

## Appendix F: Excluded studies

### F.1 Recognition, referral and diagnosis

#### F.1.1 Signs, symptoms and risk factors of spondyloarthritis

Review question 1-2-12

- What signs and symptoms should prompt a healthcare professional to think of spondyloarthritis?
- What risk factors should increase suspicion of spondyloarthritis?
- What are the indications (signs, risk factors, test or scan findings) for referral for specialist advice at initial diagnosis?

Study	Reason for Exclusion
Appel,H., Mertz,A., Distler,A., Sieper,J., Braun,J., The 19 kDa protein of Yersinia enterocolitica O:3 is recognized on the cellular and humoral level by patients with Yersinia induced reactive arthritis, The Journal of rheumatologyJ Rheumatol, 26, 1964-1971, 1999	ReA diagnosis confirmed/ruled out before start of study
Aydin,S.Z., Maksymowych,W.P., Bennett,A.N., McGonagle,D., Emery,P., Marzo-Ortega,H., Validation of the ASAS criteria and definition of a positive MRI of the sacroiliac joint in an inception cohort of axial spondyloarthritis followed up for 8 years, Annals of the Rheumatic DiseasesANN.RHEUM.DIS., 71, 56-60, 2012	Comparator: Every participant with suspected SpA ended up with a diagnosis of axial SpA, so a selected control group of people with mechanical lower back pain was used as the comparator.
Bakland,G., Nossent,H.C., Epidemiology of spondyloarthritis: a review. [Review], Current Rheumatology Reports, 15, 351-, 2013	Summary of other studies on incidence and prevalence of SpA; no relevant outcomes reported.
Barbour,J.A., Binding,J., Bridges,M., Kelly,C., Evaluation of a screening tool for inflammatory joint disease, Annals of the Rheumatic Diseases, 62, 187-188, 2003	Letter
Barrett,C., Bird,P., Major,G., Romas,E., Portek,I., Taylor,A., Zochling,J., Australian and New Zealand national evidence-based recommendations for the investigation and follow-up of undifferentiated peripheral inflammatory arthritis: An integration of systematic literature research and rheumatological expert opinion, International journal of rheumatic diseasesInt J Rheum Dis, 16, 637-651, 2013	Study design: systematic review and consensus exercise
Baskan,B.M., Sivas,F., Inal,E.E., Duran,S., Elverici,E., Ozoran,K., Bodur,H., Comparison of the Bath Ankylosing Spondylitis Radiology Index and the modified Stoke Ankylosing Spondylitis Spine Score in Turkish patients with ankylosing spondylitis, Clinical Rheumatology, 29, 65-70, 2010	All participants had diagnosis of AS at baseline
Brandt , J., Bollow, M., Häberle, J., Rudwaleit, M., Eggens, U., Distler, A., Sieper, J., Braun, J.	No relevant outcome data

Study	Reason for Exclusion
Studying patients with inflammatory back pain and arthritis of the lower limbs clinically and by magnetic resonance imaging: many, but not all patients with sacroiliitis have spondyloarthopathy, <i>Rheumatology</i> , 38, 831-836, 1999	
Braun,A., Gnann,H., Saracbası,E., Grifka,J., Kiltz,U., Letschert,K., Braun,J., Optimizing the identification of patients with axial spondyloarthritis in primary care--the case for a two-step strategy combining the most relevant clinical items with HLA B27, <i>Rheumatology</i> , 52, 1418-1424, 2013	Of relevance but deemed to be more suitable for RQ12 (indications for referral)
Braun,A., Saracbası,E., Grifka,J., Schnitker,J., Braun,J., Identifying patients with axial spondyloarthritis in primary care: how useful are items indicative of inflammatory back pain?, <i>Annals of the rheumatic diseases</i> Ann Rheum Dis, 70, 1782-1787, 2011	Of relevance but deemed to be more suitable for RQ12 (indications for referral)
Braun,J., Baraliakos,X., Kiltz,U., Heldmann,F., Sieper,J., Classification and diagnosis of axial spondyloarthritis--what is the clinically relevant difference?. [Review], <i>Journal of Rheumatology</i> , 42, 31-38, 2015	Review
Buder,K., Wozel,G., Psoriatic arthritis: a diagnostic challenge?. [Review], <i>Giornale Italiano di Dermatologia e Venereologia</i> , 145, 407-414, 2010	Review
Calin,A., Diagnostic criteria (new and old) for the spondylarthropathies, <i>Clinical &amp; Experimental Rheumatology</i> , 5, 101-102, 1987	Editorial
Can,G., Solmaz,D., Binicier,O., Akar,S., Birlik,M., Soysal,O., Akkoc,N., Manisali,M., Onen,F., High frequency of inflammatory back pain and other features of spondyloarthritis in patients with rheumatoid arthritis, <i>Rheumatology International</i> , 33, 1289-1293, 2013	Population: people with RA
Carmona,R., Harish,S., Linda,D.D., Ioannidis,G., Matsos,M., Khalidi,N.A., MR imaging of the spine and sacroiliac joints for spondyloarthritis: Influence on clinical diagnostic confidence and patient management, <i>Radiology</i> , 269, 208-215, 2013	Study did not report imaging findings by SpA diagnosis (positive or negative), so a 2x2 table could not be constructed. Focussed on diagnostic confidence instead
Chandran,V., Schentag,C.T., Gladman,D.D., Sensitivity of the classification of psoriatic arthritis criteria in early psoriatic arthritis, <i>Arthritis &amp; Rheumatism</i> , 57, 1560-1563, 2007	All participants had diagnosis of PsA at baseline
Choi,J.H., Kim,T.J., Shin,K., Choi,C.B., Kim,J.H., Kim,S.H., Kim,N.I., Ahn,M.J., Jung,H.J., Lee,K.E., Park,D.J., Park,Y.W., Lee,S.S., Kim,T.H., The reliability and validity of a Korean translation of the ASAS Health Index and Environmental Factors in Korean patients with axial spondyloarthritis, <i>Journal of Korean medical science</i> .29 (3) (pp 334-337), 2014.Date of Publication: Mar 2014., 334-337, 2014	All participants had diagnosis of axial SpA at baseline

Study	Reason for Exclusion
Chou, C.T., Lin, K.C., Wei, J.C., Tsai, W.C., Ho, H.H., Hwang, C.M., Cherng, J.M., Hsu, C.M., Yu, D.T., Study of undifferentiated spondyloarthropathy among first-degree relatives of ankylosing spondylitis probands, <i>Rheumatology</i> , 44, 662-665, 2005	Study of USpA in first degree relatives of people with AS. Population is a mixture of those with and without a pre-existing Dx of USpA
Coates,L.C., Conaghan,P.G., Emery,P., Green,M.J., Ibrahim,G., MacIver,H., Helliwell,P.S., Sensitivity and specificity of the classification of psoriatic arthritis criteria in early psoriatic arthritis, <i>Arthritis &amp; Rheumatism</i> , 64, 3150-3155, 2012	Participants had confirmed diagnosis at baseline.
Coates,L.C., Walsh,J., Haroon,M., FitzGerald,O., Aslam,T., Al,Balushi F., Burden,A.D., Burden-Teh,E., Caperon,A.R., Cerio,R., Chattopadhyay,C., Chinoy,H., Goodfield,M.J., Kay,L., Kelly,S., Kirkham,B.W., Lovell,C.R., Marzo-Ortega,H., McHugh,N., Murphy,R., Reynolds,N.J., Smith,C.H., Stewart,E.J., Warren,R.B., Waxman,R., Wilson,H.E., Helliwell,P.S., Development and testing of new candidate psoriatic arthritis screening questionnaires combining optimal questions from existing tools, <i>Arthritis care &amp; research</i> , 66, 1410-1416, 2014	Diagnosis of PsA in people with psoriasis is outside scope
Collantes,E., Veroz,R., Escudero,A., Munoz,E., Munoz,M.C., Ciscal,A., Perez,V., Can some cases of 'possible' spondyloarthropathy be classified as 'definite' or 'undifferentiated' spondyloarthropathy? Value of criteria for spondyloarthropathies. Spanish Spondyloarthropathy Study Group, <i>Joint, Bone, Spine: Revue du Rhumatisme</i> , 67, 516-520, 2000	Population: study only looked at a subgroup of suspected SpA patients, excluding those who received a definite positive or negative diagnosis
Collantes-Estevez,E., New paradigms in the diagnosis and classification of the spondylarthritis, <i>Reumatologia Clinica</i> , 9, 199-200, 2013	Editorial
Collantes-Estevez,E., Ciscal del,Mazo A., Munoz-Gomariz,E., Assessment of 2 systems of spondyloarthropathy diagnostic and classification criteria (Amor and ESSG) by a Spanish multicenter study. European Spondyloarthropathy Study Group, <i>Journal of Rheumatology</i> J.Rheumatol., 22, 246-251, 1995	Participants were a combination of new and existing diagnoses
Dawes,P.T., Stoke Ankylosing Spondylitis Spine Score, <i>Journal of Rheumatology</i> , 26, 993-996, 1999	Participants had confirmed diagnosis at baseline, therefore no people without SpA for comparison
Feldtkeller,E., Rudwaleit,M., Zeidler,H., Easy probability estimation of the diagnosis of early axial spondyloarthritis by summing up scores, <i>Rheumatology</i> , 52, 1648-1650, 2013	No relevant outcome data
Gamez-Nava,J.I., Gonzalez-Lopez,L., Davis,P., Suarez-Almazor,M.E., Referral and diagnosis of common rheumatic diseases by primary care physicians, <i>British Journal of Rheumatology</i> , 37, 1215-1219, 1998	No relevant outcome data

Study	Reason for Exclusion
Garg,N., Truong,B., Ku,J.H., Devere,T.S., Ehst,B.D., Blauvelt,A., Deodhar,A.A., A novel, short, and simple screening questionnaire can suggest presence of psoriatic arthritis in psoriasis patients in a dermatology clinic, Clinical RheumatologyClin.Rheumatol., 34, 1745-1751, 2015	Diagnosis of PsA in people with psoriasis is outside scope
Gladman,D.D., Schentag,C.T., Tom,B.D.M., Chandran,V., Brockbank,J., Rosen,C., Farewell,V.T., Development and initial validation of a screening questionnaire for psoriatic arthritis: The toronto psoriatic arthritis screen (ToPAS), Annals of the Rheumatic DiseasesANN.RHEUM.DIS., 68, 497-501, 2009	Diagnosis of PsA in people with psoriasis is outside scope
Gomariz,E.M., del,M., Guijo,V.P., Contreras,A.E., Villanueva,M., Estevez,E.C., The potential of ESSG spondyloarthropathy classification criteria as a diagnostic aid in rheumatological practice, Journal of Rheumatology, 29, 326-330, 2002	Unclear as to whether comparison group were suspected SpA cases
Gran,J.T., An epidemiological survey of the signs and symptoms of ankylosing spondylitis, Clinical Rheumatology, 4, 161-169, 1985	Population survey likely to have picked up prevalent cases alongside incident/undiagnosed
Gupta,A.D., Sacroiliac joint pathologies in low back pain, Journal of Back and Musculoskeletal Rehabilitation.22 (2) (pp 91-97), 2009.Date of Publication: 2009., 91-97, 2009	Diagnosis of SpA was not cross referred with SpA diagnosis; all eligible participants had sacroiliitis, and no other relevant signs/symptoms/features were reported
Haddad,A., Johnson,S.R., Somaily,M., Fazelzad,R., Kron,A.T., Chau,C., Chandran,V., Psoriatic Arthritis Mutilans: Clinical and Radiographic Criteria. A Systematic Review, Journal of Rheumatology, 42, 1432-1438, 2015	Systematic review
Haywood,K.L., Garratt,A.M., Dawes,P.T., Patient-assessed health in ankylosing spondylitis: a structured review. [Review] [98 refs], Rheumatology, 44, 577-586, 2005	Systematic review. Health status assessment in people with existing AS
Helliwell,P.S., Taylor,W.J., Classification and diagnostic criteria for psoriatic arthritis. [Review] [40 refs], Annals of the Rheumatic Diseases, 64, Suppl-8, 2005	Study design: review of different diagnostic criteria without sufficient data to construct 2x2 tables.
Huerta-Sil, G., Casasola-Vargas, J.C., Londoño ,J.D., Rivas-Ruíz, R., Chávez, J., Pacheco-Tena, C., Cardiel, M.H., Vargas-Alarcón ,G., Burgos-Vargas, R.. Low grade radiographic sacroiliitis as prognostic factor in patients with undifferentiated spondyloarthritis fulfilling diagnostic criteria for ankylosing spondylitis throughout follow up, Annals of the Rheumatic Diseases, 65, 642-646, 2006	Population: everyone has diagnosis of undifferentiated SpA at inception; participants then followed and monitored for progression to AS.
Inman, R.D., Johnston, M.E., Hodge, M., Falk, J., Helewa, A.. Postdysenteric reactive arthritis. A clinical and immunogenetic study following an outbreak of salmonellosis., Arthritis & Rheumatism, 31, 1377-1383, 1988	Only 30% of people exposed to outbreak were studied, and relevant data only available on subsets of these therefore not really a consecutive or random sample
Inman,R.D., Classification criteria for reactive arthritis, Journal of Rheumatology, 26, 1219-1221, 1999	Editorial

Study	Reason for Exclusion
Jans,L., van,Langenhove C., Van,Praet L., Carron,P., Elewaut,D., van den Bosch,F., Lambrecht,V., Jaremko,J.L., Verstraete,K., Diagnostic value of pelvic enthesitis on MRI of the sacroiliac joints in spondyloarthritis, <i>European Radiology</i> , 24, 866-871, 2014	None of the imaging features reported are used in UK clinical practice for diagnosis of SpA
Khoso,B.K., Shaikh,I., The correlation and prognostic significance of ESR and CRP values with the severity of psoriasis with/without psoriatic arthropathy, <i>Medical Forum Monthly</i> .26 (7) (pp 14-16), 2015.Date of Publication: 01 Jul 2015., 14-16, 2015	No relevant outcome data
Kiltz,U., Van Der Heijde,D., Boonen,A., Braun,J., The ASAS Health Index (ASAS HI) - a new tool to assess the health status of patients with spondyloarthritis. [Review], <i>Clinical &amp; Experimental Rheumatology</i> , 32, Suppl-8, 2014	Instrument not developed/validated in people with suspected SpA
Kraan,M.C., Haringman,J.J., Post,W.J., Versendaal,J., Breedveld,F.C., Tak,P.P., Immunohistological analysis of synovial tissue for differential diagnosis in early arthritis, <i>Rheumatology</i> , 38, 1074-1080, 1999	No relevant outcome data
Kundakci,N., Tursen,U., Babiker,M.O., Gurgey,E., The evaluation of the sociodemographic and clinical features of Turkish psoriasis patients, <i>International Journal of Dermatology</i> , 41, 220-224, 2002	No relevant outcome data
Leclerc-Jacob, S., Lux, G., Rat, A.C., Laurent, V., Blum, A., Chary-Valckenaere, I., Peyrin-Biroulet, L., Loeuille, D.,The prevalence of inflammatory sacroiliitis assessed on magnetic resonance imaging of inflammatory bowel disease: a retrospective study performed on 186 patients, <i>Alimentary Pharmacology &amp; Therapeutics</i> , 39, 957-962, 2014	Detection/diagnosis of sacroiliitis rather than SpA
Leung,Y.Y., Tam,L.S., Ho,K.W., Lau,W.M., Li,T.K., Zhu,T.Y., Kun,E.W., Li,E.K., Evaluation of the CASPAR criteria for psoriatic arthritis in the Chinese population, <i>Rheumatology</i> , 49, 112-115, 2010	All participants had an SpA diagnosis at baseline
Levesque,R.Y., Azouz,E.M., Radiologic Findings in Adults with Seronegative Spondyloarthropathies: Distinguishing the chronic arthropathies in adulthood, <i>Canadian Family Physician</i> , 38, 2105-2118, 1992	Review
Locht, H., Krogfelt, K.A., Comparison of rheumatological and gastrointestinal symptoms after infection with <i>Campylobacter jejuni/coli</i> and enterotoxigenic <i>Escherichia coli</i> ., <i>Annals of the Rheumatic Diseases</i> , 61, 448-52, 2002	Diagnosis assigned on the basis of questionnaire; participants were not examined in-person by a rheumatologist
Maksymowicz,H., Kowalewski,K., Lubkowska,K., Zolud,W., Sasiadek,M., Diagnostic value of gadolinium-enhanced MR imaging of active sacroiliitis in seronegative spondyloarthropathy, <i>Polish Journal of Radiology</i> , 75, 58-65, 2010	Study population was a mixture of people with new and existng diagnoses of spondyloarthritis

Study	Reason for Exclusion
Marchesoni,A., Cantini,F., Classification and clinical assessment. [Review], Reumatismo, 64, 79-87, 2012	Review
Mau,W., Raspe,H.H., Mersjann,H., Early arthritides: nosography, nosology, and diagnostic criteria, Scandinavian Journal of Rheumatology - Supplement, 79, 3-12, 1989	All participants has a rheumatological diagnosis at baseline
McCrea,J.D., McCredie,M.R., McSherry,D.M., Brooks,P.M., A controlled evaluation of diagnostic criteria in the development of a rheumatology expert system, British journal of rheumatologyBr J Rheumatol, 28, 13-17, 1989	Evaluation of a decision tree across a range of conditions, in case histories that were not consecutive cases of suspected SpA.
Mease,P.J., Gladman,D.D., Papp,K.A., Khraishi,M.M., Thaci,D., Behrens,F., Northington,R., Fuiman,J., Bananis,E., Boggs,R., Alvarez,D., Prevalence of rheumatologist-diagnosed psoriatic arthritis in patients with psoriasis in European/North American dermatology clinics, Journal of the American Academy of Dermatology, 69, 729-735, 2013	Cases were a mixture of people with new and established diagnoses of PsA.
Moll,J.M., Wright,V., New York clinical criteria for ankylosing spondylitis. A statistical evaluation, Annals of the Rheumatic Diseases, 32, 354-363, 1973	Evaluation of New York criteria in PsA patients and their families
Molto,A., Paternotte,S., van der Heijde,D., Claudepierre,P., Rudwaleit,M., Dougados,M., Evaluation of the validity of the different arms of the ASAS set of criteria for axial spondyloarthritis and description of the different imaging abnormalities suggestive of spondyloarthritis: data from the DESIR cohort, Annals of the Rheumatic Diseases, 74, 746-751, 2015	Population: reported results focussed on people with confirmed axial AS defined by ASAS criteria; people with suspected SpA not fulfilling those criteria did not have their imaging data examined in this study.
Ozgcocmen,S., Khan,M.A., Current concept of spondyloarthritis: special emphasis on early referral and diagnosis. [Review][Erratum appears in Curr Rheumatol Rep. 2012 Dec;14(6):624], Current Rheumatology Reports, 14, 409-414, 2012	Review
Patrizi,A., Venturi,M., Scorzoni,R., Pazzaglia,M., Malavolta,N., Bardazzi,F., Nail dystrophies, scalp and intergluteal/perianal psoriatic lesions: risk factors for psoriatic arthritis in mild skin psoriasis?, Giornale Italiano di Dermatologia e Venereologia, 149, 177-184, 2014	Diagnosis of PsA in people with psoriasis is outside scope
Pedersen,O.B., Svendsen,A.J., Ejstrup,L., Skytthe,A., Junker,P., The occurrence of psoriatic arthritis in Denmark. [Review] [46 refs], Annals of the Rheumatic Diseases, 67, 1422-1426, 2008	Insufficient data reporting for analysis of relevant outcomes
Queiro, R., Sarasqueta, C., Torre, J.C., Tinturé, T., López-Lagunas, I., Comparative analysis of psoriatic spondyloarthropathy between men and women, Rheumatology International, 21, 66-68, 2001	Comparator: retrospective study of people with PsA, therefore no appropriate comparison group

Study	Reason for Exclusion
Queiro, R., Sarasqueta, C., Belzunegui, J., Gonzalez, C., Figueroa, M., Torre-Alonso, J.C., Psoriatic spondyloarthropathy: a comparative study between HLA-B27 positive and HLA-B27 negative disease, <i>Seminars in Arthritis and Rheumatism</i> , 31, 413-418, 2002	Comparator: retrospective study of people with PsA, therefore no appropriate comparison group
Queiro, R., Alperi, M., Lopez, A., Sarasqueta, C., Riestra, J.L., Ballina, J., Clinical expression, but not disease outcome, may vary according to age at disease onset in psoriatic spondylitis, <i>Joint, Bone, Spine: Revue du Rhumatisme</i> , 75, 544-547, 2008	All participants has diagnosis of PsA at baseline
Rasooly, I., Papageorgiou, A.C., Badley, E.M., Comparison of clinical and self reported diagnosis for rheumatology outpatients, <i>Annals of the Rheumatic Diseases</i> , 54, 850-852, 1995	All participants has diagnosis at baseline
Rojas-Vargas, M., Muñoz-Gomariz, E., Escudero, A., Font, P., Zarco, P., Almodovar, R., Gratacós, J., Mulero, J., Juanola, X., Montilla, C., Moreno, E., Collantes-Estevez, E.; Registro Español de Espondiloartritis de la Sociedad Española de Reumatología Working Group., First signs and symptoms of spondyloarthritis—data from an inception cohort with a disease course of two years or less (REGISPONSEREarly), <i>Rheumatology</i> , 48, 404-409, 2009	Comparator: retrospective study of people with SpA, therefore no appropriate comparison group
Rosner, B.M., Werber, D., Höhle, M., Stark, K., Clinical aspects and self-reported symptoms of sequelae of <i>Yersinia enterocolitica</i> infections in a population-based study, Germany 2009–2010., <i>BMC Infectious Diseases</i> , 13, 236, 2013	Comparator: Comparison group were a general population group, rather than people with suspicion/at risk of SpA
Roussou, E., Sultana, S., Spondyloarthritis in women: differences in disease onset, clinical presentation, and Bath Ankylosing Spondylitis Disease Activity and Functional indices (BASDAI and BASFI) between men and women with spondyloarthritis, <i>Clinical Rheumatology</i> , 30, 121-127, 2011	Comparator: all participants had SpA diagnosis at baseline, so there was no appropriate comparator
Rudwaleit, M., Haibel, H., Baraliakos, X., Listing, J., Märker-Hermann, E., Zeidler, H., Braun, J., Sieper, J., The Early Disease Stage in Axial Spondylarthritis, <i>Arthritis and Rheumatism</i> , 60, 717-727, 2009	Participants had confirmed diagnosis at baseline, therefore no people without SpA for comparison
Samuel, M.P., Zwillich, S.H., Thomson, G.T., Alfa, M., Orr, K.B., Brittain, D.C., Miller, J.R., Phillips, P.E., Fast food arthritis—a clinico-pathologic study of post-Salmonella reactive arthritis, <i>Journal of Rheumatology</i> , 22, 1947-1952, 1995	Non-consecutive sub sample of eligible study population was assessed; outcome data not stratified by final diagnosis
Scarpa, R., Oriente, P., Pucino, A., Torella, M., Vignone, L., Riccio, A., Biondi, Oriente C., Psoriatic arthritis in psoriatic patients, <i>British Journal of Rheumatology</i> , 23, 246-250, 1984	No relevant outcome data
Schillerup, P., Krogfelt, K.A., Loch, H., A comparison of self-reported joint symptoms following infection of different enteric pathogens:	Only a subgroup of the participants were invited to be assessed by clinician

Study	Reason for Exclusion
effect of HLA-B27, The Journal of Rheumatology, 35, 480-487, 2008	
Scire,C.A., Iagnocco,A., Meenagh,G., Riente,L., Filippucci,E., Delle,Sedie A., Sakellariou,G., Bombardieri,S., Grassi,W., Valesini,G., Montecucco,C., Ultrasound imaging for the rheumatologist XXXIII. Sonographic assessment of the foot in early arthritis patients, Clinical & Experimental Rheumatology, 29, 465-469, 2011	No relevant outcome data
Selmi,C., Gershwin,M.E., Diagnosis and classification of reactive arthritis. [Review], Autoimmunity Reviews, 13, 546-549, 2014	Review
Shivashankar,R., Loftus,E.V.,Jr., Tremaine,W.J., Harmsen,W.S., Zinsmeister,A.R., Matteson,E.L., Incidence of Spondyloarthropathy in patients with ulcerative colitis: a population-based study, Journal of Rheumatology, 40, 1153-1157, 2013	Relevant outcome data not cross-referenced with SpA diagnosis therefore 2x2 tables could not be constructed.
Sieper,J., How to screen for axial spondyloarthritis in primary care?, Current Opinion in Rheumatology.24 (4) (pp 359-362), 2012.Date of Publication: July 2012., 359-362, 2012	Review
Sieper,J., How to screen for axial spondyloarthritis in primary care?. [Review], Current Opinion in Rheumatology, 24, 359-362, 2012	Review
Sieper,J., Srinivasan,S., Zamani,O., Mielants,H., Choquette,D., Pavelka,K., Loft,A.G., Geher,P., Danda,D., Reitblat,T., Cantini,F., Ancuta,C., Erdes,S., Raffayova,H., Keat,A., Gaston,J.S., Praprotnik,S., Vastesaeger,N., Comparison of two referral strategies for diagnosis of axial spondyloarthritis: the Recognising and Diagnosing Ankylosing Spondylitis Reliably (RADAR) study, Annals of the Rheumatic Diseases, 72, 1621-1627, 2013	Of general relevance but deemed more appropriate to evaluate for RQ6 (comparative effectiveness of referral strategies)
Slobodin, G., Reyhan, I., Avshovich, N., Balbir-Gurman, A., Boulman, N., Elias, M., Feld, J., Mader, R., Markovitz, D., Rimar, D., Rosner, I., Rozenbaum, M., Zisman, D., Odeh, M.. Recently diagnosed axial spondyloarthritis: gender differences and factors related to delay in diagnosis, Clinical Rheumatology, 30, 1075-1080, 2011	Comparator: all participants had axial SpA diagnosis at baseline, so there was no appropriate comparator
Smith, D.L, Bennett, R.M., Regan, M.G., Reiter's disease in women, Arthritis & Rheumatism, 23, 335-340, 1980	Comparator: all participants received a diagnosis of ReA, so there was no appropriate comparator
Spoorenberg,A., van der Heijde,D., de,Klerk E., Dougados,M., de,Vlam K., Mielants,H., van der Tempel,H., van der Linden,S., Relative value of erythrocyte sedimentation rate and C-reactive protein in assessment of disease activity in ankylosing spondylitis, Journal of RheumatologyJ.Rheumatol., 26, 980-984, 1999	All participants has diagnosis of AS at baseline
Sung,J.J., Hsu,R.K., Chan,F.K., Liew,C.T., Lau,J.W., Li,A.K., Crohn's disease in the Chinese population. An experience from Hong	Insufficient data reporting for analysis of relevant outcomes

Study	Reason for Exclusion
Kong, Diseases of the Colon & Rectum, 37, 1307-1309, 1994	
Symmons,D.P., Lunt,M., Watkins,G., Helliwell,P., Jones,S., McHugh,N., Veale,D., Developing classification criteria for peripheral joint psoriatic arthritis. Step I. Establishing whether the rheumatologist's opinion on the diagnosis can be used as the "gold standard", Journal of Rheumatology, 33, 552-557, 2006	No relevant outcome data
Taylor,W.J., Epidemiology of psoriatic arthritis. [Review] [41 refs], Current Opinion in Rheumatology, 14, 98-103, 2002	Review
Thomson,G.T., DeRubeis,D.A., Hodge,M.A., Rajanayagam,C., Inman,R.D., Post-Salmonella reactive arthritis: late clinical sequelae in a point source cohort, American Journal of Medicine, 98, 13-21, 1995	Outcome data only available for cases, not non-cases
Taylor, W.J., Marchesoni, A., Arregghini, M., Sokoll, K., Helliwell, P.S., A comparison of the performance characteristics of classification criteria for the diagnosis os psoriatic arthritis, Seminars in Arthritis and Rheumatism, 34, 575-584, 2004	Comparator: Retrospective study in which all participants has PsA or RA at baseline therefore no comparison group of people with suspected SpA
Thumboo, J., Uramoto, K., Shbeeb, M.I., O'Fallon, W.M., Crowson, C.S., Gibson, L.E., Michet, C.J. Jr, Gabriel, S.E., Risk factors for the development of Psoriatic Arthritis: a population based nested case control study, The Journal of Rheumatology, 29, 757-762, 2002	Study design: case-control
Tong,L.X., Wu,S., Li,T., Qureshi,A.A., Giovannucci,E.L., Cho,E., Personal history of gallstones and risk of incident psoriasis and psoriatic arthritis in U.S. women, British Journal of Dermatology.172 (5) (pp 1316-1322), 2015.Date of Publication: 01 May 2015., 1316-1322, 2015	No relevant outcome data
van den Berg,R., de,Hooge M., van,Gaalen F., Reijnierse,M., Huizinga,T., van der Heijde,D., Corrigendum to Percentage of patients with spondyloarthritis in patients referred because of chronic back pain and performance of classification criteria: Experience from the Spondyloarthritis Caught Early (SPACE) cohort [Rheumatology, 52, (2013) 1492-1499] DOI:10.1093/rheumatology/ket164, Rheumatology (United Kingdom).54 (7) (pp 1336), 2015.Article Number: kev208.Date of Publication: 01 Jul 2015., 1336-, 2015	Correction to included paper. Noted.
van den Berg,R., Lenczner,G., Thevenin,F., Claudepierre,P., Feydy,A., Reijnierse,M., Saraux,A., Rahmouni,A., Dougados,M., van der Heijde,D., Classification of axial SpA based on positive imaging (radiographs and/or MRI of the sacroiliac joints) by local rheumatologists or radiologists versus central trained readers in the DESIR cohort, Annals of the Rheumatic Diseases, 74, 2016-2021, 2015	No relevant outcome data

Study	Reason for Exclusion
van der Heijde,D.M., Landewe,R.B., Hermann,K.G., Jurik,A.G., Maksymowych,W.P., Rudwaleit,M., O'Connor,P.J., Braun,J., Application of the OMERACT filter to scoring methods for magnetic resonance imaging of the sacroiliac joints and the spine. Recommendations for a research agenda at OMERACT 7, Journal of Rheumatology, 32, 2042-2047, 2005	Report of expert panel discussion at conference
van der Linden,S., Akkoc,N., Brown,M.A., Robinson,P.C., Khan,M.A., The ASAS Criteria for Axial Spondyloarthritis: Strengths, Weaknesses, and Proposals for a Way Forward, Current Rheumatology ReportsCurr.Rheumatol.Rep., 17, -, 2015	Review
Videm, V., Cortes, A., Thomas, R., Brown, M.A., Current smoking is associated with incident ankylosing spondylitis - the HUNT population-based Norwegian Health study., The Journal of Rheumatology, 41, 2041-2048, 2014	Study design: case-control
Vinje,O., Dale,K., Moller,P., Radiographic evaluation of patients with Bechterew's syndrome (ankylosing spondylitis) and their first-degree relatives. Findings in the spine and sacro-iliac joints and relations to non-radiographic findings, Scandinavian Journal of Rheumatology, 14, 119-132, 1985	Study sampling based on retrospective chart review of people with existing diagnosis of AS or PsA
Walsh,J.A., Callis,Duffin K., Krueger,G.G., Clegg,D.O., Limitations in screening instruments for psoriatic arthritis: a comparison of instruments in patients with psoriasis, Journal of Rheumatology, 40, 287-293, 2013	Cases were a mixture of people with new and established diagnoses of PsA.
Wanders,A., Landewe,R., Spoorenberg,A., de,Vlam K., Mielants,H., Dougados,M., van der Linden,S., van der Heijde,D., Scoring of radiographic progression in randomised clinical trials in ankylosing spondylitis: a preference for paired reading order, Annals of the Rheumatic Diseases, 63, 1601-1604, 2004	All participants had a diagnosis of AS at baseline
Wanders,A.J., Landewe,R.B., Spoorenberg,A., Dougados,M., van der Linden,S., Mielants,H., van der Tempel,H., van der Heijde,D.M., What is the most appropriate radiologic scoring method for ankylosing spondylitis? A comparison of the available methods based on the Outcome Measures in Rheumatology Clinical Trials filter, Arthritis & Rheumatism, 50, 2622-2632, 2004	All participants had a diagnosis of AS at baseline
Weber,U., Ostergaard,M., Lambert,R.G.W., Pedersen,S.J., Chan,S.M., Zubler,V., Rufibach,K., Zhao,Z., Maksymowych,W.P., Candidate lesion-based criteria for defining a positive sacroiliac joint MRI in two cohorts of patients with axial spondyloarthritis, Annals of the Rheumatic Diseases.74 (11) (pp 1976-1982), 2015.Date of Publication: 01 Nov 2015., 1976-1982, 2015	Lack of relevant outcome data

Study	Reason for Exclusion
Weber,U., Zubler,V., Zhao,Z., Lambert,R.G., Chan,S.M., Pedersen,S.J., Ostergaard,M., Rufibach,K., Maksymowych,W.P., Does spinal MRI add incremental diagnostic value to MRI of the sacroiliac joints alone in patients with non-radiographic axial spondyloarthritis?, <i>Annals of the Rheumatic Diseases</i> , 74, 985-992, 2015	Lack of relevant outcome data
Weber,U., Zhao,Z., Rufibach,K., Zubler,V., Lambert,R.G., Chan,S.M., Ostergaard,M., Pedersen,S.J., Maksymowych,W.P., Diagnostic utility of candidate definitions for demonstrating axial spondyloarthritis on magnetic resonance imaging of the spine, <i>Arthritis &amp; Rheumatology</i> , 67, 924-933, 2015	No relevant outcome data
Weisman,M.H., Chen,L., Clegg,D.O., Davis,J.C., Jr., Dubois,R.W., Prete,P.E., Savage,L.M., Schafer,L., Suarez-Almazor,M.E., Yu,H.T., Reveille,J.D., Development and validation of a case ascertainment tool for ankylosing spondylitis. [Review] [32 refs], <i>Arthritis care &amp; research</i> , 62, 19-27, 2010	Participant diagnostic status was known at recruitment
Wilson,F.C., Icen,M., Crowson,C.S., McEvoy,M.T., Gabriel,S.E., Kremers,H.M., Time trends in epidemiology and characteristics of psoriatic arthritis over 3 decades: a population-based study, <i>Journal of Rheumatology</i> , 36, 361-367, 2009	retrospective study of people with possible diagnosis of PsA (rather than suspected PsA); relevant outcomes only reported in confirmed cases
Wollenhaupt,J., Schnarr,S., Kuipers,J.G., Bacterial antigens in reactive arthritis and spondarthritis. Rational use of laboratory testing in diagnosis and follow-up. [Review] [61 refs], <i>Baillieres Clinical Rheumatology</i> , 12, 627-647, 1998	Review
Wyns,B., Sette,S., Boullart,L., Baeten,D., Hoffman,I.E., De,Keyser F., Prediction of diagnosis in patients with early arthritis using a combined Kohonen mapping and instance-based evaluation criterion, <i>Artificial Intelligence in Medicine</i> , 31, 45-55, 2004	All participants has diagnosis of AS at baseline
Zeidler,H., Amor,B., The Assessment in Spondyloarthritis International Society (ASAS) classification criteria for peripheral spondyloarthritis and for spondyloarthritis in general: The spondyloarthritis concept in progress, <i>Annals of the Rheumatic Diseases</i> .70 (1) (pp 1-3), 2011.Date of Publication: January 2011., 1-3, 2011	Editorial
Zeidler,H., Mau,R., Mau,W., Freyschmidt,J., Majewski,A., Deicher,H., Evaluation of early diagnostic criteria including HLA-B27 for ankylosing spondylitis in a follow-up study, <i>Zeitschrift fur Rheumatologie</i> , 44, 249-253, 1985	Long interval (and some loss to follow up) between initial presentation and diagnostic assignment
Zeng,Q.Y., Ankylosing spondylitis in Shantou, China: 15 years' clinical experience, <i>Journal of Rheumatology</i> , 30, 1816-1821, 2003	Comparator: all participants had AS diagnosis at baseline, so there was no appropriate comparator
Zlatkovic-Svenda,M., Kerimovic-Morina,D., Stojanovic,R.M., Psoriatic arthritis classification	All participants with PsA had received diagnosis (new or longstanding) prior to recruitment

Excluded studies

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<b>Study</b>	<b>Reason for Exclusion</b>
criteria: Moll and Wright, ESSG and CASPAR -- a comparative study, Acta Reumatologica Portuguesa, 38, 172-178, 2013	

## F.1.2 Comparative effectiveness of referral strategies

Review questions 6

- What is the comparative effectiveness of different referral strategies in diagnosing spondyloarthritis?

Study	Reason for Exclusion
Braun,A., Saracbasi,E., Grifka,J., Schnitker,J., Braun,J., Identifying patients with axial spondyloarthritis in primary care: how useful are items indicative of inflammatory back pain?, Annals of the rheumatic diseases, 70, 1782-1787, 2011	Of relevance, but deemed to be more suitable for addressing RQ12 (indications for referral to specialist assessment)
Kain,Tracey, Zochling,Jane, Taylor,Andrew, Manolios,Nicholas, Smith,Malcolm D., Reed,Mark D., Brown,Matthew A., Schachna,Lionel, Evidence-based recommendations for the diagnosis of ankylosing spondylitis: results from the Australian 3E initiative in rheumatology, The Medical journal of Australia, 188, 235-237, 2008	Consensus recommendations
Sieper,Joachim, How to screen for axial spondyloarthritis in primary care?, Current opinion in rheumatology, 24, 359-363, 2012	Review

### F.1.3 Obstacles to prompt diagnosis

#### Review Question 3

What are the obstacles to a prompt diagnosis of spondyloarthritis?

Study	Reason for Exclusion
Bandinelli,F., Salvadorini,G., Sedie,A.D., Riente,L., Bombardieri,S., Matucci-Cerinic,M., Impact of gender, work, and clinical presentation on diagnostic delay in Italian patients with primary ankylosing spondylitis, <i>Clinical Rheumatology</i> , 35, 473-478, 2016	Not a qualitative study
Berthelot,J.M., Le,Goff B., Maugars,Y., 20140627, Overdiagnosing early spondyloarthritis: what are the risks?, <i>Joint, Bone, Spine: Revue du Rhumatisme</i> , 80, 446-448, 2013	Editorial
Boyer,G.S., Templin,D.W., Bowler,A., Lawrence,R.C., Everett,D.F., Heyse,S.P., Cornoni-Huntley,J., Goring,W.P., 19971110, A comparison of patients with spondyloarthropathy seen in specialty clinics with those identified in a communitywide epidemiologic study. Has the classic case misled us?, <i>Archives of Internal Medicine</i> , 157, 2111-2117, 1997	Comparison of symptoms/age at onset, not obstacles
Fallahi,S., Jamshidi,A.R., Diagnostic delay in ankylosing spondylitis: Related factors and prognostic outcomes, <i>Archives of Rheumatology</i> .31 (1) (pp 24-30), 2016.Date of Publication: 2016., 24-30, 2016	Not a qualitative study
Feldtkeller,E., Khan,M.A., van der Heijde,D., van der Linden,S., Braun,J., 20030916, Age at disease onset and diagnosis delay in HLA-B27 negative vs. positive patients with ankylosing spondylitis, <i>Rheumatology International.</i> , 23, 61-66, 2003	Differences between HLA-B27 positive and negative patients, not access to or obstacles
Guan,M., Wang,J., Zhu,Z., Xiao,J., Zhao,L., Li,Z., Shi,Z., 20150129, Comparison in clinical features and life impact between juvenile-onset and adult-onset ankylosing spondylitis, <i>Turkish Journal of Medical Sciences.</i> , 44, 601-605, 2014	Juvenile onset diagnostic delay
Hamilton,L., Macgregor,A., Newman,D., Belkhiri,A., Toms,A., Gaffney,K., 20130906, Validation of a patient self-reported screening questionnaire for axial spondyloarthropathy in a UK Population, <i>Spine</i> , 38, 502-506, 2013	Development of a model to differentiate AS/axial SpA from mechanical back pain
Haroon,M., Gallagher,P., FitzGerald,O., 20150728, Diagnostic delay of more than 6 months contributes to poor radiographic and functional outcome in psoriatic arthritis, <i>Annals of the Rheumatic Diseases</i> , 74, 1045-1050, 2015	Outcomes of delay in diagnosis, not obstacles to
Haroon,N.N., Paterson,J.M., Li,P., Haroon,N., 20150817, Increasing proportion of female patients with ankylosing spondylitis: a population-based study of trends in the incidence and prevalence of AS, <i>BMJ Open</i> , 4, e006634-, 2014	Does not include delay in diagnosis

Study	Reason for Exclusion
Ibn,Yacoub Y., Amine,B., Laatiris,A., Bensabbah,R., Hajjaj-Hassouni,N., 20121015, Relationship between diagnosis delay and disease features in Moroccan patients with ankylosing spondylitis, Rheumatology International, 32, 357-360, 2012	Not obstacles to diagnosis, diagnostic delay and disease-related measures
Jones,A., Harrison,N., Jones,T., Rees,J.D., Bennett,A.N., 20150106, Time to diagnosis of axial spondylarthritis in clinical practice: signs of improving awareness?, Rheumatology, 53, 2126-2127, 2014	Letter
Khan,M.A., 19920707, Delay in the radiographic detection of sacroiliitis in ankylosing spondylitis, Arthritis & Rheumatism, 35, 727-, 1992	Letter
Kidd,B.L., Cawley,M.I., 19880728, Delay in diagnosis of spondarthritis, British Journal of Rheumatology, 27, 230-232, 1988	Not relevant outcomes
Kumar,A., Early diagnosis of axial spondyloarthritis, Indian Journal of Rheumatology, 4, 139-141, 2009	Brief review
Luelmo,J., Gratacos,J., Moreno Martinez-Losa,M., Ribera,M., Romani,J., Calvet,J., Leal,L., Larrosa,M., 20150820, A report of 4 years of experience of a multidisciplinary unit of psoriasis and psoriatic arthritis, Reumatologia Clinica, 10, 141-146, 2014	Not obstacles to diagnosis
Mease,P., Management of psoriatic arthritis: The therapeutic interface between rheumatology and dermatology, Current rheumatology reports, 8, 348-354, 2006	Ordered for RQ31, exclude, general review
Mease,P.J., Gladman,D.D., Papp,K.A., Khraishi,M.M., Thaci,D., Behrens,F., Northington,R., Fuiman,J., Bananis,E., Boggs,R., Alvarez,D., 20131202, Prevalence of rheumatologist-diagnosed psoriatic arthritis in patients with psoriasis in European/North American dermatology clinics, Journal of the American Academy of Dermatology, 69, 729-735, 2013	Ordered for RQ31, exclude, in patients with psoriasis, covered in psoriasis guideline
Ozgocmen,S., Ardicoglu,O., Kamanli,A., Kaya,A., Durmus,B., Yildirim,K., Baysal,O., Gur,A., Karatay,S., Altay,Z., Cevik,R., Erdal,A., Ersoy,Y., Sarac,A.J., Tekeoglu,I., Ugur,M., Nas,K., Senel,K., Ulusoy,H., 20100205, Pattern of disease onset, diagnostic delay, and clinical features in juvenile onset and adult onset ankylosing spondylitis, Journal of Rheumatology, 36, 2830-2833, 2009	Comparison of juvenile and adult onset
Sorensen,J., Hetland,M.L., all departments of rheumatology in Denmark, 20150511, Diagnostic delay in patients with rheumatoid arthritis, psoriatic arthritis and ankylosing spondylitis: results from the Danish nationwide DANBIO registry, Annals of the Rheumatic Diseases, 74, e12-, 2015	Changes in diagnostic delay time (2000-2011), not obstacles
van,Onna M., Gorter,S., Maiburg,B., Waagenaar,G., van,Tubergen A., Education	Participants were standardised, rather than real, patients

Excluded studies

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<b>Study</b>	<b>Reason for Exclusion</b>
improves referral of patients suspected of having spondyloarthritis by general practitioners: a study with unannounced standardised patients in daily practice, RMD Open, 1, e000152-, 2015	

### F.1.4 Blood tests for spondyloarthritis

Review questions 7-9

- What is the diagnostic utility of a HLA B27 test for investigating suspected spondyloarthritis?
- What is the diagnostic utility of an erythrocyte sedimentation rate test for investigating suspected spondyloarthritis?
- What is the diagnostic utility of a C-reactive protein test for investigating suspected spondyloarthritis?

Study	Reason for Exclusion
HLA-B27 and risk of ankylosing spondylitis, British medical journal, 2, 650-651, 1978	Study type: letter
Aggarwal,R., Malaviya,A.N., Clinical characteristics of patients with ankylosing spondylitis in India, Clinical Rheumatology, 28, 1199-1205, 2009	Comparator: study only looks at people with AS, no participants have suspected AS which is then ruled out
Alamanos,Y., Papadopoulos,N.G., Voulgari,P.V., Karakatsanis,A., Siozos,C., Drosos,A.A., Epidemiology of ankylosing spondylitis in Northwest Greece, 1983-2002, Rheumatology (Oxford, England), 43, 615-618, 2004	Population: analysis was limited to people with a confirmed diagnosis and did not include people with suspected SpA
Al-Amayreh,I.A., Zaidat,B.O., Ankylosing spondylitis in Northern Jordan, Saudi medical journal Saudi Med J, 21, 950-952, 2000	Population: participants had confirmed AS at study onset
al-Arfaj,A., Profile of Reiter's disease in Saudi Arabia, Clinical and experimental rheumatology, 19, 184-186, 2001	Population: Retrospective chart review of people with confirmed diagnosis of Reiter's disease.
Bennett,A.N., Marzo-Ortega,H., Emery,P., McGonagle,D., Diagnosing axial spondyloarthropathy. The new Assessment in SpondyloArthritis international Society criteria: MRI entering centre stage, Annals of the Rheumatic Diseases.68 (6) (pp 765-767), 2009	Editorial
Bingham,W.F., The role of HLA B27 in the diagnosis and management of low-back pain and sciatica, Journal of Neurosurgery, 47, 561-566, 1977	Population: Study analysis was limited to people who tested positive for HLA-B27
Brandt,H.C., Spiller,I., Song,I.H., Vahldiek,J.L., Rudwaleit,M., Sieper,J., Performance of referral recommendations in patients with chronic back pain and suspected axial spondyloarthritis, Annals of the Rheumatic Diseases, 66, 1479-1484, 2007	Population: Age range of included patients suggested some may have prior diagnosis/very late disease (included participants were aged up to 75). Inclusion criteria also required that people present with IBP OR HLA-B27 positivity OR Sacroiliitis, which introduces selection bias for the assessment of the utility of B27.
Braun,J., Bollow,M., Remlinger,G., Eggens,U., Rudwaleit,M., Distler,A., Sieper,J., Prevalence of spondylarthropathies in HLA-B27 positive and negative blood donors, Arthritis & Rheumatism, 41, 58-67, 1998	Study design: Case finding via questionnaire in people who are not known to have (suspected) SpA. Control group not consecutively recruited.
Burki,V., Gossec,L., Payet,J., Durnez,A., Elhai,M., Fabreguet,I., Koumakis,E., Meyer,M., Paternotte,S., Roure,F., Dougados,M., Prevalence and characteristics of hip involvement in spondyloarthritis: a single-centre	Study design: not consecutive case series (random sample was selected from a case database)

Study	Reason for Exclusion
observational study of 275 patients, <i>Clinical &amp; Experimental Rheumatology</i> , 30, 481-486, 2012	
Caffrey,M., Brewerton,D.A., Hart,F.D., James,D.C., Human lymphocyte antigens as a possible diagnostic aid in ankylosing spondylitis, <i>Journal of Clinical Pathology</i> , 26, 387-, 1973	Conference abstract
Calin,A., Fries,J.F., Schurman,D., Payne,R., The close correlation between symptoms and disease expression in HLA B27 positive individuals, <i>Journal of Rheumatology</i> , 4, 277-281, 1977	Study design: not a study of people with suspected SpA.
Calin,A., Marder,A., Becks,E., Burns,T., Genetic differences between B27 positive patients with ankylosing spondylitis and B27 positive healthy controls, <i>Arthritis &amp; Rheumatism</i> , 26, 1460-1464, 1983	Study design: index cases were consecutive people who tested HLA-B27 positive i.e. no appropriate comparator group.
Chandran,V., Tulusso,D.C., Cook,R.J., Gladman,D.D., Risk factors for axial inflammatory arthritis in patients with psoriatic arthritis, <i>Journal of Rheumatology</i> , 37, 809-816, 2010	Population: Characterising people with existing PsA who went on to develop axial symptoms
Christiansen,F., Zilko,P., Dawkins,R.L., Ankylosing spondylitis in HLA-B27-positive individuals: use in diagnosis, <i>British Medical Journal</i> , 1, 125-, 1979	Study design: letter
Dougados,M., Diagnostic features of ankylosing spondylitis, <i>British Journal of Rheumatology</i> .34 (4) (pp 301-303), 1995	Study design: editorial
Eastmond,C.J., Robertson,E.M., A prospective study of early diagnostic investigations in the diagnosis of ankylosing spondylitis, <i>Scottish Medical Journal</i> , 48, 21-23, 2003	Population: Fewer than 10 people with diagnosis
Erlacher,L., Wintersberger,W., Menschik,M., Benke-Studnicka,A., Machold,K., Stanek,G., Soltz-Szots,J., Smolen,J., Graninger,W., Reactive arthritis: urogenital swab culture is the only useful diagnostic method for the detection of the arthritogenic infection in extra-articularly asymptomatic patients with undifferentiated oligoarthritis, <i>British Journal of Rheumatology</i> , 34, 838-842, 1995	Study design: case-control study
Gezmis,E., Donmez,F.Y., Agildere,M., Diagnosis of early sacroiliitis in seronegative spondyloarthropathies by DWI and correlation of clinical and laboratory findings with ADC values, <i>European Journal of Radiology</i> , 82, 2316-2321, 2013	Study design: participants with SpA had confirmed diagnosis at study inception
Gran,J.T., Nordvag,B.Y., Referrals from general practice to an outpatient rheumatology clinic: disease spectrum and analysis of referral letters, <i>Clinical Rheumatology</i> , 19, 450-454, 2000	Outcomes: No relevant outcome data were reported
Hakansson,U., Eitrem,R., Low,B., Winblad,S., HLA-antigen b27 in cases with joint affections in an outbreak of salmonellosis, <i>Scandinavian Journal of Infectious Diseases</i> , 8, 245-248, 1976	Study design: case control study

Study	Reason for Exclusion
Hammer,H.B., Kvien,T.K., Glennas,A., Melby,K., A longitudinal study of calprotectin as an inflammatory marker in patients with reactive arthritis, <i>Clinical &amp; Experimental Rheumatology</i> , 13, 59-64, 1995	Comparator: Study recruited people with suspected ReA but only reported measures on people who went on to receive diagnosis. Outcomes: ESR and CRP only reported as group mean values.
Hannu,T., Mattila,L., Rautelin,H., Pelkonen,P., Lahdenne,P., Siitonen,A., Leirisalo-Repo,M., Campylobacter-triggered reactive arthritis: a population-based study, <i>Rheumatology</i> , 41, 312-318, 2002	Comparator: no data reported on people who were SpA negative
Hannu,T., Mattila,L., Siitonen,A., Leirisalo-Repo,M., Reactive arthritis attributable to Shigella infection: a clinical and epidemiological nationwide study, <i>Annals of the Rheumatic Diseases</i> , 64, 594-598, 2005	Comparator: Only looked at biomarkers in people with ReA or Reactive tendonitis/bursitis/enthesitis, not in people without SpA
Hannu,T., Puolakkainen,M., Leirisalo-Repo,M., Chlamydia pneumoniae as a triggering infection in reactive arthritis, <i>Rheumatology</i> , 38, 411-414, 1999	Comparator: No data on HLA-B27 status are available for study participants who were not diagnosed with SpA. ESR and CRP were only reported as group mean values.
Jajic,I., The role of HLA-B27 in the diagnosis of low back pain, <i>Acta Orthopaedica Scandinavica</i> , 50, 411-413, 1979	Comparator: Did not report AS prevalence in HLA-B27 negative people, only those who tested positive
Kane,D., Stafford,L., Bresnihan,B., Fitzgerald,O., A prospective, clinical and radiological study of early psoriatic arthritis: an early synovitis clinic experience, <i>Rheumatology</i> , 42, 1460-1468, 2003	Population: All participants had diagnosed PsA at study inception. Although they were at early stage of disease, and baseline measurements were reported, HLA-B27 was not tested and ESR/CRP were only reported as group mean continuous values.
Keat,A.C., Barnes,R.M., HL-A 27-associated arthritis, <i>Rheumatology &amp; Rehabilitation</i> , 15, 87-91, 1976	Population: Participants had existing SpA diagnosis at study recruitment
Khan,M.A., Khan,M.K., Diagnostic value of HLA-B27 testing ankylosing spondylitis and Reiter's syndrome, <i>Annals of Internal Medicine</i> , 96, 70-76, 1982	Population: HLA-B27 testing carried out in people with existing diagnosis of SpA
Lanna,C.C., Ferrari,Mde L., Rocha,S.L., Nascimento,E., de Carvalho,M.A., da Cunha,A.S., A cross-sectional study of 130 Brazilian patients with Crohn's disease and ulcerative colitis: analysis of articular and ophthalmologic manifestations, <i>Clinical Rheumatology</i> , 27, 503-509, 2008	Study design: cross sectional. Fewer than 10 people diagnosed with AS.
Lee,A.T., Hall,R.G., Pile,K.D., Reactive joint symptoms following an outbreak of Salmonella typhimurium phage type 135a, <i>Journal of Rheumatology</i> , 32, 524-527, 2005	Analysis: only reported HLA-B27 status in people who were diagnosed with ReA.
Liao,Z., Lin,Z., Xu,M., Hu,Z., Li,T., Wei,Q., Cao,S., Huang,J., Pan,Y., Wu,Y., Gu,J., Clinical features of axial undifferentiated spondyloarthritis (USpA) in China: HLA-B27 is more useful for classification than MRI of the sacroiliac joint, <i>Scandinavian Journal of Rheumatology</i> , 40, 439-443, 2011	Population: participants already had a spondyloarthritis diagnosis at study recruitment
Lopez-Gonzalez,R., Hernandez-Sanz,A., Almodovar-Gonzalez,R., Gobbo,M., Grupo,Esperanza, Are spondyloarthropathies	Outcome: HLA-B27 data not presented in format suitable for analysis

Study	Reason for Exclusion
adequately referred from primary care to specialized care?, Reumatologia Clinica, 9, 90-93, 2013	
Nessa,A., Tabassum,S., Sultana,S., HLA-B27 antigen frequency among suspected Spondyloarthropathy patients attending a tertiary level hospital of Bangladesh, Bangladesh Medical Research Council Bulletin, 40, 102-106, 2014	No final diagnosis of SpA was provided
Nguyen,C., Bendeddouche,I., Sanchez,K., Jousse,M., Papelard,A., Feydy,A., Revel,M., Poiraudeau,S., Rannou,F., Assessment of ankylosing spondylitis criteria in patients with chronic low back pain and vertebral endplate Modic I signal changes, Journal of Rheumatology, 37, 2334-2339, 2010	Study design: Analysis did not relate HLA-B27 status to final diagnosis of AS.
O'Connor,M., Glynn,C.J., Prevalence of HLA-B27 in patients with back pain attending a pain clinic, Pain, 44, 147-149, 1991	Population: Participants had lower back pain but study did not attempt to diagnose SpA.
Olajos,A., Suranyi,P., The value of HLA-B27 typing in the diagnosis of early, oligosymptomatic spondylarthropathies, British Journal of Rheumatology, 35, 192-, 1996	Letter
Toledo,R.A.D., Camargo,U., Camargo,A.V.D.S., Xavier,D.H., Batista,M.F., Carneiro,O.A., Robles,J.A.D.C., Brandao de Mattos,C.C., Ricci,Junior O., de Mattos,L.C., HLA-B*27 - Frequency of clinical signs in Brazilian patients with spondyloarthritis, Biomarkers and Genomic Medicine.7 (2) (pp 72-77), 2015.Date of Publication: 01 Jun 2015., 72-77, 2015	Only people with a confirmed diagnosis of SpA had HLA-B27 typing carried out
Tureyen,A., Kayacetin,E., Naldoken,S., Balci,M., Ulker,A., The frequency of sacroileitis and ankylosing spondylitis in inflammatory bowel disease and HLA-B27 association, Turkish Journal of Gastroenterology, 13, 125-129, 2002	Population: fewer than 10 people diagnosed with SpA
Turkcapar,N., Toruner,M., Soykan,I., Aydintug,O.T., Cetinkaya,H., Duzgun,N., Ozden,A., Duman,M., The prevalence of extraintestinal manifestations and HLA association in patients with inflammatory bowel disease, Rheumatology International, 26, 663-668, 2006	Population: participants had existing IBD with some having existing diagnoses of SpA and some receiving diagnosis during the study. Analysis of HLA-B27 status did not distinguish between prevalent and incident cases.

### F.1.5 Imaging for diagnosis of spondyloarthritis

#### Review Question 10

- What is the diagnostic utility of imaging (alone or in sequence) for investigating suspected spondyloarthritis?

