tables), practical information and decision aids for use in the clinical encounter. A detailed account of the background, methods and processes for BMJ RapidRecs can be found in the last section or you can read a brief outline in a recent BMJ Editorial by Siemieniuk et al. *[3]*.

Strong Recommendation AGAINST

We recommend against arthroscopic knee surgery in patients with degenerative knee disease.

Practical Info

Management options:
Non-operative management options include watchful waiting, weight loss in patients who are overweight, physical therapy, exercise, oral or topical pain medications, and intra-articular corticosteroid or other injections. *[10]* For patients with severe osteoarthritis, options also include total or partial knee arthroplasty and proximal tibial osteomy. *[11]* However, symptoms tend to fluctuate and vary between patients, thus delaying surgical management is preferrable for many patients. *[11]*

Are there patients with knee pain who might benefit from arthroscopy?
Degenerative knee disease is a broadly encompassing diagnosis in patients who are typically 35 years of age or older and which many consider synonymous with osteoarthritis but explicitly includes patients without radiographic or MRI evidence of osteoarthritis who have meniscal tears or mechanical symptoms like locking. Pain can occur acutely - including sudden onset during sports or physical activity - or insidiously. The trials included in the evidence summary include adequate patient representation from each of these groups; *[6]* there was no suggestion that any specific subgroup of patients with degenerative knee disease have a greater benefit from arthroscopy.

The trials generally excluded patients with persisent, frequent, and the severe symptom where they were unable to objectively fully extend their leg (locked knee). It is possible that this very small group would benefit from arthroscpy, but any benefit in this group of patients is highly speculative. Given that there is indirect evidence that harms outweigh benefits - from patients with meniscal tears and severe mechanical symptoms - these patients would ideally be offered arthroscopy in the context of a randomised trial.

Performance measure:
As per GRADE guidance, our strong recommendation against arthroscopy can be used as a performance or quality of care measure and it is reasonable to tie the use of arthroscopy to funding decisions or penalties. The non-use of knee arthroscopy in patients with degenerative knee disease, including patients with meniscal tears who are ≥35 years of age, as a performance measure may be especially relevant given that the frequency of knee arthroscopy is increasing or stable, despite accumulating evidence of no net benefit.

Key Info

Benefits and harms

Patients undergoing arthroscopic knee surgery have an approximately 12% chance of achieving a small, short-term improvement in pain and function. *[6]* On average, compared to non-operative management or placebo, improvement is below the *minimally important difference [7]* and there is little or no difference at 1 year. *[6]*

The recovery period following arthroscopy varies, but typically lasts 2-6 weeks and incurres pain and limited function. There is a small risk of pulmonary embolism, deep vein thrombosis and infection, and a very small risk of death and nerve injury. *[6]*

Quality of evidence High

We have high certainty that arthroscopy does not, on average, result in an important long term improvement in pain or quality of life, and moderate certainty that it does not substantially improve knee function. There is low certainty in the magnitude of serious adverse effects, as these data are mostly observational. *[6]* There is high certainty that nearly all patients will have exacerbated pain and function immediately following arthroscopy, although the severity and duration of the recovery period varies. *[8] [9]*

Preference and values No substantial variability expected

Most patients are unlikely to consider a 2-6 week recovery period following arthroscopy worthwhile for a small chance of a minor improvement in short-term pain and function. The multidisciplinary panel, which included persons with lived experience of the disease and experts in shared decision making, unanimously agreed that almost every patient would agree that the harms from arthroscopy clearly outweigh the benefits.

Resources and other considerations

No important issues with the recommended alternative

A recent analysis by Marsh *et al*. *[4]* evaluated the cost-effectiveness of arthroscopy plus non-operative treatment in patients with symptomatic knee osteoarthritis. The incremental net benefit of added arthroscopy was negative, meaning that arthroscopic surgery is not considered cost-effective, neither from a healthcare payer nor from a societal perspective. There conclusion held even when assuming the largest possible beneficial treatment effect, in patients with less severe disease, and patients with symptoms of catching and locking.

We have not explicitly evaluated the net benefit of non-surgical treatment of degenerative knee disease versus no treatment. A systematic review by Pinto et al. *[5]* found limited evidence on the cost-effectiveness of non-surgical treatment such as exercise, rehabilitation, acupuncture and lifestyle interventions. They identified three studies demonstrating that exercise programmes might be cost-effective. The out of pocket costs for patients will vary.

Rationale

We issue a strong recommendation against arthroscopy for patients with degenerative knee disease because we believe that the undesirable consequences clearly outweigh the desirable consequences. Further, the quality of the evidence is high or moderate for key outcomes - pain, function, and quality of life. Results are consistent in all trials and there is no trial evidence that any patient group achieves greater benefit, including those without imaging evidence of osteoarthritis, with mechanical symptoms, with acute onset of pain, or with meniscal tears. We expect very little variability in patient values and preferences.

Clinical Question/ PICO

Population: Patients with degenerative knee disease
Intervention: Arthroscopy
Comparator: Conservative management

Outcome Timeframe	**Study results and measurements**	**Absolute effect estimates** Conservative management	Arthroscopy	**Certainty in effect estimates** (Quality of evidence)	**Summary**
Pain (difference in patients who achieve a change higher than the MID) 3 months	Based on data from 1,102 patients in 9 studies. (Randomized controlled) Follow up 3 months	**669** per 1000	**793** per 1000 Difference: **124 more** per 1000 (CI 95% 44 more - 204 more)	**High** SA: Low 105 (43; 167), High 113 (29; 197)	Knee arthroscopy increases the number of patients with a small, but important reduction in short-term pain
Pain (probability of achieving a higher pain reduction- based on SMD) 3 months	Based on data from 1,231 patients in 10 studies. (Randomized controlled) Follow up 3 months		Difference: **90 more** per 1000 (CI 95% 17 more - 157 more)	**High**	Knee arthroscopy increases the probability of having a higher reduction in long-term pain

