Arthroscopic surgery for knee osteoarthritis? Just say no. *J Fam Pract*. 2009;58:143-145.

Potential PURL Review Form: Randomized controlled trials

SECTION 1: IDENTIFYING INFORMATION

1. Citation	Kirkley A, Birmingham TB, Litchfield RB, et al. A randomized trial of arthroscopic surgery for osteoarthritis of the knee. *N Engl J Med*. 2008;359:1097-1107.
2. Hypertext link to PDF of full article	http://www.ncbi.nlm.nih.gov/entrez/utils/fref.fcgi?PrId=3051&itool=AbstractPlus-def&uid=18784099&db=pubmed&url=http://content.nejm.org/cgi/pmidlookup?view=short&pmid=18784099&promo=ONFLNS19
3. First date published study available to readers	September 9, 2008
4. PubMed ID	18784099
5. Nominated By	Mike Mendoza
6. Institutional Affiliation of Nominator	University of Chicago
7. Date Nominated	September 16, 2008
8. Identified Through	BMJ Online
9. PURLS Editor Reviewing Nominated Potential PURL	Bernard Ewigman
10. Nomination Decision Date	September 19, 2008
11. Potential PURL Review Form (PPRF) Type	RCT
12. Other comments, materials or discussion	
13. Assigned Potential PURL Reviewer	John Hickner
14. Reviewer Affiliation	University of Chicago
15. Date Review Due	October 9, 2008
16. Abstract	BACKGROUND: The efficacy of arthroscopic surgery for the treatment of osteoarthritis of the knee is unknown. METHODS: We conducted a single-center, randomized, controlled trial of arthroscopic surgery in patients with moderate-to-severe osteoarthritis of the knee. Patients were randomly assigned to surgical lavage and arthroscopic débridement together with optimized physical and medical therapy or to treatment with physical and medical therapy alone. The primary outcome was the total Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) score (range, 0 to 2400; higher scores indicate more severe symptoms) at 2 years of follow-up. Secondary outcomes included the Short Form-36 (SF-36) Physical Component Summary score (range, 0 to 100; higher scores indicate better quality of life). RESULTS: Of the 92 patients assigned to surgery, 6 did not undergo surgery. Of the 86 patients assigned to control treatment, all received only physical and medical therapy. After 2 years, the mean (±SD) WOMAC score for the surgery group was 874±624, as compared with 897±583 for the control group (absolute difference [surgery-group score minus control-group score], –23±605; 95% confidence interval [CI], –208 to 161; *P*=.22 after adjustment for baseline score and grade of severity). The SF-36 Physical Component Summary scores were 37.0±11.4 and 37.2±10.6, respectively (absolute difference, –0.2±11.1; 95% CI, –3.6 to 3.2; *P*=.93). Analyses of WOMAC scores at interim visits and other secondary outcomes also failed to show superiority of surgery. CONCLUSIONS: Arthroscopic surgery for osteoarthritis of the knee provides no additional benefit to optimized physical and medical therapy. (ClinicalTrials.gov number, NCT00158431.) 2008 Massachusetts Medical Society

SECTION 2: CRITICAL APPRAISAL OF VALIDITY

1. Number of patients starting each arm of the study?	92 for surgery, physical therapy (PT), and meds; 86 in the control group of PT and medical therapy
2. Main characteristics of study patients (inclusions, exclusions, demographics, settings, etc.)?	Moderate to severe osteoarthritis (OA), mean age 60 and 58, about 40% male, mostly grade 2 and 3 OA; very few grade 4
3. Intervention(s) being investigated?	Arthroscopic surgery plus PT plus medications
4. Comparison treatment(s), placebo, or nothing?	Meds plus PT
5. Length of follow up? Note specified end points e.g. death, cure, etc.	2 years
6. What outcome measures are used? List all that assess effectiveness.	WOMAC pain scale (range, 0 to 2400; higher scores indicate more severe symptoms)
7. What is the effect of the intervention(s)? Include absolute risk, relative risk, NNT, CI, p-values, etc.	No difference between intervention and control. WOMAC 874 vs 897 (*P*=.22)
8. Study addresses an appropriate and clearly focused question - ***select one***	☒ Well covered ☐ Adequately addressed ☐ Poorly addressed ☐ Not applicable
9. Random allocation to comparison groups	Well covered
10. Concealed allocation to comparison groups	Not applicable
11. Subjects and investigators kept "blind" to comparison group allocation	Adequately addressed
12. Comparison groups are similar at the start of the trial	Well covered Comments: Baseline pain scores were somewhat higher in surgical group, but adjusted in the analysis
13. Were there any differences between the groups/arms of the study other than the intervention under investigation? If yes, please indicate whether the differences are a potential source of bias.	Well covered Comments: Baseline pain score, as noted in 12
14. Were all relevant outcomes measured in a standardized, valid, and reliable way?	Well covered
15. Are patient-oriented outcomes included? If yes, what are they?	Yes; pain, functional status, SF-36

16. What percent dropped out, and were lost to follow up? Could this bias the results? How?	Surgical group: 3 withdrew consent, 6 declined surgery, 2 lost to follow up, 1 died Control group: 8 withdrew consent, 6 lost to follow up This could potentially affect the resuts in either direction, but >90% of subjects were included in the analysis, so the potential for bias seems small.
17. Was there an intention-to-treat analysis? If not, could this bias the results? How?	Yes, the analysis was by intention to treat.
18. If a multi-site study, are results comparable for all sites?	Single site
19. Is the funding for the trial a potential source of bias? If yes, what measures were taken to insure scientific integrity?	Funded by the Canadian Institute for Medical Research (The Canadian NIH)
20. To which patients might the findings apply? Include patients in the study and other patients to whom the findings may be generalized.	Patients with moderate to severe OA of the knee
21. In what care settings might the findings apply, or not apply?	Primary care, rheumatology practice, orthopedic practice
22. To which clinicians or policy makers might the findings be relevant?	Primary care, ortho, rheumatology