Study	Reason for Exclusion
Arnbak,B., Jensen,T.S., Egund,N., Zejden,A., Horslev-Petersen,K., Manniche,C., Jurik,A.G., Prevalence of degenerative and spondyloarthritis-related magnetic resonance imaging findings in the spine and sacroiliac joints in patients with persistent low back pain, <i>European Radiology</i> , 26, 1191-1203, 2016	Detection of sacroiliac signs, without diagnosis of SpA
Bennett,A.N., Rehman,A., Hensor,E.M., Marzo-Ortega,H., Emery,P., McGonagle,D., Evaluation of the diagnostic utility of spinal magnetic resonance imaging in axial spondylarthritis.[Erratum appears in <i>Arthritis Rheum.</i> 2010 Oct;62(10):3005], 60, 1331-1341, 2009	Population/Comparator: Population was sampled on the basis of having had a spinal MRI over a period, which meant inclusion of people without suspected SpA (e.g. 45 people with spinal malignancy) Intervention: Spinal MRI without or without SI joint imaging
Blachier,M., Canoui-Poitrine,F., Dougados,M., Lethuaut,A., Fautrel,B., Ferkal,S., Le,Corvoisier P., Farrenq,V., Poulain,C., Ghaleh,B., Bastuji-Garin,S., Claudepierre,P., Factors associated with radiographic lesions in early axial spondyloarthritis. Results from the DESIR cohort, <i>Rheumatology</i> , 52, 1686-1693, 2013	Population: all participants met ASAS criteria for axial SpA at baseline
Blachier,M., Canoui-Poitrine,F., Poulain,C., Dougados,M., Ferkal,S., Fautrel,B., Le,Corvoisier P., Rahmouni,A., Farrenq,V., Bastuji-Garin,S., Claudepierre,P., Which factors are associated with X-rays lesions in early axial spondyloarthritis? Results from the desir cohort, <i>Annals of the Rheumatic Disease</i> , 71, -, 2013	Conference abstract
Blachier,M., Coutanceau,B., Dougados,M., Saraux,A., Bastuji-Garin,S., Ferkal,S., Le,Corvoisier P., Farrenq,V., Poulain,C., Ghaleh,B., Canoui-Poitrine,F., Claudepierre,P., Does the site of magnetic resonance imaging abnormalities match the site of recent-onset inflammatory back pain? The DESIR cohort, <i>Annals of the Rheumatic Diseases</i> , 72, 979-985, 2013	Study design: purpose was to examine association between site of pain and site of inflammation as detected by imaging in people with IBP; the study did not assess whether these were associated with subsequent SpA diagnosis.
De,Hooge M., Claudepierre,P., Feydy,A., Reijnierse,M., Saraux,A., Dougados,M., van der Heijde,D., Comparison of the performance of the BASRI and mSASSS in patients with early inflammatory back pain from the DESIR cohort, <i>Annals of the rheumatic diseases</i> , 73, -, 2014	Conference abstract
Direz,G., Couchot,M., Cotty,P., Mulleman,D., Goupille,P.M., Magnetic resonance imaging (MRI) of the spine may be useful in patients with non-radiographic axial spondyloarthritis (NRASpA) without active sacroiliitis on MRI, <i>Arthritis and rheumatism</i> , 62, 130-, 2010	Conference abstract
Dornia,C., Fleck,M., Hartung,W., Niessen,C., Stroszczyński,C., Hoffstetter,P., Magnetic resonance imaging of the sacroiliac joints in	Outcome: Study aim was to compare detection of sacroiliitis under different imaging modalities, but did not go on to assign a diagnosis of SpA

Study	Reason for Exclusion
patients with suspected spondyloarthritis-- comparison of turbo spin-echo and gradient-echo sequences for the detection of structural alterations, Rofo: Fortschritte auf dem Gebiete der Rontgenstrahlen und der Nuklearmedizin, 36, 109-114, 2015	
Gurer,G., Butun,B., Tuncer,T., Unubol,A.I., Comparison of radiological indices (SASSS, M-SASSS, BASRI-s, BASRI-t) in patients with ankylosing spondylitis, Rheumatology International, 32, 2069-2074, 2012	Population: All participants had diagnosis of AS at baseline.
Haugeberg,G., Bennett,A.N., McGonagle,D., Emery,P., Marzo-Ortega,H., Bone loss in very early inflammatory back pain in undifferentiated spondyloarthropathy: a 1-year observational study.[Erratum appears in Ann Rheum Dis. 2011 Aug;70(8):1519], Annals of the Rheumatic Diseases, 69, 1364-1366, 2010	Outcomes: Article did not report patient characteristics/signs/symptoms by final diagnosis.
Isik,S., Solmaz,D., Sari,I., Onen,F., Akkoc,N., Akar,S., The presence of bone marrow edema at baseline magnetic resonance imaging and male sex may predict the development of radiographic sacroiliitis, Annals of the Rheumatic Disease, 71, -, 2013	Conference abstract
Kang,Y., Hong,S.H., Kim,J.Y., Yoo,H.J., Choi,J.Y., Yi,M., Kang,H.S., Unilateral Sacroiliitis: Differential Diagnosis Between Infectious Sacroiliitis and Spondyloarthritis Based on MRI Findings, AJR, American, 1048-1055, 2015 SpA diagnostic status known at study baseline	No relevant outcomes data included
Kochhar,R., Mehta,S.K., Nagi,B., Bhatia,V., Goenka,M.K., Malik,A.K., Extraintestinal manifestations of idiopathic ulcerative colitis, Indian Journal of Gastroenterology, 10, 88-89, 1991	Outcomes: study did not report imaging results in conjunction with diagnosis of SpA so a 2x2 table could not be constructed.
Larbi,A., Viala,P., Molinari,N., Lukas,C., Baron,M.P., Taourel,P., Cyteval,C., Assessment of MRI abnormalities of the sacroiliac joints and their ability to predict axial spondyloarthritis: A retrospective pilot study on 110 patients, Skeletal Radiology, 43, 351-358, 2014	Population: mixture of people with suspected SpA and other causes of lower back pain e.g. malignancy
Lin,J., Shetty,A.G., Carter,J.D., The diagnosis of reactive arthritis in the real world and factors that might contribute to its under/misdiagnosis, Arthritis and rheumatism, 62, 1647-, 2010	Conference abstract
Maksymowych,W.P., Loeuille,D., Desvignes-Engelbert,A., Judet,O., Chary-Valckenaere,I., Lambert,R., Breban,M.A., The ECHOSPA MRI module for diagnosis of early Spondyloarthritis (SPA): Preliminary validation and assessment of diagnostic utility, Arthritis and rheumatism, 62, 551-, 2010	Conference abstract
Meier,R., Thurmel,K., Moog,P., Noel,P.B., Ahari,C., Sievert,M., Dorn,F., Waldt,S., Schaeffeler,C., Golovko,D., Haller,B., Ganter,C., Weckbach,S., Woertler,K., Rummeny,E.J.,	Outcome: study did not report synovitis detection rates according to final rheumatological diagnosis.

Study	Reason for Exclusion
Detection of synovitis in the hands of patients with rheumatologic disorders: Diagnostic performance of optical imaging in comparison with magnetic resonance imaging, <i>Arthritis and Rheumatism</i> .64 (8) (pp 2489-2498), 2012.Date of Publication: August 2012., 2489-2498, 2012	
Molto,A., Paternotte,S., van der Heijde,D., Claudepierre,P., Rudwaleit,M., Dougados,M., Different imaging abnormalities suggestive of spondyloarthritis are present in early axial spondyloarthritis. Data from the DESIR cohort, <i>Arthritis and rheumatism</i> , 65, S643-, 2013	Conference abstract
Molto,A., Paternotte,S., van der Heijde,D., Claudepierre,P., Rudwaleit,M., Dougados,M., Phenotype of patients and impact of the disease in early spondyloarthritis are similar regardless the arm of the assessment in spondyloarthritis international society criteria ("imaging" or "clinical") fulfilled by the patients. Data from the DESIR cohort, <i>Arthritis and rheumatism</i> , 65, S651-, 2013	Conference abstract
Molto,A., Paternotte,S., van der Heijde,D., Claudepierre,P., Rudwaleit,M., Dougados,M., Spine and sacro-iliac imaging abnormalities suggestive of spondyloarthritis in early spondyloarthritis. Data from the desir cohort, <i>Annals of the rheumatic diseases</i> , 72, -, 2013	Conference abstract
Moorthy,A., Joseph,C., Is there a knowledge gap in diagnosing inflammatory back pain in primary care?-Regional survey among GPs in Leicestershire, UK, <i>Annals of the rheumatic diseases</i> , 72, -, 2013	Conference abstract
Ozgen,A., Comparison of fat-saturated T2-weighted and contrast-enhanced fat-saturated T1-weighted sequences in MR imaging of sacroiliac joints in diagnosing active sacroiliitis, <i>European Journal of Radiology</i> , 84, 2593-2596, 2015	Lack of appropriate comparator - participants selected on basis of sacroiliitis status
Quattrocchi,C.C., Giona,A., Di,Martino A., Gaudino,F., Mallio,C.A., Errante,Y., Occhicone,F., Vitali,M.A., Zobel,B.B., Denaro,V., Lumbar subcutaneous edema and degenerative spinal disease in patients with low back pain: a retrospective MRI study, <i>Musculoskeletal Surgery</i> , 99, 159-163, 2015	Population/Outcome: No participants were diagnosed with SpA; all had lower back pain due to other causes
Secco,A., Cipponi,A., Pichon-Riviere,A., Augustovski,F., García,Martí S., Alcaraz,A., Bardach,A., López,A., Rey-Ares,L., Power Doppler for inflammatory arthropathies (Structured abstract), <i>Health Technology Assessment Database</i> , -, 2015	Abstract only of a systematic review
Slobodin,G., Croitoru,S., Starikov,N., Younis,S., Boulman,N., Rimar,D., Rosner,I., Rozenbaum,M., Odeh,M., Incidental computed tomography sacroiliitis: Clinical significance and inappropriateness of the New York radiological	Population: recruitment to the study was dependent on having sacroiliitis detected by CT

Study	Reason for Exclusion
grading criteria for the diagnosis, Clinical rheumatology, 31, 425-428, 2012	
van den Berg,R., Lenczner,G., Feydy,A., van der Heijde,D., Reijnierse,M., Saraux,A., Rahmouni,A., Dougados,M., Claudepierre,P., Agreement between clinical practice and trained central reading in reading of sacroiliac joints on plain pelvic radiographs. Results from the DESIR cohort, Arthritis & Rheumatology, 66, 2403-2411, 2014	Data from the DESIR cohort has already been used from another paper in these review questions
van den Berg,R., Lenczner,G., Thevenin,F., Claudepierre,P., Feydy,A., Reijnierse,M., Saraux,A., Rahmouni,A., Dougados,M., van der Heijde,D., Classification of axial SpA based on positive imaging (radiographs and/or MRI of the sacroiliac joints) by local rheumatologists or radiologists versus central trained readers in the DESIR cohort, Annals of the Rheumatic Diseases, 74, 2016-2021, 2015	Data on DESIR cohort already included from another paper (Dougados 2011)
Van Den Berg,R., De,Hooge M., Navarro-Compan,V., Van,Gaalen F., Reijnierse,M., Huizinga,T., van der Heijde,D., How useful is imaging of the SI-joints (MRI and/or X-ray) in patients with possible spondyloarthritis in the diagnostic work-up?, Annals of the Rheumatic Disease, 71, -, 2013	Conference abstract
Van,Hoeven L., Luime,J., Han,H., Weel,A., Striking prevalence of axial spondyloarthritis in primary care patients with chronic low Back pain; A cross-sectional study, Arthritis and rheumatism, 62, 2180-, 2010	Conference abstract
van,Onna M., Jurik,A.G., van der Heijde,D., van,Tubergen A., Heuft-Dorenbosch,L., Landewe,R., HLA-B27 and gender independently determine the likelihood of a positive MRI of the sacroiliac joints in patients with early inflammatory back pain: a 2-year MRI follow-up study, Annals of the Rheumatic Diseases, 70, 1981-1985, 2011	Study design: Diagnosis of Spa was not made, study purpose was to examine MRI detection of sacroiliitis.
Weber,U., Lambert,R.G., Ostergaard,M., Hodler,J., Pedersen,S.J., Maksymowych,W.P., The diagnostic utility of magnetic resonance imaging in spondylarthritis: an international multicenter evaluation of one hundred eighty-seven subjects, Arthritis & Rheumatism, 62, 3048-3058, 2010	Population: participants already had SpA diagnosis at baseline
Weber,U., Maksymowych,W.P., How does imaging help the clinician in the evaluation and management of spondyloarthritis?, Skeletal Radiology, 37, 487-490, 2008	Study design: review article
Zhang,P., Yu,K.H., Guo,R.M., Ran,J., Liu,Y., Morelli,J., Runge,V.A., Li,X.M., Comparing the diagnostic utility of sacroiliac spectral CT and MRI in axial spondyloarthritis, British Journal of Radiology, 89, 20150196-, 2016	No relevant outcomes

## F.1.6 Information gathering to improve early diagnosis

### Review Question 5

- What is the usefulness of information gathering (for example family history, self-report questionnaires, and screening criteria) in improving early diagnosis of spondyloarthritis?

Study	Reason for Exclusion
Amor,B., Santos,R.S., Nahal,R., Listrat,V., Dougados,M., Predictive factors for the longterm outcome of spondyloarthropathies, The Journal of rheumatology, 21, 1883-1887, 1994	Predictors of long-term outcome from clinical features, not information gathering
Arndt,U., Behrens,F., Ziswiler,H.R., Kaltwasser,J.P., Moller,B., Observational study of a patient and doctor directed pre-referral questionnaire for an early arthritis clinic, Rheumatology International, 28, 21-26, 2007	Fewer than 10 participants with spondyloarthritis
Hagg,O., Fritzell,P., Romberg,K., Nordwall,A., The General Function Score: a useful tool for measurement of physical disability. Validity and reliability, European Spine Journal, 10, 203-210, 2001	General back pain, not SpA
Ibrahim,G.H., Buch,M.H., Lawson,C., Waxman,R., Helliwell,P.S., Evaluation of an existing screening tool for psoriatic arthritis in people with psoriasis and the development of a new instrument: The Psoriasis Epidemiology Screening Tool (PEST) questionnaire, Clinical and Experimental Rheumatology. 27, 469-474, 2009	Screening tool for those with psoriasis for psoriatic arthritis
Margaretten,M.E., Kohlwes,J., Moore,D., Bent,S., Does this adult patient have septic arthritis?, Journal of the American Medical Association. 297, 1478-1488, 2007	Not information gathering
Mosley-Williams,A., Williams,C.A., Validation of a computer version of the American College of Rheumatology Patient Assessment questionnaire for the autonomous self-entry of self-report data in an urban rheumatology clinic, Arthritis and Rheumatism.50, 332-333, 2004	Brief research report
Neuwelt,C.M., Borenstein,D.G., Jacobs,R.P., Reiter's syndrome: a male and female disease, Journal of Rheumatology, 9, 268-272, 1982	Information gathering
Ortega,Castro R., Font,Ugalde P., Castro Villegas,M.C., Calvo,Gutierrez J., Munoz,Gomariz E., Zarco,Montejo P., Almodovar,R., Mulero,Mendoza J., Torre-Alonso,J.C., Gratacos,Masmitja J., Juanola,Roura,X, Ariza,Ariza R., Fernandez,Dapica P., Linares Ferrando,L.F., Brito Brito,M.E., Cuende,Quintana E., Vazquez,Galeano C., Moreno Ramos,M.J., Gimenez,Ubeda E., Rodriguez Lozano,J.C., Fernandez,Prada M., Queiro,Silva R., Moreno,Ruzafa E., Judez,Navarro E., Mas,A.J., Medrano Le,Quement C., Ornilla,E., Montilla,Morales C., Pujol,Busquets M., Clavaguera,Poch T., Fernandez-Espartero,M.C., Carmona,Ortell L., Collantes,Estevez E., Different clinical expression of patients with	Not information gathering

ankylosing spondylitis according to gender in relation to time since onset of disease. Data from REGISPONSER, Reumatologia Clinica, 9, 221-225, 2013	
Roussou,E., Sultana,S., Early spondyloarthritis in multiracial society: differences between gender, race, and disease subgroups with regard to first symptom at presentation, main problem that the disease is causing to patients, and employment status, Rheumatology International, 32, 1597-1604, 2012	Signs and symptoms
van der Heijde,D., Sieper,J., Elewaut,D., Deodhar,A., Pangan,A.L., Dorr,A.P., Referral patterns, diagnosis, and disease management of patients with axial spondyloarthritis: results of an international survey, JCR: Journal of Clinical Rheumatology, 20, 411-417, 2014	Referral patterns in the US, diagnosis classifications used, not information gathering
van,Hoeven L., Luime,J., Han,H., Vergouwe,Y., Weel,A., Identifying axial spondyloarthritis in Dutch primary care patients, ages 20-45 years, with chronic low back pain, Arthritis care & research, 66, 446-453, 2014	Referral model
van,Onna M., Gorter,S., Maiburg,B., Waagenaar,G., van,Tubergen A., Education improves referral of patients suspected of having spondyloarthritis by general practitioners: a study with unannounced standardised patients in daily practice, RMD Open, 1, e000152-, 2015	Participants were standardised, rather than real, patients

## F.1.7 Diagnostic risk scores and models

### Review Question 4

What is the diagnostic utility of a risk assessment score for identifying spondyloarthritis?

Study	Reason for Exclusion
Aggarwal,R., Malaviya,A.N., Diagnosis delay in patients with ankylosing spondylitis: factors and outcomes--an Indian perspective, <i>Clinical Rheumatology</i> , 28, 327-331, 2009	Participants had existing AS diagnosis at baseline
Al-Jarallah,K., Shehab,D., Al-Azmi,W., Al-Fadli,A., Rheumatic complications of inflammatory bowel disease among Arabs: a hospital-based study in Kuwait, <i>International Journal of Rheumatic Diseases</i> , 16, 134-138, 2013	No relevant outcome data
Amor,B., Dougados,M., Listrat,V., Menkes,C.J., Roux,H., Benhamou,C., Blotman,F., Pattin,S., Paolaggi,J.B., Duquesnoy,B., Are classification criteria for spondylarthropathy useful as diagnostic criteria?, <i>Revue du Rhumatisme</i> , 62, 10-15, 1995	Article unavailable
Appel,H., Mertz,A., Distler,A., Sieper,J., Braun,J., The 19 kDa protein of <i>Yersinia enterocolitica</i> O:3 is recognized on the cellular and humoral level by patients with <i>Yersinia</i> induced reactive arthritis, <i>The Journal of rheumatology</i> , 26, 1964-1971, 1999	ReA diagnosis confirmed/ruled out before start of study
Arndt,U., Behrens,F., Ziswiler,H.R., Kaltwasser,J.P., Moller,B., Observational study of a patient and doctor directed pre-referral questionnaire for an early arthritis clinic, <i>Rheumatology International</i> , 28, 21-26, 2007	No data collected for people who were not referred.
Aydin,S.Z., Maksymowych,W.P., Bennett,A.N., McGonagle,D., Emery,P., Marzo-Ortega,H., Validation of the ASAS criteria and definition of a positive MRI of the sacroiliac joint in an inception cohort of axial spondyloarthritis followed up for 8 years, <i>Annals of the Rheumatic Diseases</i> , 71, 56-60, 2012	Comparator: Every participant with suspected SpA ended up with a diagnosis of axial SpA, so a selected control group of people with mechanical lower back pain was used as the comparator.
Baddoura,R., Awada,H., Okais,J., Habis,T., Attoui,S., Abi,Saab M., Validation of the European Spondylarthropathy Study Group and B. Amor criteria for spondylarthropathies in Lebanon, <i>Revue du Rhumatisme</i> , 64, 459-464, 1997	No eligible data
Bakland,G., Nossent,H.C., Epidemiology of spondyloarthritis: a review. [Review], <i>Current Rheumatology Reports</i> , 15, 351-, 2013	Summary of other studies on incidence and prevalence of SpA; no relevant outcomes reported.
Bakland,G., Alsing,R., Singh,K., Nossent,J.C., Assessment of SpondyloArthritis International Society criteria for axial spondyloarthritis in chronic back pain patients with a high prevalence of HLA-B27, <i>Arthritis Care and Research</i> , 65, 448-453, 2013	Lack of appropriate comparator
Barbour,J.A., Binding,J., Bridges,M., Kelly,C., Evaluation of a screening tool for inflammatory joint disease, <i>Annals of the Rheumatic Diseases</i> , 62, 187-188, 2003	Letter

Study	Reason for Exclusion
Barrett,C., Bird,P., Major,G., Romas,E., Portek,I., Taylor,A., Zochling,J., Australian and New Zealand national evidence-based recommendations for the investigation and follow-up of undifferentiated peripheral inflammatory arthritis: An integration of systematic literature research and rheumatological expert opinion, International journal of rheumatic diseases, 16, 637-651, 2013	Study design: systematic review and consensus exercise
Baskan,B.M., Sivas,F., Inal,E.E., Duran,S., Elverici,E., Ozoran,K., Bodur,H., Comparison of the Bath Ankylosing Spondylitis Radiology Index and the modified Stoke Ankylosing Spondylitis Spine Score in Turkish patients with ankylosing spondylitis, Clinical Rheumatology, 29, 65-70, 2010	All participants had diagnosis of AS at baseline
Bennett,A.N., McGonagle,D., O'Connor,P., Hensor,E.M., Sivera,F., Coates,L.C., Emery,P., Marzo-Ortega,H., Severity of baseline magnetic resonance imaging-evident sacroiliitis and HLA-B27 status in early inflammatory back pain predict radiographically evident ankylosing spondylitis at eight years, 58, 3413-3418, 2008	Lack of appropriate comparator
Bennett,A.N., Rehman,A., Hensor,E.M., Marzo-Ortega,H., Emery,P., McGonagle,D., Evaluation of the diagnostic utility of spinal magnetic resonance imaging in axial spondylarthritis.[Erratum appears in Arthritis Rheum. 2010 Oct;62(10):3005], 60, 1331-1341, 2009	Participants were selected to join the study on the basis of having had an MRI, rather than as a sequence of people presenting with suspected SpA
Braun,A., Gnann,H., Saracbası,E., Grifka,J., Kiltz,U., Letschert,K., Braun,J., Optimizing the identification of patients with axial spondyloarthritis in primary care--the case for a two-step strategy combining the most relevant clinical items with HLA B27, Rheumatology, 52, 1418-1424, 2013	Of relevance but deemed to be more suitable for RQ12 (indications for referral)
Braun,A., Saracbası,E., Grifka,J., Schnitker,J., Braun,J., Identifying patients with axial spondyloarthritis in primary care: how useful are items indicative of inflammatory back pain?, Annals of the rheumatic diseases, 70, 1782-1787, 2011	Of relevance but deemed to be more suitable for RQ12 (indications for referral)
Braun,J., Baraliakos,X., Kiltz,U., Heldmann,F., Sieper,J., Classification and diagnosis of axial spondyloarthritis--what is the clinically relevant difference?. [Review], Journal of Rheumatology, 42, 31-38, 2015	Review
Buder,K., Wozel,G., Psoriatic arthritis: a diagnostic challenge?. [Review], Giornale Italiano di Dermatologia e Venereologia, 145, 407-414, 2010	Review
Busquets-Perez,N., Marzo-Ortega,H., McGonagle,D., Waxman,R., Helliwell,P., Screening psoriatic arthritis tools: Analysis of the Early Arthritis for Psoriatic Patients questionnaire,	Lack of eligible outcome data

Study	Reason for Exclusion
Rheumatology (United Kingdom), 54, 200-202, 2014	
Calin,A., Diagnostic criteria (new and old) for the spondylarthropathies, Clinical & Experimental Rheumatology, 5, 101-102, 1987	Editorial
Can,G., Solmaz,D., Binicier,O., Akar,S., Birlik,M., Soysal,O., Akkoc,N., Manisali,M., Onen,F., High frequency of inflammatory back pain and other features of spondyloarthritis in patients with rheumatoid arthritis, Rheumatology International, 33, 1289-1293, 2013	Population: people with RA
Carmona,R., Harish,S., Linda,D.D., Ioannidis,G., Matsos,M., Khalidi,N.A., MR imaging of the spine and sacroiliac joints for spondyloarthritis: Influence on clinical diagnostic confidence and patient management, Radiology, 269, 208-215, 2013	Study did not report imaging findings by SpA diagnosis (positive or negative), so a 2x2 table could not be constructed. Focussed on diagnostic confidence instead
Cats,A., Van der Linden,S.J., Goei The HS, Khan,M.A., Proposals for diagnostic criteria of ankylosing spondylitis and allied disorders, Clinical & Experimental Rheumatology, 5, 167-171, 1987	No eligible data
Chandran,V., Schentag,C.T., Gladman,D.D., Sensitivity of the classification of psoriatic arthritis criteria in early psoriatic arthritis, Arthritis & Rheumatism, 57, 1560-1563, 2007	All participants had diagnosis of PsA at baseline
Choi,J.H., Kim,T.J., Shin,K., Choi,C.B., Kim,J.H., Kim,S.H., Kim,N.I., Ahn,M.J., Jung,H.J., Lee,K.E., Park,D.J., Park,Y.W., Lee,S.S., Kim,T.H., The reliability and validity of a Korean translation of the ASAS Health Index and Environmental Factors in Korean patients with axial spondyloarthritis, Journal of Korean medical science.29 (3) (pp 334-337), 2014.Date of Publication: Mar 2014., 334-337, 2014	All participants had diagnosis of axial SpA at baseline
Christophers,E., Barker,J., Griffiths,C., Dauden,E., Milligan,G., Molta,C., Sato,R., Boggs,R., The risk of psoriatic arthritis remains constant following initial diagnosis of psoriasis among patients seen in European dermatology clinics, Journal of the European Academy of Dermatology and Venereology, 24, 548-554, 2010	Included people with an existing diagnosis of PsA
Chung,H.Y., Machado,P., van der Heijde,D., D'Agostino,M.A., Dougados,M., HLA-B27 positive patients differ from HLA-B27 negative patients in clinical presentation and imaging: results from the DESIR cohort of patients with recent onset axial spondyloarthritis, Annals of the Rheumatic Diseases, 70, 1930-1936, 2011	Analysis only focussed on people with confirmed diagnosis, excluding people with inflammatory back pain but not meeting one of the Ax-SpA criteria sets (i.e. cannot construct 2x2 table)
Coates,L.C., Aslam,T., Al,Balushi F., Burden,A.D., Burden-Teh,E., Caperon,A.R., Cerio,R., Chattopadhyay,C., Chinoy,H., Goodfield,M.J., Kay,L., Kelly,S., Kirkham,B.W., Lovell,C.R., Marzo-Ortega,H., McHugh,N., Murphy,R., Reynolds,N.J., Smith,C.H., Stewart,E.J., Warren,R.B., Waxman,R., Wilson,H.E., Helliwell,P.S., Comparison of three screening	Lack of appropriate comparator

Study	Reason for Exclusion
tools to detect psoriatic arthritis in patients with psoriasis (CONTEST study).[Erratum appears in Br J Dermatol. 2013 Jun;168(6):1376 Note: Burden-The, E [corrected to Burden-Teh, Esther]], British Journal of Dermatology, 168, 802-807, 2013	
Coates,L.C., Conaghan,P.G., Emery,P., Green,M.J., Ibrahim,G., MacIver,H., Helliwell,P.S., Sensitivity and specificity of the classification of psoriatic arthritis criteria in early psoriatic arthritis, Arthritis & Rheumatism, 64, 3150-3155, 2012	Participants had confirmed diagnosis at baseline.
Coates,L.C., Walsh,J., Haroon,M., FitzGerald,O., Aslam,T., Al,Balushi F., Burden,A.D., Burden-Teh,E., Caperon,A.R., Cerio,R., Chattopadhyay,C., Chinoy,H., Goodfield,M.J., Kay,L., Kelly,S., Kirkham,B.W., Lovell,C.R., Marzo-Ortega,H., McHugh,N., Murphy,R., Reynolds,N.J., Smith,C.H., Stewart,E.J., Warren,R.B., Waxman,R., Wilson,H.E., Helliwell,P.S., Development and testing of new candidate psoriatic arthritis screening questionnaires combining optimal questions from existing tools, Arthritis care & research, 66, 1410-1416, 2014	Lack of appropriate comparator
Coates,L.C., FitzGerald,O., Gladman,D.D., McHugh,N., Mease,P., Strand,V., Helliwell,P.S., Reduced joint counts misclassify patients with oligoarticular psoriatic arthritis and miss significant numbers of patients with active disease, Arthritis & Rheumatism, 65, 1504-1509, 2013	Participants had diagnosis of PsA at baseline
Cohen,R., Robinson,D.,Jr., Paramore,C., Fraeman,K., Renahan,K., Bala,M., Autoimmune disease concomitance among inflammatory bowel disease patients in the United States, 2001-2002., Inflammatory Bowel Diseases, 14, 738-743, 2008	No eligible data
Collantes,E., Veroz,R., Escudero,A., Munoz,E., Munoz,M.C., Ciscal,A., Perez,V., Can some cases of 'possible' spondyloarthropathy be classified as 'definite' or 'undifferentiated' spondyloarthropathy? Value of criteria for spondyloarthropathies. Spanish Spondyloarthropathy Study Group, Joint, Bone, Spine: Revue du Rhumatisme, 67, 516-520, 2000	Population: study only looked at a subgroup of suspected SpA patients, excluding those who received a definite positive or negative diagnosis
Collantes-Estevez,E., New paradigms in the diagnosis and classification of the spondylarthritis, Reumatologia Clinica, 9, 199-200, 2013	Editorial
Collantes-Estevez,E., Ciscal del,Mazo A., Munoz-Gomariz,E., Assessment of 2 systems of spondyloarthropathy diagnostic and classification criteria (Amor and ESSG) by a Spanish multicenter study. European Spondyloarthropathy Study Group, Journal of Rheumatology, 22, 246-251, 1995	Participants were a combination of new and existing diagnoses
D'Agostino,M.A., Aegerter,P., Bechara,K., Salliot,C., Judet,O., Chimenti,M.S., Monnet,D., Le Parc,J.M., Landais,P., Breban,M., How to diagnose spondyloarthritis early? Accuracy of	No relevant outcome data

Study	Reason for Exclusion
peripheral enthesitis detection by power Doppler ultrasonography, <i>Annals of the Rheumatic Diseases</i> , 70, 1433-1440, 2011	
D'Agostino,M.A., Saraux,A., Chary-Valckenaere,I., Marcelli,C., Guis,S., Gaudin,P., Aegerter,P., Jousse-Joulin,S., Loeuille,D., Judet,O., Lecoq,B., Hacquard-Bouder,C., Grange,L., Guzian,M.C., Blum,A., Chagnaud,C., Leboime,A., Monnet,D., Rat,A.C., Timsit,M.A., Said-Nahal,R., Breban,M., Can we improve the diagnosis of spondyloarthritis in patients with uncertain diagnosis? The EchoSpA prospective multicenter French cohort, <i>Joint, Bone, Spine: Revue du Rhumatisme</i> , 79, 586-590, 79	No relevant outcome data
Dawes,P.T., Stoke Ankylosing Spondylitis Spine Score, <i>Journal of Rheumatology</i> , 26, 993-996, 1999	Participants had confirmed diagnosis at baseline, therefore no people without SpA for comparison
Eastmond,C.J., Robertson,E.M., A prospective study of early diagnostic investigations in the diagnosis of ankylosing spondylitis, <i>Scottish Medical Journal</i> , 48, 21-23, 2003	Fewer than 10 people with diagnosis of spondyloarthritis
Ejaz,A., Iftikhar,A., Iftikhar,N., Patterns of psoriatic arthritis, <i>Jcpsp, Journal of the College of Physicians &amp; Surgeons - Pakistan</i> , 19, 553-556, 2009	Case finding of PsA in group of psoriasis patients, but unclear whether reported cases are newly diagnosed or not. Only reportable data is on % people with Ps who were diagnosed with PsA
El,Miedany Y., el,Gaafary M., Youssef,S., Ahmed,I., Nasr,A., Tailored approach to early psoriatic arthritis patients: clinical and ultrasonographic predictors for structural joint damage, <i>Clinical Rheumatology</i> , 34, 307-313, 2015	Lack of appropriate comparator
Feldtkeller,E., Rudwaleit,M., Zeidler,H., Easy probability estimation of the diagnosis of early axial spondyloarthritis by summing up scores, <i>Rheumatology</i> , 52, 1648-1650, 2013	No relevant outcome data
Gamez-Nava,J.I., Gonzalez-Lopez,L., Davis,P., Suarez-Almazor,M.E., Referral and diagnosis of common rheumatic diseases by primary care physicians, <i>British Journal of Rheumatology</i> , 37, 1215-1219, 1998	No relevant outcome data
Ganatra,B., Manoharan,D., Akhras,V., Use of a validated screening tool for psoriatic arthritis in dermatology clinics, <i>BMJ Quality Improvement Reports</i> , 4, 2015-, 2015	Lack of relevant outcome data
Garg,N., Truong,B., Ku,J.H., Devere,T.S., Ehst,B.D., Blauvelt,A., Deodhar,A.A., A novel, short, and simple screening questionnaire can suggest presence of psoriatic arthritis in psoriasis patients in a dermatology clinic, <i>Clinical Rheumatology</i> , 34, 1745-1751, 2015	Diagnosis of PsA in people with psoriasis is outside scope
Gavali,M., Konda,K., Rajasekhar,L., Devarasetti,P.K., Irlapati,R.V., A comparison of clinical and laboratory profile of non-radiographic axial spondyloarthritis and ankylosing spondylitis, <i>Indian Journal of Rheumatology</i> , 10, 129-132, 2015	Lack of appropriate comparator

Study	Reason for Exclusion
Gladman,D.D., Schentag,C.T., Tom,B.D.M., Chandran,V., Brockbank,J., Rosen,C., Farewell,V.T., Development and initial validation of a screening questionnaire for psoriatic arthritis: The toronto psoriatic arthritis screen (ToPAS), <i>Annals of the Rheumatic Diseases</i> , 68, 497-501, 2009	Evaluation of PsA screening tools in people with psoriasis is outside the scope of this guideline
Godfrin,B., Zabraniecki,L., Lamboley,V., Bertrand-Latour,F., Sans,N., Fournie,B., Spondyloarthritis with enthesal pain. A prospective study in 33 patients, <i>Joint, Bone, Spine: Revue du Rhumatisme</i> , 71, 557-562, 2004	No relevant outcome data
Gomariz,E.M., del,M., Guijo,V.P., Contreras,A.E., Villanueva,M., Estevez,E.C., The potential of ESSG spondyloarthritis classification criteria as a diagnostic aid in rheumatological practice, <i>Journal of Rheumatology</i> , 29, 326-330, 2002	Unclear as to whether comparison group were suspected SpA cases
Gran,J.T., An epidemiological survey of the signs and symptoms of ankylosing spondylitis, <i>Clinical Rheumatology</i> , 4, 161-169, 1985	Population survey likely to have picked up prevalent cases alongside incident/undiagnosed
Gupta,A.D., Sacroiliac joint pathologies in low back pain, <i>Journal of Back and Musculoskeletal Rehabilitation</i> .22 (2) (pp 91-97), 2009	Diagnosis of SpA was not cross referred with SpA diagnosis; all eligible participants had sacroiliitis, and no other relevant signs/symptoms/features were reported
Haddad,A., Johnson,S.R., Somaily,M., Fazelzad,R., Kron,A.T., Chau,C., Chandran,V., Psoriatic Arthritis Mutilans: Clinical and Radiographic Criteria. A Systematic Review, <i>Journal of Rheumatology</i> , 42, 1432-1438, 2015	Systematic review
Haywood,K.L., Garratt,A.M., Dawes,P.T., Patient-assessed health in ankylosing spondylitis: a structured review. [Review] [98 refs], <i>Rheumatology</i> , 44, 577-586, 2005	Systematic review. Health status assessment in people with existing AS
Helliwell,P.S., Taylor,W.J., Classification and diagnostic criteria for psoriatic arthritis. [Review] [40 refs], <i>Annals of the Rheumatic Diseases</i> , 64, Suppl-8, 2005	Study design: review of different diagnostic criteria without sufficient data to construct 2x2 tables.
Hermann,J., Giessauf,H., Schaffler,G., Ofner,P., Graninger,W., Early spondyloarthritis: usefulness of clinical screening, <i>Rheumatology</i> , 48, 812-816, 2009	No relevant outcome data
Hernan,M.F., Gustavo,C., Jose Antonio,M.C., Prevalence of psoriatic arthritis in psoriasis patients according to newer classification criteria, <i>Clinical Rheumatology</i> .33 (2) (pp 243-246), 2014.Date of Publication: February 2014., 243-246, 2014	Lack of appropriate comparator
Heuft-Dorenbosch,L., Landewe,R., Weijers,R., Houben,H., van der Linden,S., Jacobs,P., van der Heijde,D., Performance of various criteria sets in patients with inflammatory back pain of short duration; the Maastricht early spondyloarthritis clinic, <i>Annals of the Rheumatic Diseases</i> , 66, 92-98, 2007	Study used published criteria as reference standard, rather than clinician diagnosis.
Hulsemann,J.L., Zeidler,H., Diagnostic evaluation of classification criteria for rheumatoid arthritis and	No relevant outcome data

Study	Reason for Exclusion
reactive arthritis in an early synovitis outpatient clinic, <i>Annals of the Rheumatic Diseases</i> , 58, 278-280, 1999	
Hutchinson,D., Moots,R.J., Diagnostic evaluation of classification criteria for RA and reactive arthritis, <i>Annals of the Rheumatic Diseases</i> , 59, 396-397, 2000	Correspondence
Inman,R.D., Classification criteria for reactive arthritis, <i>Journal of Rheumatology</i> , 26, 1219-1221, 1999	Editorial
Jans,L., van,Langenhove C., Van,Praet L., Carron,P., Elewaut,D., van den Bosch,F., Lambrecht,V., Jaremko,J.L., Verstraete,K., Diagnostic value of pelvic enthesitis on MRI of the sacroiliac joints in spondyloarthritis, <i>European Radiology</i> , 24, 866-871, 2014	None of the imaging features reported are used in UK clinical practice for diagnosis of SpA
Juanola,X., Fernandez-Sueiro,J.L., Torre-Alonso,J.C., Miguelez,R., Munoz-Fernandez,S., Ballina,J., Gonzalez,C., Julia,B., Cea-Calvo,L., Collantes,E., Comparison of 2 referral strategies for the diagnosis of axial spondyloarthritis in Spain. The RADAR study, <i>Reumatologia Clinica</i> , 9, 348-352, 2013	Relevant data is already presented in another study which has been included for RQ6 (Sieper et al 2013)
Kass,E., Diagnostic criteria in spondylarthritis ankylopoietica, <i>Acta Rheumatologica Scandinavica</i> , 14, 197-209, 1968	No relevant outcome data
Khoso,B.K., Shaikh,I., The correlation and prognostic significance of ESR and CRP values with the severity of psoriasis with/without psoriatic arthropathy, <i>Medical Forum Monthly</i> .26 (7) (pp 14-16), 2015.	No relevant outcome data
Kiltz,U., Van Der Heijde,D., Boonen,A., Braun,J., The ASAS Health Index (ASAS HI) - a new tool to assess the health status of patients with spondyloarthritis. [Review], <i>Clinical &amp; Experimental Rheumatology</i> , 32, Suppl-8, 2014	Instrument not developed/validated in people with suspected SpA
Kraan,M.C., Haringman,J.J., Post,W.J., Versendaal,J., Breedveld,F.C., Tak,P.P., Immunohistological analysis of synovial tissue for differential diagnosis in early arthritis, <i>Rheumatology</i> , 38, 1074-1080, 1999	No relevant outcome data
Kundakci,N., Tursen,U., Babiker,M.O., Gurgey,E., The evaluation of the sociodemographic and clinical features of Turkish psoriasis patients, <i>International Journal of Dermatology</i> , 41, 220-224, 2002	No relevant outcome data
Kvien,T.K., Glennas,A., Melby,K., Prediction of diagnosis in acute and subacute oligoarthritis of unknown origin, <i>British Journal of Rheumatology</i> , 35, 359-363, 1996	No relevant outcomes
Kwiatkowska,B., Raciborski,F., Klak,A., Malinska,M., Gryglewicz,J., Early diagnosis of rheumatic diseases: An evaluation of the present situation and proposed changes, <i>Reumatologia</i> , 53, 3-8, 2015	Evaluation of a care model rather than a diagnostic model

Study	Reason for Exclusion
Lanna,C.C., Ferrari,Mde L., Rocha,S.L., Nascimento,E., de Carvalho,M.A., da Cunha,A.S., A cross-sectional study of 130 Brazilian patients with Crohn's disease and ulcerative colitis: analysis of articular and ophthalmologic manifestations, <i>Clinical Rheumatology</i> , 27, 503-509, 2008	No relevant outcome data
Laws,P., Barton,A., Warren,R.B., Psoriatic arthritis--what the dermatologist needs to know. [Review], <i>Journal of the European Academy of Dermatology &amp; Venereology</i> , 24, 1270-1277, 2010	Review
Leung,Y.Y., Tam,L.S., Ho,K.W., Lau,W.M., Li,T.K., Zhu,T.Y., Kun,E.W., Li,E.K., Evaluation of the CASPAR criteria for psoriatic arthritis in the Chinese population, <i>Rheumatology</i> , 49, 112-115, 2010	All participants had an SpA diagnosis at baseline
Levesque,R.Y., Azouz,E.M., Radiologic Findings in Adults with Seronegative Spondyloarthropathies: Distinguishing the chronic arthropathies in adulthood, <i>Canadian Family Physician</i> , 38, 2105-2118, 1992	Review
Lin,Z., Liao,Z., Huang,J., Jin,O., Li,Q., Li,T., Hu,Z., Xu,M., Pan,Y., Zhang,Y., Yang,M., Gu,J., Evaluation of Assessment of Spondyloarthritis International Society classification criteria for axial spondyloarthritis in Chinese patients with chronic back pain: results of a 2-year follow-up study., <i>International Journal of Rheumatic Diseases</i> , 17, p.782-789, 2014	Final diagnosis received two years after initial study start
Lopez-Gonzalez,R., Hernandez-Sanz,A., Almodovar-Gonzalez,R., Gobbo,M., Grupo,Esperanza , Are spondyloarthropathies adequately referred from primary care to specialized care?, <i>Reumatologia Clinica</i> , 9 ,90-93, 2013	No relevant outcome data
Maki-Ikola,O., Leirisalo-Repo,M., Kantele,A., Toivanen,P., Granfors,K., Salmonella-specific antibodies in reactive arthritis, <i>Journal of Infectious Diseases</i> , 164, 1141-1148, 1991	No relevant outcome data
Maksymowicz,H., Kowalewski,K., Lubkowska,K., Zolud,W., Sasiadek,M., Diagnostic value of gadolinium-enhanced MR imaging of active sacroiliitis in seronegative spondyloarthropathy, <i>Polish Journal of Radiology</i> , 75, 58-65, 2010	Study population was a mixture of people with new and existng diagnoses of spondyloarthritis
Maldonado,Ficco H., Citera,G., Maldonado Cocco,J.A., Prevalence of psoriatic arthritis in psoriasis patients according to newer classification criteria, <i>Clinical Rheumatology</i> , 33, 243-246, 2014	Lack of appropriate comparator
Marchesoni,A., Cantini,F., Classification and clinical assessment. [Review], <i>Reumatismo</i> , 64, 79-87, 2012	Review
Mau,W., Raspe,H.H., Mersjann,H., Early arthritides: nosography, nosology, and diagnostic criteria, <i>Scandinavian Journal of Rheumatology - Supplement</i> , 79, 3-12, 1989	All participants has a rheumatological diagnosis at baseline

Study	Reason for Exclusion
McCrea,J.D., McCredie,M.R., McSherry,D.M., Brooks,P.M., A controlled evaluation of diagnostic criteria in the development of a rheumatology expert system, British journal of rheumatology, 28, 13-17, 1989	Evaluation of a decision tree across a range of conditions, in case histories that were not consecutive cases of suspected SpA.
Mease,P.J., Gladman,D.D., Helliwell,P., Khraishi,M.M., Fuiman,J., Bananis,E., Alvarez,D., Comparative performance of psoriatic arthritis screening tools in patients with psoriasis in European/North American dermatology clinics, Journal of the American Academy of Dermatology, 71, 649-655, 2014	Evaluation of PsA screening tools in people with psoriasis is out of the scope of this guideline
Mease,P.J., Gladman,D.D., Papp,K.A., Khraishi,M.M., Thaci,D., Behrens,F., Northington,R., Fuiman,J., Bananis,E., Boggs,R., Alvarez,D., Prevalence of rheumatologist-diagnosed psoriatic arthritis in patients with psoriasis in European/North American dermatology clinics, Journal of the American Academy of Dermatology, 69, 729-735, 2013	Cases were a mixture of people with new and established diagnoses of PsA.
Moll,J.M., Wright,V., New York clinical criteria for ankylosing spondylitis. A statistical evaluation, Annals of the Rheumatic Diseases, 32, 354-363, 1973	Evaluation of New York criteria in PsA patients and their families
Molto,A., Paternotte,S., van der Heijde,D., Claudepierre,P., Rudwaleit,M., Dougados,M., Evaluation of the validity of the different arms of the ASAS set of criteria for axial spondyloarthritis and description of the different imaging abnormalities suggestive of spondyloarthritis: data from the DESIR cohort, Annals of the Rheumatic Diseases, 74, 746-751, 2015	Population: reported results focussed on people with confirmed axial AS defined by ASAS criteria; people with suspected SpA not fulfilling those criteria did not have their imaging data examined in this study.
Molto,A., Paternotte,S., Comet,D., Thibout,E., Rudwaleit,M., Claudepierre,P., van der Heijde,D., Dougados,M., Performances of the assessment of SpondyloArthritis international Society axial spondyloarthritis criteria for diagnostic and classification purposes in patients visiting a rheumatologist because of chronic back pain: Results from a multicenter, cross-sectional study, Arthritis Care and Research, 65, 1472-1481, 2013	Participants had a diagnosis prior to inclusion in the study
Munoz-Fernandez,S., de,Miguel E., Cobo-Ibanez,T., Carmona,L., Steiner,M., Descalzo,M.A., Ferreira,A., Balsa,A., Martin-Mola,E., ESPIDEP Study Group, Early spondyloarthritis: results from the pilot registry ESPIDEP, Clinical & Experimental Rheumatology, 28, 498-503, 2010	ESSG criteria were used as the gold standard for diagnosis
Navarro-Compan,V., van der Heijde,D., Combe,B., Cosson,C., van Gaalen,F.A., Value of high-sensitivity C-reactive protein for classification of early axial spondyloarthritis: results from the DESIR cohort, Annals of the Rheumatic Diseases, 72, 785-786, 2013	No relevant outcomes
Nguyen,C., Bendeddouche,I., Sanchez,K., Jousse,M., Papelard,A., Feydy,A., Revel,M.,	No relevant outcome data

Study	Reason for Exclusion
Poiraudau,S., Rannou,F., Assessment of ankylosing spondylitis criteria in patients with chronic low back pain and vertebral endplate Modic I signal changes, Journal of Rheumatology, 37, 2234-2239, 2010	
Nigam,P., Singh,D., Matreja,V.S., Saxena,H.N., Psoriatic arthritis: a clinico-radiological study, Journal of Dermatology, 7, 55-59, 1980	Included people with an existing diagnosis of SpA
Ozgoemen,S., Khan,M.A., Current concept of spondyloarthritis: special emphasis on early referral and diagnosis. [Review][Erratum appears in Curr Rheumatol Rep. 2012 Dec;14(6):624], Current Rheumatology Reports, 14, 409-414, 2012	Review
Patrizi,A., Venturi,M., Scorzoni,R., Pazzaglia,M., Malavolta,N., Bardazzi,F., Nail dystrophies, scalp and intergluteal/perianal psoriatic lesions: risk factors for psoriatic arthritis in mild skin psoriasis?, Giornale Italiano di Dermatologia e Venereologia, 149, 177-184, 2014	Included people with an existing diagnosis of SpA
Pedersen,O.B., Svendsen,A.J., Ejstrup,L., Skytthe,A., Junker,P., The occurrence of psoriatic arthritis in Denmark. [Review] [46 refs], Annals of the Rheumatic Diseases, 67, 1422-1426, 2008	Insufficient data reporting for analysis of relevant outcomes
Queiro,R., Alperi,M., Lopez,A., Sarasqueta,C., Riestra,J.L., Ballina,J., Clinical expression, but not disease outcome, may vary according to age at disease onset in psoriatic spondylitis, Joint, Bone, Spine: Revue du Rhumatisme, 75, 544-547, 2008	All participants has diagnosis of PsA at baseline
Rasooly,I., Papageorgiou,A.C., Badley,E.M., Comparison of clinical and self reported diagnosis for rheumatology outpatients, Annals of the Rheumatic Diseases, 54, 850-852, 1995	All participants has diagnosis at baseline
Raychaudhuri,S.P., Deodhar,A., The classification and diagnostic criteria of ankylosing spondylitis. [Review], Journal of Autoimmunity, 48-49, 128-133, 2014	Review
Roussou,E., Ciurtin,C., Clinical overlap between fibromyalgia tender points and enthesitis sites in patients with spondyloarthritis who present with inflammatory back pain, Clinical & Experimental Rheumatology, 30, Suppl-30, 2012	All participants had SpA diagnosis at baseline, so there was no appropriate comparator
Rudwaleit,M., Landewe,R., van der Heijde,D., Listing,J., Brandt,J., Braun,J., Burgos-Vargas,R., Collantes-Estevez,E., Davis,J., Dijkmans,B., Dougados,M., Emery,P., van der Horst-Bruinsma IE, Inman,R., Khan,M.A., Leirisalo-Repo,M., van der Linden,S., Maksymowych,W.P., Mielants,H., Olivieri,I., Sturrock,R., de,Vlam K., Sieper,J., The development of Assessment of SpondyloArthritis international Society classification criteria for axial spondyloarthritis (part I): classification of paper patients by expert opinion including uncertainty appraisal.[Erratum appears in Ann Rheum Dis. 2011 Aug;70(8):1519], Annals of the Rheumatic Diseases, 68, 770-776, 2009	Study population was not made up of consecutive cases

Study	Reason for Exclusion
Sadek,H.A., Abdel-Nasser,A.M., El-Amawy,T.A., Hassan,S.Z., Rheumatic manifestations of psoriasis, <i>Clinical Rheumatology</i> , 26, 488-498, 2007	No relevant outcomes
Salehi-Abari,I., Khazaeli,S., Khak,M., Early diagnosis of ankylosing spondylitis: an introduction to the newly designed Iran criteria for ankylosing spondylitis, <i>Rheumatology International</i> , 33, 1303-1308, 2013	Modified New York criteria used as gold standard, rather than clinician diagnosis
Salvarani,C., Vlachonikolis,I.G., van der Heijde,D.M., Fornaciari,G., Macchioni,P., Beltrami,M., Olivieri,I., Di,Gennaro F., Politi,P., Stockbrugger,R.W., Russel,M.G., European Collaborative IBD Study Group, Musculoskeletal manifestations in a population-based cohort of inflammatory bowel disease patients, <i>Scandinavian Journal of Gastroenterology</i> , 36, 1307-1313, 2001	ESSG criteria used as reference standard, rather than clinician diagnosis
Samuel,M.P., Zwillich,S.H., Thomson,G.T., Alfa,M., Orr,K.B., Brittain,D.C., Miller,J.R., Phillips,P.E., Fast food arthritis--a clinico-pathologic study of post-Salmonella reactive arthritis, <i>Journal of Rheumatology</i> , 22, 1947-1952, 1995	Non-consecutive sub sample of eligible study population was assessed; outcome data not stratified by final diagnosis
Scarpa,R., Oriente,P., Pucino,A., Torella,M., Vignone,L., Riccio,A., Biondi,Oriente C., Psoriatic arthritis in psoriatic patients, <i>British Journal of Rheumatology</i> , 23, 246-250, 1984	No relevant outcome data
Scire,C.A., Iagnocco,A., Meenagh,G., Riente,L., Filippucci,E., Delle,Sedie A., Sakellariou,G., Bombardieri,S., Grassi,W., Valesini,G., Montecucco,C., Ultrasound imaging for the rheumatologist XXXIII. Sonographic assessment of the foot in early arthritis patients, <i>Clinical &amp; Experimental Rheumatology</i> , 29, 465-469, 2011	No relevant outcome data
Selmi,C., Gershwin,M.E., Diagnosis and classification of reactive arthritis. [Review], <i>Autoimmunity Reviews</i> , 13, 546-549, 2014	Review
Shivashankar,R., Loftus,E.V.,Jr., Tremaine,W.J., Harmsen,W.S., Zinsmeister,A.R., Matteson,E.L., Incidence of Spondyloarthropathy in patients with ulcerative colitis: a population-based study, <i>Journal of Rheumatology</i> , 40, 1153-1157, 2013	Relevant outcome data not cross-referenced with SpA diagnosis therefore 2x2 tables could not be constructed.
Sieper,J., How to screen for axial spondyloarthritis in primary care?, <i>Current Opinion in Rheumatology</i> .24 (4) (pp 359-362), 2012.Date of Publication: July 2012., 359-362, 2012	Review
Sieper,J., van der Heijde,D., Landewe,R., Brandt,J., Burgos-Vagas,R., Collantes-Estevez,E., Dijkmans,B., Dougados,M., Khan,M.A., Leirisalo-Repo,M., van der Linden,S., Maksymowych,W.P., Mielants,H., Olivieri,I., Rudwaleit,M. New criteria for inflammatory back pain in patients with chronic back pain: A real patient exercise by experts from the Assessment of SpondyloArthritis international Society (ASAS),	Consensus exercise based on selected case histories

Study	Reason for Exclusion
Annals of the rheumatic diseases, 68, 784-788, 2009	
Sieper,J., Braun,J., Reichardt,M., Eggens,U., The value of specific antibody detection and culture in the diagnosis of reactive arthritis, Clinical Rheumatology, 12, 245-252, 1993	All participants had a diagnosis at baseline
Sieper,J., Srinivasan,S., Zamani,O., Mielants,H., Choquette,D., Pavelka,K., Loft,A.G., Geher,P., Danda,D., Reitblat,T., Cantini,F., Ancuta,C., Erdes,S., Raffayova,H., Keat,A., Gaston,J.S., Praprotnik,S., Vastesaeger,N., Comparison of two referral strategies for diagnosis of axial spondyloarthritis: the Recognising and Diagnosing Ankylosing Spondylitis Reliably (RADAR) study, Annals of the Rheumatic Diseases, 72, 1621-1627, 2013	Of general relevance but deemed more appropriate to evaluate for RQ6 (comparative effectiveness of referral strategies)
Spoorenberg,A., van der Heijde,D., de,Klerk E., Dougados,M., de,Vlam K., Mielants,H., van der Tempel,H., van der Linden,S., Relative value of erythrocyte sedimentation rate and C-reactive protein in assessment of disease activity in ankylosing spondylitis, Journal of Rheumatology, 26, 980-984, 1999	All participants has diagnosis of AS at baseline
Strand,V., Rao,S.A., Shillington,A.C., Cifaldi,M.A., McGuire,M., Ruderman,E.M., Prevalence of axial spondyloarthritis in united states rheumatology practices: Assessment of spondyloarthritis international society criteria versus rheumatology expert clinical diagnosis, Arthritis Care and Research, 65, 1299-1306, 2013	Lack of relevant outcome data
Sung,J.J., Hsu,R.K., Chan,F.K., Liew,C.T., Lau,J.W., Li,A.K., Crohn's disease in the Chinese population. An experience from Hong Kong, Diseases of the Colon & Rectum, 37, 1307-1309, 1994	Insufficient data reporting for analysis of relevant outcomes
Symmons,D.P., Lunt,M., Watkins,G., Helliwell,P., Jones,S., McHugh,N., Veale,D., Developing classification criteria for peripheral joint psoriatic arthritis. Step I. Establishing whether the rheumatologist's opinion on the diagnosis can be used as the "gold standard", Journal of Rheumatology, 33, 552-557, 2006	No relevant outcome data
Tavares,R., Wells,G.A., Scarf,J., Cagaanan,R., Bykerk,V.P., Bell,M.J., Classification of rheumatologic opinion on early inflammatory arthritis: harmonization of a heterogeneous standard, Arthritis Care & Research, 62, 1407-1414, 2010	Selected cases with established diagnosis at start of study
Taylor,W.J., Epidemiology of psoriatic arthritis. [Review] [41 refs], Current Opinion in Rheumatology, 14, 98-103, 2002	Review
Thomson,G.T., DeRubeis,D.A., Hodge,M.A., Rajanayagam,C., Inman,R.D., Post-Salmonella reactive arthritis: late clinical sequelae in a point source cohort, American Journal of Medicine, 98, 13-21, 1995	Outcome data only available for cases, not non-cases

Study	Reason for Exclusion
Tian,Y., Li,J.-X., Li,Y.-X., Wang,H.-H., Liu,X.-G., Clinical characteristics of ulcerative colitis with ankylosing spondylitis vs sacroiliitis with ulcerative colitis, World Chinese Journal of Digestology, 21, 1355-1359, 2013	Included people with pre-existing diagnosis of SpA
Tinazzi,I., Adami,S., Zanolin,E.M., Caimmi,C., Confente,S., Girolomoni,G., Gisondi,P., Biasi,D., McGonagle,D., The early psoriatic arthritis screening questionnaire: A simple and fast method for the identification of arthritis in patients with psoriasis, Rheumatology (United Kingdom).51 (11) (pp 2058-2063), 2012.Article Number: kes187.Date of Publication: November 2012., 2058-2063, 2012	Diagnosis of screening tools for PsA in people with psoriasis is outside the scope of this guideline
Tong,L.X., Wu,S., Li,T., Qureshi,A.A., Giovannucci,E.L., Cho,E., Personal history of gallstones and risk of incident psoriasis and psoriatic arthritis in U.S. women, British Journal of Dermatology.172 (5) (pp 1316-1322), 2015.Date of Publication: 01 May 2015., 1316-1322, 2015	No relevant outcome data
van den Berg,R., de,Hooge M., van,Gaalen F., Reijnierse,M., Huizinga,T., van der Heijde,D., Percentage of patients with spondyloarthritis in patients referred because of chronic back pain and performance of classification criteria: experience from the Spondyloarthritis Caught Early (SPACE) cohort.[Erratum for Rheumatology (Oxford). 2013 Aug;52(8):1492-9; PMID: 23650623], Rheumatology, 54, 1336-, 2015	No relevant outcome data
van den Berg,R., de,Hooge M., van,Gaalen F., Reijnierse,M., Huizinga,T., van der Heijde,D., Corrigendum to Percentage of patients with spondyloarthritis in patients referred because of chronic back pain and performance of classification criteria: Experience from the Spondyloarthritis Caught Early (SPACE) cohort [Rheumatology, 52, (2013) 1492-1499] DOI:10.1093/rheumatology/ket164, Rheumatology (United Kingdom).54 (7) (pp 1336), 2015.	Correction to included paper. Noted.
van den Berg,R., Lenczner,G., Thevenin,F., Claudepierre,P., Feydy,A., Reijnierse,M., Saraux,A., Rahmouni,A., Dougados,M., van der Heijde,D., Classification of axial SpA based on positive imaging (radiographs and/or MRI of the sacroiliac joints) by local rheumatologists or radiologists versus central trained readers in the DESIR cohort, Annals of the Rheumatic Diseases, 74, 2016-2021, 2015	No relevant outcome data
van der Heijde,D., Sieper,J., Elewaut,D., Deodhar,A., Pangan,A.L., Dorr,A.P., Referral patterns, diagnosis, and disease management of patients with axial spondyloarthritis: results of an international survey, JCR: Journal of Clinical Rheumatology, 20, 411-417, 2014	No relevant outcome data
van der Heijde,D.M., Landewe,R.B., Hermann,K.G., Jurik,A.G., Maksymowych,W.P., Rudwaleit,M., O'Connor,P.J., Braun,J., Application of the OMERACT filter to scoring	Report of expert panel discussion at conference

Study	Reason for Exclusion
methods for magnetic resonance imaging of the sacroiliac joints and the spine. Recommendations for a research agenda at OMERACT 7, Journal of Rheumatology, 32, 2042-2047, 2005	
van den Hoogen,H.M., Koes,B.W., van Eijk,J.T., Bouter,L.M., On the accuracy of history, physical examination, and erythrocyte sedimentation rate in diagnosing low back pain in general practice. A criteria-based review of the literature, 20, 318-327, 1995	Literature review
van der Linden,S., Akkoc,N., Brown,M.A., Robinson,P.C., Khan,M.A., The ASAS Criteria for Axial Spondyloarthritis: Strengths, Weaknesses, and Proposals for a Way Forward, Current Rheumatology Reports, 17, -, 2015	Review
van,Hoeven L., Vergouwe,Y., de Buck,P.D., Luime,J.J., Hazes,J.M., Weel,A.E., External Validation of a Referral Rule for Axial Spondyloarthritis in Primary Care Patients with Chronic Low Back Pain, PLoS ONE [Electronic Resource], 10, e0131963-, 2015	Comparator not eligible for this question. Study included instead for RQ12 (indications for referral)
Vinje,O., Dale,K., Moller,P., Radiographic evaluation of patients with Bechterew's syndrome (ankylosing spondylitis) and their first-degree relatives. Findings in the spine and sacro-iliac joints and relations to non-radiographic findings, Scandinavian Journal of Rheumatology, 14, 119-132, 1985	Study sampling based on retrospective chart review of people with existing diagnosis of AS or PsA
Wach,J., Maucort-Boulch,D., Kodjikian,L., Iwaz,J., Broussolle,C., Seve,P., Acute anterior uveitis and undiagnosed spondyloarthritis: usefulness of Berlin criteria, Graefes Archive for Clinical & Experimental Ophthalmology, 253, 115-120, 2015	No relevant outcome data
Walsh,J.A., Callis,Duffin K., Krueger,G.G., Clegg,D.O., Limitations in screening instruments for psoriatic arthritis: a comparison of instruments in patients with psoriasis, Journal of Rheumatology, 40, 287-293, 2013	Cases were a mixture of people with new and established diagnoses of PsA.
Wanders,A., Landewe,R., Spoorenberg,A., de,Vlam K., Mielants,H., Dougados,M., van der Linden,S., van der Heijde,D., Scoring of radiographic progression in randomised clinical trials in ankylosing spondylitis: a preference for paired reading order, Annals of the Rheumatic Diseases, 63, 1601-1604, 2004	All participants had a diagnosis of AS at baseline
Wanders,A.J., Landewe,R.B., Spoorenberg,A., Dougados,M., van der Linden,S., Mielants,H., van der Tempel,H., van der Heijde,D.M., What is the most appropriate radiologic scoring method for ankylosing spondylitis? A comparison of the available methods based on the Outcome Measures in Rheumatology Clinical Trials filter, Arthritis & Rheumatism, 50, 2622-2632, 2004	All participants had a diagnosis of AS at baseline
Weber,U., Ostergaard,M., Lambert,R.G.W., Pedersen,S.J., Chan,S.M., Zubler,V., Rufibach,K., Zhao,Z., Maksymowych,W.P., Candidate lesion-	Lack of relevant outcome data

Study	Reason for Exclusion
based criteria for defining a positive sacroiliac joint MRI in two cohorts of patients with axial spondyloarthritis, <i>Annals of the Rheumatic Diseases</i> .74, 1976-1982, 2015.	
Weber,U., Pedersen,S.J., Zubler,V., Rufibach,K., Chan,S.M., Lambert,R.G., Ostergaard,M., Maksymowych,W.P., Fat infiltration on magnetic resonance imaging of the sacroiliac joints has limited diagnostic utility in nonradiographic axial spondyloarthritis, <i>Journal of Rheumatology</i> , 41, 75-83, 2014	No relevant outcome data
Weber,U., Zhao,Z., Rufibach,K., Zubler,V., Lambert,R.G., Chan,S.M., Ostergaard,M., Pedersen,S.J., Maksymowych,W.P., Diagnostic utility of candidate definitions for demonstrating axial spondyloarthritis on magnetic resonance imaging of the spine, <i>Arthritis &amp; Rheumatology</i> , 67, 924-933, 2015	No relevant outcome data
Weber,U., Zubler,V., Zhao,Z., Lambert,R.G., Chan,S.M., Pedersen,S.J., Ostergaard,M., Rufibach,K., Maksymowych,W.P., Does spinal MRI add incremental diagnostic value to MRI of the sacroiliac joints alone in patients with non-radiographic axial spondyloarthritis?, <i>Annals of the Rheumatic Diseases</i> , 74, 985-992, 2015	Lack of relevant outcome data
Weber,U., Lambert,R.G., Pedersen,S.J., Hodler,J., Ostergaard,M., Maksymowych,W.P., Assessment of structural lesions in sacroiliac joints enhances diagnostic utility of magnetic resonance imaging in early spondyloarthritis, <i>Arthritis Care and Research</i> , 62, 1736-1771, 2010	Criteria to evaluate MRI, not to diagnose SpA
Weisman,M.H., Chen,L., Clegg,D.O., Davis,J.C.,Jr., Dubois,R.W., Prete,P.E., Savage,L.M., Schafer,L., Suarez-Almazor,M.E., Yu,H.T., Reveille,J.D., Development and validation of a case ascertainment tool for ankylosing spondylitis. [Review] [32 refs], <i>Arthritis care &amp; research</i> , 62, 19-27, 2010	Participant diagnostic status was known at recruitment
Weber,U., Zubler,V., Pedersen,S.J., Rufibach,K., Lambert,R.G., Chan,S.M., Ostergaard,M., Maksymowych,W.P., Development and validation of a magnetic resonance imaging reference criterion for defining a positive sacroiliac joint magnetic resonance imaging finding in spondyloarthritis, <i>Arthritis Care &amp; Research</i> , 65, 977-985, 2013	Criteria to evaluate MRI, not to diagnose SpA
Weber,U., Lambert,R.G., Ostergaard,M., Hodler,J., Pedersen,S.J., Maksymowych,W.P., The diagnostic utility of magnetic resonance imaging in spondylarthritis: an international multicenter evaluation of one hundred eighty-seven subjects, <i>Arthritis &amp; Rheumatism</i> , 62, 3048-3058, 2010	No relevant outcome data
Weisman,M.H., Chen,L., Clegg,D.O., Davis,Jr, Dubois,R.W., Prete,P.E., Savage,L.M., Schafer,L., Suarez-Almazor,M.E., Yu,H.-T., Reveille,J.D., Development and validation of a case	Participant diagnostic status was known at recruitment

Study	Reason for Exclusion
ascertainment tool for ankylosing spondylitis, <i>Arthritis Care and Research</i> .62, 19-27, 2010	
Willkens,R.F., Arnett,F.C., Bitter,T., Reiter's syndrome: Evaluation of preliminary criteria for definite disease, <i>ulletin on the Rheumatic Diseases</i> .32, 31-34, 1982	Case-control study
Wilson,F.C., Icen,M., Crowson,C.S., McEvoy,M.T., Gabriel,S.E., Kremers,H.M., Time trends in epidemiology and characteristics of psoriatic arthritis over 3 decades: a population-based study, <i>Journal of Rheumatology</i> , 36, 361-367, 2009	retrospective study of people with possible diagnosis of PsA (rather than suspected PsA); relevant outcomes only reported in confirmed cases
Wollenhaupt,J., Schnarr,S., Kuipers,J.G., Bacterial antigens in reactive arthritis and spondarthritis. Rational use of laboratory testing in diagnosis and follow-up. [Review] [61 refs], <i>Baillieres Clinical Rheumatology</i> , 12, 627-647, 1998	Review
Wyns,B., Sette,S., Boullart,L., Baeten,D., Hoffman,I.E., De,Keyser F., Prediction of diagnosis in patients with early arthritis using a combined Kohonen mapping and instance-based evaluation criterion, <i>Artificial Intelligence in Medicine</i> , 31, 45-55, 2004	All participants has diagnosis of AS at baseline
You,H.S., Kim,G.W., Cho,H.H., Kim,W.J., Mun,J.H., Song,M., Kim,H.S., Ko,H.C., Kim,M.B., Lee,S.G., Lee,I.S., Kim,B.S., Screening for Psoriatic Arthritis in Korean Psoriasis Patients Using the Psoriatic Arthritis Screening Evaluation Questionnaire, <i>Annals of Dermatology</i> , 27, 265-268, 2015	Evaluation of PsA screening tools in people with psoriasis is outside the scope of this question
Zautner,A.E., Johann,C., Strubel,A., Busse,C., Tareen,A.M., Masanta,W.O., Lugert,R., Schmidt-Ott,R., Gros,U., Seroprevalence of campylobacteriosis and relevant post-infectious sequelae, <i>European Journal of Clinical Microbiology &amp; Infectious Diseases</i> , 33, 1019-1027, 2014	No relevant outcome data
Zeidler,H., Amor,B., The Assessment in Spondyloarthritis International Society (ASAS) classification criteria for peripheral spondyloarthritis and for spondyloarthritis in general: The spondyloarthritis concept in progress, <i>Annals of the Rheumatic Diseases</i> .70 (1) (pp 1-3), 2011.Date of Publication: January 2011., 1-3, 2011	Editorial
Zeidler,H., Mau,R., Mau,W., Freyschmidt,J., Majewski,A., Deicher,H., Evaluation of early diagnostic criteria including HLA-B27 for ankylosing spondylitis in a follow-up study, <i>Zeitschrift fur Rheumatologie</i> , 44, 249-253, 1985	Long interval (and some loss to follow up) between initial presentation and diagnostic assignment
Zeng,Q.Y., Ankylosing spondylitis in Shantou, China: 15 years' clinical experience, <i>Journal of Rheumatology</i> , 30, 1816-1821, 2003	Comparator: all participants had AS diagnosis at baseline, so there was no appropriate comparator
Zhang,P., Yu,K., Guo,R., Shah,S., Morelli,J.N., Runge,V.A., Li,X. Ankylosing spondylitis: correlations between clinical and MRI indices of	No relevant outcome data

Study	Reason for Exclusion
sacroiliitis activity, <i>Clinical Radiology</i> , 70, 62-66, 2015	
Zlatkovic-Svenda, M., Kerimovic-Morina, D., Stojanovic, R.M., Psoriatic arthritis classification criteria: Moll and Wright, ESSG and CASPAR -- a comparative study, <i>Acta Reumatologica Portuguesa</i> , 38, 172-178, 2013	All participants with PsA had received diagnosis (new or longstanding) prior to recruitment

### F.1.8 Microbiology testing in Reactive Arthritis

#### Review Question 11

- What is the diagnostic utility of testing for infection such as salmonella, shigella, yersinia, campylobacter and chlamydia in cases of suspected reactive arthritis?