Pain (difference in patients who achieve a change higher than the MID) 1-2 years	Relative risk Based on data from 972 patients in 7 studies. (Randomized controlled) Follow up 2 years	**622** per 1000 **631** per 1000 Difference: **9 more** per 1000 (CI 95% 101 fewer - 120 more)	**Moderate** Due to serious inconsistency. SA: Low 16 (-72; 104), High -10 (-142; 122)	Knee arthroscopy probably does not change the number of patients with a small, but important reduction in long-term pain
Pain (probability of achieving a higher pain reduction- based on SMD) 1-2 years	Based on data from 1,097 patients in 8 studies. (Randomized controlled) Follow up 2 years	Difference: **51 more** per 1000 (CI 95% 17 fewer - 118 more)	**High**	Knee arthroscopy does not increase the probability of having a higher reduction in long-term pain
Function (difference in patients who achieve a change higher than the MID) 3 months	Based on data from 835 patients in 6 studies. (Randomized controlled) Follow up 3 months	**519** per 1000 **653** per 1000 Difference: **134 more** per 1000 (CI 95% 44 more - 223 more)	**Moderate** Due to serious risk of bias. SA: Low 113 (30; 195), High 110 (20; 199)	Knee arthroscopy probably increases the number of patients with a small, but important improvement in short-term function
Function (probability of achieving a higher function improvement- based on SMD) 3 months	Based on data from 964 patients in 7 studies. (Randomized controlled) Follow up 3 months	Difference: **73 more** per 1000 (CI 95% 6 fewer - 151 more)	**Moderate** Due to serious risk of bias	Knee arthroscopy does not increase the probability of having a higher change in function
Function (difference in patients who achieve a change higher than the MID) 1-2 years	Based on data from 718 patients in 5 studies. (Randomized controlled) Follow up 2 years	**538** per 1000 **636** per 1000 Difference: **98 more** per 1000 (CI 95% 1 fewer - 197 more)	**Moderate** Due to serious risk of bias. SA: Low 86 (-1; 176), High 88 (-11; 186)	Knee arthroscopy may increase the number of patients with a small, but important improvement in function

Function (probability of achieving a higher function improvement-based on SMD) 1-2 years	Based on data from 843 patients in 6 studies. (Randomized controlled) Follow up 2 years	Difference: **39 more** per 1000 (CI 95% 39 fewer - 124 more)	**Low** Due to serious risk of bias, Due to serious imprecision	Knee arthroscopy does not increase the probability of having a higher improvement in function in the long term
Quality of life (difference in patients who achieve a change higher than the MID) 1-2 years	Based on data from 269 patients in 2 studies. (Randomized controlled)	**410** per 1000 — **420** per 1000 Difference: **10 more** per 1000 (CI 95% 9 fewer - 118 more)	**Moderate** Due to serious imprecision	Knee arthroscopy probably does not increase or decrease the number of people with an important improvement in quality of life
Quality of life (probability of achieving a higher improvement in quality of life) 1-2 years	Based on data from 269 patients in 2 studies. (Randomized controlled) Follow up 1 year	Difference: **145 more** per 1000 (CI 95% 11 fewer - 276 more)	**High**	Knee arthroscopy does not increase the probability of having a higher improvement in quality of life
Knee replacement 1-2 years	Relative risk 1.89 (CI 95% 0.51 - 7) Based on data from 497 patients in 2 studies. (Randomized controlled) Follow up 1 year	**12** per 1000 — **23** per 1000 Difference: **11 more** per 1000 (CI 95% 6 fewer - 72 more)	**Moderate** Due to serious imprecision	Knee arthroscopy may increase knee replacement
Mortality 3 months	Based on data from 454,086 patients in 7 studies. (Observational (non-randomized)) Follow up 3 months	**0** per 1000 — **0** per 1000 Difference: **0.3 more** per 1000 (CI 95% 0.1 more - 0.6 more)	**Low** Due to serious risk of bias, Due to serious inconsistency	Arthroscopy may have an extremely small risk of mortality
Venous thromboembolism 3 months	Based on data from 1,119,920 patients in 11 studies. (Observational	**0** per 1000 — **5** per 1000 Difference: **4.5 more** per 1000 (CI 95% 2.1 more - 9.9 more)	**Low** Due to serious risk of bias, Due to serious inconsistency	Arthroscopy may have a small risk for venous thromboembolism

	(non-randomized)) Follow up 3 months			
Infection 3 months	Based on data from 603,838 patients in 5 studies. (Observational (non-randomized)) Follow up 3 months	**0** per 1000 **2** per 1000 Difference: **2.1 more** per 1000 (CI 95% 1.2 more - 3.8 more)	**Low** Due to serious risk of bias, Due to serious inconsistency	Arthroscopy may have a very small risk for infection
Nerve damage 3 months	Based on data from 12,426 patients in 1 studies. Follow up 3 months	**0** per 1000 **0** per 1000 Difference: **0.24 more** per 1000 (CI 95% 0 more - 0.5 more)	**Low** Due to serious risk of bias, Due to serious indirectness	Arthroscopy may have an extremely small risk of nerve damage
Pain (difference in change from baseline) 3 months	Measured by: Different instruments converted to scale of index instrument (KOOS pain sub scale- MID 12) Scale: 0-100 High better Based on data from: 1,231 patients in 10 studies. (Randomized controlled) Follow up 3 months	**15** points (Mean) **20** points (Mean) Difference: **MD 5.38 more** (CI 95% 1.95 more - 8.81 more)	**High**	On average, knee arthroscopy does not result in an important reduction in pain
Pain (difference in change from baseline) 3 months	Measured by: MID units High better Based on data from: 1,231 patients in 10 studies. (Randomized controlled) Follow up 3 months	**1.3** (Mean) **1.76** (Mean) Difference: **MD 0.46 more** (CI 95% 0.17 more - 0.76 more)	**High** SA: Low 1.42 (0.38; 2.48), High 0.25 (0.09; 0.41)	On average, knee arthroscopy does not result in an important reduction in pain
Pain (difference in change from baseline) 3 months	Measured by: Different instruments High better Based on data from: 1,231 patients in 10 studies. (Randomized controlled) Follow up 3 months	**1.88** (Mean) **2.04** (Mean) Difference: **SMD 0.16 more** (CI 95% 0.03 more - 0.28 more)	**High**	On average, knee arthroscopy doe not result in an important reduction in pain
Pain (difference in change from baseline) 1-2 years	Measured by: Different instruments converted to scale of index instrument (KOOS pain sub scale- MID 12)	**19** points (Mean) **22** points (Mean) Difference: **MD 3.13 more**	**High**	On average, knee arthroscopy does not result in an important reduction in pain

