

Appendix 1 (as supplied by the authors): Methods

Searches of MEDLINE (using Ovid) from 1950 to January 2008, EMBASE from 1980 to January 2008 and CINAHL from 1982 to January 2008 were completed to identify relevant studies. The search strategy included the terms: monoarthritis, arthritis, acute disease, differential diagnosis, history, physical examination, diagnostic tests, diagnostic error, decision support system, diagnostic imaging, radiology, MRI, CT or CAT scan, infection, uric acid, calcium pyrophosphate, hydroxyapatite, calcium oxalate, lipids, fracture, synovitis, rheumatoid arthritis, spondylarthropathies, systemic lupus erythematosus, sarcoidosis, osteoarthritis, chondrosarcoma, osteoma, neoplasm, and blood coagulation disorders. We identified English-language articles that addressed the differential diagnosis of acute monoarthritis and/or the clinical examination for acute monoarthritis in adult humans, where data was not limited to case reports. We accepted the definition for acute monoarthritis used in the studies. Additional studies were identified from searching bibliographies of retrieved articles and by consulting an expert in the field. Non-English language articles were excluded for logistical reasons. Details on the search strategy are available on request.

Cohort studies focused on determining the differential diagnosis of acute monoarthritis among adults and/or the diagnostic value of the history, physical examination and/or investigations used in determining the causes of acute monoarthritis were included. Case control studies were considered when there was insufficient data available from cohort studies. Given the scope of the review, data from high quality systematic reviews that focused on specific types of arthritis were included when available.

Two reviewers (LM and JHL) independently reviewed and selected relevant publications that met the inclusion criteria from the search results. Differences in data extraction were rarely encountered but any differences between the reviewers were resolved through discussion. The investigators did not use a specific validated quality assessment tool but instead incorporated individual components of study quality into the data extraction form to help assess key elements such as study design, study population, recruitment and sampling, diagnostic criteria, reference standard used, blinding, attrition rates, and statistical methods (Appendix 3). For systematic reviews, information on search strategies, quality of included studies, heterogeneity between studies and summary results was extracted.