Study	Reason for Exclusion
Bas, S., Cunningham, T., Kvien, T.K., Glennas, A., Melby, K., Vischer, T.L., The value of isotype determination of serum antibodies against Chlamydia for the diagnosis of Chlamydia reactive arthritis, <i>British Journal of Rheumatology</i> , 35, 542-547, 1996	Case-control study
Bas, S., Vischer, T.L., Chlamydia trachomatis antibody detection and diagnosis of reactive arthritis, <i>British Journal of Rheumatology</i> , 37, 1054-1059, 1998	Case-control study
Buxton, J.A., Fyfe, M., Berger, S., Cox, M.B., Northcott, K.A., Multiprovincial Salmonella typhimurium Case-Control Study Group, Reactive arthritis and other sequelae following sporadic Salmonella typhimurium infection in British Columbia, Canada: a case control study, <i>Journal of Rheumatology</i> , 29, 2154-2158, 2002	Case-control study
Cherasse, A., Martin, D., Tavernier, C., Maillefert, J.F., Are blood cultures performed after disco-vertebral biopsy useful in patients with pyogenic infective spondylitis?, <i>Rheumatology</i> , 42, 913-, 2003	Letter
Constantiniu, S., Romaniuc, A., Chiriac, R., Berea, C., Kalis, O., Rezus, E., Mutica, M., Antibacterial antibodies for some enterobacteria in sera of patients with reactive arthritis and other rheumatoid diseases, <i>Romanian Archives of Microbiology &amp; Immunology</i> , 67, 30-35, 2008	Everyone had confirmed diagnosis of reactive arthritis at baseline
Contini, C., Grilli, A., Badia, L., Guardigni, V., Govoni, M., Seraceni, S., Detection of Chlamydia pneumoniae in patients with arthritis: significance and diagnostic value, <i>Rheumatology International</i> , 31, 1307-1313, 2011	Results not stratified by reactive arthritis diagnosis
Dworkin, M.S., Shoemaker, P.C., Goldoft, M.J., Kobayashi, J.M., Reactive arthritis and Reiter's syndrome following an outbreak of gastroenteritis caused by Salmonella enteritidis, <i>Clinical Infectious Diseases</i> . 33 (7) (pp 1010-1014), 2001. Date of Publication: 01 Oct 2001., 1010-1014, 2001	Incidence study after confirmed infection
Erlacher, L., Wintersberger, W., Menschik, M., Benke-Studnicka, A., Machold, K., Stanek, G., Soltz-Szots, J., Smolen, J., Graninger, W., Reactive arthritis: urogenital swab culture is the only useful diagnostic method for the detection of the arthritogenic infection in extra-articularly asymptomatic patients with undifferentiated oligoarthritis, <i>British Journal of Rheumatology</i> , 34, 838-842, 1995	Case-control study

Study	Reason for Exclusion
Fendler,C., Laitko,S., Sorensen,H., Gripenberg-Lerche,C., Groh,A., Uksila,J., Granfors,K., Braun,J., Sieper,J., Frequency of triggering bacteria in patients with reactive arthritis and undifferentiated oligoarthritis and the relative importance of the tests used for diagnosis, <i>Annals of the Rheumatic Diseases</i> , 60, 337-343, 2001	Either confirmed reactive arthritis at baseline or no final diagnosis
Fisher,L.L., Douglas,R.G.,Jr., Salmonella arthritis, <i>New York State Journal of Medicine</i> , 90, 266-267, 1990	Case report
Garkowski,A., Zajkowska,A., Czupryna,P., Lebkowski,W., Letmanowski,M., Golebicki,P., Moniuszko,A., Ustymowicz,A., Pancewicz,S., Zajkowska,J., Infectious spondylodiscitis - a case series analysis, <i>Advances in Medical Sciences</i> , 59, 57-60, 2014	Individuals all had confirmed diagnosis at baseline
Granfors,K., Isomaki,H., von,Essen R., Maatela,J., Kalliomaki,J.L., Toivanen,A., Yersinia antibodies in inflammatory joint diseases, <i>Clinical &amp; Experimental Rheumatology</i> , 1, 215-218, 1983	Case-control study
Granfors,K., Stahlberg,T.H., Isomaki,O., Toivanen,A., Specificity of IgA class anti-yersinia antibodies in yersinia arthritis, <i>Scandinavian Journal of Rheumatology</i> .17 (SUPPL.67), 64-66, 1988	Case-control study
Hannu,T., Puolakkainen,M., Leirisalo-Repo,M., Chlamydia pneumoniae as a triggering infection in reactive arthritis, <i>Rheumatology</i> , 38, 411-414, 1999	Presence of reactive arthritis defined by serological testing, therefore no diagnostic accuracy data could be extracted.
Hoeffel,D.P., Hinrichs,S.H., Garvin,K.L., Molecular diagnostics for the detection of musculoskeletal infection, <i>Clinical Orthopaedics &amp; Related Research</i> , 37-46, 1999	Narrative study without quantitative data
Hulsemann,J.L., Zeidler,J., Diagnostic evaluation of classification criteria or rheumatoid arthritis and reactive arthritis in an early synovitis outpatient clinic, <i>Annals of the Rheumatic Diseases</i> , 58, 276-80, 1999	Evaluation of diagnostic classification criteria
Ito,S., Sugihara,M., Suzuki,T., Mamura,M., Goto,D., Matsumoto,I., Tsutsumi,A., Sumida,T., Diagnosis of Chlamydia-induced reactive arthritis, <i>Internal Medicine</i> .45, 37-, 2006	Letter
Kvien,T.K., Glennas,A., Melby,K., Granfors,K., Andrup,O., Karstensen,B., Thoen,J.E., Reactive arthritis: incidence, triggering agents and clinical presentation, <i>Journal of Rheumatology</i> , 21, 115-122, 1994	Either confirmed reactive arthritis at baseline or no final diagnosis
Laitinen,O., Leirisalo,M., Allander,E., Rheumatic fever and Yersinia arthritis. Criteria and diagnostic problems in a changing disease pattern, <i>Scandinavian Journal of Rheumatology</i> , 4, 145-157, 1975	No relevant outcome data
Maki-Ikola,O., Leirisalo-Repo,M., Kantele,A., Toivanen,P., Granfors,K., Salmonella-specific antibodies in reactive arthritis, <i>Journal of infectious diseases</i> , 164, 1141-8, 1991	Serological testing performed after reactive arthritis diagnosis
McColl,G.J., Diviney,M.B., Holdsworth,R.F., McNair,P.D., Carnie,J., Hart,W., McCluskey,J., HLA-B27 expression and reactive arthritis susceptibility in two patient cohorts infected with Salmonella Typhimurium, <i>Australian &amp; New Zealand Journal of Medicine</i> , 30, 28-32, 2000	Study only included people with confirmed infection at baseline.

Study	Reason for Exclusion
Richie,A.M., Francis,M.L., Diagnostic approach to polyarticular joint pain, American Family Physician, 68, 1151-1160, 2003	Narrative article with no relevant quantitative data
Rohekar,S., Tsui,F.W., Tsui,H.W., Xi,N., Riarh,R., Bilotta,R., Inman,R.D., Symptomatic acute reactive arthritis after an outbreak of salmonella, Journal of Rheumatology, 35, 1599-1602, 2008	Incidence study after salmonella outbreak
Rosa Neto,N.S., de Carvalho,J.F., Shoenfeld,Y., Screening tests for inflammatory activity: Applications in rheumatology, Modern Rheumatology.19, 469-477, 2009	Discussion paper with no quantitative data
Rose,C.D., Eppes,S.C., Infection-related arthritis, Rheumatic Diseases Clinics of North America, 23, 677-695, 1997	Discussion paper with no quantitative data
Saebo,A., Lassen,J., A survey of acute and chronic disease associated with Yersinia enterocolitica infection. A Norwegian 10-year follow-up study on 458 hospitalized patients, Scandinavian Journal of Infectious Diseases, 23, 517-527, 1991	Data not stratified by reactive arthritis diagnosis
Schlapbach,P., Ambord,C., Blochlinger,A.M., Gerber,N.J., Bacterial arthritis: are fever, rigors, leucocytosis and blood cultures of diagnostic value?, Clinical Rheumatology, 9, 69-72, 1990	All individuals had a confirmed diagnosis at baseline
Shaikh,M.M., Hermans,L.E., van Laar,J.M., Is serum procalcitonin measurement a useful addition to a rheumatologist's repertoire? A review of its diagnostic role in systemic inflammatory diseases and joint infections, Rheumatology, 54, 231-240, 2015	Non-systematic review not containing relevant data
Sieper,J., Braun,J., Reichardt,M., Eggens,U., The value of specific antibody detection and culture in the diagnosis of reactive arthritis, Clinical Rheumatology, 12, 245-252, 1993	Case-control study
Sieper,J., Rudwaleit,M., Braun,J., van der Heijde,D., Diagnosing reactive arthritis: Role of clinical setting in the value of serologic and microbiologic assays, Arthritis and Rheumatism.46, 319-327, 2002	Non-systematic review not containing relevant data
Soderlin,M.K., Kautiainen,H., PuolakkainenM., et al. Infections preceding early arthritis in Southern Sweden: a prospective population-based study. Journal of Rheumatology 2003 30:459-64	Presence of reactive arthritis defined by serological testing, therefore no diagnostic accuracy data could be extracted
Thomson,G.T., Alfa,M., Orr,K., Thomson,B.R., Olson,N., Serologic testing for reactive arthritis, Clinical & Investigative Medicine - Medecine Clinique et Experimentale, 17, 212-217, 1994	Case-control study
Tuuminen,T., Lounamo,K., Leirisalo-Repo,M., A review of serological tests to assist diagnosis of reactive arthritis: critical appraisal on methodologies, Frontiers in Immunology, 4, 418-, 2013	Non-systematic review not containing relevant data
Vasala,M., Hallanvuori,S., Ruuska,P., Suokas,R., Siitonen,A., Hakala,M., High frequency of reactive arthritis in adults after Yersinia pseudotuberculosis O:1 outbreak caused by contaminated carrots, Annals of the Rheumatic Diseases, 73, 1793-6, 2014	Study of incidence of reactive arthritis after a Yersinia outbreak
Wu,J.-Y., Lee,S.-H., Shen,C.-J., Hsieh,Y.-C., Yo,P.-H., Cheng,H.-Y., Chan,R.-C., Lee,C.-C., Chang,S.-S., Use of serum procalcitonin to detect bacterial infection in patients with autoimmune diseases: A systematic review	Study of diagnostic accuracy of tests to detect infection

Study	Reason for Exclusion
and meta-analysis, Arthritis and Rheumatism.64, 3034-3042, 2012	
Zeidler,H., Hudson,A.P., New insights into Chlamydia and arthritis. Promise of a cure? Annals of the Rheumatic Diseases, 2016	Narrative review article not contacting relevant quantitative data
Zeidler,H., Hudson,A.P., Causality of Chlamydiae in Arthritis and Spondyloarthritis: a Plea for Increased Translational Research, Current Rheumatology Reports, 18, 9-, 2016	Review

## F.2 Pharmacological management

### F.2.1 Pharmacological interventions for axial symptoms of spondyloarthritis

Review question 20

- What is the comparative effectiveness of non-steroidal anti-inflammatory drugs (NSAIDs) for management of axial symptoms of spondyloarthritis?

Study	Reason for Exclusion
Al-Sharkawi,M.S., A multicentre study of diclofenac sodium slow-release (Voltaren Retard) in the treatment of rheumatic disorders in the Kingdom of Saudi Arabia, The Journal of international medical researchJ Int Med Res, 12, 244-249, 1984	Open, non- comparative study of diclofenac sodium. Not an RCT.
Ansell,B.M., A comparative study of butacote and naproxen in ankylosing spondylitis, Journal of International Medical ResearchJ.INT.MED.RES., 5, 95-, 1977	Butacote is enteric coated Phenylbutazone, excluded comparator from review
Ansell,B.M., Major,G., Liyanage,S.P., A comparative study of butacote and Naprosyn in ankylosing spondylitis, European journal of rheumatology and inflammationEur J Rheumatol Inflamm, 2, 45-50, 1979	Comparator is Phenylbutazone, excluded from review protocol.
Ansell,B.M., Major,G., Liyanage,S.P., Gumpel,J.M., Seifert,M.H., Mathews,J.A., Engler,C., A comparative study of Butacote and Naprosyn in ankylosing spondylitis, Annals of the rheumatic diseasesAnn Rheum Dis, 37, 436-439, 1978	Phenylbutazone excluded as a comparator as not licensed.
Bachmann,F., Comparison between sustained release formulations of ibuprofen and indomethacin in treatment of ankylosing spondylitis, Die Therapiewoche, 34, 4958-4964, 1984	German language paper.
Bernstein,R.M., Calin,H.J., Ollier,S., Calin,A., A comparison of the efficacy and tolerability of lornoxicam and indomethacin in ankylosing spondylitis, European journal of rheumatology and inflammationEur J Rheumatol Inflamm, 12, 6-13, 1992	Lornoxicam not a license drug in the UK
Bozsoky,S., Zahumenszky,Z., Protacine, a new nonsteroidal anti-inflammatory agent: Double-	Protacine not a licensed NSAID, mixed RA and AS population

Study	Reason for Exclusion
blind evaluation of its therapeutic potential, Clinical therapeutics Clin Ther, 2, 409-420, 1980	
Byron, M.A., Steele, C.E., A double-blind crossover study comparing tolmetin sodium and naproxen in the treatment of ankylosing spondylitis, Current medical research and opinion Curr Med Res Opin, 7, 670-676, 1982	Tolmetin sodium not in BNF, not licensed for use.
Calabro, J.J., Efficacy of diclofenac in ankylosing spondylitis, The American journal of medicine Am J Med, 80, 58-63, 1986	Pooled analysis of two trials.
Calguneri, Meral, Cobankara, Veli, Ozturk, M. Akif, Ertenli, Ihsan, Kiraz, Sedat, Apras, Sule, Combination therapies in spondyloarthropathies, The Kobe journal of medical sciences Kobe J Med Sci, 50, 31-37, 2004	Population is people with peripheral spondyloarthropathies
Calin, A., A placebo controlled, crossover study of azathioprine in Reiter's syndrome, Annals of the rheumatic diseases Ann Rheum Dis, 45, 653-655, 1986	Azathioprine excluded comparator in review protocol.
Calin, A., Britton, M., Sulindac in ankylosing spondylitis. Double-blind evaluation of sulindac and indomethacin, JAMA : the journal of the American Medical Association JAMA, 242, 1885-1886, 1979	No outcomes of use reported.
Calin, A., Grahame, R., Double-blind cross-over trial of flurbiprofen and phenylbutazone in ankylosing spondylitis, British medical journal Br Med J, 4, 496-499, 1974	Comparator was Phenylbutazone, excluded from protocol as not licensed
Caline, A., Grahame, R., Double-blind cross-over trial of flurbiprofen and phenylbutazone in ankylosing spondylitis, British medical journal Br Med J, 4, 496-499, 1974	Comparator was Phenylbutazone, excluded from protocol as not licensed
Daly, M., Alikhan, A., Armstrong, A.W., Combination systemic therapies in psoriatic arthritis, Journal of Dermatological Treatment J. Dermatol. Treat., 22, 276-284, 2011	Population was people with peripheral spondyloarthropathies
Dougados, M., Nguyen, M., Caporal, R., Legeais, J., Bouxin-Sauzet, A., Pellegrini-Guegnault, B., Gomeni, C., Ximoprofen in ankylosing spondylitis. A double blind placebo controlled dose ranging study, Scandinavian journal of rheumatology Scand J Rheumatol, 23, 243-248, 1994	Ximoprofen not in BNF, therefore not included in analysis
Doury, P., Roux, H., Isoxicam vs ketoprofen in ankylosing spondylitis, British journal of clinical pharmacology Br J Clin Pharmacol, 22, 157S-160S, 1986	Isoxicam not licensed for use, not in BNF
Droste, U., Weber, E., Schneider, B., Effectivity and tolerance of two formulations of Diclofenac in patients with Spondylitis ankylosans, Zeitschrift fur Rheumatologie Z Rheumatol, 51, 95-, 1992	German language paper
Dutu, A., Bolosiu, H.D., Parasca, I., Treatment with tolmetin in ankylosing spondylitis. Comparative cross-study with phenylbutazone, CLUJUL MED, 55, 115-118, 1982	Comparator was Phenylbutazone, excluded from protocol as not licensed

Study	Reason for Exclusion
Franssen,M.J., Gribnau,F.W., van de Putte,L.B., A comparison of diflunisal and phenylbutazone in the treatment of ankylosing spondylitis, Clinical rheumatologyClin Rheumatol, 5, 210-220, 1986	Comparator was Phenylbutazone, excluded from protocol as not licensed
Franssen,M.J., van Herwaarden,C.L., van de Putte,L.B., Gribnau,F.W., Lung function in patients with ankylosing spondylitis. A study of the influence of disease activity and treatment with nonsteroidal antiinflammatory drugs, Journal of Rheumatology, 13, 936-940, 1986	Comparator was Phenylbutazone - excluded from review protocol.
Ghosh,P., Taylor,T.K.F., Meachin,A.D., A double blind crossover trial of indomethacin flurbiprofen and placebo in the management of lumbar spondylosis, Current Therapeutic Research - Clinical and ExperimentalCURR.THER.RES.CLIN.EXP., 30, 318-326, 1981	Lumbar spondylosis excluded from list of spondyloarthropathies (see GDG list)
Gossec,L., van der Heijde,D., Melian,A., Krupa,D.A., James,M.K., Cavanaugh,P.F., Reicin,A.S., Dougados,M., Efficacy of cyclo-oxygenase-2 inhibition by etoricoxib and naproxen on the axial manifestations of ankylosing spondylitis in the presence of peripheral arthritis, Annals of the rheumatic diseasesAnn Rheum Dis, 64, 1563-1567, 2005	Post hoc analysis of Van der Heijde 2005-primary study already included in review.
Haringer,E., Double-blind comparative test of Pirprofen vs. Piroxicam in patients with acute spondylogenic pain syndrom, Zeitschrift fur RheumatologieZ Rheumatol, 43, 228-, 1984	German language paper
Haringer,E., Treatment of acute spondylogenic pain syndrome in general practice. A double-blind study, Fortschritte der Medizin, 103, 189-192, 1985	German language paper
Harkness,A.J., Burry,H.C., Grahame,R., A trial of feprazone in ankylosing spondylitis, Rheumatology and rehabilitationRheumatol Rehabil, 16, 158-161, 1977	Feprazone not listed in BNF, not a valid omaprator.
Hart,F.D., Boardman,P.L., Indomethacin and phenylbutazone: a comparison, British medical journalBr Med J, 2, 1281-1284, 1965	RCT part of study only includes Rheumatoid arthritis population.
Hart,F.D., Borardman,P.L., Indomethacin: a new non-steroid anti-inflammatory agent, British medical journalBr Med J, 2, 965-970, 1963	Comparator is Phenylbutazone - excluded from review protocol as not licensed
Hill,H.F., Hill,A.G., Ankylosing spondylitis: open long-term and double-blind crossover studies with naproxen, Journal of clinical pharmacologyJ Clin Pharmacol, 15, 355-362, 1975	Population had rheumatoid arthritis.
Jessop,J.D., Double blind study of ketoprofen and phenylbutazone in ankylosing spondylitis, Rheumatology and rehabilitationRheumatol Rehabil, 15, 37-42, 1976	Phenylbutazone excluded as comparator.
Kivitz,Alan J., Espinoza,Luis R., Sherrer,Yvonne R., Liu-Dumaw,Maria, West,Christine R., A comparison of the efficacy and safety of celecoxib 200 mg and celecoxib 400 mg once	Population was people with peripheral spondyloarthropathies

Study	Reason for Exclusion
daily in treating the signs and symptoms of psoriatic arthritis, Seminars in arthritis and rheumatism <i>Semin Arthritis Rheum</i> , 37, 164-173, 2007	
Kroon,Feline, Landewe,Robert, Dougados,Maxime, van der Heijde,Desiree, Continuous NSAID use reverts the effects of inflammation on radiographic progression in patients with ankylosing spondylitis, <i>Annals of the rheumatic diseases</i> <i>Ann Rheum Dis</i> , 71, 1623-1629, 2012	Post hoc analysis of study on continuous vs on demand use of NSAID: primary study (Wanders 2005) not included in the review (see reference for details).
Kroon,F., Burg,L., Ramiro,S., Landewe,R., Buchbinder,R., Heijde,D., Non-steroidal anti-inflammatory drugs in axial spondyloarthritis: A cochrane review, <i>Arthritis and Rheumatology</i> , 66, S256-, 2014	Conference abstract
Kroon,F.P., van der Burg,L.R., Ramiro,S., Landewe,R.B., Buchbinder,R., Falzon,L., van der Heijde,D., Non-steroidal anti-inflammatory drugs (NSAIDs) for axial spondyloarthritis (ankylosing spondylitis and non-radiographic axial spondyloarthritis). [Review], <i>Cochrane Database of Systematic Reviews</i> , 7, CD010952-, 2015	Systematic review
Leatham,P.A., Bird,H.A., Wright,V., Fowler,P.D., The run-in period in trial design: a comparison of two non-steroidal anti-inflammatory agents in psoriatic arthropathy, <i>Agents and actions</i> <i>Agents Actions</i> , 12, 221-224, 1982	Psoriatic arthritis - not axial SpA
Liebling,M.R., Altman,R.D., Benedek,T.G., A double blind, multiclinic trial of sulindac (MG 213) in the treatment of ankylosing spondylitis, <i>Arthritis and rheumatism</i> <i>Arthritis Rheum</i> , 18, 411-, 1975	Abstract
Lomen,P.L., Turner,L.F., Lamborn,K.R., Brinn,E.L., Sattler,L.P., Flurbiprofen in the treatment of ankylosing spondylitis. A comparison with phenylbutazone, <i>The American journal of medicine</i> <i>Am J Med</i> , 80, 120-126, 1986	Phenylbutazone not licensed for use, not in BNF
Lonauer,G., Wirth,W., Controlled double-blind study on the efficacy and tolerability of acemetacin and indometacin in the therapy of psoriatic arthritis, <i>Arzneimittel-Forschung</i> <i>Arzneimittelforschung</i> , 30, 1440-1444, 1980	German language paper
Macfarlane,J.D., Maisey,M.N., Grahame,R., Burry,H.C., Gastrointestinal blood loss on phenylbutazone and feprazone, <i>Rheumatology and rehabilitation</i> <i>Rheumatol Rehabil</i> , 15, 108-111, 1976	Phenylbutazone excluded from review on advice of MPC.
Mena,H.R., Willkens,R.F., Treatment of ankylosing spondylitis with flurbiprofen or phenylbutazone, <i>European journal of clinical pharmacology</i> <i>Eur J Clin Pharmacol</i> , 11, 263-266, 1977	Phenylbutazone excluded from review as not licensed for use.
Palferman,T.G., Webley,M., A comparative study of nabumetone and indomethacin in	Dose of nabumetone is 2g/ day which is higher than that licensed in BNF.

Study	Reason for Exclusion
ankylosing spondylitis, European journal of rheumatology and inflammationEur J Rheumatol Inflamm, 11, 23-29, 1991	
Peloso,Paul M., Gammaitoni,Arnold, Smugar,Steven S., Wang,Hongwei, Moore,Andrew R., Longitudinal numbers-needed-to-treat (NNT) for achieving various levels of analgesic response and improvement with etoricoxib, naproxen, and placebo in ankylosing spondylitis, BMC musculoskeletal disordersBMC Musculoskelet Disord, 12, 165-, 2011	Post hoc analysis of primary study Van der Heijde (2005), which is already included in the review.
Reiter,W., Pilger,A., Ankylosing spondylitis: comparison of acemetacin and piroxicam, Die Therapiewoche, 34, 7209-7215, 1984	German language paper.
Rejholec,V., Vapaatalo,H., Tokola,O., Gothoni,G., Tolfenamic acid in ankylosing spondylarthritis: A double-blind comparison to indomethacin, Scandinavian journal of rheumatologyScand J Rheumatol, 10, 1-7, 1981	Tolfenamic acid not in licensed dose (400mg used in study, 200mg licensed)
Romberg,O., Tenoxicam (Ro 12-0068) in ankylosing spondylitis, European journal of rheumatology and inflammationEur J Rheumatol Inflamm, 9, 122-125, 1987	Open label, all participants took tenoxicam, no comparator group.
Russell,A.S., Labelle,J.L., A double-blind crossover study of ketoprofen enteric-coated and ketoprofen non-enteric-coated tablets in patients with ankylosing spondylitis, osteoarthritis and rheumatoid arthritis, CURR THER RES, CLIN EXP, 33, 185-191, 1983	Population not just axial SA; population had RA (n=10/23), OA (n=8/23)and AS (5/23)
Sadowska-Wroblewska,M., Garwolinska,H., Filipowicz-Sosnowska,A., Azapropazone versus Indometacin in a double blind test with patients with ankylosing spondylitis, Zeitschrift fur RheumatologieZ Rheumatol, 39, 406-411, 1980	German language paper
Santo,J.E., Queiroz,M.V., Oxaprozin versus diclofenac sodium in the treatment of ankylosing spondylitis, The Journal of international medical researchJ Int Med Res, 16, 150-156, 1988	Oxaprozin not licensed, not in BNF.
Sarzi-Puttini,P., Santandrea,S., Boccassini,L., Panni,B., Caruso,I., The role of NSAIDs in psoriatic arthritis: evidence from a controlled study with nimesulide, Clinical & Experimental Rheumatology, 19, Suppl-20, 2001	Population was people with peripheral spondyloarthropathies
Schattenkirchner,M., Kellerer,G., Kruger,K., Treatment of ankylosing spondylitis: Single-blind crossover comparison of acemetacin and diclofenac, Die Therapiewoche, 36, 5276-5283, 1986	German language paper
Siegsmeth,W., Sieberer,W., A comparison of the short-term effects of ibuprofen and diclofenac in spondylosis, The Journal of international medical researchJ Int Med Res, 6, 369-374, 1978	Incorrect population - lumbar osteoarthritis
Tweddell,E.D., Willcocks,W.A., An evaluation of piroxicam, a new non-steroidal anti-inflammatory agent. A multicentre trial, South African medical	Population was not defined, (practitioner's own discretion): mostly OA and RA

Study	Reason for Exclusion
journal = Suid-Afrikaanse tydskrif vir geneeskundeS Afr Med J, 59, 915-916, 1981	
Van Gerwen,F., Van der Korst,J.K., Gribnau,F.W., Double-blind trial of naproxen and phenylbutazone in ankylosing spondylitis, Annals of the rheumatic diseasesAnn Rheum Dis, 37, 85-88, 1978	Phenylbutazone exclude on advice of MPC
Van, Gerwen F., Van der Korst, J.K., Gribnau, F.W.J., Double blind trial of naproxen and phenylbutazone in ankylosing spondylitis, Annals of the rheumatic diseasesAnn Rheum Dis, 37, 85-88, 1978	Comparator was Phenylbutazone, excluded from protocol as not licensed
Wanders,Astrid, Heijde,Desiree van der, Landewe,Robert, Behier,Jehan Michel, Calin,Andrei, Olivieri,Ignazio, Zeidler,Henning, Dougados,Maxime, Nonsteroidal antiinflammatory drugs reduce radiographic progression in patients with ankylosing spondylitis: a randomized clinical trial, Arthritis and rheumatismArthritis Rheum, 52, 1756-1765, 2005	Continuous vs on demand NSAID: all participants started on celecoxib, but could switch to other NSAIDs during the study; no data provided on which patients switched to other NSAIDs and proportion of patients on different NSAIDs.
Wordsworth,B.P., Ebringer,R.W., Coggins,E., Smith,S., A double-blind cross-over trial of fenoprofen and phenylbutazone in ankylosing spondylitis, Rheumatology & Rehabilitation, 19, 260-263, 1980	Phenylbutazone is comparator in this trial; excluded from review as not licensed.
Zeidler,H., Dougados,M., Calin,A., Veys,E., Hettich,M., Meloxicam by Spondylitis ankylosans: double-blind clinical test over 6 week in comparison to Piroxicam and placebo, Zeitschrift fur RheumatologieZ Rheumatol, 56 Suppl 1, 34-, 1997	German language paper
Zeidler,H., Dougados,M., Veys,E., Calin,A., Comparative study of Meloxicam, Piroxicam and placebo by ankyloseric spondylitis: Results of a one year study, Zeitschrift fur RheumatologieZ Rheumatol, 57, 71-, 1998	German language paper

## F.2.2 Pharmacological management of peripheral spondyloarthritis

### Review Question 21

- What is the comparative effectiveness of the following pharmacological interventions for the management of peripheral spondyloarthritis:
  - corticosteroids
  - non-steroidal anti-inflammatory drugs (NSAIDs)
  - standard disease-modifying anti-rheumatic drugs (DMARDs)?

Study	Reason for Exclusion
Asaduzzaman,A.T.M., Sikder,A., Mahmud,M.M., Paul,H.K., Islam,M.N., Efficacy and safety of leflunomide in psoriatic arthritis, Journal of Pakistan Association of Dermatologists, 24, 51-56, 2014	Drug dose used not current UK practice
Adams,K., Bombardier,C., van der Heijde,D., Safety and efficacy of on-demand versus continuous use of nonsteroidal antiinflammatory drugs in patients with inflammatory arthritis: A systematic literature review, Journal of Rheumatology, 39, 56-58, 2012	Insufficient detail
Altan,L., Bingol,U., Karakoc,Y., Aydiner,S., Yurtkuran,M., Yurtkuran,M., Clinical investigation of methotrexate in the treatment of ankylosing spondylitis, Scandinavian journal of rheumatology, 30, 255-259, 2001	Axial
Ansell,B.M., Major,G., Liyanage,S.P., Gumpel,J.M., Seifert,M.H., Mathews,J.A., Engler,C., A comparative study of Butacote and Naprosyn in ankylosing spondylitis, Annals of the rheumatic diseases, 37, 436-439, 1978	Axial
Armstrong, April W., Brezinski, Elizabeth A., Follansbee, Matthew R., Armstrong, Ehrin J., Effects of biologic agents and other Disease-Modifying Antirheumatic Drugs on cardiovascular outcomes in psoriasis and psoriatic arthritis: a systematic review, Current pharmaceutical design, 20, 500-512, 2014	Studies primarily on psoriasis
Arti,H.R., Mousapour,A., Alavi,S.M., The effect of intravenous dexamethasone in the treatment of septic arthritis, Pakistan Journal of Medical Sciences, 30, -, 2014	Not relevant arthritis type
Ash,Zoe, Gaujoux-Viala,Cecile, Gossec,Laure, Hensor,Elizabeth M.A., FitzGerald,Oliver, Winthrop,Kevin, van der Heijde,Desiree, Emery,Paul, Smolen,Josef S., Marzo-Ortega,Helena, A systematic literature review of drug therapies for the treatment of psoriatic arthritis: current evidence and meta-analysis informing the EULAR recommendations for the management of psoriatic arthritis, Annals of the rheumatic diseases, 71, 319-326, 2012	Insufficient study details
Astorga,G., Double-blind, parallel clinical trial of tenoxicam (Ro 12-0068) versus piroxicam in patients with ankylosing spondylitis, European journal of rheumatology and inflammation, 9, 70-73, 1987	Axial
Atzeni,Fabiola, Boccassini,Laura, Antivalle,Marco, Salaffi,Fausto, Sarzi-Puttini,Piercarlo, Etanercept plus ciclosporin versus etanercept plus methotrexate for maintaining clinical control over psoriatic arthritis: a randomised pilot study, Annals of the rheumatic diseases, 70, 712-714, 2011	Brief research report/letter
Bachmann,F., Comparison between sustained release formulations of ibuprofen and indomethacin in treatment of ankylosing spondylitis, Die Therapiewoche, 34, 4958-4964, 1984	Not in English

Study	Reason for Exclusion
Baranaukaite,Asta, Raffayova,Helena, Kungurov,N.V., Kubanova,Anna, Venalis,Algirdas, Helmle,Laszlo, Srinivasan,Shankar, Nasonov,Evgeny, Vastesaeager,Nathan, RESPOND,investigators, Infliximab plus methotrexate is superior to methotrexate alone in the treatment of psoriatic arthritis in methotrexate-naive patients: the RESPOND study, Annals of the rheumatic diseases, 71, 541-548, 2012	Not relevant comparator
Batlle-Gualda,E., Figueroa,M., Ivorra,J., Raber,A., The efficacy and tolerability of aceclofenac in the treatment of patients with ankylosing spondylitis: a multicenter controlled clinical trial. Aceclofenac Indomethacin Study Group, The Journal of rheumatology, 23, 1200-1206, 1996	Axial
Benitez-Del-Castillo,J.M., Garcia-Sanchez,J., Iradier,T., Banares,A., Sulfasalazine in the prevention of anterior uveitis associated with ankylosing spondylitis, Eye (London, England)Eye, 14 ( Pt 3A), 340-343, 2000	Preventative not treatment
Bernstein,R.M., Calin,H.J., Ollier,S., Calin,A., A comparison of the efficacy and tolerability of lornoxicam and indomethacin in ankylosing spondylitis, European journal of rheumatology and inflammation, 12, 6-13, 1992	Axial
Bird,H.A., Le Gallez,P., Astbury,C., Looi,D., Wright,V., A parallel group comparison of tenoxicam and piroxicam in patients with ankylosing spondylitis, Pharmatherapeutica, 4, 457-462, 1986	Axial
BLACK,R.L., O'Brien,W.M., VANSCOTT,E.J., AUERBACH,R., EISEN,A.Z., BUNIM,J.J., METHOTREXATE THERAPY IN PSORIATIC ARTHRITIS; DOUBLE-BLIND STUDY ON 21 PATIENTS, JAMA : the journal of the American Medical Association, 189, 743-747, 1964	Placebo
Boulos,Pauline, Dougados,Maxime, Macleod,Stuart M., Hunsche,Elke, Pharmacological treatment of ankylosing spondylitis: a systematic review, Drugs, 65, 2111-2127, 2005	Axial
Braun,J., Horst-Bruinsma,I.E., Huang,F., Burgos-Vargas,R., Vlahos,B., Koenig,A.S., Freundlich,B., Clinical efficacy and safety of etanercept versus sulfasalazine in patients with ankylosing spondylitis: a randomized, double-blind trial, Arthritis and rheumatism, 63, 1543-1551, 2011	Not relevant comparator
Braun,Juergen, van der Horst-Bruinsma,Irene, Huang,Feng, Burgos-Vargas,Ruben, Vlahos,Bonnie, Koenig,Andrew S., Freundlich,Bruce, Clinical efficacy and safety of etanercept versus sulfasalazine in patients with ankylosing spondylitis: a randomized, double-blind trial, Arthritis and rheumatism, 63, 1543-1551, 2011	Not relevant comparator
Braun,Jurgen, Pavelka,Karel, Ramos-Remus,Cesar, Dimic,Aleksandar, Vlahos,Bonnie, Freundlich,Bruce, Koenig,Andrew S., Clinical efficacy of etanercept versus sulfasalazine in ankylosing spondylitis subjects with peripheral joint involvement, The Journal of rheumatology, 39, 836-840, 2012	Not relevant comparator
Burry,H.C., Siebers,R., A comparison of flurbiprofen with naproxen in ankylosing spondylitis, The New Zealand medical journal, 92, 309-311, 1980	Axial
Byron,M.A., Steele,C.E., A double-blind crossover study comparing tolmetin sodium and naproxen in the treatment of ankylosing spondylitis, Current medical research and opinion, 7, 670-676, 1982	Axial

Study	Reason for Exclusion
Calin,A., A placebo controlled, crossover study of azathioprine in Reiter's syndrome, Annals of the rheumatic diseases, 45, 653-655, 1986	Placebo comparator
Calin,A., Britton,M., Sulindac in ankylosing spondylitis. Double-blind evaluation of sulindac and indomethacin, JAMA : the journal of the American Medical Association, 242, 1885-1886, 1979	Axial, not RCT
Calin,A., Grahame,R., Double-blind cross-over trial of flurbiprofen and phenylbutazone in ankylosing spondylitis, British medical journal, 4, 496-499, 1974	Axial
Caline,A., Grahame,R., Double-blind cross-over trial of flurbiprofen and phenylbutazone in ankylosing spondylitis, British medical journal, 4, 496-499, 1974	Not relevant comparator
Capretto,C., Cremona,C., Canaparo,L., A double-blind controlled study of S-adenosylmethionine (SAME) v. ibuprofen in gonarthrosis, coxarthrosis and spondylarthrosis, Clinical Trials Journal, 22, 15-24, 1985	Not relevant comparator
Charlot,J., Villiaumey,J., A comparative study of benoxaprofen and ketoprofen in ankylosing spondylitis, European journal of rheumatology and inflammation, 5, 277-281, 1982	Axial
Chen,J., Liu,C., Sulfasalazine for ankylosing spondylitis, The Cochrane database of systematic reviews, CD004800-, 2005	Has been updated, included studies had predominantly axial participants
Chen,Junmin, Liu,Chao, Is sulfasalazine effective in ankylosing spondylitis? A systematic review of randomized controlled trials, The Journal of rheumatology,33, 722-731, 2006	Axial
Chen,Junmin, Veras,Mirella M.S., Liu,Chao, Lin,Junfang, Methotrexate for ankylosing spondylitis, The Cochrane database of systematic reviews, 2, CD004524-, 2013	Included studies, participants predominantly axial
Cherubino,P., Longoni,A., Flurbiprofen and ketoprofen administered orally and rectally: Efficacy and tolerability in spondyloarthritis. <ORIGINAL> FLURBIPROFEN E KETOPROFEN PER VIA ORALE E RETTALE: EFFICACIA E TOLLERABILITA NELLA SPONDILOARTROSI, Clinica Terapeutica, 107, 471-475, 1983	Not in English
Clegg,D.O., Reda,D.J., Abdellatif,M., Comparison of sulfasalazine and placebo for the treatment of axial and peripheral articular manifestations of the seronegative spondylarthropathies: a Department of Veterans Affairs cooperative study, Arthritis and rheumatism, 42, 2325-2329, 1999	Combination of results from other studies
Clegg,D.O., Reda,D.J., Mejias,E., Cannon,G.W., Weisman,M.H., Taylor,T., Budiman-Mak,E., Blackburn,W.D., Vasey,F.B., Mahowald,M.L., Cush,J.J., Schumacher,H.R.J., Silverman,S.L., Alepa,F.P., Luggen,M.E., Cohen,M.R., Makkena,R., Haakenson,C.M., Ward,R.H., Manaster,B.J., Anderson,R.J., Ward,J.R., Henderson,W.G., Comparison of sulfasalazine and placebo in the treatment of psoriatic arthritis. A Department of Veterans Affairs Cooperative Study, Arthritis and rheumatism, 39, 2013-2020, 1996	Placebo comparator
Clegg,D.O., Reda,D.J., Weisman,M.H., Blackburn,W.D., Cush,J.J., Cannon,G.W., Mahowald,M.L., Schumacher,H.R.J., Taylor,T., Budiman-Mak,E., Cohen,M.R., Vasey,F.B., Luggen,M.E., Mejias,E., Silverman,S.L., Makkena,R., Alepa,F.P., Buxbaum,J., Haakenson,C.M., Ward,R.H., Manaster,B.J., Anderson,R.J., Ward,J.R., Henderson,W.G.,	Axial

Study	Reason for Exclusion
Comparison of sulfasalazine and placebo in the treatment of ankylosing spondylitis. A Department of Veterans Affairs Cooperative Study, <i>Arthritis and rheumatism</i> , 39, 2004-2012, 1996	
Clegg,D.O., Reda,D.J., Weisman,M.H., Cush,J.J., Vasey,F.B., Schumacher,H.R.J., Budiman-Mak,E., Balestra,D.J., Blackburn,W.D., Cannon,G.W., Inman,R.D., Alepa,F.P., Mejias,E., Cohen,M.R., Makkena,R., Mahowald,M.L., Higashida,J., Silverman,S.L., Parhami,N., Buxbaum,J., Haakenson,C.M., Ward,R.H., Manaster,B.J., Anderson,R.J., Henderson,W.G., Comparison of sulfasalazine and placebo in the treatment of reactive arthritis (Reiter's syndrome). A Department of Veterans Affairs Cooperative Study, <i>Arthritis and rheumatism</i> , 39, 2021-2027, 1996	Placebo comparator
Coelho Andrade,L.E., Atra,E., Bosi Ferraz,M., Sulphasalazine and ankylosing spondylitis: an open pilot study, <i>Clinical and experimental rheumatology</i> , 7, 661-662, 1989	Letter
Colebatch,Alexandra N., Marks,Jonathan L., Edwards,Christopher J., Safety of non-steroidal anti-inflammatory drugs, including aspirin and paracetamol (acetaminophen) in people receiving methotrexate for inflammatory arthritis (rheumatoid arthritis, ankylosing spondylitis, psoriatic arthritis, other spondyloarthritis), <i>The Cochrane database of systematic reviews</i> , CD008872-, 2011	No included studies had participants with ankylosing spondylitis, psoriatic arthritis or other spondyloarthritis
Combe,B., Goupille,P., Kuntz,J.L., Tebib,J., Liote,F., Bregeon,C., Sulphasalazine in psoriatic arthritis: a randomized, multicentre, placebo-controlled study, <i>British Journal of Rheumatology</i> , 35, 664-668, 1996	Placebo comparator
Corkill,M.M., Jobanputra,P., Gibson,T., Macfarlane,D.G., A controlled trial of sulphasalazine treatment of chronic ankylosing spondylitis: failure to demonstrate a clinical effect, <i>British Journal of Rheumatology</i> , 29, 41-45, 1990	Axial
Cranney,A.B., McKendry,R.J., Wells,G.A., Ooi,D.S., Kanigsberg,N.D., Kraag,G.R., Smith,C.D., The effect of low dose methotrexate on bone density, <i>The Journal of rheumatology</i> , 28, 2395-2399, 2001	Not an RCT
Datto,C., Hellmund,R., Siddiqui,M.K., Efficacy and tolerability of naproxen/esomeprazole magnesium tablets compared with non-specific NSAIDs and COX-2 inhibitors: A systematic review and network analyses, <i>Open Access Rheumatology: Research and Reviews.</i> , 5, -, 2013	No subgroup analysis of the ankylosing spondylitis studies
Davis,M.J., Dawes,P.T., Beswick,E., Lewin,I.V., Stanworth,D.R., Sulphasalazine therapy in ankylosing spondylitis: its effect on disease activity, immunoglobulin A and the complex immunoglobulin A-alpha-1-antitrypsin, <i>British journal of rheumatology</i> , 28, 410-413, 1989	Axial
De La Mata,Jose, Maese,Jesus, Martinez,Juan A., Rosario,Piedad, Loza,Estibaliz, Current evidence of the management of undifferentiated spondyloarthritis: a systematic literature review, <i>Seminars in arthritis and rheumatism</i> , 40, 421-423, 2011	Not relevant interventions
Dougados,M., Methotrexate in peripheral spondyloarthritis including psoriatic arthritis: A need for further evaluation, <i>Rheumatology (United Kingdom)</i> , 51, 1343-1344, 2012	Editorial
Dougados,M., Behier,J.M., Jolchine,I., Calin,A., van der Heijde,D., Olivieri,I., Zeidler,H., Herman,H., Efficacy of celecoxib, a cyclooxygenase 2-specific inhibitor, in the	Axial

Study	Reason for Exclusion
treatment of ankylosing spondylitis: a six-week controlled study with comparison against placebo and against a conventional nonsteroidal antiinflammatory drug, <i>Arthritis and rheumatism</i> , 44, 180-185, 2001	
Dougados,M., Nguyen,M., Mijiyawa,M., Amor,B., Sulfasalazine in Spondylarthropathies, <i>Zeitschrift fur Rheumatologie</i> , 49 Suppl 1, 80-, 1990	Short report/abstract
Dougados,M., van der Linden,S., Leirisalo-Repo,M., Huitfeldt,B., Juhlin,R., Veys,E., Zeidler,H., Kvien,T.K., Olivieri,I., Dijkmans,B., Sulfasalazine in the treatment of spondylarthropathy. A randomized, multicenter, double-blind, placebo-controlled study, <i>Arthritis and rheumatism</i> , 38, 618-627, 1995	Placebo comparator
Doury,P., Pattin,S., Comparative study of the effectiveness of flurbiprofen given twice or 3-times daily, <i>Current medical research and opinion</i> , 5, 127-129, 1977	Mixed population, insufficient detail
Doury,P., Roux,H., Isoxicam vs ketoprofen in ankylosing spondylitis, <i>British journal of clinical pharmacology</i> , 22, 157S-160S, 1986	Axial
Droste,U., Weber,E., Schneider,B., Effectivity and tolerance of two formulations of Diclofenac in patients with Spondylitis ankylosans, <i>Zeitschrift fur Rheumatologie</i> , 51, 95-, 1992	Not in English
Dutu,A., Bolosiu,H.D., Parasca,I., Treatment with tolmetin in ankylosing spondylitis. Comparative cross-study with phenylbutazone, <i>CLUJUL MED</i> , 55, 115-118, 1982	Not in English
Ebner,W., Poal Ballarin,J.M., Boussina,I., Meclofenamate sodium in the treatment of ankylosing spondylitis. Report of a European double-blind controlled multicenter study, <i>Arzneimittel-Forschung</i> , 33, 660-663, 1983	Not relevant comparator
Egsmose,C., Hansen,T.M., Andersen,L.S., Beier,J.M., Christensen,L., Ejstrup,L., Peters,N.D., van der Heijde,D.M., Limited effect of sulphasalazine treatment in reactive arthritis. A randomised double blind placebo controlled trial, <i>Annals of the Rheumatic Diseases</i> , 56, 32-36, 1997	Placebo comparator
Escalas,Cecile, Trijau,Sophie, Dougados,Maxime, Evaluation of the treatment effect of NSAIDs/TNF blockers according to different domains in ankylosing spondylitis: results of a meta-analysis, <i>Rheumatology (Oxford, England)</i> , 49, 1317-1325, 2010	Insufficient detail on studies (references checked)
Farr,M., Kitas,G.D., Waterhouse,L., Jubb,R., Felix-Davies,D., Bacon,P.A., Sulphasalazine in psoriatic arthritis: a double-blind placebo-controlled study, <i>British journal of rheumatology</i> , 29, 46-49, 1990	Placebo comparator
Feltelius,N., Hallgren,R., Sulphasalazine in ankylosing spondylitis, <i>Annals of the rheumatic diseases</i> , 45, 396-399, 1986	Axial
Ferraz,M.B., Tugwell,P., Goldsmith,C.H., Atra,E., Meta-analysis of sulfasalazine in ankylosing spondylitis, <i>Journal of Rheumatology</i> , 17, 1482-1486, 1990	Insufficient detail
Fraser,A.D., van Kuijk,A.W.R., Westhovens,R., Karim,Z., Wakefield,R., Gerards,A.H., Landewe,R., Steinfeld,S.D., Emery,P., Dijkmans,B.A.C., Veale,D.J., A randomised, double blind, placebo controlled, multicentre trial of combination therapy with methotrexate plus ciclosporin in patients with active psoriatic arthritis, <i>Annals of the rheumatic diseases</i> , 64, 859-864, 2005	Placebo comparator

Study	Reason for Exclusion
Fraser,S.M., Hopkins,R., Hunter,J.A., Neumann,V., Capell,H.A., Bird,H.A., Sulphasalazine in the management of psoriatic arthritis, British Journal of Rheumatology, 32, 923-925, 1993	Placebo comparator
Gadomski,M., Singer-Bakker,H., Braun,H.D., Sulindac vs phenylbutazone in the treatment of ankylosing spondylitis (m. Bechterew) arthritis, SCANDINAVIAN-JOURNAL-OF-RHEUMATOLOGY.-SUPPLEMENT, S02-S05, 1975	Abstract
Gibson,T., Laurent,R., Sulindac and indomethacin in the treatment of ankylosing spondylitis: a double-blind cross-over study, Rheumatology and rehabilitation, 19, 189-192, 1980	Axial
Gonzalez-Lopez,Laura, Garcia-Gonzalez,Araceli, Vazquez-Del-Mercado,Monica, Munoz-Valle,Jose F., Gamez-Nava,Jorge I., Efficacy of methotrexate in ankylosing spondylitis: a randomized, double blind, placebo controlled trial, The Journal of rheumatology, 31, 1568-1574, 2004	Mixed axial/peripheral
Good,A., Mena,H., Treatment of ankylosing spondylitis with flurbiprofen and indomethacin, Current medical research and opinion, 5, 117-121, 1977	Axial
Goupille,P., Valat,J.P., Is methotrexate really effective in patients with psoriatic arthritis?, The Journal of rheumatology, 22, 2369-2370, 1995	Letter
Grahame,R., Calin,A., A controlled trial of froben (flurbiprofen) in ankylosing spondylitis - comparison with phenylbutazone, SCANDINAVIAN-JOURNAL-OF-RHEUMATOLOGY.-SUPPLEMENT, S11-S22, 1975	Axial
Gupta,A.K., Grober,J.S., Hamilton,T.A., Ellis,C.N., Siegel,M.T., Voorhees,J.J., McCune,W.J., Sulfasalazine therapy for psoriatic arthritis: a double blind, placebo controlled trial, The Journal of rheumatology, 22, 894-898, 1995	Placebo comparator
Haibel,H., Fendler,C., Listing,J., Callhoff,J., Braun,J., Sieper,J., Efficacy of oral prednisolone in active ankylosing spondylitis: results of a double-blind, randomised, placebo-controlled short-term trial, Annals of the rheumatic diseases, 73, 243-246, 2014	Axial
Harkness,A.J., Burry,H.C., Grahame,R., A trial of feprazone in ankylosing spondylitis, Rheumatology and rehabilitationRheumatol Rehabil, 16, 158-161, 1977	Axial
Heinrichs,K., Kriech,W., Treatment of Ankylosing Spondylitis: Controled Comparing Study with Tiaprofenic Acid and Diclofenac, Medizinische Klinik, 80, 597-601, 1985	Not in English
Hill,H.F., Hill,A.G., Ankylosing spondylitis: open long-term and double-blind crossover studies with naproxen, Journal of clinical pharmacology, 15, 355-362, 1975	Not an RCT, axial
Hopkins,R., Bird,H.A., Jones,H., Hill,J., Surrall,K.E., Astbury,C., Miller,A., Wright,V., A double-blind controlled trial of etretinate (Tigason) and ibuprofen in psoriatic arthritis, Annals of the Rheumatic Diseases, 44, 189-193, 1985	Not relevant comparator
Johnsen,V., Brun,J.G., Fjeld,E., Hansen,K., Sydnnes,O.A., Ugstad,M.B., Morning stiffness and nighttime pain in ankylosing spondylitis. A comparison between enteric-coated and plain naproxen tablets, European journal of rheumatology and inflammation, 12, 37-42, 1992	Axial
Jones,G., Crotty,M., Brooks,P., Interventions for treating psoriatic arthritis, Cochrane Database of Systematic	Out-of-date review