	Scale: 0-100 High better Based on data from: 1,097 patients in 8 studies. (Randomized controlled) Follow up 2 years	(CI 95% 0.17 fewer - 6.43 more)		
Pain (difference in change from baseline) 1-2 years	Measured by: MID units High better Based on data from: 1,097 patients in 8 studies. (Randomized controlled) Follow up 2 years	**1.65** (Mean) **1.92** (Mean) Difference: **MD 0.27 more** (CI 95% 0.01 fewer - 0.55 more)	**High** SA: Low 0.85 (-0.14; 1.85), High 0.15 (-0.01; 0.30)	On average, knee arthroscopy does not result in an important reduction in pain
Pain (difference in change from baseline) 1-2 years	Measured by: Different instruments High better Based on data from: 1,097 patients in 8 studies. (Randomized controlled) Follow up 2 years	**0.8** (Mean) **0.89** (Mean) Difference: **SMD 0.09 more** (CI 95% 0.04 fewer - 0.22 more)	**High**	On average, knee arthroscopy does not result in an important reduction in pain
Function (difference in change from baseline), KOOS scale 3 months	Measured by: Different instruments converted to scale of index instrument (KOOS ADL sub scale, MID 8) Scale: 0-100 High better Based on data from: 964 patients in 7 studies. (Randomized controlled) Follow up 3 months	**9** points (Mean) **14** points (Mean) Difference: **MD 4.94 more** (CI 95% 1.5 more - 8.38 more)	**Moderate** Due to serious riks of bias, borderline inconsistency, and borderline imprecision	Knee arthroscopy may increase function change slightly more than control
Function (difference in change from baseline), MID units 3 months	Measured by: MID units High better Based on data from: 964 patients in 7 studies. (Randomized controlled) Follow up 3 months	**1.14** (Mean) **1.65** (Mean) Difference: **MD 0.51 more** (CI 95% 0.12 more - 0.9 more)	**Moderate** Due to serious risk of bias and inconsistency. SA: Low 1.81 (0.51; 3.12), High 0.34 (-0.01; 0.69)	Knee arthroscopy probably has little or no difference on function change when compared to control.
Function (difference in change from baseline), SD units 3 months	Measured by: Different instruments High better Based on data from: 964 patients in 7 studies. (Randomized controlled) Follow up 3 months	**0.41** (Mean) **0.54** (Mean) Difference: **SMD 0.13 more** (CI 95% 0.01 fewer - 0.27 more)	**Moderate** Due to serious risk of bias	Knee arthroscopy has little or no difference on function change when compared to control

Function (difference in change from baseline), KOOS scale 1-2 years	Measured by: Different instruments converted to scale of index instrument (KOOS ADL sub scale, MID 8) Scale: 0-100 High better Based on data from: 843 patients in 6 studies. (Randomized controlled) Follow up 2 years	**10** points (Mean) **13** points (Mean) Difference: **MD 3.16 more** (CI 95% 0.48 fewer - 6.8 more)	**Moderate** Due to serious riks of bias and borderline imprecision	On average, knee arthroscopy probably does not result in an important improvement in function
Function (difference in change from baseline), MID units 1-2 years	Measured by: MID units High better Based on data from: 843 patients in 6 studies. (Randomized controlled) Follow up 2 years	**1.26** (Mean) **1.62** (Mean) Difference: **MD 0.36 more** (CI 95% 0.06 fewer - 0.78 more)	**Moderate** Due to serious risk of bias and borderline imprecision. SA: Low 1.21 (-0.18; 2.60), High 0.25 (-0.10; 0.61)	On average, knee arthroscopy probably does not result in an important improvement in function
Function (difference in change from baseline), SD units 1-2 years	Measured by: Different instruments High better Based on data from: 843 patients in 6 studies. (Randomized controlled) Follow up 2 years	**0.47** (Mean) **0.54** (Mean) Difference: **SMD 0.07 more** (CI 95% 0.07 fewer - 0.22 more)	**Moderate** Due to serious risk of bias and borderline imprecision	On average, knee arthroscopy probably does not result in an important improvement in function
Quality of life (difference in change from baseline), EQ5D VAS 3 months	Measured by: EQ5D VAS-MID 15 Scale: 0-100 High better Based on data from: 120 patients in 1 studies. (Randomized controlled) Follow up 3 months	**8** points (Mean) **14** points (Mean) Difference: **MD 6 more** (CI 95% 1.5 fewer - 13.5 more)	**Low** Due to serious risk of bias, Due to serious imprecision	Knee arthroscopy may have, on average, little or no difference on QoL change, compared to control.
Quality of life (difference in change from baseline), SD units 3 months	Measured by: EQ5D VAS High better Based on data from: 120 patients in 1 studies. (Randomized controlled) Follow up 3 months	**0.39** (Mean) **0.53** (Mean) Difference: **SMD 0.14 more** (CI 95% 14.88 fewer - 15.17 more)	**Low** Due to serious risk of bias, Due to serious imprecision	On average, knee arthroscopy does not result in an improvement in function
Quality of life (difference in change from	Measured by: EQ5D VAS, 15D (converted to EQ5D scale) - MID 15 Scale: 0-100 High better	**10.3** points (Mean) **12.4** points (Mean)	**High**	On average, knee arthroscopy does not result in an important

baseline), EQ5D units 1-2 years	Based on data from: 269 patients in 2 studies. (Randomized controlled) Follow up 1 year	Difference: **MD 2.12 more** (CI 95% 0.96 fewer - 5.21 more)		improvement in quality of life
Quality of life (difference in change from baseline), MID units 1-2 years	Measured by: MID units High better Based on data from: 269 patients in 2 studies. (Randomized controlled) Follow up 1 year	**0.69** (Mean) **0.83** (Mean) Difference: **MD 0.14 more** (CI 95% 0.06 fewer - 0.35 more)	**High**	On average, knee arthroscopy does not result in an important improvement in quality of life
Quality of life (difference in change from baseline), SD units 1-2 years	Measured by: Different instruments High better Based on data from: 269 patients in 2 studies. (Randomized controlled) Follow up 1 year	**0.52** (Mean) **0.78** (Mean) Difference: **SMD 0.26 more** (CI 95% 0.02 more - 0.5 more)	**High**	On average, knee arthroscopy does not result in an important improvement in quality of life
Pain and function up to 3 months	Based on data from 316 patients in 3 studies	Three studies that evaluated the effects of knee arthroscopy in pain and function using measures that combined these two outcomes together or than could not be pooled. One study reported a difference in change from baseline in the Oxford knee score that favoured arthroscopy by 4.9 points (95% CI 3.61; 6.20, 114 patients) over steroids injections. A second study reported no differences in the median in an overall self-assessment based on a 7-point ordinal scale (82 patients) when comparing knee arthroscopy to exercise therapy. The third study reported that patients who received intra-articular hyaluronic acid injections reported less pain than patients who received knee arthroscopy (120 patients)	**Moderate** Due to serious risk of bias	Knee arthroscopy probably has little or no difference on pain and function when compared to control
Pain and function 1-2 years	Based on data from 114 patients in 1 studies	One study measured pain and function using a composite score. The study showed that patients who receive arthroscopy have a change in Oxford knee score 2.6 points higher than patients receiving steroid injections (95% CI 1.14; 4.06)	**Moderate** Due to serious risk of bias	Knee arthroscopy probably has little or no difference on pain and function when compared to control