SECTION 3: REVIEW OF SECONDARY LITERATURE

1. DynaMed excerpts

2. DynaMed citation/access date	Dynamed [database online]. Available at: http://www.DynamicMedical.com. Accessed October 8, 2008.
3. Bottom line recommendation or summary of evidence from DynaMed (1-2 sentences)	No evidence for effectiveness of arthroscopy for OA of the knee

4. UpToDate excerpts

5. UpToDate citation/access date	UpToDate [database online]. Available at: http://www.uptodate.com. Accessed October 8, 2008.
6. Bottom line recommendation or summary of evidence from UpToDate (1-2 sentences)	May be warranted in selected cases.
7. PEPID PCP excerpts	Nothing there on arthroscopic surgery for knee OA

8. PEPID citation/access data	http://www.pepidonline.com
9. PEPID content updating	1. Do you recommend that PEPID get updated on this topic? Yes, there is important evidence or recommendations that are missing If yes, which PEPID Topic, Title(s): Osteoarthritis

SECTION 4: CONCLUSIONS

1. Validity: How well does the study minimize sources of internal bias and maximize internal validity? Give one number on a scale of 1 to 7 (1=extremely well; 4=neutral; 7=extremely poorly)	1
2. If 4.1 was coded as 4, 5, 6, or 7, please describe the potential bias and how it could affect the study results. Specifically, what is the likely direction in which potential sources of internal bias might affect the results?	
3. Relevance: Are the results of this study generalizable to and relevant to the health care needs of patients cared for by "full scope" family physicians? Give one number on a scale of 1 to 7 (1=extremely well; 4=neutral; 7=extremely poorly)	1
4. If 4.3 was coded as 4, 5, 6, or 7, please provide an explanation.	
5. Practice changing potential: If the findings of the study are both valid and relevant, does the practice that would be based on these findings represent a change from current practice? Give one number on a scale of 1 to 7 (1=definitely a change from current practice; 4=uncertain; 7=definitely not a change from current practice)	4
6. If 4.5 was coded as 1, 2, 3, or 4, please describe the potential new practice recommendation. Please be specific about what should be done, the target patient population and the expected benefit.	Do not refer patients with knee OA to orthopedic surgeons for arthroscopic treatment. Only refer them when it is time for joint replacement.
7. Applicability to a Family Medical Care Setting: Is the change in practice recommendation something that could be done in a medical care setting by a family physician (office, hospital, nursing home, etc), such as a prescribing a medication, vitamin or herbal remedy; performing or ordering a diagnostic test; performing or referring for a procedure; advising, educating or counseling a patient; or	1

creating a system for implementing an intervention?
Give one number on a scale of 1 to 7 (1=definitely could be done in a medical care setting; 4=uncertain; 7=definitely could not be done in a medical care setting)

8. If you coded 4.7 as a 4, 5, 6 or 7 please explain.

9. Immediacy of Implementation: Are there major barriers to immediate implementation? Would the cost or the potential for reimbursement prohibit implementation in most family medicine practices? Are there regulatory issues that prohibit implementation? Is the service, device, drug or other essentials available on the market? Give one number on a scale of 1 to 7 (1=definitely could be immediately applied; 4=uncertain; 7=definitely could not be immediately applied) 1

10. If you coded 4.9 as 4, 5, 6, or 7, please explain why.

11. Clinical meaningful outcomes or patient oriented outcomes: Are the outcomes measured in the study clinically meaningful or patient oriented? Give one number on a scale of 1 to 7 (1=definitely clinically meaningful or patient oriented; 4=uncertain; 7=definitely not clinically meaningful or patient oriented) 1

12. If you coded 4.11 as a 4, 5, 6, or 7, please explain why.

13. In your opinion, is this a Pending PURL? Give one number on a scale of 1 to 7 (1=definitely a Pending PURL; 4=uncertain; 7=definitely not a Pending PURL) 4

Criteria for a Pending PURL:

- Valid: Strong internal scientific validity; the findings appears to be true.
- Relevant: Relevant to the practice of family medicine
- Practice changing: There is a specific identifiable new practice recommendation that is applicable to what family physicians do in medical care settings and seems different than current practice
- Applicability in medical setting
- Immediacy of implementation

14. Comments on your response in 4.13	It depends on how commonly this procedure is still done. The authors of the manuscript cliam it is still a common procedure. We need a search to see how common it is.

SECTION 5: EDITORIAL DECISIONS

1. FPIN PURLs editorial decision (select one)	Pending PURL
2. Follow up issues for Pending PURL Reviewer	
3. FPIN PURLS Editor making decision	Bernard Ewigman
4. Date of decision	October 30, 2008
5. Brief summary of decision	Although it is not an entirely new finding that knee arthroscopy is not effective for OA, this is the “nail in the coffin” study for knee arthroscopy.

SECTION 6: Survey Questions for SERMO, PURLs Instant Polls, and Other Surveys

1. Current Practice Question for Surveys	Do you refer patients with moderate to severe knee osteoarthritis to orthopedic surgeons for arthroscopic debridement? 58% refer to ortho and let them decide 31% refer specifically for arthroscopy 21% do not
2. Barriers to Implementation Question for Surveys	
3. Likelihood of Change Question for Surveys	
4. Other Questions for Surveys	

SECTION 7: VARIABLES FOR SECONDARY DATABASE ANALYSES

1. Population: Age, gender, race, ethnicity	Yes
2. Diagnoses	Knee osteoarthritis
3. Drugs or procedures	Knee arthroscopy and debridement; knee arthroscopy and irrigation