Study	Reason for Exclusion
ReviewsCochrane Database Syst.Rev., CD000212-CD000NaN, 2000	
Kaltwasser,J.Peter, Nash,Peter, Gladman,Dafna, Rosen,Cheryl F., Behrens, Frank, Jones,Peter, Wollenhaupt,Jurgen, Falk,Franziska G., Mease,Philip, Treatment of Psoriatic Arthritis Study Group, Efficacy and safety of leflunomide in the treatment of psoriatic arthritis and psoriasis: a multinational, double-blind, randomized, placebo-controlled clinical trial, Arthritis and rheumatismArthritis Rheum, 50, 1939-1950, 2004	Placebo comparator
Karanikolas,George N., Koukli,Eftyhia Maria, Katsalira,Aikaterini, Arida,Aikaterini, Petrou,Dimitrios, Komninou,Eleni, Fragiadaki,Kalliopi, Zacharioudaki,Anna, Lasithiotakis,Ioannis, Giavri,Eirini, Vaiopoulos,George, Sfikakis,Petros P., Adalimumab or cyclosporine as monotherapy and in combination in severe psoriatic arthritis: results from a prospective 12-month nonrandomized unblinded clinical trial, The Journal of rheumatology, 38, 2466-2474, 2011	Not relevant comparator
Keyser,F., A controlled, double-blind and randomized international multicenter study on sulphasalazine versus placebo in patients with spondylarthropathies, Clinical and experimental rheumatology, 13 Suppl 13, 109-, 1995	Abstract
Khan,M.A., A double blind comparison of diclofenac and indomethacin in the treatment of ankylosing spondylitis, The Journal of rheumatology, 14, 118-123, 1987	Axial
Kingsley,Gabrielle H., Kowalczyk,Anna, Taylor,Helen, Ibrahim,Fowzia, Packham,Jonathan C., McHugh,Neil J., Mulherin,Diarmuid M., Kitas,George D., Chakravarty,Kuntal, Tom,Brian D.M., O'Keeffe,Aidan G., Maddison,Peter J., Scott,David L., A randomized placebo-controlled trial of methotrexate in psoriatic arthritis, Rheumatology (Oxford, England), 51, 1368-1377, 2012	Placebo comparator
Kivitz,A.J., Espinoza,L.R., Sherrer,Y.R., Liu-Dumaw,M., West,C.R., A comparison of the efficacy and safety of celecoxib 200 mg and celecoxib 400 mg once daily in treating the signs and symptoms of psoriatic arthritis, Seminars in Arthritis & Rheumatism, 37, 164-174, 2007	Differing doses
Kroon,Feline, Landewe,Robert, Dougados,Maxime, van der Heijde,Desiree, Continuous NSAID use reverts the effects of inflammation on radiographic progression in patients with ankylosing spondylitis, Annals of the rheumatic diseases, 71, 1623-1629, 2012	Not relevant outcome
Li,E.K., Griffith,J.F., Lee,V.W., Wang,Y.X., Li,T.K., Lee,K.K., Tam,L.S., Short-term efficacy of combination methotrexate and infliximab in patients with ankylosing spondylitis: a clinical and magnetic resonance imaging correlation, Rheumatology (Oxford, England), 47, 1358-1363, 2008	Axial
Liebling,M.R., Altman,R.D., Benedek,T.G., A double blind, multiclinic trial of sulindac (MG 213) in the treatment of ankylosing spondylitis, Arthritis and rheumatism, 18, 411-, 1975	Abstract
Lin,S., He,M., Chen,J., Tumor necrosis factor-alpha inhibitor combined with methotrexate for ankylosing spondylitis: A systematic review and meta-analysis, Rheumatology Reports, 6, 6-11, 2014	Not relevant comparators
Lomen,P.L., Turner,L.F., Lamborn,K.R., Brinn,E.L., Sattler,L.P., Flurbiprofen in the treatment of ankylosing spondylitis. A	Not relevant comparison

Study	Reason for Exclusion
comparison with phenylbutazone, The American journal of medicine, 80, 120-126, 1986	
Lonauer,G., Wirth,W., Controlled double-blind study on the efficacy and tolerability of acemetacin and indometacin in the therapy of psoriatic arthritis, Arzneimittel-Forschung, 30, 1440-1444, 1980	Not in English
Mahrle,G., Schulze,H.J., Brautigam,M., Mischer,P., Schopf,R., Jung,E.G., Weidinger,G., Farber,L., Anti-inflammatory efficacy of low-dose cyclosporin A in psoriatic arthritis. A prospective multicentre study, British Journal of Dermatology, 135, 752-757, 1996	Not an RCT
Maksymowych,Walter P., Jhangri,Gian S., Fitzgerald,Avril A., Leclercq,Sharon, Chiu,Peter, Yan,Alex, Skeith,Kenneth J., Aaron,Stephen L., Homik,Joanne, Davis,Paul, Sholter,Dale, Russell,Anthony S., A six-month randomized, controlled, double-blind, dose-response comparison of intravenous pamidronate (60 mg versus 10 mg) in the treatment of nonsteroidal antiinflammatory drug-refractory ankylosing spondylitis, Arthritis and rheumatism, 46, 766-773, 2002	Axial
Mazzanti,G., Coloni,L., De Sabbata,G., Paladini,G., Methotrexate and cyclosporin combined therapy in severe psoriatic arthritis. A pilot study, Acta dermatovenereologica.Supplementum, 186, 116-117, 1994	Short research report, insufficient detail
Mena,H.R., Good,A.E., Management of ankylosing spondylitis with flurbiprofen or indomethacin, Southern medical journal, 70, 945-947, 1977	Axial
Mena,H.R., Willkens,R.F., Treatment of ankylosing spondylitis with flurbiprofen or phenylbutazone, European journal of clinical pharmacology, 11, 263-266, 1977	Axial
Muller,F.H., Ketoprofen in ankylosing spondylitis, Die Therapiewoche, 35, 2619-2624, 1985	Not in English
Nahir,A.M., Scharf,Y., A comparative study of diclofenac and sulindac in ankylosing spondylitis, Rheumatology and rehabilitation, 19, 189-198, 1980	Axial
Nash,Peter, Thaci,Diamant, Behrens,Frank, Falk,Franziska, Kaltwasser,J.Peter, Leflunomide improves psoriasis in patients with psoriatic arthritis: an in-depth analysis of data from the TOPAS study, Dermatology (Basel, Switzerland)Dermatology, 212, 238-249, 2006	post-hoc analysis of Kaltwasser study
Nissila,M., Lehtinen,K., Leirisalo-Repo,M., Luukkainen,R., Mutru,O., Yli-Kerttula,U., Sulfasalazine in the treatment of ankylosing spondylitis. A twenty-six-week, placebo-controlled clinical trial, Arthritis & Rheumatism, 31, 1111-1116, 1988	Mixed axial peripheral
Palferman,T.G., Webley,M., A comparative study of nabumetone and indomethacin in ankylosing spondylitis, European journal of rheumatology and inflammation, 11, 23-29, 1991	Axial
Pasero,G., Ruju,G., Marcolongo,R., Senesi,M., Seni,U., Mannoni,A., Accardo,S., Serio,B., Colombo,B., Ligniere,G.C., Consoli,G., De,Santis D., Ferri,S., Amoresano,C., Frizziero,L., Reta,M., Giorgianni,G., Martorana,U., Termine,S., Mattara,L., Franceschini,M., Oriente,P., Scarpa,R., Perpignano,G., Bogliolo,A., Torri,G., Trotta,F., Govoni,F., Aceclofenac versus naproxen in the treatment of ankylosing spondylitis: A double-blind, controlled study, Current Therapeutic Research - Clinical and Experimental, 55, 833-842, 1994	Axial

Study	Reason for Exclusion
Peloso,Paul M., Gammaitoni,Arnold, Smugar,Steven S., Wang,Hongwei, Moore,Andrew R., Longitudinal numbers-needed-to-treat (NNT) for achieving various levels of analgesic response and improvement with etoricoxib, naproxen, and placebo in ankylosing spondylitis, BMC musculoskeletal disorders, 12, 165-, 2011	Axial
Pereda,Claudia Alejandra, Nishishinya,Maria Betina, Martinez Lopez,Juan Antonio, Carmona,Loreto, Evidence-Based Working Group of the Spanish Society of Rheumatology, Efficacy and safety of DMARDs in psoriatic arthritis: a systematic review, Clinical and experimental rheumatology, 30, 282-289, 2012	Insufficient detail
Ravindran,V., Scott,D.L., Choy,E.H., A systematic review and meta-analysis of efficacy and toxicity of disease modifying anti-rheumatic drugs and biological agents for psoriatic arthritis, Annals of the rheumatic diseases, 67, 855-859, 2008	Insufficient detail
Reiter,W., Pilger,A., Ankylosing spondylitis: comparison of acemetacin and piroxicam, Die Therapiewoche, 34, 7209-7215, 1984	unable to obtain, probably not in English
Rejholec,V., Vapaatalo,H., Tokola,O., Gothoni,G., Tolfenamic acid in ankylosing spondylarthritis: A double-blind comparison to indomethacin, Scandinavian journal of rheumatology, 10, 1-7, 1981	unable to obtain
Rejholec,V., Vapaatalo,H., Tokola,O., Gothoni,G., Tolfenamic acid in rheumatoid arthritis and ankylosing spondylitis, Scandinavian journal of rheumatology.Supplement, Suppl 33, 50-, 1980	Abstract
Roychowdhury,B., Bintley-Bagot,S., Bulgen,D.Y., Thompson,R.N., Tunn,E.J., Moots,R.J., Is methotrexate effective in ankylosing spondylitis?, Rheumatology (Oxford, England), 41, 1330-1332, 2002	Letter
Santo,J.E., Queiroz,M.V., Oxaprozin versus diclofenac sodium in the treatment of ankylosing spondylitis, The Journal of international medical research, 16, 150-156, 1988	Axial
Sarzi-Puttini,P., Santandrea,S., Boccassini,L., Panni,B., Caruso,I., The role of NSAIDs in psoriatic arthritis: evidence from a controlled study with nimesulide, Clinical & Experimental Rheumatology, 19, Suppl-20, 2001	Not relevant NSAID (no longer used in arthritis)
Scarpa,Raffaele, Peluso,Rosario, Atteno,Mariangela, Manguso,Francesco, Spano,Angelo, Iervolino,Salvatore, Di Minno,Matteo Nicola Dario, Costa,Luisa, Del Puente,Antonio, The effectiveness of a traditional therapeutical approach in early psoriatic arthritis: results of a pilot randomised 6-month trial with methotrexate, Clinical rheumatology, 27, 823-826, 2008	Drug dose used not current UK practice
Schattenkirchner,M., Kellerer,G., Kruger,K., Treatment of ankylosing spondylitis: Single-blind crossover comparison of acemetacin and diclofenac, Die Therapiewoche, 36, 5276-5283, 1986	Not in English
Schwarzer,A.C., Cohen,M., Arnold,M.H., Kelly,D., McNaught,P., Brooks,P.M., Tenoxicam compared with diclofenac in patients with ankylosing spondylitis, Current medical research and opinion, 11, 648-653, 1990	Axial
Shiple,M., Berry,H., Bloom,B., A double-blind cross-over trial of indomethacin, fenoprofen and placebo in ankylosing	Axial

Study	Reason for Exclusion
spondylitis, with comments on patient assessment, <i>Rheumatology and rehabilitation</i> , 19, 122-125, 1980	
Siegmet, W., Sieberer, W., A comparison of the short-term effects of ibuprofen and diclofenac in spondylosis, <i>The Journal of international medical research</i> , 6, 369-374, 1978	Axial
Sieper, J., Klopsch, T., Richter, M., Kapelle, A., Rudwaleit, M., Schwank, S., Regourd, E., May, M., Comparison of two different dosages of celecoxib with diclofenac for the treatment of active ankylosing spondylitis: results of a 12-week randomised, double-blind, controlled study, <i>Annals of the rheumatic diseases</i> , 67, 323-329, 2008	Axial
Soriano, Enrique R., McHugh, Neil J., Therapies for peripheral joint disease in psoriatic arthritis. A systematic review, <i>The Journal of rheumatology</i> , 33, 1422-1430, 2006	Insufficient detail
Sturrock, R.D., Hart, F.D., Double-blind cross-over comparison of indomethacin, flurbiprofen, and placebo in ankylosing spondylitis, <i>Annals of the Rheumatic Diseases</i> , 33, 129-131, 1974	Axial
Sydnes, O.A., Comparison of piroxicam with indomethacin in ankylosing spondylitis: a double-blind crossover trial, <i>The British journal of clinical practice</i> , 35, 40-44, 1981	Axial
Taggart, A., Gardiner, P., McEvoy, F., Hopkins, R., Bird, H., Which is the active moiety of sulfasalazine in ankylosing spondylitis? A randomized, controlled study, <i>Arthritis and rheumatism</i> , 39, 1400-1405, 1996	Not relevant comparator
Tannenbaum, H., DeCoteau, W.E., Esdaile, J.M., A double blind multicenter trial comparing piroxicam and indomethacin in ankylosing spondylitis with long-term follow-up, <i>Current Therapeutic Research - Clinical and Experimental</i> , 36, 426-435, 1984	Axial
Thami, Gurvinder P., Garg, Geeta, Leflunomide in psoriasis and psoriatic arthritis: a preliminary study, <i>Archives of dermatology</i> , 140, 1288-1289, 2004	Brief report
Thompson, M., Akyol, M.S., A controlled comparative trial of butacote and fenclofenac in the treatment of ankylosing spondylitis, <i>Journal of International Medical Research</i> , 5, 96-99, 1977	Not relevant comparator
Treadwell, B.L., Tweed, J.M., Ketoprofen (Orudis) in ankylosing spondylitis, <i>New Zealand Medical Journal</i> , 81, 411-413, 1975	Not relevant comparator
Upadhyaya, S., Aggarwal, A., Misra, R., Low dose methotrexate in seronegative spondyloarthropathy: Result of a double blind, placebo controlled trial, <i>J Indian Rheumatol Assoc</i> , 12, 6-10, 2004	Axial
van Denderen, J.C., van der Paardt, M., Nurmohamed, M.T., de Ryck, Y.M.M.A., Dijkmans, B.A.C., Horst-Bruinsma, I.E., Double blind, randomised, placebo controlled study of leflunomide in the treatment of active ankylosing spondylitis, <i>Annals of the rheumatic diseases</i> , 64, 1761-1764, 2005	Axial
van der Heijde, Desiree, Baraf, Herbert S.B., Ramos-Remus, Cesar, Calin, Andrei, Weaver, Arthur L., Schiff, Michael, James, Margaret, Markind, Jan E., Reicin, Alise S., Melian, Agustin, Dougados, Maxime, Evaluation of the efficacy of etoricoxib in ankylosing spondylitis: results of a fifty-two-week, randomized, controlled study, <i>Arthritis and rheumatism</i> , 52, 1205-1215, 2005	Axial

Study	Reason for Exclusion
Van Gerwen,F., Van der Korst,J.K., Gribnau,F.W., Double-blind trial of naproxen and phenylbutazone in ankylosing spondylitis, <i>Annals of the rheumatic diseases</i> , 37, 85-88, 1978	Axial
Villa Alcazar,L.F., de Buergo,M., Rico Lenza,H., Montull Fruitos,E., Aceclofenac is as safe and effective as tenoxicam in the treatment of ankylosing spondylitis: a 3 month multicenter comparative trial. Spanish Study Group on Aceclofenac in Ankylosing Spondylitis, <i>The Journal of rheumatology</i> , 23, 1194-1199, 1996	Axial
Wasner,C., Britton,M.C., Kraines,R.G., Kaye,R.L., Bobrove,A.M., Fries,J.F., Nonsteroidal anti-inflammatory agents in rheumatoid arthritis and ankylosing spondylitis, <i>JAMA : the journal of the American Medical Association</i> , 246, 2168-2172, 1981	Axial
Willkens,R.F., Williams,H.J., Ward,J.R., Egger,M.J., Reading,J.C., Clements,P.J., Cathcart,E.S., Samuelson,C.O.J., Solsky,M.A., Kaplan,S.B., Randomized, double-blind, placebo controlled trial of low-dose pulse methotrexate in psoriatic arthritis, <i>Arthritis and rheumatism</i> , 27, 376-381, 1984	Placebo comparator
Winkler,V., Sulphasalazine treatment in ankylosing spondylitis: A comparison of sulphasalazine with placebo, <i>Magyar Reumatologia.</i> , 30, 29-37, 1989	Axial
Wordsworth,B.P., Ebringer,R.W., Coggins,E., Smith,S., A double-blind cross-over trial of fenoprofen and phenylbutazone in ankylosing spondylitis, <i>Rheumatology &amp; Rehabilitation</i> , 19, 260-263, 1980	Not relevant comparator
Wu,R., Efficacy and safety of intra-articular therapy with methotrexate in large glucose injection volume on knee synovitis in patients with ankylosing spondylitis, <i>Annals of the Rheumatic Diseases</i> , 73, -, 2014	Conference abstract
Yang,Zibin, Zhao,Wei, Liu,Weihoa, Lv,Qiao, Dong,Xiliang, Efficacy evaluation of methotrexate in the treatment of ankylosing spondylitis using meta-analysis, <i>International journal of clinical pharmacology and therapeutics</i> , 52, 346-351, 2014	Axial
Zeidler,H., Dougados,M., Calin,A., Veys,E., Hettich,M., Meloxicam by Spondylitis ankylosans: double-blind clinical test over 6 week in comparison to Piroxicam and placebo, <i>Zeitschrift fur Rheumatologie</i> , 56 Suppl 1, 34-, 1997	unable to obtain
Zeidler,H., Dougados,M., Veys,E., Calin,A., Comparative study of Meloxicam, Piroxicam and placebo by ankyloseric spondylitis: Results of a one year study, <i>Zeitschrift fur Rheumatologie</i> , 57, 71-, 1998	Not in English
Zhu,Q., Zhou,J.L., Flurbiprofen in treating rheumatoid arthritis, osteoarthritis and ankylosing spondylitis, <i>Chinese Journal of New Drugs and Clinical Remedies</i> , 20, 13-16, 2001	Not in English

### F.2.3 Switching or augmenting pharmacological interventions for spondyloarthritis

#### Review Question 23

- When a first-line treatment has failed, what is the effectiveness of the following for managing spondyloarthritis:
  - switching to a different pharmacological intervention?
  - augmenting with a second pharmacological intervention?

Study	Reason for Exclusion
Adalimumab (Humira) for axial spondyloarthritis - second line (Structured abstract), Health Technology Assessment Database, -, 2011	Abstract only
Adalimumab and axial spondyloarthritis. Useful for some patients in treatment failure, Prescrire international, 22, 236-, 2013	Secondary report based on primary study
Etanercept: new preparation. Useful after methotrexate failure in inflammatory rheumatism, Prescrire international, 12, 127-132, 2003	review, non-systematic
Effective medications for juvenile idiopathic arthritis, Journal of the National Medical Association, 98, 101-102, 2006	abstract only
Etoricoxib: Avoid using cox-2 inhibitors for pain, Prescrire international, 16, 223-227, 2007	narrative review
Etoricoxib: new drug. Avoid using cox-2 inhibitors for pain, Prescrire international, 16, 223-227, 2007	duplicate
Akkoc,Nurullah, van der Linden,Sjef, Khan,Muhammad Asim, Ankylosing spondylitis and symptom-modifying vs disease-modifying therapy, Best practice & research.Clinical rheumatology, 20, 539-557, 2006	Narrative review
Alsufyani,K., Ortiz-Alvarez,O., Cabral,D.A., Tucker,L.B., Petty,R.E., Malleson,P.N., Relative ineffectiveness of triamcinolone acetonide in the treatment of juvenile idiopathic arthritis, Arthritis and rheumatism, 50, 3737-3738, 2004	letter to the editor
Armstrong,Nigel, Joore,Manuela, van Asselt,Thea, Misso,Kate, Manning,Nathan, Tomini,Florian, Kleijnen,Jos, Riemsma,Rob, Golimumab for the treatment of ankylosing spondylitis: a NICE single technology appraisal, PharmacoEconomics, 31, 415-425, 2013	Covered by NICE MTA
Baraliakos,X., Brandt,J., Listing,J., Haibel,H., Sorensen,H., Rudwaleit,M., Sieper,J., Braun,J., Outcome of patients with active ankylosing spondylitis after two years of therapy with etanercept: clinical and magnetic resonance imaging data, Arthritis and rheumatism, 53, 856-863, 2005	Secondary extension trial of primary study, not explicit that patients had to have first line therapy to be included in this trial
Baraliakos,X., Braun,J., Biologic therapies for spondyloarthritis: What is new, Current rheumatology reports, 14, 422-427, 2012	Narrative review
Baraliakos,X., Davis,J., Tsuji,W., Braun,J., Magnetic resonance imaging examinations of the spine in patients with ankylosing spondylitis before and after therapy with the tumor necrosis factor alpha receptor fusion protein etanercept, Arthritis & Rheumatism, 52, 1216-1223, 2005	No indication that patients had to have failed first line therapy to have been enrolled.
Becker,H., Gaubitz,M., Domschke,W., Kucharzik,T., Treatment of arthralgias and spondyloarthropathy associated with inflammatory bowel disease, Future Rheumatology, 2, 423-431, 2007	Narrative review
Beresford,M.W., Baildam,E.M., New advances in the management of juvenile idiopathic arthritis--1: non-biological therapy, Archives of disease in childhood.Education and practice edition, 94, 144-150, 2009	review paper, extracted for useful citations

Study	Reason for Exclusion
Billiau, An D., Loop, Michele, Le, Phu Quoc, Berthet, Françoise, Philippet, Pierre, Kasran, Ahmad, Wouters, Carine H., Etanercept improves linear growth and bone mass acquisition in MTX-resistant polyarticular-course juvenile idiopathic arthritis, <i>Rheumatology (Oxford, England)</i> 49, 1550-1558, 2010	non-randomised
Bookbinder, S.A., Espinoza, L.R., Fenske, N.A., Germain, B.F., Vasey, F.B., Methotrexate: its use in the rheumatic diseases, <i>Clinical and experimental rheumatology</i> , 2, 185-193, 1984	narrative review
Bou, R., Iglesias, E., Anton, J., Treatment of uveitis associated with juvenile idiopathic arthritis, <i>Current rheumatology reports</i> , 16, -, 2014	Narrative review
Brandt, J., Khariousov, A., Listing, J., Haibel, H., Sorensen, H., Grassnickel, L., Rudwaleit, M., Sieper, J., Braun, J., Six-month results of a double-blind, placebo-controlled trial of etanercept treatment in patients with active ankylosing spondylitis, <i>Arthritis and rheumatism</i> 48, 1667-1675, 2003	Not explicit that patients had to have failed first line therapy to be enrolled in this trial
Braun, J., Baraliakos, X., Golder, W., Brandt, J., Rudwaleit, M., Listing, J., Bollow, M., Sieper, J., van der Heijde, D., Magnetic resonance imaging examinations of the spine in patients with ankylosing spondylitis, before and after successful therapy with infliximab: evaluation of a new scoring system, <i>Arthritis and rheumatism</i> , 48, 1126-1136, 2003	Not explicitly stated that patients had to have failed first line therapy.
Braun, Jurgen, Baraliakos, Xenofon, Hermann, Kay Geert, van der Heijde, Desiree, Inman, Robert D., Deodhar, Atul A., Baratelle, Anna, Xu, Stephen, Xu, Weichun, Hsu, Benjamin, Golimumab reduces spinal inflammation in ankylosing spondylitis: MRI results of the randomised, placebo-controlled GO-RAISE study, <i>Annals of the rheumatic diseases</i> , 71, 878-884, 2012	Secondary report of a primary trial
Braun, Jurgen, Landewe, Robert, Hermann, Kay Geert, Han, John, Yan, Songkai, Williamson, Paul, van der Heijde, Desiree, ASSERT Study Group, Major reduction in spinal inflammation in patients with ankylosing spondylitis after treatment with infliximab: results of a multicenter, randomized, double-blind, placebo-controlled magnetic resonance imaging study, <i>Arthritis and rheumatism</i> , 54, 1646-1652, 2006	Not explicitly stated that patients had to have failed first line therapy, secondary study based on primary trial
Brebant, M., Gombert, B., Amor, B., Dougados, M., Efficacy of thalidomide in the treatment of refractory ankylosing spondylitis, <i>Arthritis &amp; Rheumatism</i> , 42, 580-581, 1999	two case reports
Brebant, M., Vignon, E., Claudepierre, P., Devauchelle, V., Wendling, D., Lespessailles, E., Euler-Ziegler, L., Sibilio, J., Perdriger, A., Mezieres, M., Alexandre, C., Dougados, M., Efficacy of infliximab in refractory ankylosing spondylitis: results of a six-month open-label study, <i>Rheumatology (Oxford, England)</i> , 41, 1280-1285, 2002	Non-randomised
Cantini, F., Niccoli, L., Nannini, C., Cassara, E., Pasquetti, P., Olivieri, I., Salvarani, C., Frequency and duration of clinical remission in patients with peripheral psoriatic arthritis requiring second-line drugs, <i>Rheumatology (Oxford, England)</i> , 47, 872-876, 2008	non-randomised
Cantini, Fabrizio, Niccoli, Laura, Benucci, Maurizio, Chindamo, Daniela, Nannini, Carlotta, Olivieri, Ignazio, Padula, Angela, Salvarani, Carlo, Switching from infliximab to once-weekly administration of 50 mg etanercept in resistant or intolerant patients with ankylosing spondylitis: results of a fifty-four-week study, <i>Arthritis and rheumatism</i> , 55, 812-816, 2006	Non-randomised
Castro Alcantara, A.C., Leite, C.A.C., Leite, A.C.R.M., Sidrim, J.J.C., Silva Jr, F.S., Rocha, F.A.C., A longterm prospective real-life experience with leflunomide in juvenile idiopathic arthritis, <i>Journal of Rheumatology</i> , 41, 338-344, 2014	not RCT study design

Study	Reason for Exclusion
Chen,D.-Y., Recent advances in the treatment of adult-onset Still's disease, Expert Opinion on Orphan Drugs, 1, 103-113, 2013	narrative review
Chen,J., Liu,C., Methotrexate for ankylosing spondylitis, The Cochrane database of systematic reviews, CD004524-, 2004	Systematic review from 2004, useful citations to be extracted
Chen,J., Liu,C., Sulfasalazine for ankylosing spondylitis, The Cochrane database of systematic reviews, CD004800-, 2005	Systematic review from 2005, useful citations extracted
Cinar,Muhammet, Dinc,Ayhan, Simsek,Ismail, Erdem,Hakan, Koc,Bayram, Pay,Salih, Kilic,Selim, Evaluation of the short-term efficacy of NSAIDs on patients with active ankylosing spondylitis in daily practice: a 3-month, longitudinal, observational study, Rheumatology international, 30, 331-340, 2010	non-randomised
Coates,Laura C., Navarro-Coy,Nuria, Brown,Sarah R., Brown,Sarah, McParland,Lucy, Collier,Howard, Skinner,Emma, Law,Jennifer, Moverley,Anna, Pavitt,Sue, Hulme,Claire, Emery,Paul, Conaghan,Philip G., Helliwell,Philip S., The TICOPA protocol (Tight COnTrol of Psoriatic Arthritis): a randomised controlled trial to compare intensive management versus standard care in early psoriatic arthritis, BMC musculoskeletal disorders, 14, 101-, 2013	Protocol
Collantes-Estevez,E., Munoz-Villanueva,M.C., Canete-Crespillo,J.D., Sanmarti-Sala,R., Gratacos-Masmitja,J., Zarco-Montejo,P., Torre-Alonso,J.C., Gonzalez-Fernandez,C., Infliximab in refractory spondyloarthropathies: a multicentre 38 week open study, Annals of the rheumatic diseases, 62, 1239-1240, 2003	Non-randomised, non-controlled
Collantes-Estevez,E., Munoz-Villanueva,M.C., Zarco,P., Torre-Alonso,J.C., Gratacos,J., Gonzalez,C., Sanmarti,R., Canete,J.D., Spanish Spondyloarthropathies Study Group, Effectiveness of reducing infliximab dose interval in non-responder patients with refractory spondyloarthropathies. An open extension of a multicentre study, Rheumatology (Oxford, England), 44, 1555-1558, 2005	non-randomised
Darmawan,John, Nasution,A.Remy, Chen,Shun Le, Haq,Syed Atiqul, Zhao,Dongbao, Zeng,Qingyu, Davatchi,Fereydoun, Excellent endpoints from step-down bridge combination therapy of 5 immunosuppressants in NSAID-refractory ankylosing spondylitis: 6 year international study in Asia - WHO-ILAR COPCORD stage II treatment of the autoimmune diseases, The Journal of rheumatology, 33, 2484-2492, 2006	Non-randomised, non-controlled
Davis,J.C.J., van der Heijde,D.M., Braun,J., Dougados,M., Clegg,D.O., Kivitz,A.J., Fleischmann,R.M., Inman,R.D., Ni,L., Lin,S.L., Tsuji,W.H., Efficacy and safety of up to 192 weeks of etanercept therapy in patients with ankylosing spondylitis, Annals of the rheumatic diseases, 67, 346-352, 2008	Secondary study based on primary trial with no indication that patients had to have failed first line therapy
Davis,John C.J., van der Heijde,Desiree, Braun,Jurgen, Dougados,Maxime, Cush,John, Clegg,Daniel O., Kivitz,Alan, Fleischmann,Roy, Inman,Robert, Tsuji,Wayne, Enbrel Ankylosing Spondylitis Study Group, Recombinant human tumor necrosis factor receptor (etanercept) for treating ankylosing spondylitis: a randomized, controlled trial, Arthritis and rheumatism, 48, 3230-3236, 2003	No indication that patients had to have failed to respond to first line therapy to be included in this trial.
De,Vos M., Joint involvement in inflammatory bowel disease: Managing inflammation outside the digestive system, Expert Review of Gastroenterology and Hepatology.4 (1) (pp 81-89), 2010.Date of Publication: February 2010., 81-89, 2010	Narrative review

Study	Reason for Exclusion
Dekker-Saeys,B.J., Dijkmans,B.A., Tytgat,G.N., Treatment of spondyloarthritis with 5-aminosalicylic acid (mesalazine): an open trial, <i>Journal of Rheumatology</i> , 27, 723-726, 2000	non-randomised, non-controlled
Devlin,J., Wagstaff,K., Arthur,V., Emery,P., Granisetron (Kytril) suppresses methotrexate-induced nausea and vomiting among patients with inflammatory arthritis and is superior to prochlorperazine (Stemetil), <i>Rheumatology (Oxford, England)</i> , 38, 280-282, 1999	data non separable for psoriatic arthritis
Dijkmans,Ben, Emery,Paul, Hakala,Markku, Leirisalo-Repo,Marjatta, Mola,Emilio Martin, Paolozzi,Laurence, Salvarani,Carlo, Sanmarti,Raimon, Sibilia,Jean, Sieper,Joachim, van den Bosch,Filip, van der Heijde,Desiree, van der Linden,Sjef, Wajdula,Joseph, Etanercept in the longterm treatment of patients with ankylosing spondylitis, <i>The Journal of rheumatology</i> , 36, 1256-1264, 2009	no indication in this paper or primary paper that patients had to have failed first line therapy
Dorwart,B.B., Gall,E.P., Schumacher,H.R., Krauser,R.E., Chrysotherapy in psoriatic arthritis. Efficacy and toxicity compared to rheumatoid arthritis, <i>Arthritis and rheumatism</i> , 21, 513-515, 1978	inappropriate comparison, nonrandomised
Dougados,M., Braun,J., Szanto,S., Combe,B., Elbaz,M., Geher,P., Thabut,G., Leblanc,V., Logeart,I., Efficacy of etanercept on rheumatic signs and pulmonary function tests in advanced ankylosing spondylitis: results of a randomised double-blind placebo-controlled study (SPINE), <i>Annals of the rheumatic diseases</i> , 70, 799-804, 2011	Covered by NICE MTA
Dougados,M., Braun,J., Szanto,S., Combe,B., Geher,P., Leblanc,V., Logeart,I., Nonsteroidal antiinflammatory drug intake according to the assessment of spondyloarthritis international society score in clinical trials evaluating tumor necrosis factor blockers: Example of etanercept in advanced ankylosing spondylitis, <i>Arthritis Care and Research</i> , 64, 290-294, 2012	Secondary study based on primary trial
Dougados,Maxime, Braun,Jurgen, Szanto,Sandor, Combe,Bernard, Geher,Pal, Leblanc,Veronique, Logeart,Isabelle, Nonsteroidal antiinflammatory drug intake according to the Assessment of SpondyloArthritis International Society Score in clinical trials evaluating tumor necrosis factor blockers: example of etanercept in advanced ankylosing spondylitis, <i>Arthritis care &amp; research</i> , 64, 290-294, 2012	DUPLICATE
Dougados,Maxime, Braun,Jurgen, Szanto,Sandor, Combe,Bernard, Geher,Pal, Leblanc,Veronique, Logeart,Isabelle, Continuous efficacy of etanercept in severe and advanced ankylosing spondylitis: results from a 12-week open-label extension of the SPINE study, <i>Rheumatology (Oxford, England)</i> , 51, 1687-1696, 2012	Secondary study based on primary trial
Dougados,Maxime, van der Heijde,Desiree, Sieper,Joachim, Braun,Jurgen, Maksymowych,Walter P., Citera,Gustavo, Miceli-Richard,Corinne, Wei,James Cheng-Chung, Pedersen,Ron, Bonin,Randi, Rahman,Mahboob U., Logeart,Isabelle, Wajdula,Joseph, Koenig,Andrew S., Vlahos,Bonnie, Alvarez,Daniel, Bukowski,Jack F., Symptomatic efficacy of etanercept and its effects on objective signs of inflammation in early nonradiographic axial spondyloarthritis: a multicenter, randomized, double-blind, placebo-controlled trial, <i>Arthritis &amp; rheumatology (Hoboken, N.J.)</i> , 66, 2091-2102, 2014	Covered by NICE MTA
Efthimiou,P., Georgy,S., Pathogenesis and management of adult-onset Still's disease, <i>Seminars in Arthritis &amp; Rheumatism</i> , 36, 144-153, 2006	Systematic review from 2006, checked for citations
Escalas,Cecile, Trijau,Sophie, Dougados,Maxime, Evaluation of the treatment effect of NSAIDs/TNF blockers according to different domains in ankylosing spondylitis: results of a meta-analysis, <i>Rheumatology (Oxford, England)</i> , 49, 1317-1325, 2010	Systematic review to be checked for citations of interest.

Study	Reason for Exclusion
Gabay,C., McInnes,I.B., The biological and clinical importance of the 'new generation' cytokines in rheumatic diseases, <i>Arthritis Research and Therapy</i> , 11, -, 2009	Review paper, non-systematic
Gallagher,K.T., Bernstein,B., Juvenile rheumatoid arthritis, <i>Current opinion in rheumatology</i> , 11, 372-376, 1999	narrative review
Gasparyan,A.Y., Ayvazyan,L., Cocco,G., Kitas,G.D., Adverse Cardiovascular Effects of Antirheumatic Drugs: Implications for Clinical Practice and Research, <i>Current pharmaceutical design</i> , 18, 1543-1555, 2012	Review paper, useful citations extracted
Gedalia,A., Barash,J., Press,J., Buskila,D., Sulphasalazine in the treatment of pauciarticular-onset juvenile chronic arthritis, <i>Clinical Rheumatology</i> , 12, 511-514, 1993	nonrandomised, noncontrolled
Gossec,L., Le Henanff,A., Breban,M., Vignon,E., Claudepierre,P., Devauchelle,V., Wendling,D., Lespessailles,E., Euler-Ziegler,L., Sibilia,J., Perdriger,A., Alexandre,C., Dougados,M., Continuation of treatment with infliximab in ankylosing spondylitis: 2-yr open follow-up, <i>Rheumatology (Oxford, England)</i> <i>Rheumatology (Oxford)</i> , 45, 859-862, 2006	Non-randomised, non-controlled
Goupille,Philippe, Which second-line treatments are optimal in psoriatic arthritis?, <i>Joint, bone, spine : revue du rhumatisme</i> , 69, 244-248, 2002	Narrative review
Haibel,H., Brandt,H.C., Song,I.H., Brandt,A., Listing,J., Rudwaleit,M., Sieper,J., No efficacy of subcutaneous methotrexate in active ankylosing spondylitis: a 16-week open-label trial, <i>Annals of the rheumatic diseases</i> , 66, 419-421, 2007	non-randomised
Haibel,H., Rudwaleit,M., Listing,J., Sieper,J., Open label trial of anakinra in active ankylosing spondylitis over 24 weeks, <i>Annals of the rheumatic diseases</i> , 64, 296-298, 2005	Non-randomised, non-controlled
Haibel,H., Song,I.H., Rudwaleit,M., Listing,J., Hildemann,S., Sieper,J., Multicenter open-label study with infliximab in active ankylosing spondylitis over 28 weeks in daily practice, <i>Clinical and experimental rheumatology</i> <i>Clin Exp Rheumatol</i> , 26, 247-252, 2008	Non-randomised, non-controlled
Haibel,Hildrun, Rudwaleit,Martin, Listing,Joachim, Heldmann,Frank, Wong,Robert L., Kupper,Hartmut, Braun,Jurgen, Sieper,Joachim, Efficacy of adalimumab in the treatment of axial spondylarthritis without radiographically defined sacroiliitis: results of a twelve-week randomized, double-blind, placebo-controlled trial followed by an open-label extension up to week fifty-two, <i>Arthritis and rheumatism</i> , 58, 1981-1991, 2008	Covered by NICE MTA
Hennigan,Stephanie, Ackermann,Christoph, Kavanaugh,Arthur, Adalimumab in ankylosing spondylitis: an evidence-based review of its place in therapy, <i>Core evidence</i> , 2, 295-305, 2008	Narrative review
Horneff,Gerd, Fitter,Sigrid, Foeldvari,Ivan, Minden,Kirsten, Kuemmerle-Deschner,Jasmin, Tzaribacev,Nicolay, Thon,Angelika, Borte,Michael, Ganser,Gerd, Trauzeddel,Rolf, Huppertz,Hans Iko, Double-blind, placebo-controlled randomized trial with adalimumab for treatment of juvenile onset ankylosing spondylitis (JoAS): significant short term improvement, <i>Arthritis research &amp; therapy</i> , 14, R230-, 2012	Data non-separable for age >16 years
Hu,Zaiying, Xu,Manlong, Li,Qiuxia, Lin,Zhiming, Liao,Zetao, Cao,Shuangyan, Wei,Qiujing, Zhang,Yan Li, Li,Tianwang, Jin,Ou, Huang,Jianlin, Pan,Yunfeng, Wu,Yuqiong, Deng,Xinghe, Gu,Jieruo, Adalimumab significantly reduces inflammation and serum DKK-1 level but increases fatty deposition in lumbar spine in active ankylosing spondylitis, <i>International journal of rheumatic diseases</i> , 15, 358-365, 2012	Covered by NICE MTA

Study	Reason for Exclusion
Huang,Feng, Gu,Jieruo, Zhao,Wei, Zhu,Jian, Zhang,Jianglin, Yu,David Tak Yan, One-year open-label trial of thalidomide in ankylosing spondylitis, Arthritis and rheumatism, 47, 249-254, 2002	non-randomised
Huang,Z., Cao,J., Li,T., Zheng,B., Wang,M., Zheng,R., Efficacy and safety of ultrasound-guided local injections of etanercept into entheses of ankylosing spondylitis patients with refractory Achilles enthesitis, Clinical & Experimental Rheumatology, 29, 642-649, 2011	non-randomised
Huizinga,T., Nigrovic,P., Ruderman,E., Schulze-Koops,H., Different response to rituximab in tumor necrosis factor blocker-naive patients with active ankylosing spondylitis and in patients in whom tumor necrosis factor blockers have failed: A twenty-four-week clinical trial - Commentary, International Journal of Advances in Rheumatology, 8, 118-, 2010	Non-randomised
Inman,R.D., Maksymowych,W.P., A double-blind, placebo-controlled trial of low dose infliximab in ankylosing spondylitis, Journal of Rheumatology, 37, 1203-1211, 2010	not explicitly stated that patients had to have failed first line therapy for enrolment
Inman,Robert D., Davis,John C.J., Heijde,Desiree van der, Diekman,Laura, Sieper,Joachim, Kim,Sung Il, Mack,Michael, Han,John, Visvanathan,Sudha, Xu,Zhenhua, Hsu,Benjamin, Beutler,Anna, Braun,Jurgen, Efficacy and safety of golimumab in patients with ankylosing spondylitis: results of a randomized, double-blind, placebo-controlled, phase III trial, Arthritis and rheumatism, 58, 3402-3412, 2008	Covered by NICE MTA
Inman,Robert D., Maksymowych,Walter P., CANDLE Study Group, A double-blind, placebo-controlled trial of low dose infliximab in ankylosing spondylitis, The Journal of rheumatology, 37, 1203-1210, 2010	Duplicate
Jansen,Jeroen P., Pellissier,James, Choy,Ernest H., Ostor,Andrew, Nash,Julian T., Bacon,Paul, Hunsche,Elke, Economic evaluation of etoricoxib versus non-selective NSAIDs in the treatment of ankylosing spondylitis in the UK, Current medical research and opinion, 23, 3069-3078, 2007	Economic evaluation of options for first line therapy
Kivitz,Alan J., Espinoza,Luis R., Sherrer,Yvonne R., Liu-Dumaw,Maria, West,Christine R., A comparison of the efficacy and safety of celecoxib 200 mg and celecoxib 400 mg once daily in treating the signs and symptoms of psoriatic arthritis, Seminars in arthritis and rheumatism, 37, 164-173, 2007	Duplicate
Kontzias,Apostolos, Efthimiou,Petros, Adult-onset Still's disease: pathogenesis, clinical manifestations and therapeutic advances, Drugs, 68, 319-337, 2008	narrative review
Krzysiek,Roman, Breban,Maxime, Ravaud,Philippe, Prejean,Maria Vittoria, Wijdenes,John, Roy,Carine, Henry,Yves Dominique, Barbey,Carole, Trappe,Gerard, Dougados,Maxime, Emilie,Dominique, French Ankylosing Spondylitis Infliximab Network, Circulating concentration of infliximab and response to treatment in ankylosing spondylitis: results from a randomized control study, Arthritis and rheumatism, 61, 569-576, 2009	No indication that patients had to have failed first line therapy
Lambert,Robert G.W., Salonen,David, Rahman,Proton, Inman,Robert D., Wong,Robert L., Einstein,Steven G., Thomson,Glen T.D., Beaulieu,Andre, Choquette,Denis, Maksymowych,Walter P., Adalimumab significantly reduces both spinal and sacroiliac joint inflammation in patients with ankylosing spondylitis: a multicenter, randomized, double-blind, placebo-controlled study, Arthritis and rheumatism, 56, 4005-4014, 2007	Covered by NICE MTA

Study	Reason for Exclusion
Lekpa,Fernando Kemta, Farrenq,Valerie, Canoui-Poitrine,Florence, Paul,Muriel, Chevalier,Xavier, Bruckert,Remy, Bastuji-Garin,Sylvie, Claudepierre,Pascal, Lack of efficacy of abatacept in axial spondylarthropathies refractory to tumor-necrosis-factor inhibition, Joint, bone, spine : revue du rhumatisme, 79, 47-50, 2012	Non-randomised, non-controlled
Loftus,J.K., Reeve,J., Hesp,R., David,J., Ansell,B.M., Woo,P.M., Deflazacort in juvenile chronic arthritis, The Journal of rheumatology.Supplement, 37, 40-42, 1993	data non-separable for age >16 years old
Lubrano,Ennio, Spadaro,Antonio, Pharmacoeconomic burden in the treatment of psoriatic arthritis: from systematic reviews to real clinical practice studies, BMC musculoskeletal disorders, 15, 25-, 2014	review paper, extracted for useful citations
Maksymowych,W.P., Update on the treatment of ankylosing spondylitis, Therapeutics and clinical risk management, 3, 1125-1133, 2007	review paper, useful citations extracted
Maksymowych,W.P., Jhangri,G.S., Leclercq,S., Skeith,K., Yan,A., Russell,A.S., An open study of pamidronate in the treatment of refractory ankylosing spondylitis, The Journal of rheumatology, 25, 714-717, 1998	non-randomised, non-controlled
Maksymowych,Walter P., Gooch,Katherine L., Wong,Robert L., Kupper,Hartmut, van der Heijde,Desiree, Impact of age, sex, physical function, health-related quality of life, and treatment with adalimumab on work status and work productivity of patients with ankylosing spondylitis, The Journal of rheumatology, 37, 385-392, 2010	secondary study from primary trial
Maksymowych,Walter P., Poole,A.Robin, Hiebert,Lori, Webb,Alison, Ionescu,Mirela, Lobanok,Tatiana, King,Lindsay, Davis,John C.J., Etanercept exerts beneficial effects on articular cartilage biomarkers of degradation and turnover in patients with ankylosing spondylitis, The Journal of rheumatology, 32, 1911-1917, 2005	Not explicitly stated that patients had to have failed first line therapy, secondary study based on primary trial
Manchikanti,Laxmaiah, Cash,Kimberly A., McManus,Carla D., Pampati,Vidyasagar, Abdi,Salahadin, Preliminary results of a randomized, equivalence trial of fluoroscopic caudal epidural injections in managing chronic low back pain: Part 4--Spinal stenosis, Pain physician., 11, 833-848, 2008	data non separable for spondyloarthritis
Marzan,K.A.B., Shaham,B., Early Juvenile Idiopathic Arthritis, Rheumatic Disease Clinics of North America, 38, 355-372, 2012	narrative review
McLeod,C., Bagust,A., Boland,A., Dagenais,P., Dickson,R., Dundar,Y., Hill,R.A., Jones,A., Mujica,Mota R., Walley,T., Adalimumab, etanercept and infliximab for the treatment of ankylosing spondylitis: A systematic review and economic evaluation, Health Technology Assessment, 11, 1-113, 2007	Covered by NICE MTA
Morris,Davina, Inman,Robert D., Reactive arthritis: developments and challenges in diagnosis and treatment, Current rheumatology reports, 14, 390-394, 2012	review, useful citations extracted
Nandi,Pradip, Kingsley,Gabrielle H., Scott,David L., Disease-modifying antirheumatic drugs other than methotrexate in rheumatoid arthritis and seronegative arthritis, Current opinion in rheumatology, 20, 251-256, 2008	narrative review
Niehues,Tim, Lankisch,Petra, Recommendations for the use of methotrexate in juvenile idiopathic arthritis, Paediatric drugs, 8, 347-356, 2006	review, data non separable for age <16 years
NIHR,H.S.C., Secukinumab for ankylosing spondylitis ? second line (Structured abstract), Health Technology Assessment Database, -, 2012	Abstract only

Study	Reason for Exclusion
NIHR,H.S.C., Tocilizumab (RoActemra) for active polyarticular juvenile idiopathic arthritis ? second line (Structured abstract), Health Technology Assessment Database, -, 2012	Abstract alone
Ostensen,M., Hoyeraal,H.M., Kass,E., Tolerance of cyclosporine A in children with refractory juvenile rheumatoid arthritis, The Journal of rheumatology, 15, 1536-1538, 1988	data not separable for age >16 years
Ozdogan,H., Turunc,M., Deringol,B., Yurdakul,S., Yazici,H., Sulphasalazine in the treatment of juvenile rheumatoid arthritis: a preliminary open trial, Journal of Rheumatology, 13, 124-125, 1986	data not separable for ages greater than 16
Pelísková,Z., Pavelka,K.jr, Trnavský,K., A placebo controlled, double-blind study of salazopyrin-en (SASP) in refractory reactive arthritis (ReA), Scandinavian journal of rheumatology.Supplement, 85, 45-, 1990	Abstract only
Peretz,A., Cantinieaux,B., Neve,J., Siderova,V., Fondu,P., Effects of zinc supplementation on the phagocytic functions of polymorphonuclears in patients with inflammatory rheumatic diseases, Journal of trace elements and electrolytes in health and disease Dis, 8, 189-194, 1994	zinc supplementation not pharmacological, outcomes not separable for seronegative arthritis
Peris,F., Martinez,E., Badia,X., Brosa,M., Iatrogenic cost factors incorporating mild and moderate adverse events in the economic comparison of aceclofenac and other NSAIDs, PharmacoEconomics, 19, 779-790, 2001	Economic study comparing NSAIDS
Pieringer,Herwig, Stuby,Ulrike, Pohanka,Erich, Biesenbach,Georg, Augmentation index in patients with rheumatoid arthritis and ankylosing spondylitis treated with infliximab, Clinical rheumatology, 29, 723-727, 2010	Non-randomised
Pilly,Bertrand, Heath,Greg, Tschuor,Patrizia, Lightman,Susan, Gale,Richard P., Overview and recent developments in the medical management of paediatric uveitis, Expert opinion on pharmacotherapy, 14, 1787-1795, 2013	narrative review
Prakken,B., Albani,S., Martini,A., Juvenile idiopathic arthritis, The Lancet.377 (9783) (pp 2138-2149), 2011.Date of Publication: June 18-24, 2011., 2138-2149, 2011	Review, useful citations extracted
Putschky,N., Pott,H.G., Kuipers,J.G., Zeidler,H., Hammer,M., Wollenhaupt,J., Comparing 10-day and 4-month doxycycline courses for treatment of Chlamydia trachomatis-reactive arthritis: a prospective, double-blind trial, Annals of the rheumatic diseases, 65, 1521-1524, 2006	First line therapy. Steroid and DMARD treatment excluded in population
Ravelli,A., Migliavacca,D., Viola,S., Ruperto,N., Pistorio,A., Martini,A., Efficacy of folinic acid in reducing methotrexate toxicity in juvenile idiopathic arthritis, Clinical and experimental rheumatology, 17, 625-627, 1999	retrospective, non-controlled
Ravelli,A., Moretti,C., Temporini,F., Rossi,F., Magni-Manzoni,S., Pistorio,A., Martini,A., Combination therapy with methotrexate and cyclosporine A in juvenile idiopathic arthritis, Clinical and experimental rheumatology, 20, 569-572, 2002	non-randomised, non-controlled
Rejon,E., Gimenez,M.D., Mayordomo,L., Rodriguez,S., Gonzalez,M.P., Marengo,J.L., Therapeutic efficacy and safety of multiple intravenous infusions of infliximab in refractory ankylosing spondylitis patients with axial involvement, Scandinavian journal of rheumatology, 33, 323-326, 2004	Non-randomised, non-controlled
Rudwaleit,M., Baraliakos,X., Listing,J., Brandt,J., Sieper,J., Braun,J., Magnetic resonance imaging of the spine and the sacroiliac joints in ankylosing spondylitis and undifferentiated spondyloarthritis during treatment with etanercept, Annals of the rheumatic diseases, 64, 1305-1310, 2005	Secondary trial based on a primary trial with no indication that patients had to have failed first line therapy to be enrolled

Study	Reason for Exclusion
Rudwaleit,M., Sieper,J., Inliximab for the treatment of ankylosing spondylitis, Expert opinion on biological therapy, 5, 1095-1109, 2005	Narrative review
Ruperto,Nicolino, Brunner,Hermine I., Quartier,Pierre, Constantin,Tamas, Wulfraat,Nico, Horneff,Gerd, Brik,Riva, McCann,Liza, Kasapcopur,Ozgur, Rutkowska-Sak,Lidia, Schneider,Rayfel, Berkun,Yackov, Calvo,Inmaculada, Erguven,Muferet, Goffin,Laurence, Hofer,Michael, Kallinich,Tilmann, Oliveira,Sheila K., Uziel,Yosef, Viola,Stefania, Nistala,Kiran, Wouters,Carine, Cimaz,Rolando, Ferrandiz,Manuel A., Flato,Berit, Gamir,Maria Luz, Kone-Paut,Isabelle, Grom,Alexei, Magnusson,Bo, Ozen,Seza, Sztajnbok,Flavio, Lheritier,Karine, Abrams,Ken, Kim,Dennis, Martini,Alberto, Lovell,Daniel J., PRINTO, PRCSG, Two randomized trials of canakinumab in systemic juvenile idiopathic arthritis, The New England journal of medicine, 367, 2396-2406, 2012	Data non-separable for age >=16
Sarkar,Rathindra Nath, Phaujdar,Sibaji, De,Dibyendu, Bhattacharyya,Kuntal, Assessment of efficacy of pamidronate in undifferentiated spondyloarthritis (uSpA): a placebo control trial in a tertiary level center, Rheumatology international, 32, 3945-3950, 2012	non-randomised
Savolainen,H.A., Chlorambucil in severe juvenile chronic arthritis: longterm followup with special reference to amyloidosis, The Journal of rheumatology, 26, 898-903, 1999	non-controlled study
Savolainen,H.A., Kautiainen,H., Isomaki,H., Aho,K., Verronen,P., Azathioprine in patients with juvenile chronic arthritis: a longterm followup study, The Journal of rheumatology, 24, 2444-2450, 1997	non-controlled, data non-separable for age >16 years old
Schiotis,R.E., Calvo-Gutierrez,J., Salas,A., Font-Ugalde,P., Castro-Villegas,M.D.C., Collantes-Estevez,E., Recent updates on the recommendations for the management of ankylosing spondylitis: What and why?, International Journal of Clinical Rheumatology, 8, 361-371, 2013	narrative review
Schoels,M.M., Braun,J., Dougados,M., Emery,P., Fitzgerald,O., Kavanaugh,A., Kvien,T.K., Landewe,R., Luger,T., Mease,P., Olivieri,I., Reveille,J., Ritchlin,C., Rudwaleit,M., Sieper,J., Smolen,J.S., Wit,M.de, van der Heijde,D., Treating axial and peripheral spondyloarthritis, including psoriatic arthritis, to target: results of a systematic literature search to support an international treat-to-target recommendation in spondyloarthritis, Annals of the rheumatic diseases, 73, 238-242, 2014	review, useful citations extracted
Scott,C., Meiorin,S., Filocamo,G., Lanni,S., Valle,M., Martinoli,C., Martini,A., Ravelli,A., A reappraisal of intra-articular corticosteroid therapy in juvenile idiopathic arthritis, Clinical and experimental rheumatology, 28, 774-781, 2010	guidance/narrative review
Sharma,Aman, Dogra,Sunil, Management of psoriatic arthritis, Indian journal of dermatology, venereology and leprology, 76, 645-651, 2010	narrative review
Sieper,J., Baraliakos,X., Listing,J., Brandt,J., Haibel,H., Rudwaleit,M., Braun,J., Persistent reduction of spinal inflammation as assessed by magnetic resonance imaging in patients with ankylosing spondylitis after 2 yrs of treatment with the anti-tumour necrosis factor agent infliximab, Rheumatology (Oxford, England), 44, 1525-1530, 2005	No indication that patients had to have failed first-line therapy
Sieper,Joachim, Rudwaleit,Martin, Braun,Jurgen, Adalimumab for the treatment of ankylosing spondylitis, Expert opinion on pharmacotherapy, 8, 831-838, 2007	Expert opinion (review)
Sieper,Joachim, van der Heijde,Desiree, Dougados,Maxime, Mease,Philip J., Maksymowych,Walter P., Brown,Matthew A., Arora,Vipin, Pangan,Aileen L., Efficacy and safety of adalimumab in	Covered by NICE MTA

Study	Reason for Exclusion
patients with non-radiographic axial spondyloarthritis: results of a randomised placebo-controlled trial (ABILITY-1), <i>Annals of the rheumatic diseases</i> , 72, 815-822, 2013	
Silverman,E.D., Cawkwell,G.D., Lovell,D.J., Laxer,R.M., Lehman,T.J., Passo,M.H., Zemel,L.S., Giannini,E.H., Intravenous immunoglobulin in the treatment of systemic juvenile rheumatoid arthritis: a randomized placebo controlled trial. <i>Pediatric Rheumatology Collaborative Study Group, Journal of Rheumatology</i> , 21, 2353-2358, 1994	data non separable for age >16 years old
Singh,Ranju, Menon,Yamini, Cuchacovich,Raquel, Espinoza,Luis R., A six-month randomized, controlled, double-blind, dose-response comparison of intravenous pamidronate (60 mg versus 10 mg) in the treatment of nonsteroidal antiinflammatory drug-refractory ankylosing spondylitis: comment on the article by Maksymowych et al, <i>Arthritis and rheumatism</i> , 48, 583-584, 2003	duplicate
Sobel,Rachel E., Lovell,Daniel J., Brunner,Hermine I., Weiss,Jennifer E., Morris,Paula W., Gottlieb,Beth S., Chalom,Elizabeth C., Jung,Lawrence K., Onel,Karen B., Petiniot,Lisa, Goldsmith,Donald P., Nanda,Kabita, Shishov,Michael, Abramsky,Staci, Young,James P., Giannini,Edward H., Safety of celecoxib and nonselective nonsteroidal anti-inflammatory drugs in juvenile idiopathic arthritis: results of the phase 4 registry, <i>Pediatric rheumatology online journal</i> , 12, 29-, 2014	no subgroup data separable for age 16-18
Song,I.H., Heldmann,F., Rudwaleit,M., Listing,J., Appel,H., Braun,J., Sieper,J., Different response to rituximab in tumor necrosis factor blocker-naïve patients with active ankylosing spondylitis and in patients in whom tumor necrosis factor blockers have failed: a twenty-four-week clinical trial, <i>Arthritis and rheumatism</i> , 62, 1290-1297, 2010	Non-randomised
Song,I.-H., Sieper,J., Etanercept for the treatment of axial spondyloarthritis, <i>Clinical Investigation</i> , 3, 343-357, 2013	Review paper, non-systematic
Soriano,E.R., Rosa,J., Update on the treatment of peripheral arthritis in psoriatic arthritis, <i>Current rheumatology reports</i> , 11, 270-277, 2009	narrative review
Tam,Lai Shan, Shang,Qing, Kun,Emily W., Lee,Ka Lai, Yip,Man Lung, Li,Martin, Li,Tena K., Zhu,Tracy Y., Pui,Michelle O., Li,Edmund K., Yu,Cheuk Man, The effects of golimumab on subclinical atherosclerosis and arterial stiffness in ankylosing spondylitis-a randomized, placebo-controlled pilot trial, <i>Rheumatology (Oxford, England)</i> , 53, 1065-1074, 2014	Covered by NICE MTA
Temekonidis,T.I., Alamanos,Y., Nikas,S.N., Bougias,D.V., Georgiadis,A.N., Voulgari,P.V., Drosos,A.A., Infliximab therapy in patients with ankylosing spondylitis: an open label 12 month study, <i>Annals of the rheumatic diseases</i> , 62, 1218-1220, 2003	Non-randomised, non-controlled
Toussirot,Eric, Wendling,Daniel, Bisphosphonates as anti-inflammatory agents in ankylosing spondylitis and spondylarthropathies, <i>Expert opinion on pharmacotherapy</i> , 6, 35-43, 2005	narrative review
van der Heijde,D., Landewe,R., Einstein,S., Ory,P., Vosse,D., Ni,L., Lin,S.L., Tsuji,W., Davis,J.C.J., Radiographic progression of ankylosing spondylitis after up to two years of treatment with etanercept, <i>Arthritis and rheumatism</i> , 58, 1324-1331, 2008	secondary study based on primary trial with no indication that patients had to have failed first line therapy for enrolment
van der Heijde,D., Pangan,A.L., Schiff,M.H., Braun,J., Borofsky,M., Torre,J., Davis,J.C.J., Wong,R.L., Kupper,H., Collantes,E., ATLAS Study Group, Adalimumab effectively reduces the signs and	Secondary study based on primary trial

Study	Reason for Exclusion
symptoms of active ankylosing spondylitis in patients with total spinal ankylosis, <i>Annals of the rheumatic diseases</i> , 67, 1218-1221, 2008	
van der Heijde, D., Schiff, M.H., Sieper, J., Kivitz, A.J., Wong, R.L., Kupper, H., Dijkmans, B.A.C., Mease, P.J., Davis, J.C.J., ATLAS Study Group, Adalimumab effectiveness for the treatment of ankylosing spondylitis is maintained for up to 2 years: long-term results from the ATLAS trial, <i>Annals of the rheumatic diseases</i> , 68, 922-929, 2009	Secondary study based on primary trial
van der Heijde, Desiree, Braun, Jurgen, Deodhar, Atul, Inman, Robert D., Xu, Stephen, Mack, Michael E., Hsu, Benjamin, Comparison of three enthesitis indices in a multicentre, randomized, placebo-controlled trial of golimumab in ankylosing spondylitis (GO-RAISE), <i>Rheumatology (Oxford, England)</i> , 52, 321-325, 2013	secondary study based on primary trial
van der Heijde, Desiree, Kivitz, Alan, Schiff, Michael H., Sieper, Joachim, Dijkmans, Ben A.C., Braun, Jurgen, Dougados, Maxime, Reveille, John D., Wong, Robert L., Kupper, Hartmut, Davis, John C.J., ATLAS Study Group, Efficacy and safety of adalimumab in patients with ankylosing spondylitis: results of a multicenter, randomized, double-blind, placebo-controlled trial, <i>Arthritis and rheumatism</i> , 54, 2136-2146, 2006	Covered by NICE MTA
Varbanova, B.B., Dyankov, E.D., Sulphasalazine. An alternative drug for second-line treatment of juvenile chronic arthritis, <i>Advances in experimental medicine and biology</i> , 455, 331-336, 1999	data non-separable for age >16
Visvanathan, S., van der Heijde, D., Deodhar, A., Wagner, C., Baker, D.G., Han, J., Braun, J., Effects of infliximab on markers of inflammation and bone turnover and associations with bone mineral density in patients with ankylosing spondylitis, <i>Annals of the rheumatic diseases</i> , 68, 175-182, 2009	Secondary study based on primary trial, with no indication that patients had to have failed 1st line therapy
Wei, James Cheng-Chung, Chan, Tsai Wen, Lin, Huey Shyan, Huang, Feng, Chou, Chan Te, Thalidomide for severe refractory ankylosing spondylitis: a 6-month open-label trial, <i>The Journal of rheumatology</i> , 30, 2627-2631, 2003	Non-randomised
Woo, Jin Hyun, Lee, Hyun Joo, Sung, Il Hoon, Kim, Tae Hwan, Changes of clinical response and bone biochemical markers in patients with ankylosing spondylitis taking etanercept, <i>The Journal of rheumatology</i> , 34, 1753-1759, 2007	Non-randomised, non-controlled
Yokota, Shumpei, Miyamae, Takako, Imagawa, Tomoyuki, Iwata, Naomi, Katakura, Shigeki, Mori, Masaaki, Woo, Patricia, Nishimoto, Norihiro, Yoshizaki, Kazuyuki, Kishimoto, Tadimitsu, Therapeutic efficacy of humanized recombinant anti-interleukin-6 receptor antibody in children with systemic-onset juvenile idiopathic arthritis, <i>Arthritis and rheumatism</i> , 52, 818-825, 2005	Non-randomised trial

## F.2.4 Biological DMARDs for spondyloarthritis

Review questions 24, 25, and 26

- What is the effectiveness of systemic biological disease-modifying anti-rheumatic drugs for managing symptoms of enteropathic arthritis?
- What is the effectiveness of systemic biological disease-modifying anti-rheumatic drugs for managing symptoms of reactive arthritis?
- What is the effectiveness of systemic biological disease-modifying anti-rheumatic drugs for managing symptoms of undifferentiated spondyloarthritis, excluding non-radiographic ankylosing spondylitis?