Practical issues	Conservative management	Arthroscopy	Both

 Procedure and device	• Performed by an orthopaedic surgeon in an operating room • General anesthesia • Procedure usually takes < 1 hour. • Small joint incisions through which a camera and surgical tools are inserted • Option to repair or remove torn cartilage	• May be performed in hospital or the community • No general anaesthesia • Injections may use local anesthesia	
 Tests and visits	• Individualized follow-up and wound care is required	• Physiotherapy and intra-articular injections require appointments	
 Recovery and adaptation	• Recovery typically between 2 to 6 weeks • Unable to weight bear for 2-7 days • Physiotherapy and wound care facilitate recovery		
 Exercise and activities	• Avoid strenuous activity during recovery and reintroduce as comfort permits from 2 to 3 weeks and thereafter those causing symptoms	• Restriction of activities which exacerbate symptoms may be advised with all alternative treatments	
 Work and education	• Time until return to work depends on speed of recovery and demands of job (within 1 or 2 weeks for sedentary work; at least 2 weeks if job is more physical).		
 Travel and driving	• Driving is limited for about 1-3 weeks after procedure		
Details about studies used and certainty down- and upgrading			

Pain (difference in patients who achieve a change higher than the MID)	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: No serious** **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Pain (probability of achieving a higher pain reduction-based on SMD)	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: No serious** **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Pain (difference in patients who achieve a change higher than the MID)	**Intervention reference:** Systematic review [6] with included studies: **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: No serious** **Inconsistency: Serious** Not all studies show similar results in terms of magnitude and direction of effect, high statistical heterogeneity. This results in imprecision yet the estimate was rated down only once ; **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Pain (probability of achieving a higher pain reduction-based on SMD)	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: No serious** **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Function (difference in patients who achieve a change higher than the MID)	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: Serious** Inadequate/lack of blinding of outcome assessors, resulting in potential for detection bias, Inadequate/lack of blinding of participants and personnel, resulting in potential for performance bias ; **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Function (probability of achieving a higher function improvement-based on SMD)	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: Serious** **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Function (difference in patients who achieve a change higher than the MID)	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: Serious** Inadequate/lack of blinding of participants and personnel, resulting in potential for performance bias, Incomplete data and/or large loss to follow up ; **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: Serious** The proportion shows a clinically important benefit at the upper end of the CI, while it shows no difference in the lower end ; **Publication bias: No serious**

Function (probability of achieving a higher function improvement-based on SMD)	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: Serious** **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: Serious** **Publication bias: No serious**
Quality of life (difference in patients who achieve a change higher than the MID)	**Intervention reference:** Systematic review [6] with included studies: **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: No serious** **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: Serious** Concerns with regards to some inconsistency that may results in imprecision. Rated down one level to account for both of them. ; **Publication bias: No serious**
Quality of life (probability of achieving a higher improvement in quality of life)	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: No serious** **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Knee replacement	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: No serious** **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: Serious** The confidence interval suggests that the risk of knee replacement would be reduced by 50% with knee arthroscopy in one extreme, while it could be increased by 600% in the other. In absolute terms this is still very imprecise. ; **Publication bias: No serious**
Mortality	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: Serious** Most studies are retrospective and the data was not collected with the aim of determining harms of knee arthroscopy. The prospective studies have limitations with regards of inclusion of all consecutive patients. ; **Inconsistency: Serious** Despite an overall low incidence of mortality, in the studies with sample sizes larger to observe events, mortality varied from 2 out of 10,000 to 57 to 10,000 ; **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious** Asymmetries in the funnel plot are mainly due to the RCTs having a small sample size and resulting in 0 events ;
Venous thromboembolism	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: Serious** Most studies are retrospective and did not collect data for the purposes of the study ; **Inconsistency: Serious** In the studies with sample sizes large enough to detect the outcome, the incidence of VTE varied from 22 out of 10,000 to 597 out of 10,000 ; **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Infection	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of	**Risk of bias: Serious** Most studies are retrospective and data was not collected for the purpose of this study ; **Inconsistency: Serious** Incidence of infection varies from 10 out of 10,000 patients to 143 out of 10,000 patients in the studies with a sample size large enough to observe events. However, both magnitudes would still likely lead patients to undergo arthroscopy ;

	reference used for intervention	**Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Nerve damage	**Intervention reference:** Primary study **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: Serious** Information from a retrospective cohort study, data was not collected for the purpose of the study ; **Inconsistency: No serious** **Indirectness: Serious** The authors included knee arthroscopy due to any case, and there is no information about the proportion of patients who had degenerative knee disease ; **Imprecision: No serious** **Publication bias: No serious**
Pain (difference in change from baseline)	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: No serious** **Inconsistency: No serious** Although the magnitude of the point estimates seems to be different, and the statistical test of heterogeneity suggests that results are inconsistent, the differences are not clinically relevant and similar conclusions can be drawn from most studies ; **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Pain (difference in change from baseline)	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: No serious** **Inconsistency: No serious** Although the statistical heterogeneity is high, similar conclusions are reached by all included studies ; **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Pain (difference in change from baseline)	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: No serious** **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Pain (difference in change from baseline)	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: No serious** **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Pain (difference in change from baseline)	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: No serious** **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**

