

Appendix A. Search Strategy:

Database Searched	Date Searched	Results
MEDLINE via PubMed, 1946 to 5/22/17	01/01/19	76
EMBASE (embase.com) 1946 to 5/22/17	01/01/19	326
Epistemonikos (https://www.epistemonikos.org/)	01/01/19	79
Cochrane Database of Systematic Reviews: Issue 5 of 12, May 2017 (Wiley)	01/01/19	21
Total		502
After de-duplication		442

We identified all systematic reviews evaluating the use of computer-assisted hip arthroplasty and/or knee arthroplasty. On May 22, 2017, we searched MEDLINE (PubMed), EMBASE (embase.com), the Cochrane Database of Systematic Reviews (Wiley), and Epistemonikos (Epistemonikos.org). We reran the search strategy to include the rest of 2017 and whole of 2018. We used a combination of subject headings and title/abstract keywords. We applied search filters in each database to limit retrieval to reviews. For the MEDLINE search, we used the Systematic Reviews Subset strategy (National Library of Medicine). For EMBASE, we translated from Ovid to embase.com syntax the multi-term EMBASE filter with the best balance of sensitivity and specificity (Wong 2006). We limited our Epistemonikos search to systematic reviews and broad syntheses.

Wong, S. S., Wilczynski, N. L., & Haynes, R. B. (2006). Comparison of top-performing search strategies for detecting clinically sound treatment studies and systematic reviews in MEDLINE and EMBASE. *Journal of the Medical Library Association*, 94(4), 451-455.

PubMed:

((("Arthroplasty, Replacement, Hip"[Mesh] OR "Arthroplasty, Replacement, Knee"[Mesh] OR knee replacement[tw] OR knee replacements[tw] OR knee arthroplastia[tw] OR knee arthroplastics[tw] OR knee arthroplasties[tw] OR knee arthroplasty[tw] OR hip replacement[tw] OR hip replacements[tw] OR hip arthroplastia[tw] OR hip arthroplastics[tw] OR hip arthroplasties[tw] OR hip arthroplasty[tw])) AND ("Robotic Surgical Procedures"[Mesh] OR "Robotics"[Mesh] OR "Surgery, Computer-Assisted"[Mesh] OR "robotic"[tw] OR "robotics"[tw] OR "computer assisted"[tw] OR "computer-assisted"[tw] OR "robotic-assisted"[tw] OR "robotic assisted"[tw] OR "robotics-assisted"[tw] OR "robotics assisted"[tw])) AND "systematic"[sb])

Embase:

- #1 'hip replacement'/exp OR 'hip replacement'/syn OR 'knee replacement'/exp OR 'knee replacement'/syn
- #2 'computer assisted surgery'/exp OR 'computer assisted surgery'/syn OR 'robotic surgical procedure'/syn OR 'computer assisted' OR 'robotic assisted' OR 'robotics-assisted' OR 'robotics assisted' OR 'robotics'
- #3 meta NEXT/1 analys* OR search*:ab,ti OR review:it
- #4 #1 AND #2 AND #3

Cochrane:

- #1 MeSH descriptor: [Arthroplasty, Replacement, Hip] explode all trees
- #2 MeSH descriptor: [Arthroplasty, Replacement, Knee] explode all trees
- #3 "knee replacement" or "knee replacements" or "knee arthroplastia" or "knee arthroplastics" or "knee arthroplasties" or "knee arthroplasty" or "hip replacement" or "hip replacements" or "hip arthroplastia" or "hip arthroplastics" or "hip arthroplasties" or "hip arthroplasty"
- #4 MeSH descriptor: [Robotic Surgical Procedures] explode all trees
- #5 MeSH descriptor: [Robotics] explode all trees
- #6 MeSH descriptor: [Surgery, Computer-Assisted] explode all trees

#7 "robotic" or "robotics" or "computer assisted" or "computer-assisted" or "robotic-assisted" or "robotic assisted" or "robotics-assisted" or "robotics assisted"

#8 {or #1-#3}

#9 {or #4-#7}

#10 #8 and #9

Epistemonikos:

(knee replacement OR knee replacements OR knee arthroplastia OR knee arthroplastics OR knee arthroplasties OR knee arthroplasty OR hip replacement OR hip replacements OR hip arthroplastia OR hip arthroplastics OR hip arthroplasties OR hip arthroplasty) AND (robotic OR robotics OR computer assisted OR computer-assisted OR robotic-assisted OR robotic assisted OR robotics-assisted OR robotics assisted)

Grey literature search:

We searched the followings: abstracts of the 2015 Australian Knee Society Annual Meeting, abstracts of Singapore Health and Biomedical Congress, SHBC 2013, the 14th Annual Meeting of Computer Assisted Orthopaedic Surgery-International, Technology Evaluation Center of Blue Cross and Blue Shield Association (TEC), The Malaysian Health Technology Assessment Section of Ministry of Health Malaysia, Healio.com, the Korean National Evidence-based Healthcare Collaborating Agency, University of York Center for Reviews and Dissemination, Ontario Health Technology Assessment Series, the Joint Technology Assessment Unit (TAU) of the McGill University Health Center (MUHC).