Study	Reason for Exclusion
Allali,F., Breban,M., Porcher,R., Maillefert,J.F., Dougados,M., Roux,C., Increase in bone mineral density of patients with spondyloarthropathy treated with anti-tumour necrosis factor alpha, <i>Annals of the rheumatic diseases</i> , 62, 347-349, 2003	Population: only 4 people with IBD-SpA. Intervention/comparison: no randomisation or control group
Baraliakos,Xenofon, Braun,Juergen, Anti-TNF-alpha therapy with infliximab in spondyloarthritis, <i>Expert review of clinical immunology</i> , 6, 9-19, 2010	Non-systematic review article. Some cited studies were ordered.
Barkham,Nick, Keen,Helen I., Coates,Laura C., O'Connor,Philip, Hensor,Elizabeth, Fraser,Alexander D., Cawkwell,Lorna S., Bennett,Alexander, McGonagle,Dennis, Emery,Paul, Clinical and imaging efficacy of infliximab in HLA-B27-Positive patients with magnetic resonance imaging-determined early sacroiliitis, <i>Arthritis and rheumatism</i> , 60, 946-954, 2009	Population: study participants had 'early axial SpA' considered likely to progress to AS. It is unclear whether any participants went on to develop a relevant indication.
Barreiro-de-Acosta,M., Lorenzo,A., Dominguez-Munoz,J.E., Efficacy of adalimumab for the treatment of extraintestinal manifestations of Crohn's disease, <i>Revista Espanola de Enfermedades Digestivas</i> , 104, 468-472, 2012	All participants received adalimumab, so there was no comparison group.
Berthelot,Jean Marie, Efficacy of low-dose etanercept (25 mg/week): how much do we know?, <i>Joint, bone, spine : revue du rhumatisme</i> , 79, 335-337, 2012	Study design: editorial
Berthelot,Jean Marie, Benoist-Gerard,Stephanie, le Goff,Benoit, Muller-Chevalet,Florence, Maugars,Yves, Outcome and safety of TNFalpha antagonist therapy in 475 consecutive outpatients (with rheumatoid arthritis or spondyloarthropathies) treated by a single physician according to their eligibility for clinical trials, <i>Joint, bone, spine : revue du rhumatisme</i> , 77, 564-569, 2010	Population: included 226 people with SpA but results are not reported by subtype Study design: Secondary analysis of consecutive case series
Bisson-Vaivre,A., Alcaix,D., Zarnitsky,C., Pueyo,L., Daragon,A., Lanfant-Weybel,K., Dacher,J.-N., Vittecoq,O., Le,Loet,X, Goeb,V., Efficacy of anti-TNF in patients with spondyloarthritis in absence of any imaging sign, <i>Joint, bone, spine : revue du rhumatisme</i> , 80, 280-286, 2013	Population: people with axial SpA, mostly non-radiographic. Study design: no randomisation or control

Study	Reason for Exclusion
Brandt,Jan, Haibel,Hildrun, Reddig,Jaqueline, Sieper,Joachim, Braun,Jurgen, Successful short term treatment of severe undifferentiated spondyloarthritis with the anti-tumor necrosis factor-alpha monoclonal antibody infliximab, The Journal of rheumatology, 29, 118-122, 2002	Study design: all 6 participants with uSpA were given Infliximab i.e. no randomisation or control
Brandt,Jan, Khariouzov,Andre, Listing,Joachim, Haibel,Hildrun, Sorensen,Helmut, Rudwaleit,Martin, Sieper,Joachim, Braun,Jurgen, Successful short term treatment of patients with severe undifferentiated spondyloarthritis with the anti-tumor necrosis factor-alpha fusion receptor protein etanercept, The Journal of rheumatology, 31, 531-538, 2004	Study design: all 10 participants with uSpA received etanercept i.e. no randomisation or control
Briot,Karine, Gossec,Laure, Kolta,Sam, Dougados,Maxime, Roux,Christian, Prospective assessment of body weight, body composition, and bone density changes in patients with spondyloarthritis receiving anti-tumor necrosis factor-alpha treatment, The Journal of rheumatology, 35, 855-861, 2008	Population: mostly (99 of 106) people with AS or PsA
Briot,Karine, Roux,Christian, Gossec,Laure, Charni,Nadine, Kolta,Sami, Dougados,Maxime, Garnero,Patrick, Effects of etanercept on serum biochemical markers of cartilage metabolism in patients with spondyloarthritis, The Journal of rheumatology, 35, 310-314, 2008	Population: mixed SpA population without separate outcome reporting by indication. Study design: no randomisation/control
Burmester,Gerd R., Panaccione,Remo, Gordon,Kenneth B., McIlraith,Melissa J., Lacerda,Ana P.M., Adalimumab: long-term safety in 23 458 patients from global clinical trials in rheumatoid arthritis, juvenile idiopathic arthritis, ankylosing spondylitis, psoriatic arthritis, psoriasis and Crohn's disease, Annals of the rheumatic diseases, 72, 517-524, 2013	Population: no relevant indications were examined in analysis
Catherine,Swales, Bowness,Paul, Anti-tumour necrosis factor therapy in seronegative spondyloarthritis, Clinical medicine (London, England), 5, 219-222, 2005	Study design: non-systematic review
Collantes-Estevez,E., Munoz-Villanueva,M.C., Canete-Crespillo,J.D., Sanmarti-Sala,R., Gratacos-Masmitja,J., Zarco-Montejo,P., Torre-Alonso,J.C., Gonzalez-Fernandez,C., Infliximab in refractory spondyloarthropathies: a multicentre 38 week open study, Annals of the rheumatic diseases, 62, 1239-1240, 2003	Population: 32 participants of whom only 6 had eligible indication (3 uSpA, 3 IBD-SpA). Study design: All participants received infliximab i.e. there was no randomisation or control.
Collantes-Estevez,E., Munoz-Villanueva,M.C., Zarco,P., Torre-Alonso,J.C., Gratacos,J., Gonzalez,C., Sanmarti,R., Canete,J.D., Spanish Spondyloarthropathies Study Group, Effectiveness of reducing infliximab dose interval in non-responder patients with refractory spondyloarthropathies. An open extension of a multicentre study, Rheumatology (Oxford, England), 44, 1555-1558, 2005	Population: of the 25 participants, only 5 had eligible indications (2 IBD-SpA, 3 uSpA). All participants received Infliximab Study design: dosage varied across two groups but allocation was based on previous clinical response, not randomisation.
D'Agostino,M.A., Breban,M., Said-Nahal,R., Dougados,M., Refractory inflammatory heel pain	Study design: letter

Study	Reason for Exclusion
in spondylarthropathy: a significant response to infliximab documented by ultrasound, <i>Arthritis and Rheumatology</i> , 46, 840-841, 2002	
De La Mata,Jose, Maese,Jesus, Martinez,Juan A., Rosario,Piedad, Loza,Estibaliz, Current evidence of the management of undifferentiated spondyloarthritis: a systematic literature review, <i>Seminars in arthritis and rheumatism</i> , 40, 421-423, 2011	Study design: systematic review from which one extra study was identified
De Rycke,Leen, Baeten,Dominique, Kruihof,Elli, van den Bosch,Filip, Veys,Eric M., De Keyser,Filip, Infliximab, but not etanercept, induces IgM anti-double-stranded DNA autoantibodies as main antinuclear reactivity: biologic and clinical implications in autoimmune arthritis, <i>Arthritis and rheumatism</i> , 52, 2192-2201, 2005	Study population included 10 people with uSpA receiving biological therapy, but there was no randomisation or control group
De Rycke,Leen, Vandooren,Bernard, Kruihof,Elli, De Keyser,Filip, Veys,Eric M., Baeten,Dominique, Tumor necrosis factor alpha blockade treatment down-modulates the increased systemic and local expression of Toll-like receptor 2 and Toll-like receptor 4 in spondylarthropathy, <i>Arthritis and rheumatism</i> , 52, 2146-2158, 2005	Population: of the 23 people with SpA in the study, only 8 had an eligible indication (uSpA) and results were not reported separately for these participants.
Delaunay,Caroline, Farrenq,Valerie, Marini-Portugal,Andre, Cohen,Jean David, Chevalier,Xavier, Claudepierre,Pascal, Infliximab to etanercept switch in patients with spondyloarthropathies and psoriatic arthritis: preliminary data, <i>The Journal of rheumatology</i> , 32, 2183-2185, 2005	Study design: all participants were already taking infliximab and were switched to etanercept i.e. before and after study without randomisation separate control group Population: only 6 participants had uSpA.
Dougados,Maxime, Combe,Bernard, Braun,Jurgen, Landewe,Robert, Sibilia,Jean, Cantagrel,Alain, Feydy,Antoine, van der Heijde,Desiree, Leblanc,Veronique, Logeart,Isabelle, A randomised, multicentre, double-blind, placebo-controlled trial of etanercept in adults with refractory heel enthesitis in spondyloarthritis: the HEEL trial, <i>Annals of the rheumatic diseases</i> , 69, 1430-1435, 2010	Population: all participants had SpA according to AMOR criteria but the indication is not specified, nor were results reported by subtype of SpA.
Duclos,Muriel, Gossec,Laure, Ruysen-Witrand,Adeline, Salliot,Carine, Luc,Mathieu, Guignard,Sandra, Dougados,Maxime, Retention rates of tumor necrosis factor blockers in daily practice in 770 rheumatic patients, <i>The Journal of rheumatology</i> , 33, 2433-2438, 2006	Study design: retrospective case series review of people already on anti-TNF therapies i.e. no randomisation or comparison group
Duftner,C., Dejaco,C., Larcher,H., Schirmer,M., Herold,M., Biologicals in rheumatology: Austrian experiences from a rheumatic outpatient clinic, <i>Rheumatology international</i> , 29, 69-73, 2008	Study design: retrospective case series review of people who had received at least one biological agent i.e. no randomisation or control.
Generini,S., Giacomelli,R., Fedi,R., Fulminis,A., Pignone,A., Frieri,G., Del Rosso,A., Viscido,A., Galletti,B., Fazzi,M., Tonelli,F., Matucci-Cerinic,M., Infliximab in spondyloarthropathy associated with Crohn's disease: an open study on the efficacy of inducing and maintaining	Study design: all participants had eligible indication (IBD-SpA) but all received infliximab i.e. no randomisation or control.

Study	Reason for Exclusion
remission of musculoskeletal and gut manifestations, Annals of the rheumatic diseases Ann Rheum Dis, 63, 1664-1669, 2004	
Gottlieb,Alice B., Gordon,Kenneth, Giannini,Edward H., Mease,Philip, Li,Juan, Chon,Yun, Maddox,Judy, Weng,Haoling H., Wajdula,Joseph, Lin,Shao Lee, Baumgartner,Scott W., Clinical trial safety and mortality analyses in patients receiving etanercept across approved indications, Journal of drugs in dermatology : JDD, 10, 289-300, 2011	Study design: review, with no relevant indications
Haibel,Hildrun, Rudwaleit,Martin, Listing,Joachim, Heldmann, Frank, Wong,Robert L., Kupper,Hartmut, Braun,Jurgen, Sieper,Joachim, Efficacy of adalimumab in the treatment of axial spondylarthritis without radiographically defined sacroiliitis: results of a twelve-week randomized, double-blind, placebo-controlled trial followed by an open-label extension up to week fifty-two, Arthritis and rheumatism, 58, 1981-1991, 2008	Population: participants had non-radiographic axial SpA. Authors discussed overlap between this and uSpA, but defined their participants as having nr-axial SpA.
Horneff,Gerd, Burgos-Vargas,Ruben, Constantin,Tamas, Foeldvari,Ivan, Vojinovic,Jelena, Chasnyk,Vyacheslav G., Dehoorne,Joke, Panaviene,Violeta, Susic,Gordana, Stanevica,Valda, Kobusinska,Katarzyna, Zuber,Zbigniew, Mouy,Richard, Rumba-Rozenfelde,Ingrida, Breda,Luciana, Dolezalova,Pavla, Job-Deslandre,Chantal, Wulffraat,Nico, Alvarez,Daniel, Zang,Chuanbo, Wajdula,Joseph, Woodworth,Deborah, Vlahos,Bonnie, Martini,Alberto, Ruperto,Nicolino, Paediatric Rheumatology International Trials Org, Efficacy and safety of open-label etanercept on extended oligoarticular juvenile idiopathic arthritis, enthesitis-related arthritis and psoriatic arthritis: part 1 (week 12) of the CLIPPER study, Annals of the rheumatic diseases, 73, 1114-1122, 2014	Population: no relevant indications; Intervention/comparison: no randomisation or control group
Kruithof,Elli, De Rycke,Leen, Roth,Johannes, Mielants,Herman, van den Bosch,Filip, De Keyser,Filip, Veys,Eric M., Baeten,Dominique, Immunomodulatory effects of etanercept on peripheral joint synovitis in the spondylarthropathies, Arthritis and rheumatism, 52, 3898-3909, 2005	Population included 9 people with uSpA, but there was no randomisation or control group
Lakatos,Peter L., Lakatos,Laszlo, Kiss,Lajos S., Peyrin-Biroulet,Laurent, Schoepfer,Alain, Vavricka,Stephan, Treatment of extraintestinal manifestations in inflammatory bowel disease, Digestion, 86 Suppl 1, 28-35, 2012	Non-systematic review
Lawrance,I.C., Infiximab in the management of the extra-intestinal manifestations of Crohn's disease [3], Journal of Gastroenterology and Hepatology (Australia).19 (11) (pp 1332-1333), 2004.Date of Publication: November 2004., 1332-1333, 2004	Letter/case reports

Study	Reason for Exclusion
Lekpa,Fernando Kemta, Farrenq,Valerie, Canoui-Poitrine,Florence, Paul,Muriel, Chevalier,Xavier, Bruckert,Remy, Bastuji-Garin,Sylvie, Claudepierre,Pascal, Lack of efficacy of abatacept in axial spondylarthropathies refractory to tumor-necrosis-factor inhibition, Joint, bone, spine : revue du rhumatisme, 79, 47-50, 2012	Population: only 2 participants had uSpA. Study design: no randomisation or control group
Low,A., Hyrich,K., Evaluating the real-world benefits and risks of anti-tumor necrosis factor therapies, Journal of Rheumatology., 40, 4-6, 2013	Study design: editorial
Marzo-Ortega,H., McGonagle,D., O'Connor,P., Emery,P., Efficacy of etanercept in the treatment of the enthesal pathology in resistant spondylarthropathy: a clinical and magnetic resonance imaging study, Arthritis and rheumatism, 44, 2112-2117, 2001	Population: 10 participants of whom only 3 had eligible indication (2 IBD-SpA, 1 uSpA). Study design: all participants received etanercept i.e. no randomisation or control group
Mazza,J., Rossi,A., Weinberg,J.M., Innovative uses of tumor necrosis factor alpha inhibitors, Dermatologic clinics, 28, 559-575, 2010	Study design: non-systematic review (no RCTs on relevant indications were reported).
Meric,Jean Camille, Mulleman,Denis, Ducourau,Emilie, Lauferon,Francine, Miow Lin,Delphine Chu, Watier,Herve, Goupille,Philippe, Paintaud,Gilles, Therapeutic drug monitoring of infliximab in spondyloarthritis: an observational open-label study, Therapeutic drug monitoring, 33, 411-416, 2011	Population: mixed SpA population without separate outcome reporting by indication. Study design: all participants already on infliximab i.e. no randomisation or control group
Nelson,A.L., Dhimolea,E., Reichert,J.M., Development trends for human monoclonal antibody therapeutics, Nature Reviews Drug Discovery, 9, 767-774, 2010	Study design: non-systematic review - no relevant indications
Olyaeemanesh,A., Doaee,S., Nejati,M., Mobinizadeh,M., Aboee,P., Beyhaghi,H., Effectiveness and safety of Etanercept in treatment of arthritis, HealthMED, 6, 2709-2716, 2012	Population: no relevant indicators; Study design: Systematic review
Palazzi,C., D'Angelo,S., Cantini,F., Lubrano,E., Marchesoni,A., Mathieu,A., Salvarani,C., Scarpa,R., Spadaro,A., Olivieri,I., Etanercept in spondyloarthropathies. Part I: Current evidence of efficacy, Clinical and experimental rheumatology, 29, 858-864, 2011	Study design: non-systematic review article (no RCTs identified in relevant indications)
Paramarta,Jacqueline E., Baeten,Dominique L., Adalimumab serum levels and antidrug antibodies towards adalimumab in peripheral spondyloarthritis: no association with clinical response to treatment or with disease relapse upon treatment discontinuation, Arthritis research & therapy, 16, R160-, 2014	Outcomes: further analysis of study subjects already reported in included study (Paramarta 2013). Additional outcomes reported here were outside of the scope of the review protocol.
Paramarta,Jacqueline E., De Rycke,Leen, Ambarus,Carmen A., Tak,Paul P., Baeten,Dominique, Undifferentiated spondyloarthritis vs ankylosing spondylitis and psoriatic arthritis: a real-life prospective cohort study of clinical presentation and response to	Population included 40 people with uSpA, 29 with IBD-SpA and 3 with ReA. However, intervention was not randomised nor controlled.

Study	Reason for Exclusion
treatment, Rheumatology (Oxford, England), 52, 1873-1878, 2013	
Paul,S., Keat,A., Assessment of patients with spondyloarthropathies for treatment with tumour necrosis factor alpha blockade, Rheumatology, 44, 17-23, 2005	Study design: review which covered non-RCT evidence in ReA, uSpA and enteropathic-SpA
Pichon,Riviere A., Augustovski,F., Garcia,Marti S., Glujovsky,D., Alcaraz,A., Lopez,A., Bardach,A., Ciapponi,A., Mengarelli,C., Adalimumab, etanercept, infliximab and golimumab for the treatment of ankylosing spondylitis and reactive arthritis (Structured abstract), Health Technology Assessment Database, -, 2013	Study design: abstract only of a systematic review. Full text unavailable and unlikely to be available in English
Ramiro,Sofia, Radner,Helga, van der Heijde,Desiree, van Tubergen,Astrid, Buchbinder,Rachelle, Aletaha,Daniel, Landewe,Robert Bm, Combination therapy for pain management in inflammatory arthritis (rheumatoid arthritis, ankylosing spondylitis, psoriatic arthritis, other spondyloarthritis), The Cochrane database of systematic reviews, CD008886-, 2011	Study design: Systematic review. No studies identified in relevant populations
Ramos-Casals,Manuel, Brito-Zeron,Pilar, Munoz,Sandra, Soto,Maria Jose, BIOGEAS STUDY Group, A systematic review of the off-label use of biological therapies in systemic autoimmune diseases, Medicine, 87, 345-364, 2008	Study design: Systematic review with no relevant indications
Rudwaleit,M., Baraliakos,X., Listing,J., Brandt,J., Sieper,J., Braun,J., Magnetic resonance imaging of the spine and the sacroiliac joints in ankylosing spondylitis and undifferentiated spondyloarthritis during treatment with etanercept, Annals of the rheumatic diseases, 64, 1305-1310, 2005	Population: study population is a mixture of people with AS (n=30) and uSpA (n=10), without separate outcome reporting by indication. Study design: all participants with uSpA received etanercept, there was no randomisation or control.
Schafranski,M.D., Infliximab for reactive arthritis secondary to Chlamydia trachomatis infection, Rheumatology International, 30, 679-680, 2010	Study design: case study of one person with Chlamydia-induced reactive arthritis receiving infliximab
Schnarr,S., Kuipers,J.G., Zeidler,H., Anti-tumour necrosis factor (TNF)-alpha therapy in undifferentiated spondyloarthropathy, Clinical and experimental rheumatology, 20, S126-S129, 2002	Study design: review of other studies which are not eligible for inclusion
Sieper,J., Lenaerts,J., Wollenhaupt,J., Rudwaleit,M., Mazurov,V.I., Myasoutova,L., Park,S., Song,Y., Yao,R., Chitkara,D., Vastesaegeer,N., All,INFAST,I, Efficacy and safety of infliximab plus naproxen versus naproxen alone in patients with early, active axial spondyloarthritis: results from the double-blind, placebo-controlled INFAST study, Part 1, Annals of the rheumatic diseases, 73, 101-107, 2014	Populations: all participants had to fulfil ASAS criteria, therefore population included people with AS or non-radiographic axial SpA.
Song,I.-H., Hermann,K.G., Haibel,H., Effects of etanercept versus sulfasalazine in early axial spondyloarthritis on active inflammatory lesions	Population: all participants fulfilled ASAS criteria for axial SpA

Study	Reason for Exclusion
as detected by whole-body MRI (ESTHER): A 48-week randomised controlled trial (Annals of the Rheumatic Diseases (2011) 70, (590-596) DOI:10.1136/ard.2010.139667), Annals of the rheumatic diseases, 70, 1350-, 2011	
Song, In Ho, Althoff, Christian E., Haibel, Hildrun, Hermann, Kay Geert, Poddubnyy, Denis, Listing, Joachim, Weis, Anja, Djacenko, Svetlana, Burmester, Gerd R., Bohl-Buhler, Martin, Freundlich, Bruce, Rudwaleit, Martin, Sieper, Joachim, Frequency and duration of drug-free remission after 1 year of treatment with etanercept versus sulfasalazine in early axial spondyloarthritis: 2 year data of the ESTHER trial, Annals of the rheumatic diseases Ann Rheum Dis, 71, 1212-1215, 2012	Population: participants had early axial SpA; study did not mention eligible indications
van den Bosch, F., Baeten, D., Kruithof, E., De Keyser, F., Mielants, H., Veys, E.M., Treatment of active spondyloarthropathy with infliximab, the chimeric monoclonal antibody to tumour necrosis factor alpha, Annals of the rheumatic diseases, 60 Suppl 3, iii33-iii36, 2001	Population: participants had 'active SpA' but exact indication was not reported. Study design: Pilot study with open label design in which all participants received Infliximab i.e. there was no randomisation or control.
Van den Bosch, F., Kruithof, E., Baeten, D., De Keyser, F., Mielants, H., Veys, E.M., Effects of a loading dose regimen of three infusions of chimeric monoclonal antibody to tumour necrosis factor alpha (infliximab) in spondyloarthropathy: an open pilot study., Annals of the Rheumatic Diseases, 59, 428-433, 2000	Study design: all participants received infliximab i.e. no randomisation or comparison group. Population: Only two participants had uSpA
Van Den Bosch, Filip, Kruithof, Elli, Baeten, Dominique, Herssens, Annemie, De Keyser, Filip, Mielants, Herman, Veys, Eric M., Randomized double-blind comparison of chimeric monoclonal antibody to tumor necrosis factor alpha (infliximab) versus placebo in active spondylarthropathy, Arthritis and rheumatism, 46, 755-765, 2002	Population: study population only contained three people with uSpA (two in intervention group, one on placebo); all other participants had either AS or PsA Outcomes: study outcomes were not reported separately by disease subtype.
Weis, Anja, Song, In Ho, Haibel, Hildrun, Listing, Joachim, Sieper, Joachim, Good correlation between changes in objective and subjective signs of inflammation in patients with short- but not long duration of axial spondyloarthritis treated with tumor necrosis factor-blockers, Arthritis research & therapy, 16, R35-, 2014	Population: participants had 'active axial SpA' but it was unclear as to whether they had an eligible indication for these reviews.
Wendling, Daniel, Prati, Clement, Goupille, Philippe, Mulleman, Denis, Optimizing TNFalpha antagonist therapy in patients with spondyloarthritis: why and how?, Joint, bone, spine : revue du rhumatisme, 78, 225-227, 2011	Editorial
Xu, Manlong, Lin, Zhiming, Deng, Xinghe, Li, Li, Wei, Yanlin, Liao, Zetao, Li, Qiuxia, Wei, Qiuqing, Hu, Zaiying, Zhang, Yanli, Lin, Qu, Huang, Jianlin, Li, Tianwang, Pan, Yunfeng, Wu, Yuqiong, Jin, Ou, Yu, Buyun, Gu, Jieruo, The Ankylosing Spondylitis Disease Activity Score is a highly discriminatory measure of disease activity and	Study design: study pooled data from two separate studies, both of which included people AS and uSpA, but one was an RCT of etanercept vs placebo, and the other a study in which everyone received infliximab. Outcomes: Although outcomes were reported separately by indication for the pooled data, the study

Study	Reason for Exclusion
efficacy following tumour necrosis factor-alpha inhibitor therapies in ankylosing spondylitis and undifferentiated spondyloarthropathies in China, Rheumatology (Oxford, England), 50, 1466-1472, 2011	focused on reporting correlations between variables, before and after treatment (control biologics pooled) and discrimination of variables where pooled data from both intervention groups were compared with the placebo data from the single trial.
Studies not received at time of analysis	
Balzola,F., Cullen,G., Hoentjen,F., Ho,G.-T., Russell,R., Adalimumab: Long-term safety in 23 458 patients from global clinical trials in rheumatoid arthritis, juvenile idiopathic arthritis, ankylosing spondylitis, psoriatic arthritis, psoriasis and Crohn's disease, Inflammatory Bowel Disease Monitor, 13, 162-, 2013	
Bosch,F., Mease,P., Sieper,J., Baeten,D.L., Karunaratne,P.M., Song,I.-H., Pangan,A.L., Arthritis and enthesitis remission during adalimumab treatment in peripheral spondyloarthritis: Year-2 results from ability-2, Annals of the Rheumatic Diseases, 73, 2014	
Kilic,E., Kilic,G., Akgul,O., Akgol,G., Ozgocmen,S., The reported adverse effects related to biological agents used for the treatment of rheumatic diseases in Turkey, Turkish Journal of Rheumatology, 28, 149-162, 2013	
Migliore,Alberto, Massafra,Umberto, Capuano,Anna, Martin,Severino Martin, Combined use of teriparatide and TNFalpha blockade: safety, Aging clinical and experimental research, 19, 18-20, 2007	
Oili,K.S., Niinisalo,H., Korpilahde,T., Virolainen,J., Treatment of reactive arthritis with infliximab, Scandinavian Journal of Rheumatology, 32, 122-124, 2003	
Subramaniam,K., Tymms,K., Shadbolt,B., Pavli,P., Spondyloarthropathy in inflammatory bowel disease patients on TNF inhibitors, Internal Medicine Journal, 45, 1154-1160, 2015	

## F.2.5 Long-term antibiotics for reactive arthritis

### Review Question 19

- What is the effectiveness of long-term (4 weeks or longer) treatment with antibiotics for first-line management of reactive arthritis compared with standard treatment?

Study	Reason for Exclusion
Barber,Claire E., Kim,Joseph, Inman,Robert D., Esdaile,John M., James,Matthew T., Antibiotics for treatment of reactive arthritis: a systematic review and metaanalysis, The Journal of, 40, 916-92829, 2013	Study design: systematic review
Calguneri,M., Kiraz,S., Ertenli,I., Benekli,M., Karaarslan,Y., Celik,I., The effect of prophylactic penicillin treatment on the course of arthritis episodes in patients with Behcet's disease. A randomized clinical trial, Arthritis and rheumatism, 39, 2062-2065, 1996	Population: Behcet's disease is outside the scope of this guideline
Carter,John D., Valeriano,Joanne, Vasey,Frank B., Doxycycline versus doxycycline and rifampin in undifferentiated spondyloarthropathy, with special reference to chlamydia-induced arthritis. A prospective, randomized 9-month comparison, The Journal of rheumatology, 31, 1973-1980, 2004	Comparator: Both groups received doxycycline, one group additionally received rifampin, therefore there is no non-antibiotic comparator.
Csango,P.A., Gundersen,T., Anestad,G., Doxycycline in the treatment of chlamydial urethritis: a therapeutic study, Pharmatherapeutica, 2, 341-345, 1980	Population: patients with chlamydial urethritis of whom only some developed Reiter's syndrome, with no separate outcomes reported for these patients.
Fendler,C., Eggens,U., Laitko,S., Sorensen,H., Keitel,W., Hiepe,F., Braun,J., Sieper,J., Long-term antibiotic treatment of reactive arthritis (ReA) and undifferentiated Oligoarthritis (UOA): Results of a double-blind, placebo-controlled and randomised study, Zeitschrift fur Rheumatologie, 57, 29-, 1998	Language: German; Study type: Conference abstract
Kamphuisen,P.W., Jansen,T.L., De Gendt,C., de Jong,A.J., Janssen,M., Two years of penicillin prophylaxis is sufficient to prevent clinically evident carditis in poststreptococcal reactive arthritis, Journal of internal medicine, 250, 449-452, 2001	Population: causal trigger of ReA confirmed as Streptococcus; Study design: non-randomised intervention
Laasila,K., Laasonen,L., Leirisalo-Repo,M., Antibiotic treatment and long term prognosis of reactive arthritis, Annals of the Rheumatic Diseases, 62, 655-658, 2003	Follow up study of Lauhio 1991, which was excluded as the outcomes were not as specified in the protocol.
Lauhio,A., Konttinen,Y.T., Salo,T., Tschesche,H., Lähdevirta,J., Woessner,F., Golub,L.M., Sorsa,T., Placebo-controlled study of the effects of three-month lymecycline treatment on serum matrix metalloproteinases in reactive arthritis, Annals of the New York Academy of Sciences, 732, 424-426, 1994	Outcome: study did not report on any outcome specified in the review protocol
Lauhio,A., Leirisalo-Repo,M., Lahdevirta,J., Saikku,P., Repo,H., Double-blind, placebo-controlled study of three-month treatment with	Outcomes: outcomes were only reported as time(weeks) to event (e.g. time to swelling resolution, time to reduction of inflammatory

Study	Reason for Exclusion
lymecycline in reactive arthritis, with special reference to Chlamydia arthritis, Arthritis and rheumatism, 34, 6-14, 1991	markers to normal range) rather than direct measures of outcome values, meaning the study was ineligible for inclusion in meta-analysis with the other studies.
Pavlica,Ljiljana, Nikolic,Dragan, Magic,Zvonko, Brajuskovic,Goran, Strelac,Natasa, Milicic,Biljana, Jovelic,Aleksandra, Successful treatment of postvenereal reactive arthritis with synovectomy and 3 months' azithromycin, Journal of clinical rheumatology : practical reports on rheumatic & musculoskeletal diseases, 11, 257-263, 2005	Study design: cohort; Comparator: all participants received antibiotic treatment
Peterson,M.C., Rheumatic manifestations of Campylobacter jejuni and C. fetus infections in adults, Scandinavian journal of rheumatology, 23, 167-170, 1994	Study design: systematic review; Intervention: review did not focus on antibiotic treatments
Rosman,Y., Lidar,M., Shoenfeld,Y., Antibiotic therapy in autoimmune disorders, Clinical PracticeClin.Pract., 11, 91-103, 2014	Review
Smieja,M., MacPherson,D.W., Kean,W., Schmuck,M.L., Goldsmith,C.H., Buchanan,W., Hart,L.E., Mahony,J.B., Randomised, blinded, placebo controlled trial of doxycycline for chronic seronegative arthritis, Annals of the rheumatic diseases, 60, 1088-1094, 2001	Population: study population has a mixture of people with reactive or undifferentiated arthritis, with no distinction made in outcome reporting between the two conditions.
Warde,N., Antibiotics for reactive arthritis, Nature Reviews Rheumatology, 6, 382-, 2010	Study design: Editorial/Secondary report
Whaley,K., Clinical trial of lincomycin hydrochloride in Reiter's disease [abstract], British Journal of Venereal Diseases, 46, 91-, 1970	Article: abstract only
Yli-Kerttula,T., Treatment of chronic reactive arthritis with a 3-month course of ciprofloxacin, Drugs, 45 Suppl 3, 452-453, 1993	Study design: Brief report of a 'double blind prospective trial' which does not explicitly state whether randomisation was performed.
Yli-Kerttula,T., Luukkainen,R., Yli-Kerttula,U., Möttonen,T., Hakola,M., Korpela,M., Effect of a three-month course of ciprofloxacin on reactive arthritis, SCAND-J-RHEUMATOL, 28, 198-, 1999	Article: conference abstract

## F.3 Non-pharmacological management

### F.3.1 Manual therapies for spondyloarthritis

Review question 14

- What is the effectiveness of manual therapies compared with standard care for managing spondyloarthritis?

#### Studies excluded from systematic review and RCT searches

Study	Reasons for exclusion
Aalto,T.J., Leinonen,V., Herno,A., Alen,M., Kröger,H., Turunen,V., Savolainen,S., Saari,T., Airaksinen,O., Postoperative rehabilitation does not improve functional outcome in lumbar spinal stenosis: a prospective study with 2-year postoperative follow-up, <i>European Spine Journal</i> , 20, 1331-1340, 2011	Wrong intervention: exercise
Ammer,K., Physiotherapy in seronegative spondylarthropathies - A systematic review, <i>European Journal of Physical Medicine and Rehabilitation</i> , 7, 114-119, 1997	Wrong intervention: no studies include manual therapies; 1 RCT on ankylosing spondylitis patients compared multimodal (exercise, massage and electrotherapy) with multimodal (exercise and massage). Incomplete reference provided and study cannot be located; no comparative data reported in review for this study
Analay,Y., Ozcan,E., Karan,A., Diracoglu,D., Aydin,R., The effectiveness of intensive group exercise on patients with ankylosing spondylitis, <i>Clinical rehabilitation</i> , 17, 631-636, 2003	Wrong intervention: exercise
Aytekin,E., Caglar,N.Sa., Ozgonenel,L., Tutun,S., Demiryontar,D.Y., Demir,S.E., Home-based exercise therapy in patients with ankylosing spondylitis: effects on pain, mobility, disease activity, quality of life, and respiratory functions, <i>Clinical rheumatology</i> , 31, 91-97, 2012	Wrong intervention: exercise
Bitterli,J., Graf,R., Robert,F., Objective criteria for the evaluation of chiropractic treatment of spondylotic headache. <ORIGINAL> ZUR OBJEKTIVIERUNG DER MANUALTHERAPEUTISCHEN BEEINFLUSSBARKEIT DES SPONDYLOGENEN KOPFSCHMERZES, <i>Der Nervenarzt</i> , 48, 259-262, 1977	Not in English language
Bodur,H., Sivas,F., Yilmaz,O., Ozgocmen,S., Gunaydin,R., Kaya,T., Ataman,S., Altan,L., Altay,Z., Aydog,E., Birtane,M., Borman,P., dayci,D.S., Butun,B., Cakirbay,H., Duruoz,T., Gurer,G., Hepguler,S., Kamanli,A., Kuru,O., Kucukdeveci,A., Nacir,B., Olmez,N., Rezvani,A., Yanik,B.C., Turkish League Against Rheumatism National recommendations for the management of ankylosing spondylitis, <i>Turkish Journal of Rheumatology</i> , 26, 173-186, 2011	Guideline, no systematic review data
Braun,J., Baraliakos,X., Godolias,G., Bohm,H., Therapy of ankylosing spondylitis - A review. Part I: Conventional medical treatment and surgical therapy, <i>Scandinavian journal of rheumatology</i> , 34, 97-108, 2005	Not a systematic review
Braun,J., Lopez-Larrea,C., Diaz-Pena,R., Therapy of spondyloarthritis, <i>Adv.Exp.Med.Biol.</i> , 649, 133-147, 2009	Not a systematic review

Study	Reasons for exclusion
Bulstrode,S.J., Barefoot,J., Harrison,R.A., Clarke,A.K., The role of passive stretching in the treatment of ankylosing spondylitis, British journal of rheumatology, 26, 40-42, 1987	Wrong intervention: exercise including passive stretching
Cagliyan,A., Kotevoglou,N., Onal,T., Tekkus,B., Kuran,B., Does group exercise program add anything more to patients with ankylosing spondylitis?, Journal of back and musculoskeletal rehabilitation, 20, 79-85, 2007	Wrong intervention: exercise
Cherkin,D.C., Deyo,R.A., Battie,M., Street,J., Barlow,W., Chiropractic manipulation and McKenzie physiotherapy were not effective for low back pain, ACP journal club, v130, 42-April, 1999	Commentary and wrong condition: low back pain
Clarke,A.K., Effectiveness of rehabilitation in arthritis, Clinical rehabilitation, 13, 51-62, 1999	Not a systematic review, did not include manual therapies
Dacre,J.E., Beeney,N., Scott,D.L., Injections and physiotherapy for the painful stiff shoulder, Annals of the rheumatic diseases, 48, 322-325, 1989	Wrong population: periarthritis of the shoulder joint
Dagfinrud,H., Kvien,T.K., Hagen,K.B., Physiotherapy interventions for ankylosing spondylitis, The Cochrane database of systematic reviews, CD002822-, 2008	Wrong intervention: mainly exercise; 1 study (Helliwell 1996 Physiotherapy 82:85-90) reported that participants received occasional massage in 1 of the 3 study groups - original publication assessed
Dagfinrud,H., Kvien,T.K., Hagen,K.B., The Cochrane review of physiotherapy interventions for ankylosing spondylitis, The Journal of rheumatology, 32, 1899-1906, 2005	Old version of updated Cochrane review which has been excluded
Dougados,M., Revel,M., Khan,M.A., Spondylarthropathy treatment: Progress in medical treatment, physical therapy and rehabilitation, Bailliere's clinical rheumatology, 12, 717-736, 1998	Not a systematic review
Ehlebracht-Konig,I., Bonisch,A., Ponicke,J., Fractionated inpatient rehabilitation: Results from a randomized controlled, trial, Rehabilitation (Stuttg), 48, 30-38, 2009	Not in English language
Elyan,M., Khan,M.A., Does physical therapy still have a place in the treatment of ankylosing spondylitis?, Current opinion in rheumatology, 20, 282-286, 2008	Not a systematic review, did not include manual therapies
Epps,H., Ginnelly,L., Utley,M., Southwood,T., Gallivan,S., Sculpher,M., Woo,P., Is hydrotherapy cost-effective? A randomised controlled trial of combined hydrotherapy programmes compared with physiotherapy land techniques in children with juvenile idiopathic arthritis, Health technology assessment (Winchester, England), 9, iii-59, 2005	Wrong population: JIA (mean age 11 and 12) Wrong intervention: exercise programme on land compared to water (hydrotherapy)
Fernandez-de-las-Penas,C., Alonso-Blanco,C., Aguila-Maturana,A.M., Isabel-de-la-Llave-Rincon, Molero-Sanchez,A., Miangolarra-Page,J.C., Exercise and Ankylosing Spondylitis - Which exercises are appropriate? A critical review, Critical Reviews in Physical and Rehabilitation Medicine, 18, 39-61, 2006	Wrong intervention: exercise
Fernandez-de-Las-Penas,C., Alonso-Blanco,C., Alguacil-Diego,I.M., Miangolarra-Page,J.C., One-year follow-up of two exercise interventions for the management of patients with ankylosing spondylitis: a randomized controlled trial, American journal of physical	Wrong intervention: exercise, global posture reeducation

Study	Reasons for exclusion
medicine & rehabilitation / Association of Academic Physiatrists, 85, 559-567, 2006	
Fernandez-de-Las-Penas,C., Alonso-Blanco,C., Morales-Cabezas,M., Miangolarra-Page,J.C., Two exercise interventions for the management of patients with ankylosing spondylitis: a randomized controlled trial, American journal of physical medicine & rehabilitation / Association of Academic Physiatrists, 84, 407-419, 2005	Wrong intervention: exercise, global posture reeducation
Fiechtner,J.J., Brodeur,R.R., Manual and manipulation techniques for rheumatic disease, Medical Clinics of North America, 86, 91-103, 2002	Not a systematic review
Figen,A., Gecene,M., Gunduz,R., Borman,P., Yorgancioglu,R., Long-term effects of comprehensive inpatient rehabilitation on function and disease activity in patients with chronic rheumatoid arthritis and ankylosing spondylitis, Turkish Journal of Rheumatology, 26, 135-144, 2011	Wrong intervention: multidisciplinary inpatient programme but physiotherapy component did not include manual therapy
Forseth,K.O., Hafstrom,I., Husby,G., Opava,C., Comprehensive rehabilitation of patients with rheumatic diseases in a warm climate: a literature review, Journal of rehabilitation medicine : official journal of the UEMS European Board of Physical and Rehabilitation Medicine, 42, 897-902, 2010	Wrong intervention: multidisciplinary rehabilitation
Fransen,M., When is physiotherapy appropriate?, Best Practice and Research: Clinical Rheumatology, 18, 477-489, 2004	Not a systematic review
Giannotti,E., Trainito,S., Arioli,G., Rucco,V., Masiero,S., Effects of physical therapy for the management of patients with ankylosing spondylitis in the biological era, Clinical rheumatology, 33, 1217-1230, 2014	Wrong intervention: mainly exercise based or spa therapy; no manual therapy
Guest,C.M., Jacobson,H.G., Pelvic and extrapelvic osteopathy in rheumatoid spondylitis, a clinical and roentgenographic study of ninety cases, The American journal of roentgenology and radium therapy, 65, 760-768, 1951	No interventions reported
Gyurcsik,Z., Bodnar,N., Szekanecz,Z., Szanto,S., Treatment of ankylosing spondylitis with biologics and targeted physical therapy: positive effect on chest pain, diminished chest mobility, and respiratory function, Zeitschrift fur Rheumatologie, 72, 997-1004, 2013	Wrong intervention: exercise based; mobilisation movements of the chest were self-performed by the patient and is therefore considered to be exercise
Hafstrom,I., Hallengren,M., Physiotherapy in subtropic climate improves functional capacity and health-related quality of life in Swedish patients with rheumatoid arthritis and spondylarthropathies still after 6 months, Scandinavian journal of rheumatology, 32, 108-113, 2003	Wrong intervention: exercise
Heikkila,S., Viitanen,J.V., Kautiainen,H., Kauppi,M., Sensitivity to change of mobility tests; effect of short term intensive physiotherapy and exercise on spinal, hip, and shoulder measurements in spondyloarthropathy, The Journal of rheumatology, 27, 1251-1256, 2000	Wrong intervention: not clearly specified
Helliwell,P.S., Abbott,C.A., Chamberlain,M.A., A randomised trial of three different physiotherapy regimes in ankylosing spondylitis, Physiotherapy., 82, 85-90, 1996	Wrong intervention: multimodal inpatient (exercise, hydrotherapy, electrotherapy and very occasionally 1 of the 3 group received massage if back muscle spasm

Study	Reasons for exclusion
	was a prominent feature), hydrotherapy, home exercises
Hulejova,H., Levitova,A., Kuklova,M., Stochl,J., Haluzik,M., Pavelka,K., Vencovsky,J., Senolt,L., No effect of physiotherapy on the serum levels of adipocytokines in patients with ankylosing spondylitis, <i>Clinical rheumatology</i> , 31, 67-71, 2012	Wrong intervention: exercise
Ince,G., Sarpel,T., Durgun,B., Erdogan,S., Effects of a multimodal exercise program for people with ankylosing spondylitis, <i>Physical therapy</i> , 86, 924-935, 2006	Wrong intervention: exercise
Kain,T., Zochling,J., Taylor,A., Manolios,N., Smith,M.D., Reed,M.D., Brown,M.A., Schachna,L., Evidence-based recommendations for the monitoring and treatment of ankylosing spondylitis: Results from the Australian 3E initiative in rheumatology, <i>International journal of rheumatic diseases</i> , 11, 45-49, 2008	Not a systematic review
Karapolat,H., Akkoc,Y., Sari,I., Eyigor,S., Akar,S., Kirazli,Y., Akkoc,N., Comparison of group-based exercise versus home-based exercise in patients with ankylosing spondylitis: effects on Bath Ankylosing Spondylitis Indices, quality of life and depression, <i>Clinical rheumatology</i> , 27, 695-700, 2008	Wrong intervention: exercise programme outpatient vs home-based
Kjeken,I., Bo,I., Ronningen,A., Spada,C., Mowinckel,P., Hagen,K.B., Dagfinrud,H., A three-week multidisciplinary in-patient rehabilitation programme had positive long-term effects in patients with ankylosing spondylitis: randomized controlled trial, <i>Journal of rehabilitation medicine : official journal of the UEMS European Board of Physical and Rehabilitation Medicine</i> , 45, 260-267, 2013	Wrong intervention: exercise based rehabilitation
Koh,W.H., Boey,M.L., Ankylosing spondylitis in Singapore: a study of 150 patients and a local update, <i>Annals of the Academy of Medicine, Singapore</i> , 27, 3-6, 1998	Wrong intervention: not clearly specified
Kraag,G., Stokes,B., Groh,J., Helewa,A., Goldsmith,C., The effects of comprehensive home physiotherapy and supervision on patients with ankylosing spondylitis--a randomized controlled trial, <i>The Journal of rheumatology</i> , 17, 228-233, 1990	Wrong intervention: exercise and self-management; did not include manual therapies
Kraag,G., Stokes,B., Groh,J., Helewa,A., Goldsmith,C.H., The effects of comprehensive home physiotherapy and supervision on patients with ankylosing spondylitis--an 8-month followup, <i>The Journal of rheumatology</i> , 21, 261-263, 1994	Wrong intervention: exercise and self-management; did not include manual therapies
Li,P.G., Li,P.Q., Liu,D.Q., Wang,Y.L., Liu,D.J., Liu,D.L., Massage-based complex treatment in treating rheumatoid arthritis and ankylosing spondylitis in 32 cases, <i>China Journal of Traditional Chinese Medicine and Pharmacy [Zhong Guo Yi Yao Xue Bao]</i> , 4, 37-, 1989	Not in English language
Liu,Y., Cortinovis,D., Stone,M.A., Recent advances in the treatment of the spondyloarthropathies, <i>Current opinion in rheumatology</i> , 16, 357-365, 2004	Not a systematic review and Wrong intervention: no manual therapies
Manniche,C., Hesselsoe,G., Bentzen,L., Christensen,I., Lundberg,E., Clinical trial of intensive muscle training for chronic low back pain, <i>Lancet</i> , 2, 1473-1476, 1988	Wrong condition: chronic low back pain Wrong intervention: exercise therapy

Study	Reasons for exclusion
Masiero,S., Bonaldo,L., Pigatto,M., Lo Nigro,A., Ramonda,R., Punzi,L., Rehabilitation treatment in patients with ankylosing spondylitis stabilized with tumor necrosis factor inhibitor therapy: a randomized controlled trial, <i>The Journal of rheumatology</i> , 38, 1335-1342, 2011	Wrong intervention: exercise
Merson,D.P., Laursen,M., Sharpe,S., Case review. Rehabilitation of a rower diagnosed with undifferentiated spondyloarthropathy, <i>Athletic Therapy Today</i> , 13, 24-27, 2008	Case report and wrong intervention: exercise rehabilitation programme
Nghiem,F.T., Donohue,J.P., Rehabilitation in ankylosing spondylitis, <i>Current opinion in rheumatology</i> , 20, 203-207, 2008	Wrong intervention: balneotherapy, exercise
Nicholas,J.J., Physical modalities in rheumatological rehabilitation, <i>Archives of physical medicine and rehabilitation</i> , 75, 994-1001, 1994	Not a systematic review
O'Dwyer,T., O'Shea,F., Wilson,F., Exercise therapy for spondyloarthritis: a systematic review, <i>Rheumatology international</i> , 34, 887-902, 2014	Wrong intervention: exercise
Ozgocmen,S., Akgul,O., Altay,Z., Altindag,O., Baysal,O., Calis,M., Capkin,E., Cevik,R., Durmus,B., Gur,A., Kamanli,A., Karkucak,M., Madenci,E., Melikoglu,M.A., Nas,K., Senel,K., Ugur,M., Expert opinion and key recommendations for the physical therapy and rehabilitation of patients with ankylosing spondylitis, <i>International journal of rheumatic diseases</i> , 15, 229-238, 2012	Not a systematic review; guideline
Passalent,L.A., Physiotherapy for ankylosing spondylitis: Evidence and application, <i>Current opinion in rheumatology</i> , 23, 142-147, 2011	Includes 1 potentially relevant RCT which has been evaluated from original paper (Widberg K, Karimi H, Hafstrom I. Self- and manual mobilization improves spine mobility in men with ankylosing spondylitis: a randomized study. <i>Clin Rehabil</i> 2009; 23:599-601)
Petersel,D.L., Sigal,L.H., Reactive arthritis, <i>Infectious disease clinics of North America</i> , 19, 863-883, 2005	Not a systematic review
Rutherford,S.M., Nicolson,C.F.E.R., Symptomatic improvement in function and disease activity in a patient with ankylosing spondylitis utilizing a course of chiropractic therapy: a prospective case study, <i>Journal - Canadian Chiropractic Association</i> , 49, 81-91, 2005	Wrong study design: case report
Staalesen Strumse,Y.A., Nordvag,B.Y., Stanghelle,J.K., Roisland,M., Winther,A., Pajunen,P.A., Garen,T., Flato,B., Efficacy of rehabilitation for patients with ankylosing spondylitis: comparison of a four-week rehabilitation programme in a Mediterranean and a Norwegian setting, <i>Journal of rehabilitation medicine : official journal of the UEMS European Board of Physical and Rehabilitation Medicine</i> , 43, 534-542, 2011	Wrong intervention: exercise based therapy vs mixed therapy including massage/electrotherapy/thermotherapy/balneotherapy. Surrounding interventions were too variably applied. Unclear to what extent manual therapy was administered e.g. passive therapy administered if indicated, or 2 of 3 passive therapies (thermal balneotherapy, bubble baths, underwater massage) could be administered
van der Horst-Bruinsma,I.E., Nurmohamed,M.T., Management and evaluation of extra-articular manifestations in spondyloarthritis, <i>Therapeutic advances in musculoskeletal disease</i> , 4, 413-422, 2012	Not a systematic review

Study	Reasons for exclusion
Viitanen,J.V., Heikkila,S., Functional changes in patients with spondylarthropathy. A controlled trial of the effects of short-term rehabilitation and 3-year follow-up, <i>Rheumatology international</i> , 20, 211-214, 2001	Wrong intervention: multimodal (pain management, hydrotherapy, exercise, massage). Surrounding interventions were too variably applied
Viitanen,J.V., Lehtinen,K., Suni,J., Kautiainen,H., Fifteen months' follow-up of intensive inpatient physiotherapy and exercise in ankylosing spondylitis, <i>Clinical rheumatology</i> , 14, 413-419, 1995	Wrong intervention: multimodal (thermotherapy, electrotherapy, hydrotherapy, exercise, massage). Surrounding interventions were too variably applied
Viitanen,J.V., Suni,J., Management principles of physiotherapy in ankylosing spondylitis -- which treatments are effective?, <i>Physiotherapy</i> , 81, 322-330, 1995	Not a systematic review
Walker,B.F., French,S.D., Grant,W., Green,S., Combined chiropractic interventions for low-back pain, <i>Cochrane Database of Systematic Reviews</i> , -, 2010	Wrong population: low back pain, aetiology not specified
Weiner,D.K., Ernst,E., Complementary and alternative approaches to the treatment of persistent musculoskeletal pain, <i>The Clinical journal of pain</i> , 20, 244-255, 2004	Not a systematic review and wrong condition: musculoskeletal pain, osteoarthritis and rheumatoid arthritis
Wencel,J., Olson,K.A., Lumbar spinal stenosis: A literature review, <i>Journal of Manual and Manipulative Therapy</i> , 7, 141-148, 1999	Not a systematic review
Zhan,Q., Xue,T., Treating ankylosing spondylitis with the combination of scraping and massage manipulation therapy, <i>Journal of Zhejiang College of Traditional Chinese Medicine [Zhe Jiang Zhong Yi Xue Yuan Xue Bao]</i> , 20, 41-, 1996	Not in English language

### Studies excluded from observational searches

Study	Reasons for exclusion
Abbott,C.A., Helliwell,P.S., Chamberlain,M.A., Functional assessment in ankylosing spondylitis: evaluation of a new self-administered questionnaire and correlation with anthropometric variables, <i>British journal of rheumatology</i> , 33, 1060-1066, 1994	Wrong intervention: no specific details of rehabilitation intervention provided
Band,D.A., Jones,S.D., Kennedy,L.G., Garrett,S.L., Porter,J., Gay,L., Richardson,J., Whitelock,H.C., Calin,A., Which patients with ankylosing spondylitis derive most benefit from an inpatient management program?, <i>Journal of Rheumatology</i> , 24, 2381-2384, 1997	Wrong intervention: no details of inpatient rehabilitation programme provided
Calin,A., Garrett,S., Whitelock,H., Kennedy,L.G., O'Hea,J., Mallorie,P., Jenkinson,T., A new approach to defining functional ability in ankylosing spondylitis: the development of the Bath Ankylosing Spondylitis Functional Index, <i>Journal of Rheumatology</i> , 21, 2281-2285, 1994	Wrong intervention: details of intensive physiotherapy programme not provided
Cardiel,M.H., Londono,J.D., Gutierrez,E., Pacheco-Tena,C., Vazquez-Mellado,J., Burgos-Vargas,R., Translation, cross-cultural adaptation, and validation of the Bath Ankylosing Spondylitis Functional Index (BASFI), the Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) and the Dougados Functional Index (DFI) in a Spanish speaking population with	Wrong intervention: no details provided of physiotherapy intervention which was individualised

Study	Reasons for exclusion
spondyloarthropathies, <i>Clinical &amp; Experimental Rheumatology</i> , 21, 451-458, 2003	
Hidding,A., van,S.,Linden, Factors related to change in global health after group physical therapy in ankylosing spondylitis, <i>Clinical Rheumatology</i> , 14, 347-351, 1995	Wrong intervention: group based therapy including sporting activities and hydrotherapy; no manual therapy
Hidding,A., van,S.,Linden, de,L., Therapeutic effects of individual physical therapy in ankylosing spondylitis related to duration of disease, <i>Clinical Rheumatology</i> , 12, 334-340, 1993	Wrong intervention: individual based exercise therapy programme; no manual therapy
Maruyama,K., Matsuyama,Y., Yanase,M., Sakai,Y., Katayama,Y., Imagama,S., Ito,Z., Wakao,N., Yukawa,Y., Ito,K., Kamiya,M., Kanemura,T., Sato,K., Ishiguro,N., The relationship between the type of destructive spondyloarthropathy and its 10 years ago cervical spine alignment, <i>European Spine Journal</i> .18 (6) (pp 900-904), 2009	Wrong intervention: no details provided of physiotherapy intervention
Pavy,S., Brophy,S., Calin,A., Establishment of the minimum clinically important difference for the bath ankylosing spondylitis indices: A prospective study, <i>Journal of Rheumatology</i> .32 (1) (pp 80-85), 2005	Wrong intervention: no details of physiotherapy programme provided
Tomlinson,M.J., Barefoot,J., Dixon,A.S., Intensive in-patient physiotherapy courses improve movement and posture in ankylosing spondylitis, <i>Physiotherapy (London)</i> , 72, 238-239, 1986	Wrong intervention: hydrotherapy, sporting activities and graduated exercises directed at the whole spine; no manual therapy
Yelverton,C., Palmer,M., Chiropractic treatment to improve the quality of life for patients with ankylosing spondylitis, <i>European Journal of Chiropractic</i> , 49, 200-201, 2002	Wrong study design (case series n=8), conference abstract (intervention included manipulation, flexion distraction, evaluation of daily activity and specific therapeutic exercises)

### F.3.2 Exercise for spondyloarthritis

#### Review Question 15

- What is the effectiveness of structured exercise compared with standard care for managing spondyloarthritis?