Pain (difference in change from baseline)	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: No serious** **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Function (difference in change from baseline), KOOS scale	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: Serious** Inadequate/lack of blinding of participants and personnel, resulting in potential for performance bias ; **Inconsistency: Serious** The studies suggest different magnitude of effects, not all CIs overlap, and there is statistical heterogeneity ; **Indirectness: No serious** **Imprecision: Serious** Wide confidence intervals ; **Publication bias: No serious**
Function (difference in change from baseline), MID units	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: No serious** **Inconsistency: Serious** The magnitude of statistical heterogeneity was high, with I^2: 56%. ; **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Function (difference in change from baseline), SD units	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: Serious** **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Function (difference in change from baseline), KOOS scale	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: Serious** Inadequate/lack of blinding of participants and personnel, resulting in potential for performance bias ; **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: Serious** Wide confidence intervals ; **Publication bias: No serious**
Function (difference in change from baseline), MID units	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: Serious** **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: Serious** **Publication bias: No serious**
Function (difference in change from baseline), SD units	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: Serious** **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**

Quality of life (difference in change from baseline), EQ5D VAS	**Intervention reference:** Primary study **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: Serious** Patients were not blinded, and there were 12.5% of patients and 23.7% of patients lost to follow-up in the intervention and control groups, respectively ; **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: Serious** The confidence interval suggests no difference on one extreme and a difference higher than the MID in the other extreme ; **Publication bias: No serious**
Quality of life (difference in change from baseline), SD units	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: Serious** **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: Serious** **Publication bias: No serious**
Quality of life (difference in change from baseline), EQ5D units	**Intervention reference:** Primary study **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: No serious** **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Quality of life (difference in change from baseline), MID units	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: No serious** **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Quality of life (difference in change from baseline), SD units	**Intervention reference:** Systematic review **Baseline/comparator reference:** Control arm of reference used for intervention	**Risk of bias: No serious** **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Pain and function	**Intervention reference:** Systematic review	**Risk of bias: Serious** Concerns with lack of blinding and patients reported outcomes ; **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**
Pain and function	**Intervention reference:** Systematic review	**Risk of bias: Serious** Concerns with regards to allocation concealment, lack of blinding and patient-reported outcomes ; **Inconsistency: No serious** **Indirectness: No serious** **Imprecision: No serious** **Publication bias: No serious**

References

[6] Brignardello-Petersen R, Schandelmaier S, Chang Y, Sadeghirad B, Evaniew N, Vandvik PO, Guyatt GH Knee arthroscopy versus conservative management in patients with degenerative knee disease: a systematic review. BMJ Group Co-submitted;

2 - Background and Methods: BMJ Rapid Recommendations

BACKGROUND

From MAGIC to WikiRecs and the BMJ Rapid Recommendations project

Systematic reviews and clinical practice guidelines are key vehicles for translating research knowledge into practice. However, organisations creating systematic reviews and guidelines often struggle to deliver timely and trustworthy recommendations in response to potentially practice-changing evidence.

Making GRADE the Irresistible Choice (MAGIC) is a non-profit research and innovation programme (www.magicproject.org). It was created to address key issues with authoring, publication, and updating of clinical practice guidelines. Through our online authoring and publication platform (http://www.magicapp.org), clinicians can access digital multilayered evidence summaries, recommendations, and consultation decision aids *[13]*. Although an increasing number of guideline organisations are using electronic platforms like MAGICapp, challenges that go beyond dissemination remain. There is a need for overarching solutions to close the loop from evidence production, through synthesis, dissemination and implementation, ultimately resulting in documented improved care, increased value and reduced waste of healthcare resources.

MAGIC launched the WikiRecs (Rapid Recommendations and Evidence summaries Composed as Synopses) project to circumvent traditional organisational barriers of guideline development. Through an international multidisciplinary network of stakeholders, we aim to synthesise and disseminate evidence summaries and recommendations through MAGICapp within 90 days of publication of potentially practice changing evidence. The MAGIC organisation has partnered with top medical journals to increase the reach of the recommendations.

In the BMJ Rapid Recommendations project (also known as the BMJ RapidRecs) the MAGIC WikiRecs group has partnered with The British Medical Journal (BMJ) to publish rapid recommendations as a synopsis paper in the BMJ, along with one or more systematic reviews linked to the recommendations *[3]*. The BMJ RapidRec. package includes parallel publication of a full multilayered electronic publication in MAGICapp., a synopsis and infographic published in the BMJ, and systematic reviews informing the recommendations in the BMJ group journals (BMJ, BMJ Open and others). Here we outline the process and methods applied to translate evidence into evidence summaries, recommendations and consultation decision aids for clinical practice.

PROCESS

Process overview

BMJ RapidRecs follows a predefined protocol with the following steps, developed in collaboration between the WikiRecs group and the BMJ:
1) We monitor the literature for practice-changing evidence through McMaster Premium LiteratUre Service (PLUS)(figure 1).

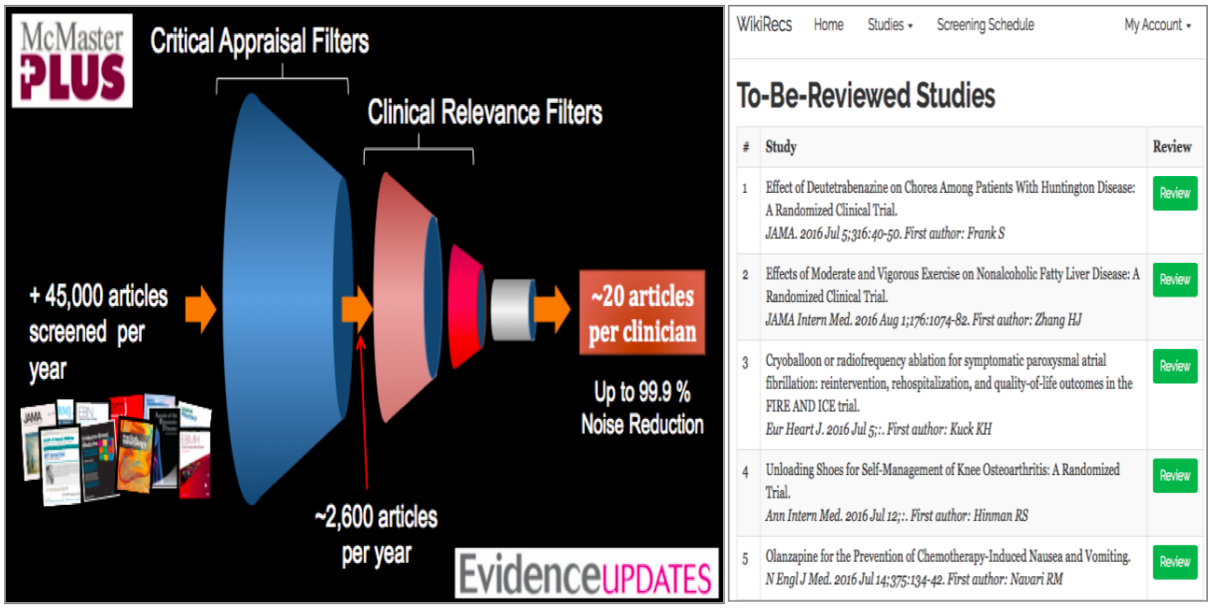

Figure 1: Monitoring of new evidence through McMaster Premium Literature Service

2) The WikiRecs executive and the BMJ choose which clinical questions to pursue, based on relevance to a wide audience and likelihood to change current practice.