Study	Reason for Exclusion
Aalto,T.J., Leinonen,V., Herno,A., Alen,M., Kröger,H., Turunen,V., Savolainen,S., Saari,T., Airaksinen,O., Postoperative rehabilitation does not improve functional outcome in lumbar spinal stenosis: a prospective study with 2-year postoperative follow-up, <i>European Spine Journal</i> , 20, 1331-1340, 2011	Population: lumbar spinal stenosis, no explicit mention of spondyloarthritis participants
Abbott,Allan D., Tyni-Lenne,Raija, Hedlund,Rune, Early rehabilitation targeting cognition, behavior, and motor function after lumbar fusion: a randomized controlled trial, <i>Spine</i> , 35, 848-857, 2010	Population: Excluded Ankylosing Spondylitis patients. Intervention: Post-surgical rehab
Altan,L., Bingol,U., Aslan,M., Yurtkuran,M., The effect of balneotherapy on patients with ankylosing spondylitis, <i>Scandinavian journal of rheumatology</i> , 35, 283-289, 2006	Comparator: patients in both groups assigned to structured exercise, with balneotherapy as the intervention under study
Arends,S., Hofman,M., Kamsma,Y.P., van,der,V, Houtman,P.M., Kallenberg,C.G., Spoorenberg,A., Brouwer,E., Daily physical activity in ankylosing spondylitis: validity and reliability of the IPAQ and SQUASH and the relation with clinical assessments, <i>Arthritis Research &amp; Therapy</i> , 15, R99-, 2013	Not a structured exercise intervention
Aydin,T., Taspinar,O., Celebi,A., Keskin,Y., Yavuz,S., Guneser,M., Camli,A., Canbaz,N., Murat,G., The evaluation of psychologic effects of calisthenic exercises on neuroinflammatory and rheumatologic diseases, <i>Clinical and experimental rheumatology</i> , 32, S56-, 2014	Unavailable; likely conference abstract
Aydin,T., Taspinar,O., Sariyildiz,M.A., Guneser,M., Canbaz,N., Gok,M., Camli,A., Peru,C., Guler,M., Evaluation of the effectiveness of home based or hospital based calisthenic exercises in patients with ankylosing spondylitis, <i>Clinical and experimental rheumatology</i> , 32, S55-, 2014	Conference abstract
Aytekin,Ebru, Caglar,Nil Sayiner, Ozgonenel,Levent, Tutun,Sule, Demiryontar,Dilay Yilmaz, Demir,Saliha Eroglu, Home-based exercise therapy in patients with ankylosing spondylitis: effects on pain, mobility, disease activity, quality of life, and respiratory functions, <i>Clinical rheumatology</i> , 31, 91-97, 2012	Study design: participants not randomised to intervention or control
Bakker,C., Hidding,A., van der Linden,S., van Doorslaer,E., Cost effectiveness of group physical therapy compared to individualized therapy for ankylosing spondylitis. A randomized controlled trial, <i>The Journal of rheumatology</i> , 21, 264-268, 1994	Study design: Secondary analysis of an included study (Hidding, 1993)

Study	Reason for Exclusion
Bakker,C., Rutten-van Molken,M., Hidding,A., van Doorslaer,E., Bennett,K., van der Linden,S., Patient utilities in ankylosing spondylitis and the association with other outcome measures, The Journal of rheumatology, 21, 1298-1304, 1994	Reporting: Article only reported changes to the intervention group
Ciprian,Luca, Lo Nigro,Alessandro, Rizzo,Michela, Gava,Alessandra, Ramonda,Roberta, Punzi,Leonardo, Cozzi,Franco, The effects of combined spa therapy and rehabilitation on patients with ankylosing spondylitis being treated with TNF inhibitors, Rheumatology international, 33, 241-245, 2013	Intervention: complex spa therapy intervention comprising mud packs, baths and group water-based exercise
Dagfinrud,H., Kvien,T.K., Hagen,K.B., Physiotherapy interventions for ankylosing spondylitis, The Cochrane database of systematic reviews, CD002822-, 2008	Study design: systematic review
Dagfinrud,Hanne, Halvorsen,Silje, Vollestad,Nina K., Niedermann,Karin, Kvien,Tore K., Hagen,Kare B., Exercise programs in trials for patients with ankylosing spondylitis: do they really have the potential for effectiveness?, Arthritis care & research, 63, 597-603, 2011	Study design: systematic review
Demontis,A., Trainito,S., Del,Felice A., Masiero,S., Favorable effect of rehabilitation on balance in ankylosing spondylitis: a quasi-randomized controlled clinical trial, Rheumatology International, 36, 333-339, 2016	Results reported as medians, not means, therefore could not be incorporated into meta-analysis
Dragoi,R.G., Amaricai,E.C., Dragoi,M., Popoviciu,H., Avram,C., Inspiratory muscle training as a method for improving aerobic capacity and pulmonary function in patients with ankylosing spondylitis: A randomized controlled study, Annals of the Rheumatic Diseases, 74, 135-136, 2015	Conference abstract
Durmus,Dilek, Alayli,Gamze, Cil,Erhan, Canturk,Ferhan, Effects of a home-based exercise program on quality of life, fatigue, and depression in patients with ankylosing spondylitis, Rheumatology international, 29, 673-677, 2009	Study design: article does not report any randomised allocation of participants
Durmus,Dilek, Alayli,Gamze, Uzun,Oguz, Tander,Berna, Canturk,Ferhan, Bek,Yuksel, Erkan,Levent, Effects of two exercise interventions on pulmonary functions in the patients with ankylosing spondylitis, Joint, bone, spine : revue du rhumatisme, 76, 150-155, 2009	Study design: article does not report any randomised allocation of participants
Elyan,Mazen, Khan,Muhammad Asim, Does physical therapy still have a place in the treatment of ankylosing spondylitis?, Current opinion in rheumatology, 20, 282-286, 2008	Study design: Non-systematic review
Fernandez-de-las-Penas,C., Alonso-Blanco,C., Aguila-Maturana,A.M., Isabel-de-la-Llave-Rincon, Molero-Sanchez,A., Miangolarra-Page,J.C., Exercise and Ankylosing Spondylitis - Which exercises are appropriate? A critical	Study design: systematic review

Study	Reason for Exclusion
review, Critical Reviews in Physical and Rehabilitation Medicine, 18, 39-61, 2006	
Fernandez-de-Las-Penas,Cesar, Alonso-Blanco,Cristina, Alguacil-Diego,Isabel Maria, Miangolarra-Page,Juan Carlos, One-year follow-up of two exercise interventions for the management of patients with ankylosing spondylitis: a randomized controlled trial, American journal of physical medicine & rehabilitation / Association of Academic Physiatrists, 85, 559-567, 2006	Comparator: control group received physiotherapist-led group exercise sessions Population: Follow up study of an excluded study (Fernandez-de-las-Penas, 2005)
Fernandez-de-Las-Penas,Cesar, Alonso-Blanco,Cristina, Morales-Cabezas,Matilde, Miangolarra-Page,Juan Carlos, Two exercise interventions for the management of patients with ankylosing spondylitis: a randomized controlled trial, American journal of physical medicine & rehabilitation / Association of Academic Physiatrists, 84, 407-419, 2005	Comparator: control group received physiotherapist-led group exercise sessions
Figen,A., Gecene,M., Gunduz,R., Borman,P., Yorgancioglu,R., Long-term effects of comprehensive inpatient rehabilitation on function and disease activity in patients with chronic rheumatoid arthritis and ankylosing spondylitis, Turkish Journal of Rheumatology, 26, 135-144, 2011	Intervention: Comparison of two different structured exercise programmes
Gerking,K., Becker-Capeller,D., New possibility in physical treatment of ankylosing spondylarthritis - a comparison of a conservative and a sport therapeutic program of exercise - results of a randomised study, Deutsche Zeitschrift fur Sportmedizin, 45, 288-307, 1994	Language: German
Giannotti,Erika, Trainito,Sabina, Arioli,Giovanni, Rucco,Vincenzo, Masiero,Stefano, Effects of physical therapy for the management of patients with ankylosing spondylitis in the biological era, Clinical rheumatology, 33, 1217-1230, 2014	Study design: systematic review
Gurcay,Eda, Yuzer,Serdil, Eksioglu,Emel, Bal,Ajda, Cakci,Aytul, Stanger bath therapy for ankylosing spondylitis: illusion or reality?, Clinical rheumatology, 27, 913-917, 2008	Intervention: Exercise is the control in this study
Gyurcsik,Z., Bodnar,N., Szekanecz,Z., Szanto,S., Treatment of ankylosing spondylitis with biologics and targeted physical therapy: positive effect on chest pain, diminished chest mobility, and respiratory function, Zeitschrift fur Rheumatologie, 72, 997-1004, 2013	Study type: One study was retrospective secondary analysis of another study (not included in our review); the other was a prospective non-randomised study.
Hammond,A., Bryan,J., Hardy,A., Effects of a modular behavioural arthritis education programme: a pragmatic parallel-group randomized controlled trial, Rheumatology (Oxford, England), 47, 1712-1718, 2008	Intervention: Complex intervention of which exercise one component Comparator: not usual care, rather a 'standard programme' of meetings with clinical team member
Heikkila,S., Viitanen,J.V., Kautiainen,H., Kauppi,M., Sensitivity to change of mobility tests; effect of short term intensive physiotherapy and exercise on spinal, hip, and shoulder measurements in spondyloarthritis,	Study design: Not an RCT

Study	Reason for Exclusion
The Journal of rheumatology, 27, 1251-1256, 2000	
Helliwell,P.S., Abbott,C.A., Chamberlain,M.A., A randomised trial of three different physiotherapy regimes in ankylosing spondylitis, Physiotherapy., 82, 85-90, 1996	Comparator: exercise not being compared with standard care. However, relevant to review questions on physiotherapy and hydrotherapy
Hidding,A., van der Linden,S., Boers,M., Gielen,X., de Witte,L., Kester,A., Dijkmans,B., Moolenburgh,D., Is group physical therapy superior to individualized therapy in ankylosing spondylitis? A randomized controlled trial, Arthritis care and research : the official journal of the Arthritis Health Professions Association, 6, 117-125, 1993	Article: results not reported in a format suitable for analysis (SDs missing, a studies with similar intervention duration were not comparable enough to allow imputation).
Hidding,A., van der Linden,S., Gielen,X., de Witte,L., Dijkmans,B., Moolenburgh,D., Continuation of group physical therapy is necessary in ankylosing spondylitis: results of a randomized controlled trial, Arthritis care and research : the official journal of the Arthritis Health Professions Association, 7, 90-96, 1994	Population: This is a follow up study of Hidding (1993) in which some of the original participants from the intervention group were re-randomised to either control or further intervention. It is therefore not a fully independent study.
Hidding,A., Van,dLS, De,W.L.P., Cost-effectiveness of group physical therapy in ankylosing spondylitis patients in The Netherlands. <ORIGINAL> KOSTENEFFECTIVITEIT VAN GROEPSOEFENTHERAPIE VOOR PATIENTEN MET SPONDYLITIS ANKYLOPOETICA, Nederlands tijdschrift voor geneeskunde, 141, 2118-2122, 1997	Language: Dutch
Karapolat,Hale, Akkoc,Yesim, Sari,Ismail, Eyigor,Sibel, Akar,Servet, Kirazli,Yesim, Akkoc,Nurullah, Comparison of group-based exercise versus home-based exercise in patients with ankylosing spondylitis: effects on Bath Ankylosing Spondylitis Indices, quality of life and depression, Clinical rheumatology, 27, 695-700, 2008	Intervention: NOT a randomised study (consider inclusion if observational studies are to be used)
Kraag,G., Stokes,B., Groh,J., Helewa,A., Goldsmith,C.H., The effects of comprehensive home physiotherapy and supervision on patients with ankylosing spondylitis--an 8-month followup, The Journal of rheumatology, 21, 261-263, 1994	Study design. Follow up of an included study (Kraag, 1990)
Ksiezopolska-Orlowska,K., Pacholec,A., Bugajska,J., Sadura-Sieklucka,T., Kowalik,K., Pawlowska-Cyprysiak,K., Lastowiecka-Moras,E., The Effect of Comprehensive Musculoskeletal Rehabilitation on Clinical Status of Ankylosing Spondylitis Patients, Ortopedia Traumatologia Rehabilitacja, 18, 41-52, 2016	Complex intervention featuring components outside scope (e.g. cryotherapy)
Liang,H., Li,W.R., Zhang,H., Tian,X., Wei,W., Wang,C.M., Concurrent Intervention With Exercises and Stabilized Tumor Necrosis Factor Inhibitor Therapy Reduced the Disease Activity in Patients With Ankylosing Spondylitis: A Meta-Analysis, Medicine, 94, e2254-, 2015	Systematic review

Study	Reason for Exclusion
Liang,H., Zhang,H., Ji,H., Wang,C., Effects of home-based exercise intervention on health-related quality of life for patients with ankylosing spondylitis: a meta-analysis, <i>Clinical Rheumatology</i> , 34, 1737-1744, 2015	Systematic review
Lim,Hyun Ja, Moon,Young Im, Lee,Myeong Soo, Effects of home-based daily exercise therapy on joint mobility, daily activity, pain, and depression in patients with ankylosing spondylitis, <i>Rheumatology international</i> , 25, 225-229, 2005	Study was suitable for inclusion but lack of clear reporting of effects of intervention prevented consideration
Liu,Q.-F., Liu,Q.-M., Wang,H.-Y., Effects of chain model of kindred-like nursing on self-nursing of patients with ankylosing spondylitis. [Chinese], <i>Journal of Shanghai Jiaotong University (Medical Science)</i> , 29, 1499-1501, 2009	Language: not available in English
Liu,Yan, Cortinovic,Daniela, Stone,Millicent A., Recent advances in the treatment of the spondyloarthropathies, <i>Current opinion in rheumatology</i> , 16, 357-365, 2004	Study type: systematic review
Lubrano,E., D'Angelo,S., Parsons,W.J., Corbi,G., Ferrara,N., Rengo,F., Olivieri,I., Effectiveness of rehabilitation in active ankylosing spondylitis assessed by the ASAS response criteria, <i>Rheumatology (Oxford, England)</i> , 46, 1672-1675, 2007	Study design; all participants received intervention, there was no control group
Manniche,C., Hesselsoe,G., Bentzen,L., Christensen,I., Lundberg,E., Clinical trial of intensive muscle training for chronic low back pain, <i>Lancet</i> , 2, 1473-1476, 1988	Population: does not explicitly include patients with spondyloarthritis
Masiero,S., A controlled clinical trial on balance parameters improvement after physical rehabilitation in ankylosing spondylitis, <i>Archives of physical medicine and rehabilitation</i> , 96, e91-, 2015	Conference abstract
Masiero,Stefano, Bonaldo,Lara, Pigatto,Maurizia, Lo Nigro,Alessandro, Ramonda,Roberta, Punzi,Leonardo, Rehabilitation treatment in patients with ankylosing spondylitis stabilized with tumor necrosis factor inhibitor therapy: a randomized controlled trial, <i>The Journal of rheumatology</i> , 38, 1335-1342, 2011	Article: Study reported median values rather than mean, and could not be incorporated into the analysis
Mattukat,K., Rennert,D., Brandes,I., Ehlebracht-Konig,I., Kluge,K., Mau,W., Short- and long-term effects of intensive training and motivational programme for continued physical activity in patients with inflammatory rheumatic diseases, <i>European journal of physical and rehabilitation medicine</i> , 50, 395-409, 2014	Mixed population of spondyloarthritis and chronic polyarthritis; unclear what proportion of people had SpA
Mesquita,C., Lopes,S., Moreira,M.E., Lopes,P., Carneiro,A., Silva,D., Neves,I., Araujo,F., Vitorino,A., Effect of home exercise program in quality of life in patients with ankylosing spondylitis, <i>Annals of the Rheumatic Disease</i> , 73, -, 2014	Conference abstract

Study	Reason for Exclusion
Niedermann,Karin, Sidelnikov,Eduard, Muggli,Claudia, Dagfinrud,Hanne, Hermann,Matthias, Tamborrini,Giorgio, Ciurea,Adrian, Bischoff-Ferrari,Heike, Effect of cardiovascular training on fitness and perceived disease activity in people with ankylosing spondylitis, Arthritis care & research, 65, 1844-1852, 2013	Both groups received flexibility training
O'Dwyer,Tom, O'Shea,Finbar, Wilson,Fiona, Exercise therapy for spondyloarthritis: a systematic review, Rheumatology international, 34, 887-902, 2014	Study design: systematic review
O'Dwyer,T., O'Shea,F., Wilson,F., Physical activity in spondyloarthritis: a systematic review. [Review], Rheumatology International, 35, 393-404, 2015	Systematic review
Regnaud,Jean Philippe, Lefevre-Colau,Marie Martine, Palazzo,Clémence, Poiraudau,Serge, Ravaud,Philippe, Boutron,Isabelle, Exercise therapy for ankylosing spondylitis, Cochrane Database of Systematic Reviews, -, 2014	Protocol
Rosu,Mihaela Oana, Topa,Ionut, Chiriac,Rodica, Ancuta,Codrina, Effects of Pilates, McKenzie and Heckscher training on disease activity, spinal motility and pulmonary function in patients with ankylosing spondylitis: a randomized controlled trial, Rheumatology international, 34, 367-372, 2014	Comparator: both groups receive structured supervised exercise interventions
Sandstad,J., Stensvold,D., Hoff,M., Nes,B.M., Arbo,I., Bye,A., The effects of high intensity interval training in women with rheumatic disease: a pilot study, European Journal of Applied Physiology, 115, 2081-2089, 2015	Study population did not include people with SpA
Silva,Eliane Maria, Andrade,Sandra C., Vilar,Maria J., Evaluation of the effects of Global Postural Reeducation in patients with ankylosing spondylitis, Rheumatology international, 32, 2155-2163, 2012	Study design: no indication that participants were randomised to control or intervention groups
So,Min Wook, Heo,Hyun Mi, Koo,Bon San, Kim,Yong Gil, Lee,Chang Keun, Yoo,Bin, Efficacy of incentive spirometer exercise on pulmonary functions of patients with ankylosing spondylitis stabilized by tumor necrosis factor inhibitor therapy, The Journal of rheumatology, 39, 1854-1858, 2012	Intervention: both groups undertook conventional exercise so the comparison is limited to the incentive spirometer
Staalesen Strumse,Yndis A., Nordvag,Bjorn Yngvar, Stanghelle,Johan K., Roisland,Mona, Winther,Anne, Pajunen,Par Arne, Garen,Torhild, Flato,Berit, Efficacy of rehabilitation for patients with ankylosing spondylitis: comparison of a four-week rehabilitation programme in a Mediterranean and a Norwegian setting, Journal of rehabilitation medicine : official journal of the UEMS European Board of Physical and Rehabilitation Medicine, 43, 534-542, 2011	Comparator: both groups received intervention; randomisation was applied to the setting in which they received it
Stenstrom,C.H., Arge,B., Sundbom,A., Dynamic training versus relaxation training as home	Population: only 3 SpA patients per arm; outcomes not reported by condition type.

Study	Reason for Exclusion
exercise for patients with inflammatory rheumatic diseases. A randomized controlled study, Scandinavian journal of rheumatology, 25, 28-33, 1996	Comparator: control patients also received structured exercise
Stenstrom,C.H., Arge,B., Sundbom,A., Home exercise and compliance in inflammatory rheumatic diseases--a prospective clinical trial, The Journal of rheumatology, 24, 470-476, 1997	Population: only 6 SpA patients across groups; outcomes not reported by condition type.
Takken,T., Van Der Net,J., Kuis,W., Helders,P.J.M., Aquatic fitness training for children with juvenile idiopathic arthritis, Rheumatology (Oxford, England), 42, 1408-1414, 2003	Population: children with JIA; Intervention: water-based exercise
van,Genderen S., Boonen,A., van der Heijde,D., Heuft,L., Luime,J., Spoorenberg,A., Arends,S., Landewe,R., Plasqui,G., Accelerometer Quantification of Physical Activity and Activity Patterns in Patients with Ankylosing Spondylitis and Population Controls, Journal of Rheumatology, 42, 2369-2375, 2015	Not a structured exercise programme; monitoring of usual physical activity
van Tubergen,A., Landewe,R., van der Heijde,D., Hidding,A., Wolter,N., Asscher,M., Falkenbach,A., Genth,E., The,H.G., van der Linden,S., Combined spa-exercise therapy is effective in patients with ankylosing spondylitis: a randomized controlled trial, Arthritis and rheumatism, 45, 430-438, 2001	Comparator: control group received group exercise therapy
van Tubergen,Astrid, Boonen,Annelies, Landewe,Robert, Rutten-Van Molken,Maureen, van der Heijde,Desiree, Hidding,Alita, van der Linden,Sjef, Cost effectiveness of combined spa-exercise therapy in ankylosing spondylitis: a randomized controlled trial, Arthritis and rheumatism, 47, 459-467, 2002	Not received as of 20th October 2014

### F.3.3 Hydrotherapy for spondyloarthritis

#### Review Question 16

- What is the effectiveness of hydrotherapy compared with standard care for managing spondyloarthritis?

#### Excluded RCTs

Study	Reason for Exclusion
Annegret,Franke, Thomas,Franke, Long-term benefits of radon spa therapy in rheumatic diseases: results of the randomised, multi-centre IMuRa trial, <i>Rheumatology</i> , 33, 2839-2850, 2013	Comparator: Intervention group received heated radon baths, control group received tap water baths, therefore both groups were subject to hydro-based therapy.
Aydemir,Koray, Tok,Fatih, Peker,Fatma, Safaz,Ismail, Taskaynatan,Mehmet Ali, Ozgul,Ahmet, The effects of balneotherapy on disease activity, functional status, pulmonary function and quality of life in patients with ankylosing spondylitis, <i>Acta reumatologica portuguese</i> 35, 441-446, 2010	Comparator: all participants received intervention.
Bacon,M.C., Nicholson,C., Binder,H., White,P.H., Juvenile rheumatoid arthritis. Aquatic exercise and lower-extremity function, <i>Arthritis care and research : the official journal of the Arthritis Health Professions Associatio</i> , 4, 102-105, 1991	Population: Children under 16 years old with JIA
Bender,T., Karagulle,Z., Balint,G.P., Gutenbrunner,C., Balint,P.V., Sukenik,S., Hydrotherapy, balneotherapy, and spa treatment in pain management, <i>Rheumatology international</i> , 25, 220-224, 2005	Study design: systematic review
Bodur,H., Sivas,F., Yilmaz,O., Ozgocmen,S., Gunaydin,R., Kaya,T., Ataman,S., Altan,L., Altay,Z., Aydog,E., Birtane,M., Borman,P., dayci,D.S., Butun,B., Cakirbay,H., Duruoz,T., Gurer,G., Hepguler,S., Kamanli,A., Kuru,O., Kucukdeveci,A., Nacir,B., Olmez,N., Rezvani,A., Yanik,B.C., Turkish League Against Rheumatism National recommendations for the management of ankylosing spondylitis, <i>Turkish Journal of Rheumatology</i> , 26, 173-186, 2011	Study design: Clinical recommendations
Claes,Christa, Kulp,Werner, Greiner,Wolfgang, von der Schulenburg,Johann-Matthias, Werfel,Thomas, Therapy of moderate and severe psoriasis, <i>GMS health technology assessment</i> , 2, Doc07-, 2006	Language: German
Clarke,A.K., Effectiveness of rehabilitation in arthritis, <i>Clinical rehabilitation</i> , 13, 51-62, 1999	Study design: Review, no hydrotherapy studies cited
Codish,Shlomi, Dobrovinsky,Sergey, Abu Shakra,Mahmoud, Flusser,Daniel, Sukenik,Shaul, Spa therapy for ankylosing spondylltis at the Dead Sea, <i>The Israel Medical Association journal : IMAJ</i> , 7, 443-446, 2005	Comparator: participants in control group received climatotherapy which is not standard care in UK
Colina,M., Ciancio,G., Garavini,R., Conti,M., Trotta,F., Govoni,M., Combination treatment with etanercept and an intensive spa rehabilitation program in active ankylosing spondylitis, <i>International journal of immunopathology and pharmacology</i> , 22, 1125-1129, 2009	Study design: non-randomised intervention study.
Dagfinrud,H., Kvien,T.K., Hagen,K.B., Physiotherapy interventions for ankylosing spondylitis, <i>The Cochrane database of systematic reviews</i> , CD002822-, 2004	Superseded by 2008 update of this review
Dagfinrud,H., Kvien,T.K., Hagen,K.B., Physiotherapy interventions for ankylosing spondylitis, <i>The Cochrane database of systematic</i> , CD002822-, 2008	Study design: systematic review

Study	Reason for Exclusion
Dogan,Murat, Sahin,Ozlem, Elden,Hasan, Hayta,Emrullah, Kaptanoglu,Ece, Additional therapeutic effect of balneotherapy in low back pain, Southern medical journal, 104, 574-578, 2011	Population: people with lumbar spondylosis
Dougados,M., Revel,M., Khan,M.A., Spondylarthropathy treatment: Progress in medical treatment, physical therapy and rehabilitation, Bailliere's clinical rheumatology, 12, 717-736, 1998	Study design: review article
Dronen,A., Group training in ankylosing spondylitis: Effect of pilates training in water and on land - a pilot study, Fysioterapeuten, 79, 22-28, 2012	Language: Norwegian
Elkayam,O., Ophir,J., Brener,S., Paran,D., Wigler,I., Efron,D., Even-Paz,Z., Politi,Y., Yaron,M., Immediate and delayed effects of treatment at the Dead Sea in patients with psoriatic arthritis, Rheumatology international, 19, 77-82, 2000	Intervention/Comparator: Both groups received sun exposure and bathing in dead sea. Intervention group additionally received mud packs and sulphur pool bathing. This becomes the differential intervention for analysis, which is not sufficiently analogous to UK hydrotherapy provision).
Elnaggar,K., Elshafey,A., Effects of Combined Resistive Underwater Exercises and Interferential Current Therapy in Patients with Juvenile Idiopathic Arthritis, American Journal of Physical Medicine & Rehabilitation, 95, 96-103, 2016	All participants were children
Elyan,Mazen, Khan,Muhammad Asim, Does physical therapy still have a place in the treatment of ankylosing spondylitis?, Current opinion in rheumatology, 20, 282-286, 2008	Study design: review
Eppeland,Siv Grodal, Diamantopoulos,Andreas P., Soldal,Dag Magnar, Haugeberg,Glenn, Short term in-patient rehabilitation in axial spondyloarthritis - the results of a 2-week program performed in daily clinical practice, BMC research notes, 6, 185-, 2013	Exclude from RCT analysis but include for observational
Epps,H., Ginnelly,L., Utley,M., Southwood,T., Gallivan,S., Sculpher,M., Woo,P., Is hydrotherapy cost-effective? A randomised controlled trial of combined hydrotherapy programmes compared with physiotherapy land techniques in children with juvenile idiopathic arthritis, Health technology assessment (Winchester, England), 9, iii-59, 2005	Population: children with JIA. Did include participants up to the age of 19 but did not report age stratified results so we cannot analyse data just on people aged 16
Falagas,M.E., Zarkadoulia,E., Rafailidis,P.I., The therapeutic effect of balneotherapy: evaluation of the evidence from randomised controlled trials, International journal of clinical, 63, 1068-1084, 2009	Study design: systematic review
Falkenbach,A., Disability motivates patients with ankylosing spondylitis for more frequent physical exercise, Archives of Physical Medicine & Rehabilitation, 84, 382-384, 2003	Intervention: intervention is generic 'exercise' without detail of type
Falkenbach,A., Kovacs,J., Franke,A., Jorgens,K., Ammer,K., Radon therapy for the treatment of rheumatic diseases - Review and meta-analysis of controlled clinical trials, Rheumatology international, 25, 205-210, 2005	Study design: systematic review
Fongen,Camilla, Halvorsen,Silje, Dagfinrud,Hanne, High disease activity is related to low levels of physical activity in patients with ankylosing spondylitis, Clinical rheumatology, 32, 1719-1725, 2013	Intervention: mentions swimming, but results are not reported in a suitable format for analysis
Fransen,M., When is physiotherapy appropriate?, Best Practice and Research: Clinical Rheumatology, 18, 477-489, 2004	Study design: review

Study	Reason for Exclusion
Geboers,J.F., Bakx,W.G., Pons,C., Spinal cord injuries in patients with ankylosing spondylitis: case report, literature review and recommendations for prevention and rehabilitation, J Rehabil Sci, 7, 92-95, 1994	Study design: case report
Giannotti,Erika, Trainito,Sabina, Arioli,Giovanni, Rucco,Vincenzo, Masiero,Stefano, Effects of physical therapy for the management of patients with ankylosing spondylitis in the biological era, Clinical rheumatology, 33, 1217-1230, 2014	Study design : review
Hagen,Kare Birger, Dagfinrud,Hanne, Moe,Rikke Helene, Osteras,Nina, Kjekken,Ingvild, Grotle,Margreth, Smedslund,Geir, Exercise therapy for bone and muscle health: an overview of systematic reviews, BMC medicineBMC Med, 10, 167-, 2012	Study design: overview of systematic reviews
Helliwell,P.S., Abbott,C.A., Chamberlain,M.A., A randomised trial of three different physiotherapy regimes in ankylosing spondylitis, Physiotherapy., 82, 85-90, 1996	Study valid but results not presented in a manner that can be analysed; need to contact authors
Hinkka,H., Vaattanen,S., Ala-Peijari,S., Effects of cold mist shower on inflammatory arthritis patients; a cross-over controlled clinical trial, Annals of the Rheumatic Diseases, 74, 1302-1303, 2015	Conference abstract
Ince,Gonca, Sarpel,Tunay, Durgun,Behice, Erdogan,Seref, Effects of a multimodal exercise program for people with ankylosing spondylitis, Physical therapy, 86, 924-935, 2006	Intervention: no hydrotherapy component
Karapolat,H., Eyigor,S., Zoghi,M., Akkoc,Y., Kirazli,Y., Keser,G., Are swimming or aerobic exercise better than conventional exercise in ankylosing spondylitis patients? A randomized controlled study, European journal of physical and rehabilitation medicine, 45, 449-457, 2009	Intervention: one group did receive a structured swimming programme which was assessed for Q15 (structured exercise) but this was deemed not to constitute hydrotherapy
Katz,Uriel, Shoenfeld,Yehuda, Zakin,Varda, Sherer,Yaniv, Sukenik,Shaul, Scientific evidence of the therapeutic effects of dead sea treatments: a systematic review, Seminars in arthritis and rheumatism, 42, 186-200, 2012	Study design: systematic review
Kjekken,Ingvild, Bo,Ingvild, Ronningen,Aud, Spada,Cristina, Mowinckel,Petter, Hagen,Kare Birger, Dagfinrud,Hanne, A three-week multidisciplinary in-patient rehabilitation programme had positive long-term effects in patients with ankylosing spondylitis: randomized controlled trial, Journal of rehabilitation medicine : official journal of the UEMS European Board of Physical and Rehabilitation Medicine, 45, 260-267, 2013	Intervention: one group received a structured swimming programme, which was not deemed to be conventional hydrotherapy.
Lind-Albrecht,G., Droste,U., Pain situation and use of medication after radon support therapy within an in-patient rehabilitation by Spondylitis ankylosans, Zeitschrift fur Rheumatologie, 55 Suppl 1, 100-, 1996	Article: conference abstract only. language: German
Liu,Yan, Cortinovis,Daniela, Stone,Millicent A., Recent advances in the treatment of the spondyloarthropathies, Current opinion in rheumatology, 16, 357-365, 2004	Study design: Review
Lubrano,Ennio, D'Angelo,Salvatore, Parsons,Wendy J., Serino,Franca, Tanzillo,Angelo Tommaso, Olivieri,Ignazio, Pappone,Nicola, Effects of a combination treatment of an intensive rehabilitation program and etanercept in patients with ankylosing spondylitis: a pilot study, The Journal of rheumatology, 33, 2029-2034, 2006	Study design: Not RCT; Intervention: no hydrotherapy

Study	Reason for Exclusion
Mattukat,K., Rennert,D., Brandes,I., Ehlebracht-Konig,I., Kluge,K., Mau,W., Short- and long-term effects of intensive training and motivational programme for continued physical activity in patients with inflammatory rheumatic diseases, European journal of physical and rehabilitation medicine, 50, 395-409, 2014	Population: included rheumatoid arthritis along with spondyloarthritis and most outcomes were reported combined across the populations. Intervention: made no explicit mention of hydrotherapy
Ksiezopolska-Orlowska,K., Pacholec,A., Bugajska,J., Sadura-Sieklucka,T., Kowalik,K., Pawlowska-Cyprysiak,K., Lastowiecka-Moras,E., The Effect of Comprehensive Musculoskeletal Rehabilitation on Clinical Status of Ankylosing Spondylitis Patients, Ortopedia Traumatologia Rehabilitacja, 18, 41-52, 2016	Complex intervention featuring components outside scope (e.g. cryotherapy)
Merson,D.P., Laursen,M., Sharpe,S., Case review. Rehabilitation of a rower diagnosed with undifferentiated spondyloarthropathy, Athletic Therapy Today, 13, 24-27, 2008	Study design: case report (n=1)
Nasermoaddeli,Ali, Kagamimori,Sadanobu, Balneotherapy in medicine: A review, Environmental health and preventive medicine, 10, 171-179, 2005	Study design: systematic review
Nghiem,Francine Ton, Donohue,John Patrick, Rehabilitation in ankylosing spondylitis, Current opinion in rheumatology, 20, 203-207, 2008	Study design: review
Nicholas,J.J., Physical modalities in rheumatological rehabilitation, Archives of physical medicine and rehabilitation, 75, 994-1001, 1994	Study design: review
Niedermann,Karin, Sidelnikov,Eduard, Muggli,Claudia, Dagfinrud,Hanne, Hermann,Matthias, Tamborini,Giorgio, Ciurea,Adrian, Bischoff-Ferrari,Heike, Effect of cardiovascular training on fitness and perceived disease activity in people with ankylosing spondylitis, Arthritis care & research, 65, 1844-1852, 2013	Intervention: intervention did not include hydrotherapy
O'Connor,C., Dunne,Shannon U., Gowan,B., Whelan,B., Silke,C., Hydrotherapy results in reduced pain and fatigue in patients with arthritis, Irish Journal of Medical Science, 183, S106-, 2014	Conference abstract
O'Dwyer,Tom, O'Shea,Finbar, Wilson,Fiona, Exercise therapy for spondyloarthritis: a systematic review, Rheumatology international, 34, 887-902, 2014	Study design: systematic review
Passalent,L.A., Physiotherapy for ankylosing spondylitis: Evidence and application, Current opinion in rheumatology, 23, 142-147, 2011	Study design: systematic review
Shi,G.H., Zheng,J.Y., Luo,T.Y., Bee pin combined with mineral spa bath in the treatment of psoriatic arthritis (Chinese), Chinese journal of dermatology, 30, 346-347, 1997	Language: Chinese
Staalesen Strumse,Yndis A., Nordvag,Bjorn Yngvar, Stanghelle,Johan K., Roisland,Mona, Winther,Anne, Pajunen,Par Arne, Garen,Torhild, Flato,Berit, Efficacy of rehabilitation for patients with ankylosing spondylitis: comparison of a four-week rehabilitation programme in a Mediterranean and a Norwegian setting, Journal of rehabilitation medicine : official journal of the UEMS European Board of Physical and Rehabilitation Medicine, 43, 534-542, 2011	Comparator: both groups received rehab programme, randomisation applied to setting.

Study	Reason for Exclusion
Sukenik,S., Balneotherapy for rheumatic diseases at the Dead Sea area, Israel journal of medical sciences, 32, S16-S19, 1996	Study design: review article
Sukenik,S., Abu-Shakra,M., Flusser,D., Balneotherapy in autoimmune disease, Israel journal of medical science, 33, 258-261, 1997	Study design: Review
Sukenik,S., Baradin,R., Codish,S., Neumann,L., Flusser,D., Abu-Shakra,M., Buskila,D., Balneotherapy at the Dead Sea area for patients with psoriatic arthritis and concomitant fibromyalgia, The Israel Medical Association journal : IMAJ, 3, 147-150, 2001	Intervention: all patients received the intervention.
Sukenik,S., Flusser,D., Abu-Shakra,M., The role of Spa therapy in various rheumatic diseases, Rheumatic Disease Clinics of North America, 25, 883-897, 1999	Study design: review article
Sukenik,S., Giryas,H., Halevy,S., Neumann,L., Flusser,D., Buskila,D., Treatment of psoriatic arthritis at the Dead Sea, The Journal of rheumatology, 21, 1305-1309, 1994	Study design: participants not randomised
Takken,T., Van Der Net,J., Kuis,W., Helders,P.J.M., Aquatic fitness training for children with juvenile idiopathic arthritis, Rheumatology (Oxford, England)Rheumatology (Oxford), 42, 1408-1414, 2003	Population: children under 16 with JIA
van Tubergen,A., Landewe,R., Heuft-Dorenbosch,L., Spoorenberg,A., van der Heijde,D., van der Tempel,H., van der Linden,S., Assessment of disability with the World Health Organisation Disability Assessment Schedule II in patients with ankylosing spondylitis, Annals of the rheumatic diseases, 62, 140-145, 2003	Study design: secondary analysis.
van Tubergen,A., Landewe,R., van der Heijde,D., Hidding,A., Wolter,N., Asscher,M., Falkenbach,A., Genth,E., The,H.G., van der Linden,S., Combined spa-exercise therapy is effective in patients with ankylosing spondylitis: a randomized controlled trial, Arthritis and rheumatism, 45, 430-438, 2001	Comparison: patients in all groups received some kind of hydrotherapy, but amount was inconsistent within two groups.
van Tubergen,Astrid, Boonen,Annelies, Landewe,Robert, Rutten-Van Molken,Maureen, van der Heijde,Desiree, Hidding,Alita, van der Linden,Sjef, Cost effectiveness of combined spa-exercise therapy in ankylosing spondylitis: a randomized controlled trial, Arthritis and rheumatism, 47, 459-467, 2002	Study design: Secondary analysis of a complex intervention of exercise, hydrotherapy and phyiotherapy
van,A., Boonen,A., Landewe,R., Rutten-vsn,M., van,D., Hidding,A., van,S.,Linden, Cost-effectiveness of combined spa-exercise therapy in ankylosing spondylitis: a randomized controlled trial, Arthritis Care and Research, 47, 459-467, 2002	Study design: secondary cost-effectiveness analysis of another study
Viitanen,J.V., Heikkila,S., Functional changes in patients with spondylarthropathy. A controlled trial of the effects of short-term rehabilitation and 3-year follow-up, Rheumatology international, 20, 211-214, 2001	Intervention: intervention was a complex intervention covering a range of exercise and physiotherapy modalities, which included hydrotherapy. However, patients did not receive the same exposure to each modality so it was difficult to determine the exposure to hydrotherapy.
Viitanen,J.V., Lehtinen,K., Suni,J., Kautiainen,H., Fifteen months' follow-up of intensive inpatient physiotherapy and	Intervention: complex intervention of a wide range of exercise modalities including pool therapy.

Study	Reason for Exclusion
exercise in ankylosing spondylitis, Clinical rheumatology, 14, 413-419, 1995	However, participants received a varying frequency and intensity of each modality, so the overall/relative exposure to hydrotherapy is difficult to determine.
Vliet Vlieland,T.P.M., Li,L.C., Rehabilitation in rheumatoid arthritis and ankylosing spondylitis: Differences and similarities, Clinical and experimental rheumatology, 27, S171-S178, 2009	Study design: systematic review

### Excluded observational studies

Study	Reason for Exclusion
Codish,Shlomi, Dobrovinsky,Sergey, Abu Shakra,Mahmoud, Flusser,Daniel, Sukenik,Shaul, Spa therapy for ankylosing spondylitis at the Dead Sea, The Israel Medical Association journal : IMAJ, 7, 443-446, 2005	Comparator: participants in control group received climatotherapy which is not standard care in UK
Elkayam,O., Ophir,J., Brener,S., Paran,D., Wigler,I., Efron,D., Even-Paz,Z., Politi,Y., Yaron,M., Immediate and delayed effects of treatment at the Dead Sea in patients with psoriatic arthritis, Rheumatology international, 19, 77-82, 2000	Intervention/Comparator: Both groups received sun exposure and bathing in dead sea which does not relate to UK hydrotherapy provision
Ferreira,Margarida, Lopes,Alfredo, Silva,Francisco, Pereira,Soraia, Eason,Jane, Effect of an Aquatic Therapy Program on Pulmonary Function in Ankylosing Spondylitis, Journal of Aquatic Physical Therapy, 21, 2-8, 2013	Outcomes: only reported on pulmonary function outcomes
Harrison,R.A., Tolerance of pool therapy by ankylosing spondylitis patients with low vital capacities, Physiotherapy, 67, 296-297, 1981	Sample size: 9 people; Outcomes: only measured forced vital capacity
Hashkes,P.J., Beneficial effect of climatic therapy on inflammatory arthritis at Tiberias Hot Springs, Scandinavian journal of rheumatology, 31, 172-177, 2002	Intervention: a range of physical therapies were available - some but not all patients received hydrotherapy but the outcomes cannot directly be related to this.
Shehata,M., Schwarzmeier,J.D., Hilgarth,M., Demirtas,D., Richter,D., Hubmann,R., Boeck,P., Leiner,G., Falkenbach,A., Effect of combined spa-exercise therapy on circulating TGF-beta1 levels in patients with ankylosing spondylitis, Wiener Klinische Wochenschrift, 118, 266-272, 2006	Outcomes: did not report any outcomes of relevance to this review
Staalesen Strumse,Yndis A., Nordvag,Bjorn Yngvar, Stanghelle,Johan K., Roisland,Mona, Winther,Anne, Pajunen,Par Arne, Garen,Torhild, Flato,Berit, Efficacy of rehabilitation for patients with ankylosing spondylitis: comparison of a four-week rehabilitation programme in a Mediterranean and a Norwegian setting, Journal of rehabilitation medicine : official journal of the UEMS European Board of Physical and Rehabilitation Medicine, 43, 534-542, 2011	Comparator: both groups received rehab programme, randomisation applied to setting. Not all patients received hydro, outcomes not reported in a way that was linked to exact intervention received
Sukenik,S., Baradin,R., Codish,S., Neumann,L., Flusser,D., Abu-Shakra,M., Buskila,D., Balneotherapy at the Dead Sea area for patients with psoriatic arthritis and concomitant fibromyalgia, The Israel Medical Association journal : IMAJ, 3, 147-150, 2001	Intervention: both groups received daily bathing in dead sea, this is not analogous to UK practice
Sukenik,S., Giryas,H., Halevy,S., Neumann,L., Flusser,D., Buskila,D., Treatment of psoriatic arthritis at the Dead Sea, The Journal of rheumatology, 21, 1305-1309, 1994	Study design: all participants received daily bathing in dead sea, this is not analogous to UK practice



### F.3.4 Acupuncture for spondyloarthritis

#### Review Question 17

- What is the effectiveness of acupuncture compared with sham acupuncture and standard care for managing spondyloarthritis?

Study	Reason for Exclusion
Brinkhaus,B., Witt,C.M., Jena,S., Linde,K., Steng,A., Wagenpfeil,S., Irnich,D., Walther,H.U., Melchart,D., Willich,S.N., Acupuncture in patients with chronic low back pain: a randomized controlled trial, Archives of internal medicine Arch Intern Med, 166, 450-457, 2006	Population: Unclear if SpA patients were recruited; no outcome reporting by clinical diagnosis
Choi,T.-Y., Kim,T.-H., Kang,J.W., Lee,M.S., Ernst,E., Moxibustion for rheumatic conditions: A systematic review and meta-analysis, Clinical rheumatology Clin Rheumatol, 30, 937-945, 2011	Study design: systematic review
He Y.H., Moxibustion with "musk-mylabris powder" for ankylosing spondylitis in 30 cases., Shanghai journal of traditional chinese medicine, 36, 33-, 2002	Not obtained: unavailable via the British Library or other usual suppliers
Jia,Chun Sheng, Ma,Xiao Shun, Li,Xiao Feng, Shi,Jing, Li,Chang Fa, Liu,Er Jun, Zheng,Li Ya, Qin,Liang, Xu,Xiao Kang, Clinical study on auricular acupoint penetration needling along the skin for treatment of a variety of pain syndrome and dysfunction, Journal of traditional Chinese medicine = Chung i tsa chih ying wen pan / sponsored by All-China Association of Traditional Chinese Medicine, Academy of Traditional Chinese Medicine J Tradit Chin Med, 31, 169-172, 2011	Population: it is unclear whether recruited patients included any with spondyloarthritis
MacPherson,Hugh, Tilbrook,Helen E., Richmond,Stewart J., Atkin,Karl, Ballard,Kathleen, Bland,Martin, Eldred,Janet, Essex,Holly N., Hopton,Ann, Lansdown,Harriet, Muhammad,Usman, Parrott,Steve, Torgerson,David, Wenham,Aniela, Woodman,Julia, Watt,Ian, Alexander Technique Lessons, Acupuncture Sessions or usual care for patients with chronic neck pain (ATLAS): study protocol for a randomised controlled trial, Trials, 14, 209-, 2013	Study design: protocol for forthcoming trial; Population: Excluded patients "with severe underlying pathology" e.g. ankylosing spondylitis
Parsons,G., Acupuncture was better than no acupuncture but did not differ from minimal (sham) acupuncture for chronic low back pain at 8 weeks, Evidence Based Nursing, 9, 111-112, 2006	Study design: Commentary on a trial (Brinkhaus 2006)
Trinh,K.V., Blinding in acupuncture research: A systematic review of randomized controlled trials for pain using a sham acupuncture control, Clinical Acupuncture and Oriental Medicine Clin.Acupunct.Oriental Med., 4, 71-77, 2003	Study design: Systematic review
Weiner,Debra K., Ernst,Edzard, Complementary and alternative approaches to the treatment of persistent musculoskeletal pain, The Clinical journal of pain Clin J Pain, 20, 244-255, 2004	Study design: systematic review

<b>Study</b>	<b>Reason for Exclusion</b>
Zhu,X.M., Feng,Y.H., Hu,X.W., Moxibustion treatment of 39 cases for ankylosing spondylitis, Journal of Traditional Chinese MedicineJ.Trad.Chin.Med., 50, 625-626, 2009	Not obtained: study identified via hand search of systematic reviews. However, citation incorrect and article could not be located. Authors of systematic review contacted. No reply as at 16/10/2014

### **F.3.5 Physical aids for spondyloarthritis**

Review questions 18

- What is the effectiveness of physical aids (for example, braces) compared with standard care for managing spondyloarthritis?

None

## F.4 Surgical Interventions

Review Questions 34 and 35

- What factors predict clinical improvement after spinal surgery (including osteotomy and fusion) in people with axial inflammation?
- What factors predict clinical improvement after joint replacement surgery?

Study	Reason for Exclusion
Belsky,M.R., Feldon,P., Millender,L.H., Nalebuff,E.A., Phillips,C., Hand involvement in psoriatic arthritis, Journal of Hand Surgery - American Volume, 7, 203-207, 1982	No relevant prognostic outcome data; does not appear to be consecutive; appears to be retrospective
Camargo,F.P., Cordeiro,E.N., Napoli,M.M., Corrective osteotomy of the spine in ankylosing spondylitis. Experience with 66 cases, Clinical Orthopaedics & Related Research, 157-167, 1986	No relevant prognostic outcome data; does not appear to be consecutive; appears to be retrospective
Chang,K.W., Chen,H.C., Chen,Y.Y., Lin,C.C., Hsu,H.L., Cai,Y.H., Sagittal translation in opening wedge osteotomy for the correction of thoracolumbar kyphotic deformity in ankylosing spondylitis, Spine, 31, 1137-1142, 2006	No relevant prognostic outcome data; does not appear to be consecutive; retrospective
Dabir,S., Ramanath,S., Shah,H., Rudramurthy,M., Patil,S.S., Surgical technique and outcome of uncemented THR using HA coated stems in fused and deformed hips due to ankylosing spondylitis, Hip International, 2015 25 p.142-145	No relevant prognostic outcome data
Debarge,R., Demey,G., Roussouly,P., Radiological analysis of ankylosing spondylitis patients with severe kyphosis before and after pedicle subtraction osteotomy, European Spine Journal, 19, 65-70, 2010	No relevant prognostic outcome data
Debarge,R., Demey,G., Roussouly,P., Sagittal balance analysis after pedicle subtraction osteotomy in ankylosing spondylitis, European Spine Journal, 20, Suppl-25, 2011	No relevant prognostic outcome data
Fox,M.W., Onofrio,B.M., Surgical management of spinal disorders in patients with ankylosing spondylitis, Neurosurgery QuarterlyNeurosurg.Q., 3, 165-177, 1993	No relevant prognostic outcome data; does not appear to be consecutive; retrospective
Fox,M.W., Onofrio,B.M., Kilgore,J.E., Neurological complications of ankylosing spondylitis, Journal of Neurosurgery.78 (6) (pp 871-878), 1993.Date of Publication: 1993., 871-878, 1993	No relevant prognostic outcome data
Fu,J., Song,K., Zhang,Y.G., Zheng,G.Q., Zhang,G.Y., Liu,C., Wang,Y., Changes in cardiac function after pedicle subtraction osteotomy in patients with a kyphosis due to ankylosing spondylitis, Bone & Joint Journal, 2015 97-B p.1405-1410	No relevant prognostic outcome data
Fu,J., Zhang,G., Zhang,Y., Liu,C., Zheng,G., Song,K., Tang,X., Zhang,X., Wang,Y., Pulmonary function improvement in patients with ankylosing spondylitis kyphosis after pedicle subtraction osteotomy, Spine, 2014 39 p.E1116-E1122	No relevant prognostic outcome data
Gilard,V., Curey,S., Derrey,S., Perez,A., Proust,F., Cervical spine fractures in patients with ankylosing spondylitis: Importance of early management, Neuro-Chirurgie, 60, 239-243, 2014	No relevant prognostic outcome data
Goodman,S.M., Zhu,R., Figgie,M.P., Huang,W.T., Mandl,L.A., Short-term Total Hip Replacement Outcomes in Ankylosing Spondylitis, JCR: Journal of Clinical Rheumatology, 20, 363-368, 2014	No relevant prognostic outcome data

Study	Reason for Exclusion
Goodman,S.M., Zhu,R., Figgie,M.P., Huang,W.T., Mandl,L.A., Short-term Total Hip Replacement Outcomes in Ankylosing Spondylitis, JCR: Journal of Clinical Rheumatology, 20, 363-368, 2014	Duplicate of reference already retrieved
Gu,M., Zhang,Z., Kang,Y., Sheng,Y., Yang,P., Roles of sagittal anatomical parameters of the pelvis in primary total hip replacement for patients with ankylosing spondylitis, The journal of arthroplasty, 12, 2219-23, 2015	No relevant prognostic outcome data
Hu,J., Ji,M.L., Qian,B.P., Qiu,Y., Wang,B., Yu,Y., Zhu,Z.Z., Jiang,J., Can Pelvic Tilt be Predicated by the Sacrofemoral-Pubic Angel in Patients With Thoracolumbar Kyphosis Secondary to Ankylosing Spondylitis?, Spine, 39, E1347-E1352, 2014	Not relevant – doesn't investigate predictors of surgical outcome
Jo,D.J., Kim,K.T., Lee,S.H., Cho,M.G., Seo,E.M., The Incidence and Management of Dural Tears and Cerebrospinal Fluid Leakage during Corrective Osteotomy for Ankylosing Spondylitis with Kyphotic Deformity, Journal of Korean Neurosurgical Society, 2015 58 p.60-64	No relevant prognostic outcome data
Kanter,A.S., Wang,M.Y., Mummaneni,P.V., A treatment algorithm for the management of cervical spine fractures and deformity in patients with ankylosing spondylitis, Neurosurgical focus.24 (1) (pp E11), 2008.Date of Publication: 2008., E11-, 2008	No relevant prognostic outcome data; does not appear to be consecutive
Kilgus,D.J., Namba,R.S., Gorek,J.E., Cracchiolo,A.,III, Amstutz,H.C., Total hip replacement for patients who have ankylosing spondylitis. The importance of the formation of heterotopic bone and of the durability of fixation of cemented components, Journal of Bone & Joint Surgery - American Volume, 72, 834-839, 1990	No relevant prognostic outcome data
Kim,K.T., Jo,D.J., Lee,S.H., Park,K.J., Sin,J.H., Does it need to perform anterior column support after Smith-Petersen osteotomy for ankylosing spondylitis?, European Spine Journal, 21, 985-991, 2012	Does not appear to be consecutive; retrospective
Kim,K.T., Park,D.H., Lee,S.H., Lee,J.H., Results of Corrective Osteotomy and Treatment Strategy for Ankylosing Spondylitis with Kyphotic Deformity, Clinics in Orthopedic Surgery, 2015 7 p.330-336	No relevant prognostic outcome data
Lin,B., Zhang,W.B., Cai,T.Y., Lu,C.W., Zhou,Q., Huang,Z., Yu,H., Analysis of sagittal balance using spinopelvic parameters in ankylosing spondylitis patients treated with vertebral column decancellation surgery, Acta Orthopaedica Belgica, 2015 81 p.538-545	No relevant prognostic outcome data
Ma,J., Wang,C., Zhou,X., Zhou,S., Jia,L., Surgical therapy of cervical spine fracture in patients with ankylosing spondylitis, Medicine, 94, 2015	No relevant prognostic outcome data
Min,K., Hahn,F., Leonardi,M., Lumbar spinal osteotomy for kyphosis in ankylosing spondylitis: the significance of the whole body kyphosis angle, Journal of Spinal Disorders & Techniques, 20, 149-153, 2007	No relevant prognostic outcome data
Park,Y.-S., Kim,H.-S., Baek,S.-W., Spinal osteotomy in ankylosing spondylitis: Radiological, clinical, and psychological results, Spine JournalSpine J., 14, 1921-1927, 2014	No relevant prognostic outcome data; does not appear to be consecutive
Park,Y.S., Kim,H.S., Baek,S.W., Oh,J.H., Preoperative computer-based simulations for the correction of kyphotic deformities in ankylosing spondylitis patients, Spine Journal:	No relevant prognostic outcome data; does not appear to be consecutive

Study	Reason for Exclusion
Official Journal of the North American Spine Society, 14, 2420-2424, 2014	
Pogliacomì,F., Aliani,D., Cavaciocchi,M., Corradi,M., Ceccarelli,F., Rotini,R., Total elbow arthroplasty in distal humeral nonunion: Clinical and radiographic evaluation after a minimum follow-up of three years, Journal of Shoulder and Elbow Surgery, 2015 p.1998-2007	No relevant prognostic outcome data
Qian,B.P., Jiang,J., Qiu,Y., Wang,B., Yu,Y., Zhu,Z.Z., Radiographical predictors for postoperative sagittal imbalance in patients with thoracolumbar kyphosis secondary to ankylosing spondylitis after lumbar pedicle subtraction osteotomy, Spine, 38, E1669-E1675, 2013	No relevant prognostic outcome data; does not appear to be consecutive; retrospective; included as 'additional information'
Robinson,Y., Willander,J., Olerud,C., Surgical Stabilization Improves Survival of Spinal Fractures Related to Ankylosing Spondylitis, Spine, 2015 40 p.1697-1702	Compares surgical versus non-surgical treatment
Sakellariou,V.I., Poultsides,L.A., Vasilakakos,T., Sculco,P., Ma,Y., Sculco,T.P., Risk Factors for Recurrence of Periprosthetic Knee Infection, Journal of Arthroplasty, 30 (9) (pp 1618-1622)	Not a study in spondyloarthritis
Schnaser,E.A., Browne,J.A., Padgett,D., Perioperative complications in patients with inflammatory arthropathy undergoing total knee arthroplasty, The journal of arthroplasty, 90 76-80 2015	Not a study in spondyloarthritis
Shi,D., Xu,X., Song,K., Xu,Z., Dai,D., Chen,D., Jiang,Q., Comparison of venous thromboembolism after total hip arthroplasty between ankylosing spondylitis and osteoarthritis, Hindawi, 2014	Comparison of osteoarthritis and spondyloarthritis
Song,K., Zheng,G., Zhang,Y., Zhang,X., Mao,K., Wang,Y., A new method for calculating the exact angle required for spinal osteotomy, Spine, 38, E616-E620, 2013	No relevant prognostic outcome data
Stucki,G., Bozzone,P., Treuer,E., Wassmer,P., Felder,M., Efficacy and safety of radiation synovectomy with Yttrium-90: a retrospective long-term analysis of 164 applications in 82 patients, British Journal of Rheumatology, 32, 383-386, 1993	Seronegative arthropathies only 14/82; does not examine prognostic factors; does not appear to be consecutive
Suk,K.S., Kim,K.T., Lee,S.H., Kim,J.M., Significance of chin-brow vertical angle in correction of kyphotic deformity of ankylosing spondylitis patients, Spine, 28, 2001-2005, 2003	No relevant prognostic outcome data; does not appear to be consecutive
Sundaram,N.A., Murphy,J.C., Heterotopic bone formation following total hip arthroplasty in ankylosing spondylitis, Clinical orthopaedics and related research, 223-226, 1986	No relevant prognostic outcome data; does not appear to be consecutive; appears to be retrospective
Swarup,I., Lee,Y.Y., Christoph,E.I., Mandl,L.A., Implant survival and patient-reported outcomes after total hip arthroplasty in young patient with juvenile idiopathic arthritis, The journal of arthroplasty, 90 398-402 2015	No relevant prognostic outcome data
Walker,L.G., Sledge,C.B., Total hip arthroplasty in ankylosing spondylitis, Clinical Orthopaedics & Related Research, 198-204, 1991	No relevant prognostic outcome data; unclear if consecutive; retrospective
Xiang,L.-B., Yu,H.-L., Liu,J., Chen,Y., Yang,H.-F., One-stage surgery by a combined anterior-posterior approach to treat ankylosing spondylitis complicated by a multiple-level cervical vertebral chance fracture, Modern Rheumatology, 25 (2) p.282-285	No relevant prognostic outcome data

Study	Reason for Exclusion
Yang,B.P., Chen,L.A., Ondra,S.L., A novel mathematical model of the sagittal spine: application to pedicle subtraction osteotomy for correction of fixed sagittal deformity, Spine JournalSpine J., 8, 359-366, 2008	Not spondyloarthritis (i.e. wrong population)
Yildiz,F., Akgul,T., Ekinci,M., Dikici,F., Sar,C., Domanic,U., Results of closing wedge osteotomy in the treatment of sagittal imbalance due to ankylosing spondylitis, Acta Orthopaedica et Traumatologica Turcica, 2016 50 p.63-68	No relevant prognostic outcome data
Zhang,L., Yang,D., Yin,X., Zhou,Y., Risk factors for poor hip flexion after total hip arthroplasty for the treatment of ankylosing spondylitis a multivariate analysis, Clinical rheumatology, 2014 33 p.1295-1301	Duplicate of already included reference
Zhang,W., Zheng,M., Operative strategy for different types of thoracolumbar stress fractures in ankylosing spondylitis, Journal of Spinal Disorders & Techniques, 2014 27 p.423-430	No relevant prognostic outcome data
Zheng,G.-Q., Song,K., Zhang,Y.-G., Wang,Y., Huang,P., Zhang,X.-S., Wang,Z., Mao,K.-Y., Cui,G., Two-level spinal osteotomy for severe thoracolumbar kyphosis in ankylosing spondylitis: Experience with 48 patients, Spine, 39 (13) pp 1055-1058 (2014)	No relevant prognostic outcome data
Zheng,G.Q., Zhang,Y.G., Chen,J.Y., Wang,Y., Decision making regarding spinal osteotomy and total hip replacement for ankylosing spondylitis: experience with 28 patients, The bone & joint journal, 2014 96-B p.360-365	No relevant prognostic outcome data
Zhu,Y., Zhang,F., Chen,W., Zhang,Q., Liu,S., Zhang,Y., Incidence and risk factors for heterotopic ossification after total hip arthroplasty: a meta-analysis, Archives of Orthopaedic & Trauma Surgery, 2015 135 p.1307-1314	Not a study in spondyloarthritis

## **F.5 Organisation of care and long-term monitoring**

### **F.5.1 Transition to adult services for young people with spondyloarthritis**

Review questions 13

- How should transition from specialist paediatric services to specialist adult rheumatology services be managed for young people between the ages of 16 and 18?

None

## F.5.2 Monitoring of pharmacological interventions used in spondyloarthritis

### Review Question 22

- What is the usefulness of direct access to specialist care, compared with initial primary care access followed by specialist rheumatological care, in the management of flare episodes?

Study	Reason for Exclusion
Dernis,E., Lavie,F., Pavy,S., Wendling,D., Flipo,R.M., Saraux,A., Cantagrel,A., Claudepierre,P., Goupille,, Le Loet,X., Maillefert, JF., Mariette,X., Schaevebeke,T., Tebib,J., Combe,B., Clinical and laboratory follow-up for treating and monitoring patients with ankylosing spondylitis: development of recommendations for clinical practice based on published evidence and expert opinion., Joint, bone, spine : revue du rhumatisme, 74, 330-337, 2007	Literature review and Delphi exercise
Gaydukova,I., Akulova,A., Aparkina,A., Rebrov,A., Adherence to therapy and results of treatment in patients with the different ways of spondyloarthritis monitoring., Annals of the rheumatic diseases, 73, A41, 2014	Conference abstract
Kain,T., Zochling,J., Taylor,A., Manolios,N., Smith,M.D., Reed,M.D., Brown,M.A., Schachna,L., Evidence-based recommendations for the monitoring and treatment of ankylosing spondylitis: Results from the Australian 3E initiative in rheumatology, International journal of rheumatic diseases, 11, 45-49, 2008	Evidence and consensus recommendations, insufficient detail on recommendation development
Machado,P., Castrejon,I., Katchamart,W., Koevoets,R., Kuriya,B., Schoels,M., Silva-Fernandez,L., Thevissen,K., Vercoutere,W., Villeneuve,E., Aletaha,D., Carmona,L., Landewe,R., van der Heijde,D., Bijlsma,J.W.J., Bykerk,V., Canhao,H., Catrina,A.I., Durez,P., Edwards,C.J., Mjaavatten,M.D., Leeb,F., Losada,B., Martin-Mola,E.M., Martinez-Osuna,P., Montecucco,C., Muller-Ladner,U., Ostergaard,M., Sheane,B., Xavier,R.M., Zochling,J., Bombardier,C., Multinational evidence-based recommendations on how to investigate and follow-up undifferentiated peripheral inflammatory arthritis: Integrating systematic literature research and expert opinion of a broad international panel of rheumatologists in the 3E Initiative, Annals of the rheumatic diseases, 70, 15-24, 2011	Did not include frequency of monitoring
McBain,H., Shipley,M., Olaleye,A., Moore,S., Hirani,S., Newman,S., The development and evaluation of a self-monitoring and patient-initiated follow-up service for people with rheumatoid or psoriatic arthritis on methotrexate., Arthritis & Rheumatology, 66, S1316, 2014	Conference abstract
Richard,M.-A., Paul,C., Risk factors, diagnosis and management of psoriatic arthritis: Systematic literature reviews and expert opinion of a panel of dermatologists, Journal of the European Academy of Dermatology and Venereology., 28, 1-2, 2014	Editorial
Salvarani,C., Olivieri,I., Pipitone,N., Cantini,F., Marchesoni,A., Punzi,L., Scarpa,R., Matucci-Cerinic,M., Recommendations of the Italian society for rheumatology for the use of biologic (TNF-alpha blocking) agents in treatment of psoriatic arthritis, Clinical and experimental rheumatology 24, 70-78, 2006	Consensus based recommendations
Sidiropoulos,P.I., Hatemi,G., Song,I.H., Avouac,J., Collantes,E., Hamuryudan,V., Herold,M., Kvien,T.K., Mielants,H., Mendoza,J.M., Olivieri,I., Ostergaard,M., Schachna,L., Sieper,J., Boumpas,D.T., Dougados,M., Evidence-based recommendations for the management of ankylosing spondylitis: systematic literature search of the 3E Initiative in Rheumatology involving a broad panel of experts and practising rheumatologists, Rheumatology (Oxford, England), 47, 355-361, 2008	Did not include frequency of monitoring

### F.5.3 Care setting for management of flare episodes

#### Review Question 29

- What is the usefulness of direct access to specialist care, compared with initial primary care access followed by specialist rheumatological care, in the management of flare episodes?

Study	Reason for Exclusion
Kucukdeveci,A.A., Oral,A., Ilieva,E.M., Varela,E., Valero,R., Berceanu,M., Christodoulou,N., Inflammatory arthritis. The role of physical and rehabilitation medicine physicians. The European perspective based on the best evidence. A paper by the UEMS-PRM Section Professional Practice Committee. [Review], European journal of physical & rehabilitation medicine, 49, 551-564, 2013	Description of a rehabilitation medicine role
Lesko,M., Young,M., Higham,R., Managing inflammatory arthritides: Role of the nurse practitioner and physician assistant. [Review], Journal of the American Academy of Nurse Practitioners, 22, 382-392, 2010	Review, not flare episodes

## F.5.4 Care setting for long-term management

### Review Question 30

- What is the effectiveness of specialist-led long-term management of spondyloarthritis compared with primary-care-led long-term management?

Study	Reason for Exclusion
Kvalik,A.G., Larsen,S., Aadland,H.A. Hoyeraal,H.M., Changing structure and resources in a rheumatology combined unit during 1977-1999. Scand J Rheumatol, 36, 125-135, 2007	Retrospective review of hospital management data
Wise,E.M., Isaacs,J.D., Management of rheumatoid arthritis in primary care – an educational need? Rheumatology, 44, 1337-1338, 2005	Editorial

## F.5.5 Cross-speciality care

### Review Question 31

- How should cross-speciality care for people with spondyloarthritis be organised?

Study	Reason for Exclusion
Mease,P.M., Management of psoriatic arthritis: the therapeutic interface between rheumatology and dermatology Current Rheumatology Reports, 8,348-3554, 2006	General review
Mease,P.M.,Gladmand,D.D.,Papp,K.A.,Khraishi,M.M.,Thaci,D.,Behrans,F.,No rthington,R.,Fuiman,J.,Bananis,E.,Boggs,R.,Alvarez,D., prevalence of rheumatologist-diagnosed psoriatic arthritis in patients with psoriasis in European/North American dermatology clinics J Am Acad Dermatol, 69,729-735, 2013	In people with psoriasis first, covered by psoriasis guideline
Nell-Duxneuner,V., Rezende,L.S., Stamm,T.A., Duer,M., Smolen,J.S., Machold,K.P., Attending and non-attending patients in a real-life setting of an early arthritis clinic: why do people leave clinics and where do they go? Clinical and Experimental Rheumatology, 30, 184-190, 2012	Predominantly rheumatoid arthritis
Warren,R.B., Helliwell,P.S., Chinoy,H., Time for a 'joint' approach? British Journal of Dermatology, 168, 683-684, 2013	Review, not flare episodes
Additional papers identified through search for studies on multidisciplinary teams	
Barbosa,L., Ramiro,S., Roque,R., Goncalves,P., Silva,J.C., Santos,M.J., Patients' satisfaction with the rheumatology day care unit Acta Reumatologica Portuguesa, 36, 377-384, 2011	<40% spondyloarthritis, about satisfaction with a specific day care unit, not multidisciplinary team
Brattstrom,M., Teamwork in the rehabilitation of patients with chronic rheumatic disease. Some aspects of the tasks of the physiotherapist, occupational therapist, and social worker Annals of Clinical Research, 3,230-236, 1975	General overview
De Buck,P.D.M., Le,Cessie S., Van Den Hout,W.B., Peeters,A.J., Runday,H.K., Westedt,M.-L., Breedveld,F.C., Vliet Vlieland,T.P.M., Randomized comparison of a multidisciplinary job-retention vocational rehabilitation program with usual outpatient care in patients with chronic arthritis at risk for job loss Arthritis Care and Research, 53,682-690, 2005	<25% spondyloarthritis
Grotle,M., Klokkerud,M., Kjekken,I., Bremander,A., Hagel,S., Strombeck,B., Horslev-Petersen,K., Meesters,J., Vlieland,T.P., Hagen,K.B., What's in the black box of arthritis rehabilitation? A comparison of rehabilitation practice for patients with inflammatory arthritis in northern Europe Journal of Rehabilitation Medicine, 45,458-466, 2013	General rehabilitation, not multidisciplinary teams
Hagel,S., Lindqvist,E., Pettersson,I.F., Meesters,J.J., Klokkerud,M., Aanerud,G.J., Stovgaard,I.H., Horslev-Petersen,K., Strombeck,B., Vliet Vlieland,T.P., Bremander,A., Scandinavian Team Arthritis Register - European Team Initiative for Care Research (STAR-ETIC) collaboration, Which patients improve the most after arthritis rehabilitation? A study of predictors in patients with inflammatory arthritis in Northern Europe, the STAR-ETIC collaboration Journal of Rehabilitation Medicine, 46,250-257, 2014	General rehabilitation, not multidisciplinary teams
Lesko,M., Young,M., Higham,R., Managing inflammatory arthritides: Role of the nurse practitioner and physician assistant. [Review] Journal of the American Academy of Nurse Practitioners, 22,382-392, 2010	Review paper

Study	Reason for Exclusion
Luelmo, J., Gratacos, J., Martinez-Losa, M.M., Ribera, M., Romani, J., Calvet, J., Leal, L., Larrosa, M., A report of experience of a multidisciplinary unit of psoriasis and psoriatic arthritis Reumatol Clin, 10, 141-146, 2014	Not relevant outcomes
Sandhu, R.S., Treharne, G.J., Justice, A.C., Saravana, S., Obrenovic, K., Erb, N., Kitas, G.D., Rowe, I.F., Accessibility and quality of secondary care rheumatology services for people with inflammatory arthritis: a regional survey Clinical Medicine, 7, 579-584, 2007	<10% spondyloarthritis

## F.5.6 Complications of spondyloarthritis

### Review Question 32

- What are the complications associated with spondyloarthritis?

Study	Reason for Exclusion
Aasland,A., Flato,B., Vandvik,I.H., Psychosocial outcome in juvenile chronic arthritis: A nine-year follow- up, Clinical and Experimental RheumatologyClin.Exp.Rheumatol., 15, 561-568, 1997	At follow up, cohort was a mixture of those aged under and over 16, without separate outcome reporting per age group. Outcomes reported as group mean scores
Altin,R., Ozdolap,S., Savranlar,A., Sarikaya,S., Tor,M., Kart,L., Ozdemir,H., 20050609, Comparison of early and late pleuropulmonary findings of ankylosing spondylitis by high-resolution computed tomography and effects on patients' daily life, Clinical RheumatologyClin.Rheumatol., 24, 22-28, 2005	looking at prevalence at baseline
Askling,J., Klareskog,L., Blomqvist,P., Fored,M., Feltelius,N., 20060926, Risk for malignant lymphoma in ankylosing spondylitis: a nationwide Swedish case-control study, Annals of the Rheumatic DiseasesANN.RHEUM.DIS., 65, 1184-1187, 2006	Lymphoma is not an outcome specified for this question
Azevedo,V.F., Paiva,Edos S., Felipe,L.R., Moreira,R.A., 20110616, Occurrence of fibromyalgia in patients with ankylosing spondylitis, Revista Brasileira de ReumatologiaRev.Bras.Reumatol., 50, 646-650, 2010	looking at prevalence/cross-sectional
Bakland,G., Gran,J.T., Nossent,J.C., 20111207, Increased mortality in ankylosing spondylitis is related to disease activity, Annals of the Rheumatic DiseasesANN.RHEUM.DIS., 70, 1921-1925, 2011	lack of pre-defined timepoints (used follow up/death as census date for survival analysis)
Bandinelli,F., Prignano,F., Bonciani,D., Pallanti,S., Lotti,T., Salaffi,F., Bartoli,F., Candelieri,A., Giovannini,L., Maddali,Bongi S., Matucci-Cerinic,M., 20130626, Clinical and demographic factors influence on anxiety and depression in early psoriatic arthritis (ePsA), Clinical & Experimental Rheumatology, 31, 318-319, 2013	Measurement at one timepoint only (no follow up); reported group mean values only
Barlow,J.H., Macey,S.J., Struthers,G.R., 19930408, Gender, depression, and ankylosing spondylitis, Arthritis care & research, 6, 45-51, 1993	Cross sectional; Identifying relationships between risk factors rather than prevalence/incidence
Baser,S., Cubukcu,S., Ozkurt,S., Sabir,N., Akdag,B., Diri,E., 20061027, Pulmonary involvement starts in early stage ankylosing spondylitis, Scandinavian Journal of RheumatologySCAND.J.RHEUMATOL., 35, 325-327, 2006	cross sectional, prevalence
Bedaiwi,M., Sari,I., Thavaneswaran,A., Ayearst,R., Haroon,N., Inman,R.D., Fatigue in Ankylosing Spondylitis and Nonradiographic Axial Spondyloarthritis: Analysis from a Longitudinal Observation Cohort, Journal of Rheumatology, 42, 2354-2360, 2015	Prevalence not incidence

Study	Reason for Exclusion
Belsky,M.R., Feldon,P., Millender,L.H., Nalebuff,E.A., Phillips,C., 19820614, Hand involvement in psoriatic arthritis, Journal of Hand Surgery - American Volume, 7, 203-207, 1982	Study focussed on case review of patients with PsA requiring hand surgery. These were sampled from a population of 105 PsA patients, however no baseline data were available on those who didn't receive surgery, nor were there specified time points for follow up (retrospective design).
Benegas,M., Munoz-Gomariz,E., Font,P., Burgos-Vargas,R., Chaves,J., Palleiro,D., Maldonado,Cocco J., Gutierrez,M., Saenz,R., Steckmen,I., Rillo,O., Mulero,J., Sampaio-Barros,P., Barcelos,A., Vander,Cruyssen B., Vazquez-Mellado,J., Collantes,Estevez E., Respondia Group, ASPECT study group, REGISPONSER study group, 20130514, Comparison of the clinical expression of patients with ankylosing spondylitis from Europe and Latin America, Journal of RheumatologyJ.RHEUMATOL., 39, 2315-2320, 2012	Prevalence of a range of disease activity/severity markers; no follow up.
BenEzra,D., Cohen,E., Maftzir,G., 20050414, Uveitis in children and adolescents, British Journal of OphthalmologyBr.J.Ophthalmol., 89, 444-448, 2005	all patients had uveitis, study looked at prevalence of causes/comorbidities (inc JIA)
Benros,M.E., Waltoft,B.L., Nordentoft,M., Ostergaard,S.D., Eaton,W.W., Krogh,J., Mortensen,P.B., Autoimmune diseases and severe infections as risk factors for mood disorders a nationwide study, JAMA Psychiatry, 70, 812-820, 2013	Lack of pre-defined time points (used follow up, with censoring at onset of mood disorder)
Bertilsson,L., Andersson-Gare,B., Fath,A., Forsblad-dweElia,H., A 5-year prospective population-based study of juvenile chronic arthritis: Onset, disease process, and outcome, Scandinavian Journal of RheumatologyScand.J.Rheumatol., 41, 379-382, 2012	5 year study of Juvenile chronic arthritis (inc JIA, JAS, JPsA). At follow up, cohort was a mixture of those aged under and over 16, without separate outcome reporting per age group
Bertilsson,L., Andersson-Gare,B., Fath,A., Petersson,I.F., Forsblad-d'Elia,H., 20131210, Disease course, outcome, and predictors of outcome in a population-based juvenile chronic arthritis cohort followed for 17 years, Journal of RheumatologyJ.RHEUMATOL., 40, 715-724, 2013	Population eligible as all >16yrs onfollow up. However, no relevant outcomes reported.
Bodur,H., Ataman,S., Bugdayci,D.S., Rezvani,A., Nas,K., Uzunca,K., Emlakcioglu,E., Karatepe,A.G., Durmus,B., Sezgin,M., Ayhan,F., Yazgan,P., Duruoaz,T., Yener,M., Gurgan,A., Kirnap,M., Cakar,E., Altan,L., Soydemir,R., Capkin,E., Tekeoglu,I., Aydin,G., Gunendi,Z., Nacir,B., Salli,A., Ozturk,C., Memis,A., Turan,Y., Kozanoglu,E., Sivrioglu,K., Turkiye Romatizma Arastirma ve Savas Dernegi [TRASD], 20120702, Description of the registry of patients with ankylosing spondylitis in Turkey: TRASD-IP, Rheumatology InternationalRheumatol.Int., 32, 169-176, 2012	Cross-sectional, prevalence

Study	Reason for Exclusion
Boonen,A., Chorus,A., Miedema,H., van der Heijde,D., Landewe,R., Schouten,H., van der Tempel,H., van der Linden,S., 20011204, Withdrawal from labour force due to work disability in patients with ankylosing spondylitis, Annals of the Rheumatic DiseasesANN.RHEUM.DIS., 60, 1033-1039, 2001	Non-specific composite outcome of 'work disability'. Data at specified timepoints were available however
Borman,P., Babaoglu,S., Gur,G., Bingol,S., Bodur,H., 20080617, Bone mineral density and bone turnover in patients with psoriatic arthritis, Clinical RheumatologyClin.Rheumatol., 27, 443-447, 2008	looking at prevalence/bone status
Bostoen,J., Van,Praet L., Brochez,L., Mielants,H., Lambert,J., A cross-sectional study on the prevalence of metabolic syndrome in psoriasis compared to psoriatic arthritis, Journal of the European Academy of Dermatology & Venereology, 28, 507-511, 2014	Prevalence at baseline
Bremander,A., Petersson,I.F., Bergman,S., Englund,M., 20110526, Population-based estimates of common comorbidities and cardiovascular disease in ankylosing spondylitis, Arthritis care & research, 63, 550-556, 2011	lack of pre-defined timepoints (used (standardised) morbidity ratios)
Briot,K., Etcheto,A., Miceli-Richard,C., Dougados,M., Roux,C., Bone loss in patients with early inflammatory back pain suggestive of spondyloarthritis: results from the prospective DESIR cohort, Rheumatology, 55, 335-342, 2016	Bone marrow density as continuous measure (change) rather than % of people with osteoporosis/osteopenia
Brophy,S., Cooksey,R., Atkinson,M., Zhou,S.M., Husain,M.J., Macey,S., Rahman,M.A., Siebert,S., 20130228, No increased rate of acute myocardial infarction or stroke among patients with ankylosing spondylitis-a retrospective cohort study using routine data, Seminars in Arthritis & Rheumatism, 42, 140-145, 2012	Study had defined start and end timepoints for follow up. However, some people had AS diagnosis at baseline, while others were diagnosed during the course of the study, leading to the analysis group containing a mixture of people with fixed and variable length of follow up. The denominator was therefore person-years.
Brunner,F., Kunz,A., Weber,U., Kissling,R., 20060413, Ankylosing spondylitis and heart abnormalities: do cardiac conduction disorders, valve regurgitation and diastolic dysfunction occur more often in male patients with diagnosed ankylosing spondylitis for over 15 years than in the normal population?, Clinical RheumatologyClin.Rheumatol., 25, 24-29, 2006	lack of pre-defined timepoints (used follow up) though all participants had min 15 years disease duration
Buckley,C., Cavill,C., Taylor,G., Kay,H., Waldron,N., Korendowych,E., McHugh,N., 20110214, Mortality in psoriatic arthritis - a single-center study from the UK, Journal of RheumatologyJ.RHEUMATOL., 37, 2141-2144, 2010	Used follow up for survival analysis; measured causes of death e.g. from CVD but did not report non-fatal occurrences of these complications
Burki,V., Gossec,L., Payet,J., Durnez,A., Elhai,M., Fabreguet,I., Koumakis,E., Meyer,M., Paternotte,S., Roure,F., Dougados,M., 20121108, Prevalence and characteristics of hip involvement in spondyloarthritis: a single-centre	Used follow up time for survival analysis

Study	Reason for Exclusion
observational study of 275 patients, <i>Clinical &amp; Experimental Rheumatology</i> , 30, 481-486, 2012	
Cabane,J., Michon,A., Ziza,J.M., Bourgeois,P., Bletry,O., Godeau,P., Kahn,M.F., 19900628, Comparison of long term evolution of adult onset and juvenile onset Still's disease, both followed up for more than 10 years, <i>Annals of the Rheumatic Diseases</i> ANN.RHEUM.DIS., 49, 283-285, 1990	condition (Still's disease) outside the scope of the guideline
Cabral,D.A., Petty,R.E., Malleson,P.N., Ensworth,S., McCormick,A.Q., Shroeder,M.L., 19950504, Visual prognosis in children with chronic anterior uveitis and arthritis, <i>Journal of Rheumatology</i> J.RHEUMATOL., 21, 2370-2375, 1994	At follow up, cohort was a mixture of those aged under and over 16, without separate outcome reporting per age group
Calandra,S., Gallo,M.C., Consolaro,A., Pistorio,A., Lattanzi,B., Bovis,F., Muratore,V., De,Marco R., Martini,A., Ravelli,A., Female sex and oligoarthritis category are not risk factors for uveitis in Italian children with juvenile idiopathic arthritis, <i>Journal of Rheumatology</i> J.RHEUMATOL., 41, 1416-1425, 2014	lack of pre-defined timepoints (used follow up); cohort of children
Calin,A., Edmunds,L., Kennedy,L.G., Fatigue in ankylosing spondylitis - Why is it ignored?, <i>Journal of Rheumatology</i> J.RHEUMATOL., 20, 991-995, 1993	Not an outcome specified in our protocol
Camiciottoli,G., Trapani,S., Ermini,M., Falcini,F., Pistolesi,M., 19990908, Pulmonary function in children affected by juvenile spondyloarthropathy, <i>Journal of Rheumatology</i> J.RHEUMATOL., 26, 1382-1386, 1999	At follow up, cohort was a mixture of those aged under and over 16, without separate outcome reporting per age group
Candy,S., Chang,G., Andronikou,S., Acute myelopathy or cauda equina syndrome in HIV-positive adults in a tuberculosis endemic setting: MRI, clinical, and pathologic findings, <i>American Journal of Neuroradiology</i> Am.J.Neuroradiol., 35, 1634-1641, 2014	identified spondylitis in a group of TB patients rather than vice versa
Canoui-Poitrine,F., Lekpa,F.K., Farrenq,V., Boissinot,V., Hacquard-Bouder,C., Comet,D., Bastuji-Garin,S., Thibout,E., Claudepierre,P., 20120703, Prevalence and factors associated with uveitis in spondylarthritis patients in France: results from an observational survey, <i>Arthritis care &amp; research</i> , 64, 919-924, 2012	cross sectional, prevalence
Carette,S., Graham,D., Little,H., Rubenstein,J., Rosen,P., 19830324, The natural disease course of ankylosing spondylitis, <i>Arthritis &amp; Rheumatism</i> , 26, 186-190, 1983	Long term follow up of study 30 years earlier. Reported prevalence of comorbidities at this follow up point, without data on baseline characteristics.
Caron,T., Bransford,R., Nguyen,Q., Agel,J., Chapman,J., Bellabarba,C., 20100813, Spine fractures in patients with ankylosing spinal disorders, <i>Spine</i> , 35, E458-E464, 2010	consecutive case series of AS/DISH patients presenting with spinal fractures
Chandran,V., Barrett,J., Schentag,C.T., Farewell,V.T., Gladman,D.D., 20100205, Axial psoriatic arthritis: update on a longterm	Outcomes relate to general aspects of primary disease severity and progression, rather than outcomes specified in the review protocol

Study	Reason for Exclusion
prospective study, Journal of Rheumatology J.RHEUMATOL., 36, 2744-2750, 2009	
Chen,H.H., Yeh,S.Y., Chen,H.Y., Lin,C.L., Sung,F.C., Kao,C.H., 20140929, Ankylosing spondylitis and other inflammatory spondyloarthritis increase the risk of developing type 2 diabetes in an Asian population, Rheumatology International Rheumatol.Int., 34, 265-270, 2014	Retrospective study which had defined start and end timepoint but reported outcomes using follow up (person-years) rather than pre-defined timepoints.
Chen,Y.-J., Chen,C.-C., Lin,M.-W., Chen,T.-J., Li,C.-Y., Hwang,C.-Y., Chu,S.-Y., Lee,D.-D., Chang,Y.-T., Wang,W.-J., Liu,H.-N., Increased Risk of Sexual Dysfunction in Male Patients with Psoriasis: A Nationwide Population-Based Follow-Up Study, Journal of Sexual Medicine J.Sex.Med., 10, 1212-1218, 2013	Included a subgroup of patients with PsA of whom some developed sexual dysfunction. However, follow up terminated at onset, and timing of occurrence of dysfunction was not reported.
Choi,D., Fractures in Ankylosing Disorders of the Spine: Easy to Miss and High Risk of Deterioration, World Neurosurgery, 83, 1029-1031, 2015	Commentary
Chou,C.-H., Lin,M.-C., Peng,C.-L., Wu,Y.-C., Sung,F.-C., Kao,C.-H., Liu,S.-H., A nationwide population-based retrospective cohort study: Increased risk of acute coronary syndrome in patients with ankylosing spondylitis, Scandinavian Journal of Rheumatology SCAND.J.RHEUMATOL., 43, 132-136, 2014	lack of pre-defined timepoints (used follow up, retrospective cohort)
Chung,Y.-M., Liao,H.-T., Lin,K.-C., Lin,Y.-C., Chou,C.-T., Chen,C.-H., Tsai,C.-P., Prevalence of spondyloarthritis in 504 Chinese patients with HLA-B27-associated acute anterior uveitis, Scandinavian Journal of Rheumatology.38 (2) (pp 84-90), 2009.Date of Publication: 2009., 84-90, 2009	looking at prevalence of AS in uveitis patients rather than vice versa
Cook,R.J., Lawless,J.F., Statistical Issues in Modeling Chronic Disease in Cohort Studies, Statistics in Biosciences Stat.Biosci., 6, 127-161, 2014	Methodology paper exploring multi-state modelling with a PsA cohort used as an example
Costa,L., Caso,F., Ramonda,R., Del,Puente A., Cantarini,L., Darda,M.A., Caso,P., Lorenzin,M., Fiocco,U., Punzi,L., Scarpa,R., Metabolic syndrome and its relationship with the achievement of minimal disease activity state in psoriatic arthritis patients: an observational study, Immunologic Research.61 (1-2) (pp 147-153), 2014.Date of Publication: 2014., 147-153, 2014	Some people had complication t baseline ; follow-up outcomes were out of scope
da Cruz,Lage R., de Souza Bomtempo,C.A., Kakehasi,A.M., de Carvalho,M.A., Undifferentiated spondyloarthritis in a heterogeneous Brazilian population: an eight-year follow-up study, Rheumatology International Rheumatol Int, 34, 1019-1023, 2014	No relevant outcomes
De,Vos M., Mielants,H., Cuvelier,C., Elewaut,A., Veys,E., 19961212, Long-term evolution of gut	lack of pre-defined timepoints (used follow up)

Study	Reason for Exclusion
inflammation in patients with spondyloarthritis, Gastroenterology, 110, 1696-1703, 1996	
Del,Puente, Esposito, Antonella, Costa, Luisa, Benigno, Carla, Del, Puente, Foglia, Francesca, Oriente, Alfonso, Bottiglieri, Paolo, Caso, Francesco, Scarpa, Raffaele, Fragility Fractures in Patients with Psoriatic Arthritis, Journal of Rheumatology, 42, 36-40, 2015	Prevalent, not incident, fractures
Dubreuil, M., Rho, Y.H., Man, A., Zhu, Y., Zhang, Y., Love, T.J., Ogdie, A., Gelfand, J.M., Choi, H.K., 20140527, Diabetes incidence in psoriatic arthritis, psoriasis and rheumatoid arthritis: a UK population-based cohort study, Rheumatology, 53, 346-352, 2014	Study does not have defined start and end point, but analysis used follow up/person years
Exarchou, S., Redlund-Johnell, I., Karlsson, M., Mellstrom, D., Ohlsson, C., Turesson, C., Kristensen, L.E., Jacobsson, L., The prevalence of moderate to severe radiographic sacroiliitis and the correlation with health status in elderly Swedish men--the MrOS study, BMC Musculoskeletal Disorders, 14, 352-, 2013	Detection of sacroiliitis, not SpA
Feltelius, N., Ekbom, A., Blomqvist, P., 20040126, Cancer incidence among patients with ankylosing spondylitis in Sweden 1965-95: a population based cohort study, Annals of the Rheumatic Diseases, 62, 1185-1188, 2003	Cancer not a pre-specified outcome for this question. Only provides pre-specified timepoint data for patients excluded due to incidence of cancer within first year of recruitment.
Fox, M.W., Onofrio, B.M., Kilgore, J.E., 19930610, Neurological complications of ankylosing spondylitis, Journal of Neurosurgery, 78, 871-878, 1993	Retrospective case review with follow up of varying length (no fixed time points for outcome measures)
Freeston, J., Barkham, N., Hensor, E., Emery, P., Fraser, A., Ankylosing spondylitis, HLA-B27 positivity and the need for biologic therapies, Joint, Bone, Spine: Revue du Rhumatisme, 74, 140-143, 2007	assessing characteristics of patients at a single clinic visit (i.e. prevalence study)
Glasnovic, M., Bosnjak, I., Sram, M., Vranjes, Z., Vcev, A., Dobrosecic, B., Petricevic, J.S., Horvatic, E., Orkic, Z., Tadzic, R., Soldo, A., Sisljagic, D., Dinjar, K., 20110825, Clinical characteristics of patients with spondyloarthritides and HLA-B27 positive antigen, Collegium Antropologicum, 35, 397-402, 2011	Measured prevalence at baseline only
Gordon, D., Beastall, G.H., Thomson, J.A., Sturrock, R.D., 19861110, Androgenic status and sexual function in males with rheumatoid arthritis and ankylosing spondylitis, Quarterly Journal of Medicine, 60, 671-679, 1986	prevalence at baseline (no follow up)
Gran, J.T., Husby, G., 19850306, Ankylosing spondylitis: a comparative study of patients in an epidemiological survey, and those admitted to a department of rheumatology, Journal of	Survey at one time point only

Study	Reason for Exclusion
RheumatologyJ.RHEUMATOL., 11, 788-793, 1984	
Gratacos,J., Collado,A., Pons,F., Osaba,M., Sanmarti,R., Roque,M., Larrosa,M., Munoz-Gomez,J., 19991122, Significant loss of bone mass in patients with early, active ankylosing spondylitis: a followup study, Arthritis & Rheumatism, 42, 2319-2324, 1999	lack of pre-defined timepoints (used follow up)
Gray,F.D.,Jr., Gray,F.G., 19680114, Cardiopulmonary consequences of rheumatic diseases. A sixteen year study, Diseases of the Chest, 52, 430-437, 1967	lack of pre-defined timepoints (used follow up); only 3 AS patients
Gregory,A.C., Kempen,J.H., Daniel,E., Kacmaz,R.O., Foster,C.S., Jabs,D.A., Levy-Clarke,G.A., Nussenblatt,R.B., Rosenbaum,J.T., Suhler,E.B., Thorne,J.E., Systemic Immunosuppressive Therapy for Eye Diseases Cohort Study Research Group, 20130307, Risk factors for loss of visual acuity among patients with uveitis associated with juvenile idiopathic arthritis: the Systemic Immunosuppressive Therapy for Eye Diseases Study, Ophthalmology, 120, 186-192, 2013	Used follow up (eye-years) rather than defined time points
Grubisic,F., Grazio,S., Balenovic,A., Nemcic,T., Kusic,Z., 20140612, Osteoporosis, spinal mobility and chest expansion index in patients with ankylosing spondylitis, Collegium Antropologicum, 38, 63-68, 2014	Cross sectional, prevalence
Han,C., Robinson,D.W.,Jr., Hackett,M.V., Paramore,L.C., Fraeman,K.H., Bala,M.V., 20070126, Cardiovascular disease and risk factors in patients with rheumatoid arthritis, psoriatic arthritis, and ankylosing spondylitis, Journal of RheumatologyJ.RHEUMATOL., 33, 2167-2172, 2006	outcome was prevalence; rolling window of enrollment => variable length of follow up
Haroon,M., Gallagher,P., Heffernan,E., FitzGerald,O., High prevalence of metabolic syndrome and of insulin resistance in psoriatic arthritis is associated with the severity of underlying disease, Journal of RheumatologyJ.RHEUMATOL., 41, 1357-1365, 2014	Prevalence at baseline only
Hart,H.H., McGuigan,L.E., Gow,P.J., Grigor,R.R., 19870219, Reiter's syndrome: chronicity of symptoms and employment, Australian & New Zealand Journal of Medicine, 16, 452-456, 1986	Participants had varying length of follow up at review.
Haugeberg,G., Bennett,A.N., McGonagle,D., Bone loss in very early inflammatory back pain in undifferentiated spondyloarthropathy: A 1-year observational study (Annals of the Rheumatic Diseases (2010) 69, (1364-1366)), Annals of the Rheumatic DiseasesANN.RHEUM.DIS., 70, 1519-, 2011	Only reports Bone Mineral Density measurement, outcome not of interest
Haugeberg,G., Bennett,A.N., McGonagle,D., Emery,P., Marzo-Ortega,H., 20100727, Bone loss in very early inflammatory back pain in	Reported only on bone loss, not osteoporosis

Study	Reason for Exclusion
undifferentiated spondyloarthritis: a 1-year observational study.[Erratum appears in Ann Rheum Dis. 2011 Aug;70(8):1519], Annals of the Rheumatic DiseasesANN.RHEUM.DIS., 69, 1364-1366, 2010	
Healey,E.L., Haywood,K.L., Jordan,K.P., Garratt,A.M., Packham,J.C., Patients with well-established ankylosing spondylitis show limited deterioration in a ten-year prospective cohort study, Clinical rheumatologyClin Rheumatol, 32, 67-72, 2013	Reported outcomes were on disease progression and activity, none were those specified in the review protocol.
Hellgren,K., Smedby,K.E., Backlin,C., Sundstrom,C., Feltelius,N., Eriksson,J.K., Baecklund,E., Askling,J., 20140819, Ankylosing spondylitis, psoriatic arthritis, and risk of malignant lymphoma: a cohort study based on nationwide prospectively recorded data from Sweden, Arthritis & Rheumatology, 66, 1282-1290, 2014	Lack of pre-defined time points: used follow up in person years. Outcome outside scope
Hemminki,K., Li,X., Sundquist,K., Sundquist,J., Familial association of inflammatory bowel diseases with other autoimmune and related diseases, American Journal of GastroenterologyAM.J.GASTROENTEROL., 105, 139-147, 2010	Incidence rates calculated using follow up (person years) rather than defined time points
Horreau,C., Pouplard,C., Brenaut,E., Barnetche,T., Misery,L., Cribier,B., Jullien,D., Aractingi,S., Aubin,F., Joly,P., Le,Maitre M., Ortonne,J.P., Paul,C., Richard,M.A., 20131112, Cardiovascular morbidity and mortality in psoriasis and psoriatic arthritis: a systematic literature review. [Review], Journal of the European Academy of Dermatology & Venereology, 27, Suppl-29, 2013	Systematic review
Huang,Y.-P., Wang,Y.-H., Pan,S.-L., Increased Risk of Ischemic Heart Disease in Young Patients with Newly Diagnosed Ankylosing Spondylitis - A Population-Based Longitudinal Follow-Up Study, PLoS ONE, 8, -, 2013	survival analysis (i.e. no pre-defined time points)
Huidekoper,A.L., van der Woude,D., Knevel,R., van der Helm-van Mil AH, Cannegieter,S.C., Rosendaal,F.R., Kloppenburg,M., Huizinga,T.W., 20131030, Patients with early arthritis consume less alcohol than controls, regardless of the type of arthritis, RheumatologyRheumatology (UK), 52, 1701-1707, 2013	Study looked at alcohol consumption, rather than alcoholism, presenting data as odds ratios (based on proportion of people who drank, by arthritis diagnosis).
Huppertz,H., Voigt,I., Muller-Scholden,J., Sandhage,K., 20000523, Cardiac manifestations in patients with HLA B27-associated juvenile arthritis, Pediatric Cardiology, 21, 141-147, 2000	cross sectional, prevalence
Husted,J.A., Thavaneswaran,A., Chandran,V., Eder,L., Rosen,C.F., Cook,R.J., Gladman,D.D., 20120117, Cardiovascular and other comorbidities in patients with psoriatic arthritis: a comparison with patients with psoriasis, Arthritis care & research, 63, 1729-1735, 2011	measured comorbidity prevalence based on records from a single clinic visit

Study	Reason for Exclusion
Husted,J.A., Thavaneswaran,A., Chandran,V., Gladman,D.D., 20140630, Incremental effects of comorbidity on quality of life in patients with psoriatic arthritis, Journal of RheumatologyJ.RHEUMATOL., 40, 1349-1356, 2013	Cross sectional design, prevalence at single time point
Husted,J.A., Tom,B.D., Farewell,V.T., Gladman,D.D., 20110214, Longitudinal analysis of fatigue in psoriatic arthritis, Journal of RheumatologyJ.RHEUMATOL., 37, 1878-1884, 2010	Not an outcome specified in our protocol
Husted,J.A., Tom,B.D., Farewell,V.T., Gladman,D.D., 20120517, Longitudinal study of the bidirectional association between pain and depressive symptoms in patients with psoriatic arthritis, Arthritis care & research, 64, 758-765, 2012	timepoints unclear
Hyphantis,T., Kotsis,K., Tsifetaki,N., Creed,F., Drosos,A.A., Carvalho,A.F., Voulgari,P.V., 20140117, The relationship between depressive symptoms, illness perceptions and quality of life in ankylosing spondylitis in comparison to rheumatoid arthritis, Clinical RheumatologyClin.Rheumatol., 32, 635-644, 2013	cross sectional, prevalence
Jamnitski,A., Symmons,D., Peters,M.J.L., Sattar,N., McIlInnes,I., Nurmohamed,M.T., Cardiovascular comorbidities in patients with psoriatic arthritis: A systematic review, Annals of the Rheumatic DiseasesANN.RHEUM.DIS., 72, 211-216, 2013	Systematic review
Jamnitski,A., Visman,I.M., Peters,M.J.L., Boers,M., Dijkmans,B.A.C., Nurmohamed,M.T., Prevalence of cardiovascular diseases in psoriatic arthritis resembles that of rheumatoid arthritis, Annals of the Rheumatic DiseasesANN.RHEUM.DIS., 70, 875-876, 2011	cross sectional, prevalence
Jang,J.H., Green,C.E., Assassi,S., Reveille,J.D., Ward,M.M., Weisman,M.H., Nicassio,P.M., 20111215, The contribution of disease activity on functional limitations over time through psychological mediators: a 12-month longitudinal study in patients with ankylosing spondylitis, RheumatologyRheumatology (UK), 50, 2087-2092, 2011	Depression assessed at defined intervals, but results reported as mean score across cohort for various instruments, rather than numbers/rates of people with depression.
Jansen,T.L., Aarts,M.H., Zanen,S., Bruyn,G.A., 20040309, Risk assessment for osteoporosis by quantitative ultrasound of the heel in ankylosing spondylitis, Clinical & Experimental Rheumatology, 21, 599-604, 2003	cross sectional study, measured prevalence
Kaarela,K., Mattila,J., Lehtinen,K., Kotaniemi,A., Luukkainen,R., 19900312, Hidden psoriatic arthritis in seronegative oligoarthritis: a 14-year follow-up study, Clinical RheumatologyClin.Rheumatol., 8, 504-506, 1989	Study sought to identify occurrence of PsA in a mixed cohort population of seronegative oligoarthritis patients

Study	Reason for Exclusion
Kamble,R.T., Joshi,J.M., Iyer,R.K., 19961003, Pulmonary manifestation in ankylosing spondylitis, Journal of the Association of Physicians of India, 43, 507-508, 1995	case reports
Kammer,G.M., Soter,N.A., Gibson,D.J., Schur,P.H., 19800317, Psoriatic arthritis: a clinical, immunologic and HLA study of 100 patients. [Review] [122 refs], Seminars in Arthritis & Rheumatism, 9, 75-97, 1979	Study participants assessed at a single time point
Kane,D., Stafford,L., Bresnihan,B., FitzGerald,O., 20040123, A prospective, clinical and radiological study of early psoriatic arthritis: an early synovitis clinic experience, RheumatologyRheumatology (UK), 42, 1460-1468, 2003	all outcomes related to PsA disease activity and progression, rather than review question specified complications
Kaya,A., Ozgocmen,S., Kamanli,A., Ardicoglu,O., 20100201, Bone loss in ankylosing spondylitis: does syndesmophyte formation have an influence on bone density changes?, Medical Principles & Practice, 18, 470-476, 2009	Some reports of % with osteoporosis at follow up but unclear in how many patients this was measured.
Keller,J.J., Hsu,J.L., Lin,S.M., Chou,C.C., Wang,L.H., Wang,J., Bai,C.H., Chiou,H.Y., 20140929, Increased risk of stroke among patients with ankylosing spondylitis: a population-based matched-cohort study, Rheumatology InternationalRheumatol.Int., 34, 255-263, 2014	lack of pre-defined timepoints (used follow up)
Khan,M.A., 20030122, Total hip arthroplasty in ankylosing spondylitis, Journal of RheumatologyJ.RHEUMATOL., 29, 1342-, 2002	Letter to editor
Khraishi,M., MacDonald,D., Rampakakis,E., Vaillancourt,J., Sampalis,J.S., 20111018, Prevalence of patient-reported comorbidities in early and established psoriatic arthritis cohorts, Clinical RheumatologyClin.Rheumatol., 30, 877-885, 2011	Prevalence at a single timepoint
Kim,T.J., Kim,T.H., Jun,J.B., Joo,K.B., Uhm,W.S., 20080228, Prevalence of ossification of posterior longitudinal ligament in patients with ankylosing spondylitis, Journal of RheumatologyJ.RHEUMATOL., 34, 2460-2462, 2007	outcome not specified in protocol; cross-sectional design
Kinsella,T.D., Johnson,L.G., Ian,R., 19750416, Cardiovascular manifestations of ankylosing spondylitis, Canadian Medical Association Journal, 111, 1309-1311, 1974	Variable length of follow up (although all patients were followed for a minimum of 2 years)
Kiris,A., Ozgocmen,S., Kocakoc,E., Ardicoglu,O., Ogur,E., 20040106, Lung findings on high resolution CT in early ankylosing spondylitis, European Journal of RadiologyEur.J.Radiol., 47, 71-76, 2003	prevalence at baseline (no follow up)
Kiss,S., Letko,E., Qamruddin,S., Baltatzis,S., Foster,C.S., 20030930, Long-term progression, prognosis, and treatment of patients with recurrent ocular manifestations of Reiter's syndrome, Ophthalmology, 110, 1764-1769, 2003	Variable length of follow up

Study	Reason for Exclusion
Klingberg,E., Lorentzon,M., Mellstrom,D., Geijer,M., Gothlin,J., Hilme,E., Hedberg,M., Carlsten,H., Forsblad-d'Elia,H., Osteoporosis in ankylosing spondylitis - prevalence, risk factors and methods of assessment, Arthritis Research and TherapyArthritis Res.Ther., 14, -, 2012	looking at prevalence/cross-sectional
Kondratiouk,S., Udaltsova,N., Klatsky,A.L., 20110714, Associations of psoriatic arthritis and cardiovascular conditions in a large population, Permanente Journal, 12, 4-8, 2008	Lack of pre-defined timepoints (measuring odds, not incidence rates)
Kotaniemi,K., Sihto-Kauppi,K., Salomaa,P., Salla,H., Ristolainen,L., Kauppi,M., 20141017, The frequency and outcome of uveitis in patients with newly diagnosed juvenile idiopathic arthritis in two 4-year cohorts from 1990-1993 and 2000-2003, Clinical & Experimental Rheumatology, 32, 143-147, 2014	Includes children with JIA; no separate outcomes reported for over 16s.
Kotsis,K., Voulgari,P.V., Tsifetaki,N., Machado,M.O., Carvalho,A.F., Creed,F., Drosos,A.A., Hyphantis,T., 20130116, Anxiety and depressive symptoms and illness perceptions in psoriatic arthritis and associations with physical health-related quality of life, Arthritis care & research, 64, 1593-1601, 2012	looking at prevalence/cross-sectional
Kumar,A., Bansal,M., Srivastava,D.N., Pandhi,A., Menon,A., Mehra,N.K., Malaviya,A.N., 20020207, Long-term outcome of undifferentiated spondylarthropathy, Rheumatology InternationalRheumatol.Int., 20, 221-224, 2001	outcomes analysed were not those specified in our review protocol (focused on disease severity and progression)
Lakatos,J., Csakanyi,L., 19910322, Comparison of complications of total hip arthroplasty in rheumatoid arthritis, ankylosing spondylitis, and osteoarthritis, Orthopedics, 14, 55-57, 1991	Complications of arthroplasty, rather than spondyloarthropathy
Langham,S., Langham,J., Goertz,H.P., Ratcliffe,M., 20111012, Large-scale, prospective, observational studies in patients with psoriasis and psoriatic arthritis: A systematic and critical review. [Review], BMC Medical Research Methodology, 11, 32-, 2011	Systematic review
Lee,C.-C., Lee,S.-H., Chang,I.-J., Lu,T.-C., Yuan,A., Chang,T.-A., Tsai,K.-C., Chen,W.-J., Spontaneous pneumothorax associated with ankylosing spondylitis, RheumatologyRheumatology (UK), 44, 1538-1541, 2005	outcome (spontaneous pneumothorax) is secondary to pre-specified outcome (restrictive pulmonary disease)
Lehtinen,K., 19930601, Mortality and causes of death in 398 patients admitted to hospital with ankylosing spondylitis, Annals of the Rheumatic DiseasesANN.RHEUM.DIS., 52, 174-176, 1993	Study of mortality causes, rather than incidence/occurrence, with focus on amyloidosis
Leung,Y.Y., Ho,K.W., Li,E.K., Li,M., Kwok,L.W., Wong,P.C., Li,T.K., Zhu,T.Y., Kun,E.W., Tam,L.S., Predictors of functional deterioration in Chinese patients with psoriatic arthritis: a longitudinal study, BMC Musculoskeletal DisordersBMC Musculoskelet.Disord., 15, 284-, 2014	Outcomes relating to (decline of) physical function assessed by HAQ and HRQoL

Study	Reason for Exclusion
Levy,A.R., Szabo,S.M., Rao,S.R., Cifaldi,M., Maksymowych,W.P., Estimating the occurrence of renal complications among persons with ankylosing spondylitis, <i>Arthritis Care and Research</i> Arthritis Care Res., 66, 440-445, 2014	calculated prevalence and prevalence ratios without specified timepoints
Li,W.Q., Han,J.L., Chan,A.T., Qureshi,A.A., 20130729, Psoriasis, psoriatic arthritis and increased risk of incident Crohn's disease in US women, <i>Annals of the Rheumatic Diseases</i> ANN.RHEUM.DIS., 72, 1200-1205, 2013	lack of pre-defined timepoints (used follow up)
Little,M.P., Weiss,H.A., Boice,Jr, Darby,S.C., Day,N.E., Muirhead,C.R., Risks of leukemia in Japanese atomic bomb survivors, in women treated for cervical cancer, and in patients treated for ankylosing spondylitis, <i>Radiation Research</i> .152 (3) (pp 280-292), 1999.Date of Publication: September 1999., 280-292, 1999	cancer not a specified outcome for this question
Magrey,M.N., Antonelli,M., James,N., Khan,M.A., High frequency of fibromyalgia in patients with psoriatic arthritis: A pilot study, <i>Arthritis</i> , 2013, -, 2013	determined prevalence at baseline; fibromyalgia not a specified outcome for this question
Mahe,E., Maccari,F., Beauchet,A., Lahfa,M., Barthelemy,H., Reguiat,Z., Beneton,N., Esteve,E., Chaby,G., Ruer-Mulard,M., Steiner,H.G., Pauwels,C., Avenel-Audran,M., Goujon-Henry,C., Descamps,V., Begon,E., Sigal,M.L., Resopso,G.E.M., 20140527, Childhood-onset psoriasis: association with future cardiovascular and metabolic comorbidities, <i>British Journal of Dermatology</i> Br.J.Dermatol., 169, 889-895, 2013	Cross sectional design, single timepoint
Malesci,D., Niglio,A., Mennillo,G.A., Buono,R., Valentini,G., La, Montagna G., 20070626, High prevalence of metabolic syndrome in patients with ankylosing spondylitis, <i>Clinical Rheumatology</i> Clin.Rheumatol., 26, 710-714, 2007	Prevalence
Marks,J.S., Hardinge,K., 19791229, Clinical and radiographic features of spondylitic hip disease, <i>Annals of the Rheumatic Diseases</i> ANN.RHEUM.DIS., 38, 332-336, 1979	reported outcome outside scope of question
Marks,S.H., Barnett,M., Calin,A., Ankylosing spondylitis in women and men: A case-control study, <i>Journal of Rheumatology</i> J.RHEUMATOL., 10, 624-628, 1983	lack of pre-defined timepoints (used follow up, retrospective cohort)
Martindale,J., Smith,J., Sutton,C.J., Grennan,D., Goodacre,L., Goodacre,J.A., 20061214, Disease and psychological status in ankylosing spondylitis, <i>Rheumatology</i> Rheumatology (UK), 45, 1288-1293, 2006	Iritis, IBD and Psoriasis measured at baseline but not subsequently. Depression measured at baseline and follow up, but reported as mean group scores rather than n cases or rates.
Mathieu,S., Gossec,L., Dougados,M., Soubrier,M., 20110526, Cardiovascular profile in ankylosing spondylitis: a systematic review and meta-analysis. [Review], <i>Arthritis care &amp; research</i> , 63, 557-563, 2011	Systematic review

Study	Reason for Exclusion
Meesters,J.J.L., Bremander,A., Bergman,S., Petersson,I.F., Turkiewicz,A., Englund,M., The risk for depression in patients with ankylosing spondylitis: A population-based cohort study, Arthritis Research and Therapy Arthritis Res.Ther., 16, -, 2014	patient years (follow up) as denominator
Meesters,J.J., Petersson,I.F., Bergman,S., Haglund,E., Jacobsson,L.T., Bremander,A., Sociodemographic and disease-related factors are associated with patient-reported anxiety and depression in spondyloarthritis patients in the Swedish SpAScania cohort, Clinical Rheumatology, 33, 1649-1656, 2014	cross sectional design detecting prevalent features
Michet,C.J., Mason,T.G., Mazlumzadeh,M., 20050718, Hip joint disease in psoriatic arthritis: risk factors and natural history, Annals of the Rheumatic Diseases ANN.RHEUM.DIS., 64, 1068-1070, 2005	Study of progression of hip joint disease in PsA. A subgroup required arthroplasty during longitudinal follow up but the timing of these procedures was unclear.
Mielants,H., Veys,E.M., Cuvelier,C., De,Vos M., Goemaere,S., De,Clercq L., Schatte-man,L., Elewaut,D., 19961209, The evolution of spondyloarthropathies in relation to gut histology. II. Histological aspects, Journal of Rheumatology J.RHEUMATOL., 22, 2273-2278, 1995	lack of pre-defined timepoints (used follow up)
Mielants,H., Veys,E.M., Cuvelier,C., De,Vos M., Goemaere,S., De,Clercq L., Schatte-man,L., Gyselbrecht,L., Elewaut,D., 19961209, The evolution of spondyloarthropathies in relation to gut histology. III. Relation between gut and joint, Journal of Rheumatology J.RHEUMATOL., 22, 2279-2284, 1995	lack of pre-defined timepoints (used follow up)
Mielants,H., Veys,E.M., De,Vos M., Cuvelier,C., Goemaere,S., De,Clercq L., Schatte-man,L., Elewaut,D., 19961209, The evolution of spondyloarthropathies in relation to gut histology. I. Clinical aspects, Journal of Rheumatology J.RHEUMATOL., 22, 2266-2272, 1995	lack of pre-defined timepoints (used follow up)
Mielants,H., Veys,E.M., Goemaere,S., Cuvelier,C., De,Vos M., 19931221, A prospective study of patients with spondyloarthropathy with special reference to HLA-B27 and to gut histology, Journal of Rheumatology J.RHEUMATOL., 20, 1353-1358, 1993	Patients assessed at a single time point
Miyamae,T., Tanaka,E., Kishi,T., Matsuyama,T., Igarashi,T., Fujikawa,S., Taniguchi,A., Momohara,S., Yamanaka,H., Long-term outcome of 114 adult JIA patients in a non-pediatric rheumatology institute in Japan, Modern Rheumatology, 25, 62-66, 2015	No relevant outcomes
Mok,C.C., Ko,G.T., Ho,L.Y., Yu,K.L., Chan,P.T., To,C.H., 20110310, Prevalence of atherosclerotic risk factors and the metabolic syndrome in patients with chronic inflammatory	determined prevalence at baseline

Study	Reason for Exclusion
arthritis, <i>Arthritis care &amp; research</i> , 63, 195-202, 2011	
Morgan,C., Lunt,M., Bunn,D., Scott,D.G., Symmons,D.P., 20080111, Five-year outcome of a primary-care-based inception cohort of patients with inflammatory polyarthritis plus psoriasis, <i>Rheumatology</i> <i>Rheumatology (UK)</i> , 46, 1819-1823, 2007	Most of the outcomes reported were not of relevance to the review question. Reporting on individual domains of SF-36 did give some data on emotional and mental health but this was presented as group medians (IQR)
Munoz-Ortego,J., Vestergaard,P., Rubio,J.B., Wordsworth,P., Judge,A., Javaid,M.K., Arden,N.K., Cooper,C., Diez-Perez,A., Prieto-Alhambra,D., Ankylosing spondylitis is associated with an increased risk of vertebral and nonvertebral clinical fractures: a population-based cohort study, <i>Journal of Bone &amp; Mineral Research</i> , 29, 1770-1776, 2014	Study had defined start and end timepoints for follow up. However, outcomes reported as cumulative incidence rates using survival analysis with person years as denominator.
Myllykangas-Luosujarvi,R., Aho,K., Lehtinen,K., Kautiainen,H., Hakala,M., 19980729, Increased incidence of alcohol-related deaths from accidents and violence in subjects with ankylosing spondylitis, <i>British Journal of Rheumatology</i> <i>BR.J.RHEUMATOL.</i> , 37, 688-690, 1998	lack of pre-defined timepoints (used follow up)
Niccoli,L., Nannini,C., Cassara,E., Kaloudi,O., Susini,M., Lenzetti,I., Cantini,F., 20130115, Frequency of iridocyclitis in patients with early psoriatic arthritis: a prospective, follow up study, <i>International Journal of Rheumatic Diseases</i> <i>Int.J.Rheum.Dis.</i> , 15, 414-418, 2012	Patients were scheduled to have follow up assessments at 4-monthly intervals. However, this varied according to clinical need, and findings were reported in terms of mean follow up.
Nossent,J.C., Gran,J.T., 20100302, Epidemiological and clinical characteristics of psoriatic arthritis in northern Norway, <i>Scandinavian Journal of Rheumatology</i> <i>Scand.J.Rheumatol.</i> , 38, 251-255, 2009	lack of pre-defined timepoints (used follow up); outcome not relevant to this question
Nystad,T.W., Furnes,O., Havelin,L.I., Skredderstuen,A.K., Lie,S.A., Fevang,B.T., 20140717, Hip replacement surgery in patients with ankylosing spondylitis, <i>Annals of the Rheumatic Diseases</i> <i>ANN.RHEUM.DIS.</i> , 73, 1194-1197, 2014	lack of pre-defined timepoints (but they did calculate yearly incidence rate)
Ogdie,A., Haynes,K., Troxel,A.B., Love,T.J., Hennessy,S., Choi,H., Gelfand,J.M., 20140211, Risk of mortality in patients with psoriatic arthritis, rheumatoid arthritis and psoriasis: a longitudinal cohort study, <i>Annals of the Rheumatic Diseases</i> <i>ANN.RHEUM.DIS.</i> , 73, 149-153, 2014	Lack of pre-defined time points (used person-years follow up); primary focus of paper was mortality.
Ostensen,M., Husby,G., A prospective clinical study of the effect of pregnancy on rheumatoid arthritis and ankylosing spondylitis, <i>Arthritis and Rheumatism</i> <i>Arthritis Rheum.</i> , 26, 1155-1159, 1983	looking at effect of pregnancy on AS, rather than on complications of AS
Ouedraogo,D.D., Ntsiba,H., Tiendrebeogo,Zabsonre J., Tieno,H., Bokossa,L.I., Kabore,F., Drabo,J., 20141028, Clinical spectrum of rheumatologic diseases in a	Primary study aim to describe the different types of rheumatic diseases and their frequencies in this setting. Percentage of selected comorbidities is reported, but it is unclear if

Study	Reason for Exclusion
department of rheumatology in Ouagadougou (Burkina Faso), Clinical RheumatologyClin.Rheumatol., 33, 385-389, 2014	these are prevalent or incident to the study period.
Packham,J.C., Hall,M.A., Pimm,T.J., 20030220, Long-term follow-up of 246 adults with juvenile idiopathic arthritis: predictive factors for mood and pain, RheumatologyRheumatology (UK), 41, 1444-1449, 2002	Measured prevalence at one time point only
Papagoras,C., Markatseli,T.E., Saougou,I., Alamanos,Y., Zikou,A.K., Voulgari,P.V., Kiortsis,D.N., Drosos,A.A., 20140828, Cardiovascular risk profile in patients with spondyloarthritis, Joint, Bone, Spine: Revue du Rhumatisme, 81, 57-63, 2014	cross sectional, prevalence
Paramarta,J.E., De,Rycke L., Ambarus,C.A., Tak,P.P., Baeten,D., 20131113, Undifferentiated spondyloarthritis vs ankylosing spondylitis and psoriatic arthritis: a real-life prospective cohort study of clinical presentation and response to treatment, RheumatologyRheumatology (UK), 52, 1873-1878, 2013	Study focussed on primary disease characteristics and responses to treatment, rather than condition complications.
Pehlevan,S., Yetkin,D.O., Bahadir,C., Goktay,F., Pehlevan,Y., Kayatas,K., Ince,N., 20140910, Increased prevalence of metabolic syndrome in patients with psoriatic arthritis, Metabolic Syndrome & Related Disorders, 12, 43-48, 2014	Prevalence at single time point
Queiro,R., Sarasqueta,C., Torre,J.C., Tinture,T., Lopez-Lagunas,I., 20021007, Spectrum of psoriatic spondyloarthropathy in a cohort of 100 Spanish patients, Annals of the Rheumatic DiseasesANN.RHEUM.DIS., 61, 857-858, 2002	Retrospective cross sectional design. Percentage of patients with uveitis in preceding 5 years is reported but unclear if this is purely incident cases.
Queiro-Silva,R., Torre-Alonso,J.C., Tinture-Eguren,T., Lopez-Lagunas,I., 20030115, A polyarticular onset predicts erosive and deforming disease in psoriatic arthritis, Annals of the Rheumatic DiseasesANN.RHEUM.DIS., 62, 68-70, 2003	Outcomes are measures of disease severity and progression; none of the outcomes specified in the protocol.
Ralston,S.H., Urquhart,G.D., Brzeski,M., Sturrock,R.D., 19900514, Prevalence of vertebral compression fractures due to osteoporosis in ankylosing spondylitis, BMJ, 300, 563-565, 1990	determined prevalence at baseline
Ramagopalan,S.V., Goldacre,R., Skingsley,A., Conlon,C., Goldacre,M.J., Associations between selected immune-mediated diseases and tuberculosis: Record-linkage studies, BMC medicineBMC Med, 11, -, 2013	TB is not a relevant outcome for this question.
Raychaudhuri,S.K., Chatterjee,S., Nguyen,C., Kaur,M., Jialal,I., Raychaudhuri,S.P., 20101202, Increased prevalence of the metabolic syndrome in patients with psoriatic arthritis, Metabolic Syndrome & Related Disorders, 8, 331-334, 2010	Lack of pre-defined time points; measuring prevalence
Roberts,M.E., Wright,V., Hill,A.G., Mehra,A.C., 19761230, Psoriatic arthritis. Follow-up study,	Varying length of follow up with timing of outcomes unclear

Study	Reason for Exclusion
Annals of the Rheumatic Diseases ANN.RHEUM.DIS., 35, 206-212, 1976	
Robertson,L.P., Davis,M.J., 20050203, A longitudinal study of disease activity and functional status in a hospital cohort of patients with ankylosing spondylitis, Rheumatology (UK), 43, 1565-1568, 2004	Iritis was measured at baseline and evaluated as a predictive marker for change in BASFI/BASDAI scores over time. It was not monitored longitudinally however.
Robinson,Y., Sanden,B., Olerud,C., 20130214, Increased occurrence of spinal fractures related to ankylosing spondylitis: a prospective 22-year cohort study in 17,764 patients from a national registry in Sweden, Patient Safety in Surgery [Electronic Resource], 7, 2-, 2013	Serial cross sectional study
Rodrigues,C.E., Vieira,W.P., Bortoluzzo,A.B., Goncalves,C.R., da Silva,J.A., Ximenes,A.C., Bertolo,M.B., Ribeiro,S.L., Keiserman,M., Menin,R., Skare,T.L., Carneiro,S., Azevedo,V.F., Albuquerque,E.N., Bianchi,W.A., Bonfiglioli,R., Campanholo,C., Carvalho,H.M., Costa,I.P., Duarte,A.P., Kohem,C.L., Leite,N.H., Lima,S.A., Meirelles,E.S., Pereira,I.A., Pinheiro,M.M., Polito,E., Resende,G.G., Rocha,F.A., Santiago,M.B., Sauma,Mde F., Valim,V., Sampaio-Barros,P.D., 20121009, Low prevalence of renal, cardiac, pulmonary, and neurological extra-articular clinical manifestations in spondyloarthritis: analysis of the Brazilian Registry of Spondyloarthritis, Revista Brasileira de Reumatologia Rev.Bras.Reumatol., 52, 375-383, 2012	cross sectional, prevalence
Rohekar,S., Tom,B.D., Hassa,A., Schentag,C.T., Farewell,V.T., Gladman,D.D., 20080310, Prevalence of malignancy in psoriatic arthritis, Arthritis & Rheumatism, 58, 82-87, 2008	reported outcome outside scope of question
Roifman,I., Beck,P.L., Anderson,T.J., Eisenberg,M.J., Genest,J., 20110607, Chronic inflammatory diseases and cardiovascular risk: a systematic review. [Review], Canadian Journal of Cardiology Can.J.Cardiol., 27, 174-182, 2011	Systematic review
Roldan,C.A., Chavez,J., Wiest,P.W., Qualls,C.R., Crawford,M.H., 19981120, Aortic root disease and valve disease associated with ankylosing spondylitis, Journal of the American College of Cardiology J.Am.Coll.Cardiol., 32, 1397-1404, 1998	Variable length of follow up
Rudwaleit,M., 20130916, The impact of cohort studies in spondyloarthritis, Joint, Bone, Spine: Revue du Rhumatisme, 80, 127-129, 2013	Editorial
Sampaio-Barros,P.D., Bortoluzzo,A.B., Conde,R.A., Costallat,L.T., Samara,A.M., Bertolo,M.B., 20100708, Undifferentiated spondyloarthritis: a longterm followup, Journal of Rheumatology J.RHEUMATOL., 37, 1195-1199, 2010	Outcomes relate to general aspects of primary disease severity and progression, rather than outcomes specified in the review protocol