3) We incorporate the evidence into the existing body of evidence and broader context of clinical practice by:

- Performing a systematic review and meta-analysis on the benefits and harms with a focus on outcomes that matter to patients.

- Convening an international panel of patient advisers, frontline clinicians, clinical specialists and methodologists to make the recommendations based on said systematic review.
- The systematic review group and the recommendation panel will adhere to standards for trustworthy guidelines*[15][14]* and apply the GRADE approach*[16]*.

Additional research may be conducted, including:

- A systematic review of observational studies to identify baseline risk estimates that most closely represent the relevant population. A certain baseline estimate is a key component when calculating the absolute effect of an intervention*[20]*.
- A systematic review on patient preferences and values*[17]*.

4) Dissemination of the recommendations through *[3]*:

- Publication of the systematic review(s) in BMJ journals.
- Publication of a short recommendation summary in the BMJ.
- Press release and/or marketing to media outlets and relevant parties such as patient groups.
- Links to the BMJ Group's Best Practice point of care resource.
- Publication in full through MAGICapp (for readers wishing to in more detail examine the underlying evidence and rationale and considering local adaptation)*[13]*.

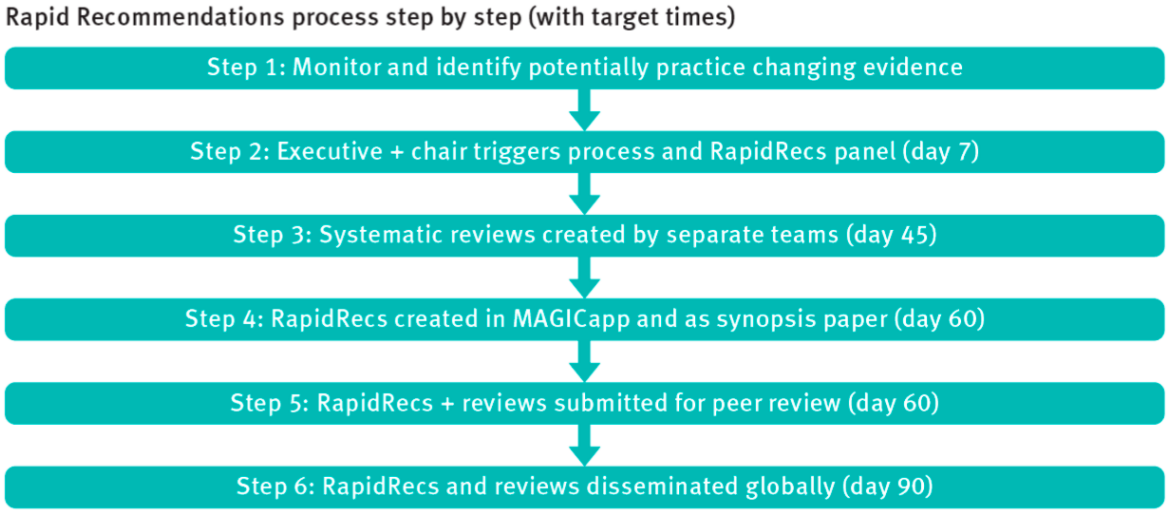

Figure 2: Flowchart of stepwise process in BMJ RapidRecs

Who is involved?

Researchers, systematic review and guideline authors, clinicians, and patients often work in isolation. Academic journals may publish work from any one or combinations of these groups of people, but these groups seldom work together to produce a comprehensive package.

Our collaboration involves:

- The core MAGIC WikiRecs network of researchers coordinating the systematic review group and the recommendation panels.
- The BMJ coordinates the editorial process, publishes a synopsis of the recommendations and develops user-friendly infographics linking to the MAGICapp for all underlying content.

METHODS FOR THE PRODUCTION OF RAPID RECOMMENDATIONS

BMJ RapidRecs adhere to standards for trustworthy guidelines with an emphasis on patient involvement, strict management of conflicts of interest, a transparent and systematic processes for assessing the quality of evidence and for moving from evidence to recommendations *[15] [14]*.

Panel member selection and contribution

Panel members are sought and screened through an informal process.
Key considerations for panel composition include:

- At least one but no more than five authors of the underlying systematic reviews.

- At least one patient representative with lived experience of the disease. This person receives standard patient-oriented training documents to explain the process and is allocated a patient-liason panel member to help guide the person through the process to empower their contribution.
- A full spectrum of practicing clinicians involved in the management of the clinical problem, including frontline clinicians with generalist experience and those with content clinical and research expertise.
- Methodological experts in health research methodology and guideline development.

Any potential conflicts of interest are managed with prudence:

- No panel member may have a financial interest that is judged by the panel or the BMJ team as relevant to the topic.
- No more than two panel members may have an intellectual conflict of interest concerning the topic.
- Professional conflicts of interest are minimised and balanced.

Meetings and working process

The panel communicates via teleconferences and e-mail exchange of written documents throughout the process. Minutes from teleconferences are audiotaped, transcribed and stored for later documentation (available for peer-reviewers at request).

Teleconferences typically occur at two or three timepoints:

- At the initiation of the process to provide feedback on the systematic review protocol (e.g. selection of patient important outcomes and appropriate prespecified analysis of results).
- When the Chair and the methods editor have drafted a GRADE evidence table based on the systematic review, to discuss, deliberate and reach agreement on the final evidence assessment.
- When moving from evidence to recommendation, to discuss and agree on the final phrasing of the recommendation, its strength and direction, and the underlying content (e.g. GRADE Summary of Findings table, key information, rationale, practical advice).

Lastly, the panel members are invited by e-mail to provide feedback on the final draft before submission to the BMJ. The full panel further reconsiders any substantive changes through the peer review process.

From research to recommendation

What information will be considered?

The panel considers best currently available evidence. Beyond systematic reviews - performed in the context of the BMJ RapidRecs - the panel may also consider a number of other research papers or guidelines.

How is a trustworthy guideline made?

The Institute of Medicine (IOM) *[19]* and the Guidelines International Network (GIN) provide guidance on how trustworthy guidelines should be developed. Table 1 outlines how we aim to meet their trustworthy quality standards for our rapid recommendations.

Table 1: Summary of Institute of Medicine 8 standards for trustworthy guidelines and how the BMJ RapidRecs will meets these standards.

1. Establishing transparency "The processes by which a CPG is developed and funded should be detailed explicitly and publicly accessible"
• The method for BMJ RapidRecs is published as a supplementary file in the BMJ as well as in MAGICapp. • Peer-reviewers judge the trustworthiness of the recommendations, and the panel will respond to any concerns raised. • All funding will be reported. We will not use industry funding or any other funding from sources that could bias the recommendation.
2. Managing conflicts of interest "Prior to selection of the guideline development group, individuals being considered for membership should declare all interests and activities potentially resulting in COI with development group activity...."
• The interests of each panel member are declared on a detailed and standardised form prior to involvement and published with the recommendations. • Potential financial interests in the past three years, or forthcoming 12 months will preclude participation - as judged by the panel Chair, WikiRecs Executive and the BMJ.

- No more than two panel members will have a declared intellectual conflict of interest. Such conflicts include having taken a position on the issue, for example by a written editorial or commentary, conflicts related to performing a primary research study or authoring a previous systematic review on the topic.
- The Chair must have methods expertise, a clinical background and no financial or intellectual interests.
- Funders and industry have no role in these recommendations.
- Professional conflicts of interest will be reported and minimised.

3. Guideline Development Group Composition
"The guideline development group should be multidisciplinary and balanced, comprising a variety of methodological experts and clinicians, and populations expected to be affected by the CPG."

- BMJ RapidRecs will aim to include representation from most or every major geographic region in the world, with specific efforts made to achieve gender balance.
- We will enable patient and public involvement by including patient representatives. We will furthermore make use of systematic reviews on values and preferences to guide outcome choices and relative weights of each outcome, where available.
- Patient representatives will be given priority during panel meetings and will have an explicit role in vetting final judgements on values and preferences.
- The guidelines will include all relevant healthcare worker stakeholders, including allied healthcare professionals.

4. Clinical Practice Guideline–Systematic Review Intersection
"CPG developers should use systematic reviews that meet standards set by the IOM. Guideline development group and systematic review team should interact regarding the scope, approach, and output of both processes."

- Each rapid recommendation will be based on one or more linked high-quality systematic reviews which will be developed and published in parallel with our recommendation or produced by other authors and reporting sufficient detail to fully trust the review.
- The recommendation panel and SR teams will interact, with up to five members participating in both teams to facilitate communication and continuity in the process.

5. Establishing Evidence Foundations for and Rating Strength of Recommendations
"For each recommendation: explain underlying reasoning, including a clear description of potential benefits and harms, a summary of relevant available evidence and description of the quality., explain the part played by values, opinion, theory, and clinical experience in deriving the recommendation, "provide rating of strength of recommendations."

- We will apply the GRADE framework for establishing evidence foundations and rating the strength of recommendations. For each recommendation, systematic and transparent assessments are made across the following key factors:
  - The balance between the absolute benefits and harms for all patient-important outcomes.
  - Overall quality of the evidence.
  - The typical patient values and preferences and variation in values and preferences.
  - Resources and other considerations (e.g. feasibility, applicability, equity).

- Each outcome will - if data are available through systematic reviews - include an effect estimate and confidence interval, with a measure of certainty in the evidence, as presented in GRADE Summary of Findings tables. If such data are not available narrative summaries will be provided.
- A summary of the underlying reasoning and all additional information (e.g. key factors, practical advice, references) will be available in the BMJ-RapidRecs article with full content available online in an interactive format at www.magicapp.org. The summary includes descriptions of how theory (e.g. pathophysiology) and clinical experience played into the evidence assessment and recommendation development.
- Recommendations will be rated either weak or strong, as defined by GRADE.
- If the panel disagrees on the evidence assessment or grading of the recommendations, we will follow a structured consensus process customised to the GRADE system and report any final differences of opinion, with their rationale, in the online supplement and at www.magicapp.org.

6. Articulation of recommendations
"Recommendations should be articulated in a standardized form detailing precisely what the recommended action is, and under what circumstances it should be performed, and so that compliance with the recommendation(s) can be evaluated."

- Each recommendation will appear at the top of the infographic in the BMJ and be available in standardised formats in MAGICapp.
- The recommendations will be actionable.
- Each summary article in the BMJ will include a statement that these are guiding recommendations. They do not form a mandate of action and should be contextualised to the relevant healthcare system and individual patients.

7. External review
"External reviewers should comprise a full spectrum of relevant stakeholders....., authorship should be kept confidential....., all reviewer comments should be considered....a rationale for modifying or not should be recorded in writing.... a draft of the recommendation should be made available to general public for comment.."

- At least two external peer-reviewers and one patient reviewer will review the recommendation for the BMJ. They will have access to all underlying, online information. They will be asked for general feedback and to assess the trustworthiness of the guideline.
- A BMJ series adviser with methodological and/or statistical expertise will review the BMJ-RapidRecs publication and the systematic reviews.
- The panel will be asked to read and respond to the peer review comments and make amendments where reasonable.
- The BMJ and RapidRecs team may, on a case-by-case basis, choose to invite key organisations, agencies, or patient/public representatives to provide and submit public peer-review.
- There will be post-publication public review process where people can provide comments and feedback through MAGICapp (or through the BMJ). The Chair will strive to, on behalf of panel members, respond to each publicly available peer-review within 30 days, for a period of six months after publication.

8. Updating
"The date for publication, systematic review and proposed date for future review should be documented, the literature should be monitored regularly and the recommendation should be updated when warranted by new evidence."

- The panel will monitor new research evidence for a published BMJ RapidRecs, aiming to update the recommendation when new evidence suggest a need for change in practice. Updates will be performed in MAGICapp and submitted to the BMJ for consideration of an updated publication.

References

[1] Thorlund JB, Juhl CB, Roos EM, Lohmander LS Arthroscopic surgery for degenerative knee: systematic review and meta-analysis of benefits and harms.. British journal of sports medicine 2015;49(19):1229-35-null Pubmed Journal

[2] Brozek JL, Guyatt GH, Schünemann HJ How a well-grounded minimal important difference can enhance transparency of labelling claims and improve interpretation of a patient reported outcome measure.. Health and quality of life outcomes 2006;4 69-null Pubmed

[3] Siemieniuk RA, Agoritsas T, Macdonald H, Guyatt GH, Brandt L, Vandvik PO Introduction to BMJ Rapid Recommendations.. BMJ (Clinical research ed.) 354 i5191-null Pubmed Journal

[4] Marsh JD, Birmingham TB, Giffin JR, Isaranuwatchai W, Hoch JS, Feagan BG, Litchfield R, Willits K, Fowler P Cost-effectiveness analysis of arthroscopic surgery compared with non-operative management for osteoarthritis of the knee.. BMJ open 2016;6(1):e009949-null Pubmed Journal

[5] Pinto D, Robertson MC, Hansen P, Abbott JH Cost-effectiveness of nonpharmacologic, nonsurgical interventions for hip and/or knee osteoarthritis: systematic review.. Value in health : the journal of the International Society for Pharmacoeconomics and Outcomes Research 2012;15(1):1-12-null Pubmed Journal

[6] Brignardello-Petersen R, Schandelmaier S, Chang Y, Sadeghirad B, Evaniew N, Vandvik PO, Guyatt GH Knee arthroscopy versus conservative management in patients with degenerative knee disease: a systematic review. BMJ Group Co-submitted;

[7] Devji T, Lytvyn L, Brignardello-Petersen R, Foroutan F, Kristiansen A, Sadeghirad B, Siemieniuk RA, Vandvik PO, Carrasco-Labra A, Guyatt GH Minimal Important differences for measures of pain, function, and quality of life in knee osteoarthritis. BMJ Group Co-submitted;

[8] Lubowitz JH, Ayala M, Appleby D Return to activity after knee arthroscopy.. Arthroscopy : the journal of arthroscopic & related surgery : official publication of the Arthroscopy Association of North America and the International Arthroscopy Association 2008;24(1):58-61.e4- Pubmed Journal

[9] Pihl K, Roos EM, Nissen N, JøRgensen U, Schjerning J, Thorlund JB Over-optimistic patient expectations of recovery and leisure activities after arthroscopic meniscus surgery.. Acta orthopaedica 2016; 1-7- Pubmed

[10] Jevsevar DS, Brown GA, Jones DL, Matzkin EG, Manner PA, Mooar P, Schousboe JT, Stovitz S, Sanders JO, Bozic KJ, Goldberg MJ, Martin WR, Cummins DS, Donnelly P, Woznica A, Gross L, The American Academy of Orthopaedic Surgeons evidence-based guideline on: treatment of osteoarthritis of the knee, 2nd edition.. The Journal of bone and joint surgery. American volume 2013;95(20):1885-6-null Pubmed

[11] McGrory B, Weber K, Lynott JA, Richmond JC, Davis CM, Yates A, Kamath AF, Dasa V, Brown GA, Gerlinger TL, Villanueva T, Piva S, Hebl J, Jevsevar D, Shea KG, Bozic KJ, Shaffer W, Cummins D, Murray JN, Donnelly P, Patel N, Brenton B, Shores P, Woznica A, Linskey E, Sevarino K, The American Academy of Orthopaedic Surgeons Evidence-Based Clinical Practice Guideline on Surgical Management of Osteoarthritis of the Knee.. The Journal of bone and joint surgery. American volume 2016;98(8):688-92-null Pubmed Journal

[12] Andrews JC, Schünemann HJ, Oxman AD, Pottie K, Meerpohl JJ, Coello PA, Rind D, Montori VM, Brito JP, Norris S, Elbarbary M, Post P, Nasser M, Shukla V, Jaeschke R, Brozek J, Djulbegovic B, Guyatt G GRADE guidelines: 15. Going from evidence to recommendation-determinants of a recommendation's direction and strength.. Journal of clinical epidemiology 2013;66(7):726-35-null Pubmed Journal

[13] Vandvik PO, Brandt L, Alonso-Coello P, Treweek S, Akl EA, Kristiansen A, Fog-Heen A, Agoritsas T, Montori VM, Guyatt G Creating clinical practice guidelines we can trust, use, and share: a new era is imminent.. Chest 2013;144(2):381-9-null Pubmed Journal

[14] Qaseem A, Forland F, Macbeth F, Ollenschläger G, Phillips S, van der Wees P, Guidelines International Network: toward international standards for clinical practice guidelines.. Annals of internal medicine 2012;156(7):525-31-null Pubmed Journal

[15] Laine C, Taichman DB, Mulrow C Trustworthy clinical guidelines.. Annals of internal medicine 2011;154(11):774-5-null Pubmed Journal

[16] Guyatt GH, Oxman AD, Vist GE, Kunz R, Falck-Ytter Y, Alonso-Coello P, Schünemann HJ, GRADE: an emerging consensus on rating quality of evidence and strength of recommendations.. BMJ (Clinical research ed.) 2008;336(7650):924-6-null Pubmed Journal

[17] Lytvyn L, Guyatt GH, Manja V, Siemieniuk RA, Zhang Y, Agoritsas T, Vandvik PO Patient values and preferences on transcatheter or surgical aortic valve replacement therapy for aortic stenosis: a systematic review.. BMJ open 2016;6(9):e014327-null Pubmed Journal

[18] Vandvik PO, Otto CM, Siemieniuk RA, Bagur R, Guyatt GH, Lytvyn L, Whitlock R, Vartdal T, Brieger D, Aertgeerts B, Price S, Foroutan F, Shapiro M, Mertz R, Spencer FA Transcatheter or surgical aortic valve replacement for patients with severe, symptomatic, aortic stenosis at low to intermediate surgical risk: a clinical practice guideline.. BMJ (Clinical research ed.) 2016;354 i5085-null Pubmed Journal

[19] Institute of Medicine Clinical Practice Guideline We Can Trust. 2011; Journal

[20] Foroutan F, Guyatt GH, O'Brien K, Bain E, Stein M, Bhagra S, Sit D, Kamran R, Chang Y, Devji T, Mir H, Manja V, Schofield T, Siemieniuk RA, Agoritsas T, Bagur R, Otto CM, Vandvik PO Prognosis after surgical replacement with a bioprosthetic aortic valve in patients with severe symptomatic aortic stenosis: systematic review of observational studies.. BMJ (Clinical research ed.) 2016;354 i5065-null Pubmed Journal