Study	Reason for Exclusion
Sampaio-Barros,P.D., Cerqueira,E.M., Rezende,S.M., Maeda,L., Conde,R.A., Zanardi,V.A., Bertolo,M.B., de Menezes Neto,J.R., Samara,A.M., 20070327, Pulmonary involvement in ankylosing spondylitis, Clinical RheumatologyClin.Rheumatol., 26, 225-230, 2007	prevalence at baseline
Sampaio-Barros,P.D., Pereira,I.A., Hernandez-Cuevas,C., Berman,A., Burgos-Vargas,R., Gutierrez,M.A., Barcelos,A., Chavez-Corrales,J.E., Moreno,M., Palleiro,D.R., Saenz-Castro,R., Stekman,I., Azevedo,V.F., Braga-da-Silva,J.A., Citera,G., Flores-Alvarado,D., Goncalves,C.R., Graf,C., Nitsche,A., Saavedra,J., Ximenes,A.C., Vazquez-Mellado,J., Collantes-Estevez,E., Respondia Group, 20131029, An analysis of 372 patients with anterior uveitis in a large Ibero-American cohort of spondyloarthritis: the RESPONDIA Group, Clinical & Experimental Rheumatology, 31, 484-489, 2013	prevalence at baseline (cross sectional sampling of prevalence)
Semb,A.G., Kvien,T.K., DeMicco,D.A., Fayyad,R., Wun,C.C., LaRosa,J., Betteridge,J., Pedersen,T.R., Holme,I., 20121126, Prediction of cardiovascular events in patients with ankylosing spondylitis and psoriatic arthritis: role of lipoproteins in a high-risk population, Journal of RheumatologyJ.RHEUMATOL., 39, 1433-1440, 2012	Used follow up for survival analysis; at follow up, mean group values presented rather than incidence/prevalence measure
Shen,C.-C., Yao,T.-C., Yeh,K.-W., Huang,J.-L., Association of disease activity and anti-rheumatic treatment in juvenile idiopathic arthritis with serum lipid profiles: A prospective study, Seminars in Arthritis and RheumatismSemin.Arthritis Rheum., 42, 590-596, 2013	At follow up, cohort was a mixture of those aged under and over 16, without separate outcome reporting per age group
Spangler,R.D., McCallister,B.D., McGoon,D.C., 19701023, Aortic valve replacement in patients with severe aortic valve incompetence associated with rheumatoid spondylitis, American Journal of CardiologyAm.J.Cardiol., 26, 130-134, 1970	5 cases of people with aortic valve insufficiency. Study examined outcomes of surgery, with variable length of follow up.
Strombeck,B., Jacobsson,L.T.H., Bremander,A., Englund,M., Heide,A., Turkiewicz,A., Petersson,I.F., Patients with ankylosing spondylitis have increased sick leave - A registry-based case - Control study over 7 yrs, RheumatologyRheumatology (UK), 48, 289-292, 2009	lack of pre-defined timepoints (used follow up); outcome did not quantify causes/comorbidities
Sukenic,S., Pras,A., Buskila,D., Katz,A., Snir,Y., Horowitz,J., 19880616, Cardiovascular manifestations of ankylosing spondylitis, Clinical RheumatologyClin.Rheumatol., 6, 588-592, 1987	lack of pre-defined timepoints (retrospective study looking at prevalence)
Sun,L.-M., Muo,C.-H., Liang,J.-A., Chang,S.-N., Sung,F.-C., Kao,C.-H., Increased risk of cancer for patients with ankylosing spondylitis: A nationwide population-based retrospective	lack of pre-defined timepoints (used follow up); cancer not a specified outcome for this question

Study	Reason for Exclusion
cohort study, Scandinavian Journal of Rheumatology Scand.J.Rheumatol., 43, 301-306, 2014	
Sundquist,K., Li,X., Hemminki,K., Sundquist,J., 20080609, Subsequent risk of hospitalization for neuropsychiatric disorders in patients with rheumatic diseases: a nationwide study from Sweden, Archives of General Psychiatry Arch.Gen.Psychiatry, 65, 501-507, 2008	Main analysis used person years to calculate incidence rates. For some analyses this was stratified by years of follow up, which could be considered a defined time point. However, all analyses are either specified neuropsychiatric disorders in all patients combined, (AS, SLE, and RA) or all neuropsychiatric disorders in specific rheumatic diseases. It is therefore not possible to calculate the incidence rate of depression alone in AS patients.
Szabo,S.M., Levy,A.R., Rao,S.R., Kirbach,S.E., Lacaille,D., Cifaldi,M., Maksymowych,W.P., 20130125, Increased risk of cardiovascular and cerebrovascular diseases in individuals with ankylosing spondylitis: a population-based study, Arthritis & Rheumatism, 63, 3294-3304, 2011	effectively a serial cross sectional study
Tian,Y., Li,J.-X., Li,Y.-X., Wang,H.-H., Liu,X.-G., Clinical characteristics of ulcerative colitis with ankylosing spondylitis vs sacroiliitis with ulcerative colitis, World Chinese Journal of Digestology World Chin.J.Dig., 21, 1355-1359, 2013	Not English Language
Ulu,M.A., Batmaz,I., Dilek,B., Cevik,R., Prevalence of osteoporosis and vertebral fractures and related factors in patients with ankylosing spondylitis, Chinese Medical Journal Chin.Med.J., 127, 2740-2747, 2014	determined prevalence at baseline
Uotila,T.M., Anttonen,J.A., Paakkala,A.S., Mustonen,J.T., Korpela,M.M., Pirkanmaa Waterborne Outbreak Study Group, 20140318, Outcome of reactive arthritis after an extensive Finnish waterborne gastroenteritis outbreak: a 1-year prospective follow-up study, Clinical Rheumatology Clin.Rheumatol., 32, 1139-1145, 2013	Outcomes relate only to joint pain and composite measures in progression of ReA; none of the outcomes specified in our review protocol were analysed at follow up .
Ursum,J., Nielen,M.M., Twisk,J.W., Peters,M.J., Schellevis,F.G., Nurmohamed,M.T., Korevaar,J.C., 20140709, Increased risk for chronic comorbid disorders in patients with inflammatory arthritis: a population based study, BMC Family Practice, 14, 199-, 2013	Lack of pre-defined timepoints (used follow up)
van Bommel,J.M., Delgado,V., Holman,E.R., Allaart,C.F., Huizinga,T.W., Bax,J.J., van der Helm-van Mil AH, 20090622, No increased risk of valvular heart disease in adult poststreptococcal reactive arthritis, Arthritis & Rheumatism, 60, 987-993, 2009	lack of pre-defined timepoints (used follow up)
Van Der Burg,L.R.A., Van Amelsvoort,L.G.P.M., Boonen,A., Jansen,N., Kant,I., Landewe,R.B.M., Cardiovascular morbidity and mortality among working individuals with rheumatic disease: Results from a Large Prospective Cohort Study, Journal of Clinical Rheumatology.21 (7) (pp 359-	Mixed population of people with rheumatic conditions; no separate results were available for people with spondyloarthritis

Study	Reason for Exclusion
363), 2015.Date of Publication: 01 Oct 2015., 359-363, 2015	
Vosse,D., Landewe,R., van der Heijde,D., van der Linden,S., van Staa,T.P., Geusens,P., 20091231, Ankylosing spondylitis and the risk of fracture: results from a large primary care-based nested case-control study, Annals of the Rheumatic DiseasesANN.RHEUM.DIS., 68, 1839-1842, 2009	cohort of fracture cases, with prevalence of AS identified therein
Weber,P., Brune,T., Ganser,G., Zimmer,K.P., 20040309, Gastrointestinal symptoms and permeability in patients with juvenile idiopathic arthritis, Clinical & Experimental Rheumatology, 21, 657-662, 2003	Assessed patients at a single time point only
Weinstein,P.R., Karpman,R.R., Gall,E.P., Pitt,M., 19821218, Spinal cord injury, spinal fracture, and spinal stenosis in ankylosing spondylitis, Journal of NeurosurgeryJ.NEUROSURG., 57, 609-616, 1982	lack of pre-defined timepoints (used follow up)
Weiss,R.J., Wick,M.C., Ackermann,P.W., Montgomery,S.M., 20110211, Increased fracture risk in patients with rheumatic disorders and other inflammatory diseases -- a case-control study with 53,108 patients with fracture, Journal of RheumatologyJ.RHEUMATOL., 37, 2247-2250, 2010	lack of pre-defined timepoints (main analysis was retrospective analysis of fracture cohort, with study start and end relating to fracture incidence rather than follow up of SpA patients).
Wolson,A.H., Rohwedder,J.J., 19751106, Upper lobe fibrosis in ankylosing spondylitis, American Journal of Roentgenology, Radium Therapy & Nuclear Medicine, 124, 466-471, 1975	Retrospective case review with variable length of follow up
Wong,K., Gladman,D.D., Husted,J., Long,J.A., Farewell,V.T., 19971105, Mortality studies in psoriatic arthritis: results from a single outpatient clinic. I. Causes and risk of death, Arthritis & Rheumatism, 40, 1868-1872, 1997	Primary study aim was to examine mortality. Though cause of death was reported, non-fatal incidences of these causes were not.
Wright,V., Roberts,M.C., Hill,A.G., 19790725, Dermatological manifestations in psoriatic arthritis: a follow-up study, Acta Dermato-VenereologicaActa Derm.-Venereol., 59, 235-240, 1979	lack of pre-defined timepoints (used follow up)
Zoller,B., Li,X., Sundquist,J., Sundquist,K., 20130131, Risk of subsequent ischemic and hemorrhagic stroke in patients hospitalized for immune-mediated diseases: a nationwide follow-up study from Sweden, BMC NeurologyBMC Neurol., 12, 41-, 2012	Outcomes stratified the reporting by length of follow up.

## F.5.7 Complications of treatments for spondyloarthritis

### Review Question 33

- What are the complications associated with treatments for spondyloarthritis?

Study	Reason for Exclusion
20071029, Infliximab: new indication. Psoriatic arthritis: just another intravenous me-too drug, <i>Prescrire International</i> , 16, 188-, 2007	Narrative review
Abu-Shakra,M.,Gladman,D.D.,Thorne,J.C.,Long,J.Gough,J.,Farewell,V.T., Longterm methotrexate therapy in psoriatic arthritis: clinical and radiological outcome. <i>J Rheum</i> , 22,241-245, 1995	Case control
Aikawa,N.E., Twardowsky,Ade O., Carvalho,J.F., Silva,C.A., Silva,I.L., Ribeiro,A.C., Saad,C.G., Moraes,J.C., Toledo,R.A., Bonfa,E., 20120514, Intestinal microsporidiosis: a hidden risk in rheumatic disease patients undergoing anti-tumor necrosis factor therapy combined with disease-modifying anti-rheumatic drugs?, <i>Clinics (Sao Paulo, Brazil)</i> , 66, 1171-1175, 2011	No relevant outcomes
Alivernini,S., Mazzotta,D., Zoli,A., Ferraccioli,G., 20090811, Leflunomide treatment in elderly patients with rheumatoid or psoriatic arthritis: retrospective analysis of safety and adherence to treatment, <i>Drugs &amp; Aging</i> , 26, 395-402, 2009	Not relevant population (mostly RA)
Amital,H., Arnson,Y., Chodick,G., Shalev,V., 20091009, Hepatotoxicity rates do not differ in patients with rheumatoid arthritis and psoriasis treated with methotrexate, <i>RheumatologyRheumatology (UK)</i> , 48, 1107-1110, 2009	Database review
Angel,K., Provan,S.A., Fagerhol,M.K., Mowinckel,P., Kvien,T.K., Atar,D., 20121023, Effect of 1-year anti-TNF-alpha therapy on aortic stiffness, carotid atherosclerosis, and calprotectin in inflammatory arthropathies: a controlled study, <i>American Journal of HypertensionAm.J.Hypertens.</i> , 25, 644-650, 2012	No relevant outcomes
Arends,S.,Spoorenberg,A.,Houtman,P.M.,Leijnsma,M.K.,Bos,R.,Kallenberg,C.G .M.,Groen,H.,Brouwer,E.,van,der,V, The effect of three years of TNF alpha blocking therapt on markers on bone turnover and their predictive value for treatment discontinuation in patients with ankylosing spondylitis: a prospective longitudinal observational cohort study, <i>Arthritis Research and Therapy.</i> , 14, 2012	Outomes not reported per treatment, only reported reasons for discontinuation
Atteno,M., Peluso,R., Costa,L., Padula,S., Iervolino,S., Caso,F., Sanduzzi,A., Lubrano,E., Del,Puente A., Scarpa,R., 20100527, Comparison of effectiveness and safety of infliximab, etanercept, and adalimumab in psoriatic arthritis patients who experienced an inadequate response to previous disease-modifying antirheumatic drugs, <i>Clinical RheumatologyClin.Rheumatol.</i> , 29, 399-403, 2010	few data about complications
Baerwald,C.H., Willeke,A., Lies,S., Goebel,K.-M., Engel,H.J., Efficacy and tolerance of oral hydrolytic enzymes in ankylosing spondylitis as compared with indomethacin: A controlled double-blind prospective clinical trial, <i>Journal of Clinical ResearchJ.Clin.Res.</i> , 2, 17-34, 1999	RCT, short follow-up
Baethge,B.A., Lidsky,M.D., Goldberg,J.W., A study of adverse effects of high-dose intravenous (pulse) methylprednisolone therapy in patients with rheumatic disease, <i>Annals of PharmacotherapyANN.PHARMACOTHER.</i> , 26, 316-320, 1992	Not relevant population
Baraliakos,X., Listing,J., Fritz,C., Haibel,H., Alten,R., Burmester,G.R., Krause,A., Schewe,S., Schneider,M., Sorensen,H., Schmidt,R., Sieper,J., Braun,J., 20111017, Persistent clinical efficacy and safety of infliximab in ankylosing spondylitis after 8 years--early clinical response predicts long-term outcome, <i>RheumatologyRheumatology (UK)</i> , 50, 1690-1699, 2011	Study does not report on complications of treatment for 5-8 years period
Batlle-Gualda,E., Figueroa,M., Ivorra,J., Raber,A., 19961218, The efficacy and tolerability of aceclofenac in the treatment of patients with ankylosing spondylitis: a multicenter controlled clinical trial. Aceclofenac Indomethacin Study Group, <i>Journal of RheumatologyJ.RHEUMATOL.</i> , 23, 1200-1206, 1996	Short follow-up

Study	Reason for Exclusion
Behrens,F., Finkenwirth,C., Pavelka,K., Stofa,J., Sipek-Dolnicar,A., Thaci,D., Burkhardt,H., 20130417, Leflunomide in psoriatic arthritis: results from a large European prospective observational study, <i>Arthritis care &amp; research</i> , 65, 464-470, 2013	Short follow-up (24 weeks)
Berthelot,J.M., Benoist-Gerard,S., Le,Goff B., Muller-Chevalet,F., Maugars,Y., 20110407, Outcome and safety of TNFalpha antagonist therapy in 475 consecutive outpatients (with rheumatoid arthritis or spondyloarthropathies) treated by a single physician according to their eligibility for clinical trials, <i>Joint, Bone, Spine: Revue du Rhumatisme</i> , 77, 564-569, 2010	Retrospective review
Besada,E., Koldingsnes,W., Nossent,J., Characteristics of late onset neutropenia in rheumatologic patients treated with rituximab: A case review analysis from a single center, <i>Qjm</i> , 105, 545-550, 2012	Retrospective case review, median treatment time reported.
Bharat,A., Xie,F., Baddley,J.W., Beukelman,T., Chen,L., Calabrese,L., Delzell,E., Grijalva,C.G., Patkar,N.M., Saag,K., Winthrop,K.L., Curtis,J.R., 20120702, Incidence and risk factors for progressive multifocal leukoencephalopathy among patients with selected rheumatic diseases, <i>Arthritis care &amp; research</i> , 64, 612-615, 2012	Incidence in people with disease, not in people with disease taking medication
Bodur,H., Ataman,S., Bugdayci,D.S., Rezvani,A., Nas,K., Uzunca,K., Emlakcioglu,E., Karatepe,A.G., Durmus,B., Sezgin,M., Ayhan,F., Yazgan,P., Duruoç,T., Yener,M., Gurgan,A., Kirnap,M., Cakar,E., Altan,L., Soydemir,R., Capkin,E., Tekeoglu,I., Aydin,G., Gunendi,Z., Nacir,B., Salli,A., Ozturk,C., Memis,A., Turan,Y., Kozanoglu,E., Sivrioglu,K., <i>Turkiye Romatizma Arastirma ve Savas Dernegi [TRASD]</i> , 20120702, Description of the registry of patients with ankylosing spondylitis in Turkey: TRASD-IP, <i>Rheumatology InternationalRheumatol.Int.</i> , 32, 169-176, 2012	Cross-sectional, prevalence
Boeger,C.A., Wittwer,H., Schattenkirchner,M., Kellner,H., Kellner,W., 20011228, Treatment of ankylosing spondylitis with infliximab, <i>Annals of the Rheumatic DiseasesANN.RHEUM.DIS.</i> , 60, 1159-1160, 2001	Case report
Bonafede,M., Johnson,B.H., Fox,K.M., Watson,C., Gandra,S.R., 20131119, Treatment patterns with etanercept and adalimumab for psoriatic diseases in a real-world setting, <i>Journal of Dermatological TreatmentJ.Dermatol.Treat.</i> , 24, 369-373, 2013	No relevant outcomes
Bostoen,J., Van,Praet L., Brochez,L., Mielants,H., Lambert,J., A cross-sectional study on the prevalence of metabolic syndrome in psoriasis compared to psoriatic arthritis, <i>Journal of the European Academy of Dermatology &amp; Venereology</i> , 28, 507-511, 2014	Prevalence at baseline
Bonthavong,M., Madkour,N., Kazerooni,R., Retrospective cohort study of anti-tumor necrosis factor agent use in a Veteran Population, <i>PeerJ</i> , 2014, -, 2014	Not relevant population
Brandt,J., Listing,J., Haibel,H., Sorensen,H., Schwebig,A., Rudwaleit,M., Sieper,J., Braun,J., 20050412, Long-term efficacy and safety of etanercept after readministration in patients with active ankylosing spondylitis.[Erratum appears in <i>Rheumatology (Oxford)</i> . 2005 Apr;44(4):569], <i>RheumatologyRheumatology (UK)</i> , 44, 342-348, 2005	Short follow-up (54 weeks)
Braun,J., Baraliakos,X., Brandt,J., Listing,J., Zink,A., Alten,R., Burmester,G., Gromnica-Ihle,E., Kellner,H., Schneider,M., Sorensen,H., Zeidler,H., Sieper,J., 20050707, Persistent clinical response to the anti-TNF-alpha antibody infliximab in patients with ankylosing spondylitis over 3 years, <i>RheumatologyRheumatology (UK)</i> , 44, 670-676, 2005	Data extracted in Braun 2005 (same study, different follow-up)
Brebant,M., Vignon,E., Claudepierre,P., Devauchelle,V., Wendling,D., Lespessailles,E., Euller-Ziegler,L., Sibilia,J., Perdriger,A., Mezieres,M., Alexandre,C., Dougados,M., 20021213, Efficacy of infliximab in refractory	Short follow-up (24 weeks)

Study	Reason for Exclusion
ankylosing spondylitis: results of a six-month open-label study, <i>Rheumatology</i> (UK), 41, 1280-1285, 2002	
Brocq,O., Roux,C.H., Albert,C., Breuil,V., Aknouche,N., Ruitord,S., Mousnier,A., Euller-Ziegler,L., 20070614, TNFalpha antagonist continuation rates in 442 patients with inflammatory joint disease, <i>Joint, Bone, Spine: Revue du Rhumatisme</i> , 74, 148-154, 2007	Not relevant population, retrospective
Brodszky,V., Pentek,M., Gulacsi,L., 20081014, Efficacy of adalimumab, etanercept, and infliximab in psoriatic arthritis based on ACR50 response after 24 weeks of treatment, <i>Scandinavian Journal of Rheumatology</i> <i>Scand.J.Rheumatol.</i> , 37, 399-400, 2008	Pooled analysis of RCTs
Bulgen,D.Y., Hazleman,B.L., 19760110, Alclofenac in ankylosing spondylitis, <i>Current Medical Research &amp; Opinion</i> , 3, 321-328, 1975	No relevant outcomes listed in protocol.
Burgos-Vargas,R., Vazquez-Mellado,J., Pacheco-Tena,C., Hernandez-Garduno,A., Goycochea-Robles,M.V., 20021025, A 26 week randomised, double blind, placebo controlled exploratory study of sulfasalazine in juvenile onset spondyloarthropathies, <i>Annals of the Rheumatic Diseases</i> <i>ANN.RHEUM.DIS.</i> , 61, 941-942, 2002	Complications not described
Busquets,N., Tomero,E., Descalzo,M.A., Ponce,A., Ortiz-Santamaria,V., Suris,X., Carmona,L., Gomez-Reino,J.J., Study Group, 20111215, Age at treatment predicts reason for discontinuation of TNF antagonists: data from the BIOBADASER 2.0 registry, <i>Rheumatology</i> <i>Rheumatology (UK)</i> , 50, 1999-2004, 2011	Does not report actual AEs
Calasan,M.B., van den Bosch,O.F., Creemers,M.C., Custers,M., Heurkens,A.H., van Woerkom,J.M., Wulfraat,N.M., 20141104, Prevalence of methotrexate intolerance in rheumatoid arthritis and psoriatic arthritis, <i>Arthritis Research &amp; Therapy</i> , 15, R217-, 2013	Not relevant population
Calin,A., Britton,M., 19791129, Sulindac in ankylosing spondylitis. Double-blind evaluation of sulindac and indomethacin, <i>JAMA</i> , 242, 1885-1886, 1979	Not relevant outcomes
Cantini,F., Niccoli,L., Cassara,E., Kaloudi,O., Nannini,C., 20121002, Sustained maintenance of clinical remission after adalimumab dose reduction in patients with early psoriatic arthritis: a long-term follow-up study, <i>Biologics</i> , 6, 201-206, 2012	Case - control study, mean time to remission.
Cepeda,E.J., Williams,F.M., Ishimori,M.L., Weisman,M.H., Reveille,J.D., 20081114, The use of anti-tumour necrosis factor therapy in HIV-positive individuals with rheumatic disease, <i>Annals of the Rheumatic Diseases</i> <i>ANN.RHEUM.DIS.</i> , 67, 710-712, 2008	No relevant outcomes
Chen,H.H., Yeh,S.Y., Chen,H.Y., Lin,C.L., Sung,F.C., Kao,C.H., 20140929, Ankylosing spondylitis and other inflammatory spondyloarthritis increase the risk of developing type 2 diabetes in an Asian population, <i>Rheumatology International</i> <i>Rheumatol.Int.</i> , 34, 265-270, 2014	Not drug treatment
Chen,Y.J., Chang,Y.T., Shen,J.L., Chen,T.T., Wang,C.B., Chen,C.M., Wu,C.Y., 20120813, Association between systemic antipsoriatic drugs and cardiovascular risk in patients with psoriasis with or without psoriatic arthritis: a nationwide cohort study, <i>Arthritis &amp; Rheumatism</i> , 64, 1879-1887, 2012	No relevant outcomes.
Chen,Y.-J., Wu,C.-Y., Shen,J.-L., Chen,T.-T., Chang,Y.-T., Association between traditional systemic antipsoriatic drugs and tuberculosis risk in patients with psoriasis with or without psoriatic arthritis: Results of a nationwide cohort study from Taiwan, <i>Journal of the American Academy of Dermatology</i> <i>J.Am.Acad.Dermatol.</i> , 69, 25-33, 2013	No defined period of follow up.
Chierigato,G.C., Leoni,A., 19861202, Treatment of psoriatic arthropathy with etretinate: a two-year follow-up, <i>Acta Dermato-Venereologica</i> <i>Acta Derm.-Venereol.</i> , 66, 321-324, 1986	Not relevant intervention.
Coates,L.C., Cawkwell,L.S., Ng,N.W., Bennett,A.N., Bryer,D.J., Fraser,A.D., Emery,P., Marzo-Ortega,H., 20081114, Sustained response to long-term	No defined follow up time, no

Study	Reason for Exclusion
biologics and switching in psoriatic arthritis: results from real life experience, <i>Annals of the Rheumatic Diseases</i> ANN.RHEUM.DIS., 67, 717-719, 2008	relevant outcomes.
Coelho Andrade,L.E., Atra,E., Bosi,Ferraz M., 19900302, Sulphasalazine and ankylosing spondylitis: an open pilot study, <i>Clinical &amp; Experimental Rheumatology</i> , 7, 661-662, 1989	short follow-up
Collantes-Estevez,E., Munoz-Villanueva,M.C., Canete-Crespillo,J.D., Sanmarti-Sala,R., Gratacos-Masmitja,J., Zarco-Montejo,P., Torre-Alonso,J.C., Gonzalez-Fernandez,C., 20040126, Infliximab in refractory spondyloarthropathies: a multicentre 38 week open study, <i>Annals of the Rheumatic Diseases</i> ANN.RHEUM.DIS., 62, 1239-1240, 2003	Short follow-up (less than 52 weeks)
Colombo,D., Chimenti,S., Grossi,P., Marchesoni,A., Di,Nuzzo S., Griseta,V., Gargiulo,A., Parodi,A., Simoni,L., Bellia,G., Prevalence of past and reactivated viral infections and efficacy of cyclosporine A as monotherapy or in combination in patients with psoriatic arthritis--synergy study: a longitudinal observational study, <i>BioMed Research International</i> BioMed Res.Int., 2014, 941767-, 2014	Short follow-up (less than 52 weeks)
Cranney,A.B., McKendry,R.J., Wells,G.A., Ooi,D.S., Kanigsberg,N.D., Kraag,G.R., Smith,C.D., 20020404, The effect of low dose methotrexate on bone density, <i>Journal of Rheumatology</i> J.RHEUMATOL., 28, 2395-2399, 2001	No relevant outcomes.
Curtis,J.R., Beukelman,T., Onofrei,A., Cassell,S., Greenberg,J.D., Kavanaugh,A., Reed,G., Strand,V., Kremer,J.M., 20100201, Elevated liver enzyme tests among patients with rheumatoid arthritis or psoriatic arthritis treated with methotrexate and/or leflunomide, <i>Annals of the Rheumatic Diseases</i> ANN.RHEUM.DIS., 69, 43-47, 2010	Follow up duration not pre specified, all participants had different follow up periods.
Dalkilic,E., Sahbazlar,M., Gullulu,M., Yavuz,M., Dilek,K., Ersoy,A., Ozkaya,G., Yurtkuran,M., 20131219, The time course of gastric methotrexate intolerance in patients with rheumatoid arthritis and psoriatic arthritis, <i>Modern Rheumatology</i> Mod.Rheumatol., 23, 525-528, 2013	Not relevant population (mostly RA)
Darmawan,J., Nasution,A.R., Chen,S.L., Haq,S.A., Zhao,D., Zeng,Q., Davatchi,F., 20070301, Excellent endpoints from step-down bridge combination therapy of 5 immunosuppressants in NSAID-refractory ankylosing spondylitis: 6 year international study in Asia - WHO-ILAR COPCORD stage II treatment of the autoimmune diseases, <i>Journal of Rheumatology</i> J.RHEUMATOL., 33, 2484-2492, 2006	Not relevant intervention
De,Keyser F., Mielants,H., Praet,J., Goemaere,S., Veys,E.M., 19930713, Changes in antinuclear serology in patients with spondylarthropathy under sulphasalazine treatment, <i>British Journal of Rheumatology</i> BR.J.RHEUMATOL., 32, 521-, 1993	Not relevant outcomes.
de,Vlam K., Lories,R.J., 20060504, Efficacy, effectiveness and safety of etanercept in monotherapy for refractory psoriatic arthritis: a 26-week observational study, <i>Rheumatology</i> Rheumatology (UK), 45, 321-324, 2006	Short follow-up (26 weeks)
Dequeker,J., Gevers,G., 19870731, An open study on the efficacy and safety of auranofin in treating psoriatic arthritis, <i>Scandinavian Journal of Rheumatology - Supplement</i> , 63, 85-95, 1986	oral gold treatment
Dequeker,J., Verdickt,W., Gevers,G., Vanschoubroek,K., 19841001, Longterm experience with oral gold in rheumatoid arthritis and psoriatic arthritis, <i>Clinical Rheumatology</i> Clin.Rheumatol., 3, Suppl-74, 1984	oral gold therapy
Di,Franco M., Paradiso,M., Ceccarelli,F., Scrivo,R., Spinelli,F.R., Iannucelli,C., Valesini,G., 20120501, Biological drug treatment of rheumatoid arthritis and spondyloarthritis: effects on QT interval and QT dispersion, <i>Journal of Rheumatology</i> J.RHEUMATOL., 39, 41-45, 2012	No relevant outcomes.
Dougados,M., Maetzel,A., Mijiyawa,M., Amor,B., 19921029, Evaluation of sulphasalazine in the treatment of spondyloarthropathies, <i>Annals of the Rheumatic Diseases</i> ANN.RHEUM.DIS., 51, 955-958, 1992	No defined follow up time

Study	Reason for Exclusion
Dreyer,L., Mellemkjaer,L., Andersen,A.R., Bennett,P., Poulsen,U.E., Ellingsen,T.J., Hansen,T.H., Jensen,D.V., Linde,L., Lindegaard,H.M., Loft,A.G.R., Nordin,H., Omerovic,E., Rasmussen,C., Schlemmer,A., Tarp,U., Hetland,M.L., Incidences of overall and site specific cancers in TNFalpha inhibitor treated patients with rheumatoid arthritis and other arthritides - A follow-up study from the DANBIO Registry, <i>Annals of the Rheumatic Diseases</i> ANN.RHEUM.DIS., 72, 79-82, 2013	Not relevant population (mostly RA)
Ducharme,J., Pelletier,C., Zacharias,R., The safety of infliximab infusions in the community setting, <i>Canadian Journal of Gastroenterology</i> Can.J.Gastroenterol., 24, 307-311, 2010	Retrospective chart review
Duftner,C., Dejaco,C., Larcher,H., Schirmer,M., Herold,M., 20090424, Biologicals in rheumatology: Austrian experiences from a rheumatic outpatient clinic.[Erratum appears in <i>Rheumatol Int.</i> 2008 Nov;29(1):75], <i>Rheumatology International</i> Rheumatol.Int., 29, 69-73, 2008	Retrospective chart review
Esposito,M., Giunta,A., Mazzotta,A., Zangrilli,A., Babino,G., Bavetta,M., Perricone,R., Chimenti,S., Chimenti,M.S., 20130917, Efficacy and safety of subcutaneous anti-tumor necrosis factor-alpha agents, etanercept and adalimumab, in elderly patients affected by psoriasis and psoriatic arthritis: an observational long-term study, <i>Dermatology</i> , 225, 312-319, 2012	Does not report outcomes that can be extracted.
Feletar,M., Brockbank,J.E., Schentag,C.T., Lapp,V., Gladman,D.D., 20040224, Treatment of refractory psoriatic arthritis with infliximab: a 12 month observational study of 16 patients, <i>Annals of the Rheumatic Diseases</i> ANN.RHEUM.DIS., 63, 156-161, 2004	Short follow-up (54 weeks)
Fiehn,C., Miehle,N., How dangerous are norovirus infections in patients with rheumatic diseases treated with biologics and DMARDs? Follow-up on a local outbreak and comparison with a control cohort, <i>Annals of the Rheumatic Diseases</i> ANN.RHEUM.DIS., 73, 786-787, 2014	No relevant outcomes.
Freeston,J., Barkham,N., Hensor,E., Emery,P., Fraser,A., Ankylosing spondylitis, HLA-B27 positivity and the need for biologic therapies, <i>Joint, Bone, Spine: Revue du Rhumatisme</i> , 74, 140-143, 2007	Prevalence study
Fuchs,I., Avnon,L., Freud,T., Abu-Shakra,M., 20090408, Repeated tuberculin skin testing following therapy with TNF-alpha inhibitors, <i>Clinical Rheumatology</i> Clin.Rheumatol., 28, 167-172, 2009	No defined follow up points.
Garcia-Vidal,C., Rodriguez-Fernandez,S., Teijon,S., Esteve,M., Rodriguez-Carballeira,M., Lacasa,J.M., Salvador,G., Garau,J., Risk factors for opportunistic infections in infliximab-treated patients: The importance of screening in prevention, <i>European Journal of Clinical Microbiology and Infectious Diseases</i> Eur.J.Clin.Microbiol.Infect.Dis., 28, 331-337, 2009	Not relevant population.
Germano,V., Cattaruzza,M.S., Osborn,J., Tarantino,A., Di,Rosa R., Salemi,S., D'Amelio,R., 20140905, Infection risk in rheumatoid arthritis and spondyloarthritis patients under treatment with DMARDs, corticosteroids and TNF-alpha antagonists, <i>Journal of Translational Medicine</i> J.Transl.Med., 12, 77-, 2014	RA and SpA analysed as a single group
Getov,I., Dimitrova,Z., Petkova,V., 20001208, Low dose treatment with methotrexate-adverse drug reactions survey, <i>Bollettino Chimico Farmaceutico</i> Boll.Chim.Farm., 139, 153-158, 2000	Mixed mostly not relevant population
Glasnovic,M., Bosnjak,I., Sram,M., Vranjes,Z., Vcev,A., Dobrosevic,B., Petricevic,J.S., Horvatic,E., Orkic,Z., Tadzic,R., Soldo,A., Sisljagic,D., Dinjar,K., 20110825, Clinical characteristics of patients with spondyloarthritis and HLA-B27 positive antigen, <i>Collegium Antropologicum</i> , 35, 397-402, 2011	Measured prevalence at baseline only
Glintborg,B., Ostergaard,M., Dreyer,L., Krogh,N.S., Tarp,U., Hansen,M.S., Rifbjerg-Madsen,S., Lorenzen,T., Hetland,M.L., 20110308, Treatment response, drug survival, and predictors thereof in 764 patients with psoriatic arthritis treated with anti-tumor necrosis factor alpha therapy: results from the	Not relevant outcomes reported

Study	Reason for Exclusion
nationwide Danish DANBIO registry, <i>Arthritis &amp; Rheumatism</i> , 63, 382-390, 2011	
Gomez-Vaquero,C., Rodriguez-Moreno,J., Ros,S., Marcos,R., Fiter,J., Roig-Escofet,D., 19960813, Termination of disease-modifying drugs in psoriatic arthritis: study of 109 courses of treatment, <i>British Journal of Rheumatology</i> BR.J.RHEUMATOL., 35, 564-567, 1996	Reasons for termination of treatment, not all complications
Gran,J.T., Husby,G., 19850306, Ankylosing spondylitis: a comparative study of patients in an epidemiological survey, and those admitted to a department of rheumatology, <i>Journal of Rheumatology</i> J.RHEUMATOL., 11, 788-793, 1984	No relevant outcomes
Gratacos,J., Collado,A., Pons,F., Osaba,M., Sanmarti,R., Roque,M., Larrosa,M., Munoz-Gomez,J., 19991122, Significant loss of bone mass in patients with early, active ankylosing spondylitis: a followup study, <i>Arthritis &amp; Rheumatism</i> , 42, 2319-2324, 1999	Not treatment complications
Gregory,A.C., Kempen,J.H., Daniel,E., Kacmaz,R.O., Foster,C.S., Jabs,D.A., Levy-Clarke,G.A., Nussenblatt,R.B., Rosenbaum,J.T., Suhler,E.B., Thorne,J.E., Systemic Immunosuppressive Therapy for Eye Diseases Cohort Study Research Group, 20130307, Risk factors for loss of visual acuity among patients with uveitis associated with juvenile idiopathic arthritis: the Systemic Immunosuppressive Therapy for Eye Diseases Study, <i>Ophthalmology</i> , 120, 186-192, 2013	Paediatric
Grijalva,C.G., Chen,L., Delzell,E., Baddley,J.W., Beukelman,T., Winthrop,K.L., Griffin,M.R., Herrinton,L.J., Liu,L., Ouellet-Hellstrom,R., Patkar,N.M., Solomon,D.H., Lewis,J.D., Xie,F., Saag,K.G., Curtis,J.R., 20111208, Initiation of tumor necrosis factor-alpha antagonists and the risk of hospitalization for infection in patients with autoimmune diseases, <i>JAMA</i> , 306, 2331-2339, 2011	Short follow-up (12 months)
Grismer,L.E., Gill,S.A., Harris,M.D., 20070710, Liver biopsy in psoriatic arthritis to detect methotrexate hepatotoxicity, <i>JCR: Journal of Clinical Rheumatology</i> , 7, 224-227, 2001	No follow up time specified
Gulyas,K., Bodnar,N., Nagy,Z., Szamosi,S., Horvath,A., Vancsa,A., Vegh,E., Szabo,Z., Szucs,G., Szekanecz,Z., Szanto,S., Real-life experience with switching TNF-alpha inhibitors in ankylosing spondylitis, <i>European Journal of Health Economics</i> Eur.J.Health Econ., 15, S93-S100, 2014	Reports reasons for switching as AE or efficacy only, no further detail on type of AE reported.
Haibel,H., Rudwaleit,M., Listing,J., Sieper,J., 20050224, Open label trial of anakinra in active ankylosing spondylitis over 24 weeks, <i>Annals of the Rheumatic Diseases</i> ANN.RHEUM.DIS., 64, 296-298, 2005	No relevant outcomes.
Haibel,H., Song,I.H., Rudwaleit,M., Listing,J., Hildemann,S., Sieper,J., 20080728, Multicenter open-label study with infliximab in active ankylosing spondylitis over 28 weeks in daily practice, <i>Clinical &amp; Experimental Rheumatology</i> , 26, 247-252, 2008	Short follow-up (28 weeks)
Han,B.K., Yachoui,R., Yi,K., Are ocular complications of a high-dose glucocorticoid treatment appropriately monitored in patients with rheumatic diseases?, <i>Rheumatology International</i> Rheumatol.Int., 33, 2951-2952, 2013	Not relevant population.
Haustein,U.-F., Rytter,M., Methotrexate in psoriasis: 26 years' experience with low-dose long-term treatment, <i>Journal of the European Academy of Dermatology and Venereology</i> J.Eur.Acad.Dermatol.Venereol., 14, 382-388, 2000	Not relevant population.
Heiberg,M.S., Kaufmann,C., Rodevand,E., Mikkelsen,K., Koldingsnes,W., Mowinckel,P., Kvien,T.K., 20070910, The comparative effectiveness of anti-TNF therapy and methotrexate in patients with psoriatic arthritis: 6 month results from a longitudinal, observational, multicentre study, <i>Annals of the Rheumatic Diseases</i> ANN.RHEUM.DIS., 66, 1038-1042, 2007	Short follow-up (less than 52 weeks)
Helliwell,P.S., Taylor,W.J., CASPAR Study Group, 20080610, Treatment of psoriatic arthritis and rheumatoid arthritis with disease modifying drugs --	Combination of drugs used,

Study	Reason for Exclusion
comparison of drugs and adverse reactions, Journal of Rheumatology J.RHEUMATOL., 35, 472-476, 2008	unclear which outcomes were related to which
Henrickson, M., Reiff, A., 20050721, Prolonged efficacy of etanercept in refractory enthesitis-related arthritis, Journal of Rheumatology J.RHEUMATOL., 31, 2055-2061, 2004	No relevant outcomes.
Herrinton, L.J., Liu, L., Chen, L., Harrold, L.R., Raebel, M.A., Curtis, J.R., Griffin, M.R., Solomon, D.H., Saag, K.G., Lewis, J.D., 20130729, Association between anti-TNF-alpha therapy and all-cause mortality, Pharmacoepidemiology & Drug Safety, 21, 1311-1320, 2012	Not relevant population.
Hetland, M.L., 20060124, DANBIO: a nationwide registry of biological therapies in Denmark, Clinical & Experimental Rheumatology, 23, Suppl-7, 2005	Registry data from 2000 – 2005, outcomes not by diagnosis (75%RA)
Hmamouchi, I., Roux, C., Paternotte, S., Kolta, S., Dougados, M., Briot, K., Early increase of abdominal adiposity in patients with spondyloarthritis receiving anti-tumor necrosis factor-alpha treatment, Journal of Rheumatology J.RHEUMATOL., 41, 1112-1117, 2014	Erratum to study
Hopkins, R., Bird, H.A., Jones, H., Hill, J., Surrall, K.E., Astbury, C., Miller, A., Wright, V., 19850418, A double-blind controlled trial of etretinate (Tigason) and ibuprofen in psoriatic arthritis, Annals of the Rheumatic Diseases ANN.RHEUM.DIS., 44, 189-193, 1985	No relevant outcomes.
Huidekoper, A.L., van der Woude, D., Knevel, R., van der Helm-van Mil AH, Cannegieter, S.C., Rosendaal, F.R., Kloppenburg, M., Huizinga, T.W., 20131030, Patients with early arthritis consume less alcohol than controls, regardless of the type of arthritis, Rheumatology Rheumatology (UK), 52, 1701-1707, 2013	Not relevant outcomes.
Husted, J.A., Tom, B.D., Farewell, V.T., Gladman, D.D., 20110214, Longitudinal analysis of fatigue in psoriatic arthritis, Journal of Rheumatology J.RHEUMATOL., 37, 1878-1884, 2010	Not relevant outcomes.
Jagoda, J.S., Rajapakse, C.N., 20120209, Leflunomide in clinical practice. A retrospective observational study on use of leflunomide in New Zealand, International Journal of Rheumatic Diseases Int.J.Rheum.Dis., 14, 340-344, 2011	Not relevant population
Jo, K.W., Hong, Y., Jung, Y.J., Yoo, B., Lee, C.K., Kim, Y.G., Yang, S.K., Byeon, J.S., Kim, K.J., Ye, B.D., Lee, S.D., Kim, W.S., Kim, D.S., Shim, T.S., 20140610, Incidence of tuberculosis among anti-tumor necrosis factor users in patients with a previous history of tuberculosis, Respiratory Medicine Respir.Med., 107, 1797-1802, 2013	No time point pre specified mean follow up
Jung, N., Hellmann, M., Hoheisel, R., Lehmann, C., Haase, I., Perniok, A., Hallek, M., Rubbert, A., 20101213, An open-label pilot study of the efficacy and safety of anakinra in patients with psoriatic arthritis refractory to or intolerant of methotrexate (MTX), Clinical Rheumatology Clin.Rheumatol., 29, 1169-1173, 2010	Short follow-up (6 months)
Kaltsonoudis, E., Zikou, A.K., Voulgari, P.V., Konitsiotis, S., Argyropoulou, M.I., Drosos, A.A., Neurological adverse events in patients receiving anti-TNF therapy: a prospective imaging and electrophysiological study, Arthritis Research & Therapy, 16, R125-, 2014	Case series
Kaminska, E., Patel, I., Dabade, T.S., Chang, J., Qureshi, A.A., O'Neill, J.L., Balkrishnan, R., Feldman, S.R., 20130717, Comparing the lifetime risks of TNF-alpha inhibitor use to common benchmarks of risk, Journal of Dermatological Treatment J.Dermatol.Treat., 24, 101-106, 2013	Estimation of lifetime risks using previously published data.
Kang, K.Y., Lee, K.Y., Kwok, S.K., Ju, J.H., Park, K.S., Hong, Y.S., Kim, H.Y., Park, S.H., 20110707, The change of bone mineral density according to	No relevant outcomes

Study	Reason for Exclusion
treatment agents in patients with ankylosing spondylitis, Joint, Bone, Spine: Revue du Rhumatisme, 78, 188-193, 2011	
Karanikolas,G.N., Koukli,E.M., Katsalira,A., Arida,A., Petrou,D., Komninou,E., Fragiadaki,K., Zacharioudaki,A., Lasithiotakis,I., Giavri,E., Vaiopoulos,G., Sfikakis,P.P., 20120420, Adalimumab or cyclosporine as monotherapy and in combination in severe psoriatic arthritis: results from a prospective 12-month nonrandomized unblinded clinical trial, Journal of RheumatologyJ.RHEUMATOL., 38, 2466-2474, 2011	Short follow-up (12 months)
Kilic,E., Kilic,G., Akgul,O., Akgol,G., Ozgocmen,S., The reported adverse effects related to biological agents used for the treatment of rheumatic diseases in Turkey, Turkish Journal of RheumatologyTurk.J.of Rheumatol., 28, 149-162, 2013	Review of case reports and case series.
Kim,E.-M., Uhm,W.-S., Bae,S.-C., Yoo,D.-H., Kim,T.-H., Incidence of tuberculosis among Korean patients with ankylosing spondylitis who are taking tumor necrosis factor blockers, Journal of RheumatologyJ.RHEUMATOL., 38, 2218-2223, 2011	Retrospective records review
Kim,H.W., Park,J.K., Yang,J.-A., Yoon,Y.I., Lee,E.Y., Song,Y.W., Kim,H.R., Lee,E.B., Comparison of tuberculosis incidence in ankylosing spondylitis and rheumatoid arthritis during tumor necrosis factor inhibitor treatment in an intermediate burden area, Clinical RheumatologyClin.Rheumatol., 33, 1307-1312, 2014	Comparison with RA
Kragballe,K., Zachariae,E., Zachariae,H., 19830610, Methotrexate in psoriatic arthritis: a retrospective study, Acta Dermato-VenereologicaActa Derm.-Venereol., 63, 165-167, 1983	No relevant outcomes
Kruithof,E., van den Bosch,F., Baeten,D., Herssens,A., De,Keyser F., Mielants,H., Veys,E.M., 20020308, Repeated infusions of infliximab, a chimeric anti-TNFalpha monoclonal antibody, in patients with active spondyloarthritis: one year follow up, Annals of the Rheumatic DiseasesANN.RHEUM.DIS., 61, 207-212, 2002	Short follow-up
Kurt,O.K., Kurt,B., Talay,F., Tug,T., Soy,M., Bes,C., Hayran,M., 20140609, Intermediate to long-term follow-up results of INH chemoprophylaxis prior to anti-TNF-alpha therapy in a high-risk area for tuberculosis, Wiener Klinische WochenschriftWien.Klin.Wochenschr., 125, 616-620, 2013	Mixed population, including 30% RA and juvenile RA
Laasila,K., Leirisalo-Repo,M., 19950124, Side effects of sulphasalazine in patients with rheumatic diseases or inflammatory bowel disease, Scandinavian Journal of RheumatologyScand.J.Rheumatol., 23, 338-340, 1994	Mixed population
Lacaille,D., Stein,H.B., Raboud,J., Klinkhoff,A.V., 20001214, Longterm therapy of psoriatic arthritis: intramuscular gold or methotrexate?, Journal of RheumatologyJ.RHEUMATOL., 27, 1922-1927, 2000	Record review
Langham,S., Langham,J., Goertz,H.P., Ratcliffe,M., 20111012, Large-scale, prospective, observational studies in patients with psoriasis and psoriatic arthritis: A systematic and critical review. [Review], BMC Medical Research Methodology, 11, 32-, 2011	Systematic review
Lanse,S.B., Arnold,G.L., Gowans,J.D., Kaplan,M.M., 19850307, Low incidence of hepatotoxicity associated with long-term, low-dose oral methotrexate in treatment of refractory psoriasis, psoriatic arthritis, and rheumatoid arthritis. An acceptable risk/benefit ratio, Digestive Diseases & Sciences, 30, 104-109, 1985	Number of Psoriatic Arthritis not reported, no relevant outcomes
Lapadula,G., Ferraccioli,G., Ferri,C., Punzi,L., Trotta,F., GISEA, 20140318, GISEA: an Italian biological agents registry in rheumatology, Reumatismo, 63, 155-164, 2011	Not relevant population (mostly RA)
Lee,H.-H., Song,I.-H., Friedrich,M., Gauliard,A., Detert,J., Rowert,J., Audring,H., Kary,S., Burmester,G.-R., Sterry,W., Worm,M., Cutaneous side-effects in patients with rheumatic diseases during application of tumour	No relevant outcomes

Study	Reason for Exclusion
necrosis factor-alpha antagonists, British Journal of Dermatology Br.J.Dermatol., 156, 486-491, 2007	
Lee,J.C., Gladman,D.D., Schentag,C.T., Cook,R.J., 20070710, The long-term use of azathioprine in patients with psoriatic arthritis, JCR: Journal of Clinical Rheumatology, 7, 160-165, 2001	Descriptive, longitudinal study
Lee,P.P.W., Lee,T.L., Wong,W.H.S., Lau,Y.L., The use of methotrexate in juvenile idiopathic arthritis: A single center experience, Hong Kong Journal of Paediatrics Hong Kong J.Paediatr., 11, 191-, 2006	Paediatric population
Lee,S.K., Kim,S.Y., Kim,E.Y., Jung,J.Y., Park,M.S., Kim,Y.S., Kim,S.K., Chang,J., Kang,Y.A., 20140529, Mycobacterial infections in patients treated with tumor necrosis factor antagonists in South Korea, Lung, 191, 565-571, 2013	Survey and records review
Lee,T.W., Singh,R., Fedorak,R.N., 20111207, A one-hour infusion of infliximab during maintenance therapy is safe and well tolerated: a prospective cohort study, Alimentary Pharmacology & Therapeutics, 34, 181-187, 2011	Tolerability of infusions
Lekpa,F.K., Poulain,C., Wendling,D., Soubrier,M., De,Bandt M., Berthelot,J.M., Gaudin,P., Toussiot,E., Goupille,P., Pham,T., Sellam,J., Bruckert,R., Paul,M., Farrenq,V., Claudepierre,P., Is IL-6 an appropriate target to treat spondyloarthritis patients refractory to anti-TNF therapy? A multicentre retrospective observational study, Arthritis Research and Therapy Arthritis Res.Ther., 14, -, 2012	No relevant outcomes
Lemos,L.L., de Oliveira,Costa J., Almeida,A.M., Junior,H.O., Barbosa,M.M., Kakehasi,A.M., Acurcio,F.A., Treatment of psoriatic arthritis with anti-TNF agents: a systematic review and meta-analysis of efficacy, effectiveness and safety, Rheumatology International Rheumatol.Int., 34, 1345-1360, 2014	Systematic review of RCT and observational data - adverse events not reported in sufficient detail
Lie,E., van der Heijde,D., Uhlig,T., Heiberg,M.S., Koldingsnes,W., Rodevand,E., Kaufmann,C., Mikkelsen,K., Kvien,T.K., 20100416, Effectiveness and retention rates of methotrexate in psoriatic arthritis in comparison with methotrexate-treated patients with rheumatoid arthritis, Annals of the Rheumatic Diseases ANN.RHEUM.DIS., 69, 671-676, 2010	No relevant outcomes
Lindsay,K., Fraser,A.D., Layton,A., Goodfield,M., Gruss,H., Gough,A., 20090618, Liver fibrosis in patients with psoriasis and psoriatic arthritis on long-term, high cumulative dose methotrexate therapy, Rheumatology Rheumatology (UK), 48, 569-572, 2009	Case series, psoriasis and psoriatic arthritis
Listing,J., Brandt,J., Rudwaleit,M., Zink,A., Sieper,J., Braun,J., 20041216, Impact of anti-tumour necrosis factor alpha treatment on admissions to hospital and days of sick leave in patients with ankylosing spondylitis, Annals of the Rheumatic Diseases ANN.RHEUM.DIS., 63, 1670-1672, 2004	No relevant outcomes
Lord,P.A., Farragher,T.M., Lunt,M., Watson,K.D., Symmons,D.P., Hyrich,K.L., BSR,Biologics Register, 20101207, Predictors of response to anti-TNF therapy in ankylosing spondylitis: results from the British Society for Rheumatology Biologics Register, Rheumatology Rheumatology (UK), 49, 563-570, 2010	No relevant outcomes
Lukacevic,D., Djilas,D., Nikolic,J., Clinical experience with ibuprofen in the treatment of rheumatic diseases, Current Medical Research and Opinion CURR.MED.RES.OPIN., 3, 576-579, 1975	Not relevant population (RA)
Machado,N.P., Reis Neto,E.T., Soares,M.R., Freitas,D.S., Porro,A., Ciconelli,R.M., Pinheiro,M.M., 20140529, The skin tissue is adversely affected by TNF-alpha blockers in patients with chronic inflammatory arthritis: a 5-year prospective analysis, Clinics (Sao Paulo, Brazil), 68, 1189-1196, 2013	Mixed population, did not report for differing conditions
Maillard,H., Ornetti,P., Grimault,L., Ramon,J.F., Ducamp,S.M., Saidani,T., Tavernier,C., Maillefert,J.F., 20051114, Severe pyogenic infections in patients	Infections during therapy

Study	Reason for Exclusion
taking infliximab: a regional cohort study, Joint, Bone, Spine: Revue du Rhumatisme, 72, 330-334, 2005	
Maksymowych,W.P., Jhangri,G.S., Lambert,R.G., Mallon,C., Buenviaje,H., Pedrycz,E., Luongo,R., Russell,A.S., 20021119, Infliximab in ankylosing spondylitis: a prospective observational inception cohort analysis of efficacy and safety, Journal of RheumatologyJ.RHEUMATOL., 29, 959-965, 2002	No relevant outcomes
Marks,S.H., Barnett,M., Calin,A., Ankylosing spondylitis in women and men: A case-control study, Journal of RheumatologyJ.RHEUMATOL., 10, 624-628, 1983	Case-control
Migliore,A., Bizzi,E., Broccoli,S., Lagana,B., 20120426, Indirect comparison of etanercept, infliximab, and adalimumab for psoriatic arthritis: mixed treatment comparison using placebo as common comparator, Clinical RheumatologyClin.Rheumatol., 31, 193-194, 2012	Response to letter.
Montaudie,H., Sbidian,E., Paul,C., Maza,A., Gallini,A., Aractingi,S., Aubin,F., Bachelez,H., Cribier,B., Joly,P., Jullien,D., Le,Maitre M., Misery,L., Richard,M.A., Ortonne,J.P., 20110526, Methotrexate in psoriasis: a systematic review of treatment modalities, incidence, risk factors and monitoring of liver toxicity. [Review], Journal of the European Academy of Dermatology & Venereology, 25, Suppl-8, 2011	Systematic review - used to check for primary studies.
Nannini,C., Cantini,F., Niccoli,L., Cassara,E., Salvarani,C., Olivieri,I., Lally,E.V., 20090805, Single-center series and systematic review of randomized controlled trials of malignancies in patients with rheumatoid arthritis, psoriatic arthritis, and ankylosing spondylitis receiving anti-tumor necrosis factor alpha therapy: is there a need for more comprehensive screening procedures?. [Review] [74 refs], Arthritis & Rheumatism, 61, 801-812, 2009	Not relevant population (majority RA)
Niccoli,L., Nannini,C., Cassara,E., Kaloudi,O., Cantini,F., Frequency of anemia of inflammation in patients with ankylosing spondylitis requiring anti-TNFalpha drugs and therapy-induced changes, International Journal of Rheumatic DiseasesInt.J.Rheum.Dis., 15, 56-61, 2012	Outcome not in review protocol
Nikas,S.N., Alamanos,Y., Voulgari,P.V., Pliakou,X.I., Papadopoulos,C.G., Drosos,A.A., 20050711, Infliximab treatment in ankylosing spondylitis: an observational study, Annals of the Rheumatic DiseasesANN.RHEUM.DIS., 64, 940-942, 2005	Outcomes not reported in a format that could be extracted
Nikiphorou,E., Negoescu,A., Fitzpatrick,J.D., Goudie,C.T., Badcock,A., Ostor,A.J., Malaviya,A.P., Indispensable or intolerable? Methotrexate in patients with rheumatoid and psoriatic arthritis: a retrospective review of discontinuation rates from a large UK cohort, Clinical RheumatologyClin.Rheumatol., 33, 609-614, 2014	Retrospective review, short duration of treatment
Nikolic,J., Lukacevic,D., Ibuprofen ('Brufen') in the treatment of ankylosing spondylitis, Current Medical Research and OpinionCURR.MED.RES.OPIN., 3, 573-575, 1975	Not relevant outcomes
Nobre,C.A., Callado,M.R., Lima,J.R., Gomes,K.W., Martiniano,G.V., Vieira,W.P., 20130301, Tuberculosis infection in rheumatic patients with infliximab therapy: experience with 157 patients, Rheumatology InternationalRheumatol.Int., 32, 2769-2775, 2012	Study assessed the effectiveness of prophylactic isoniazid in preventing reactivation of LTBI in people with SpA taking infliximab; not relevant intervention

Study	Reason for Exclusion
Nossent,J.C., Gran,J.T., 20100302, Epidemiological and clinical characteristics of psoriatic arthritis in northern Norway, Scandinavian Journal of RheumatologyScand.J.Rheumatol., 38, 251-255, 2009	Not relevant outcomes
Olivieri,I., Salvarani,C., Cantini,F., Macchioni,L., Padula,A., Niccoli,L., Boiardi,L., Portioli,I., 19971023, Therapy with cyclosporine in psoriatic arthritis. [Review] [69 refs], Seminars in Arthritis & Rheumatism, 27, 36-43, 1997	Review study.
O'Regan,C., 20120308, Errors noted in: re: Migliore A, Bizzi E, Broccoli S Lagana (2011). Indirect comparison of etanercept, infliximab, and adalimumab for psoriatic arthritis: mixed treatment comparison using placebo as common comparator. Published on line June 21st 2011, Clinical RheumatologyClin.Rheumatol., 30, 1647-1648, 2011	Erratum
Ostensen,M., Husby,G., A prospective clinical study of the effect of pregnancy on rheumatoid arthritis and ankylosing spondylitis, Arthritis and RheumatismArthritis Rheum., 26, 1155-1159, 1983	Effect of pregnancy on AS, not complications
Palazzi,C., D'Angelo,S., Leccese,P., Padula,A., Olivieri,I., 20140905, Safety of anti-tumor necrosis factor agents in psoriatic arthritis - an update. [Review], Expert Opinion on Drug SafetyExpert Opin.Drug Saf., 13, 191-196, 2014	Narrative review
Pavy,S., Brophy,S., Calin,A., Establishment of the minimum clinically important difference for the bath ankylosing spondylitis indices: A prospective study, Journal of Rheumatology.32 (1) (pp 80-85), 2005.Date of Publication: January 2005., 80-85, 2005	No information on drug treatment
Perez-Guijo,V.C., Cravo,A.R., Castro,Mdel C., Font,P., Munoz-Gomariz,E., Collantes-Estevez,E., 20070627, Increased efficacy of infliximab associated with methotrexate in ankylosing spondylitis, Joint, Bone, Spine: Revue du Rhumatisme, 74, 254-258, 2007	Short follow-up (30 weeks)
Phillips,K., Husni,M.E., Karlson,E.W., Coblyn,J.S., 20020418, Experience with etanercept in an academic medical center: are infection rates increased?, Arthritis & Rheumatism, 47, 17-21, 2002	No defined follow up time, retrospective medical record review.
Poddubnyy,D., Hermann,K.G., Callhoff,J., Listing,J., Sieper,J., 20140530, Ustekinumab for the treatment of patients with active ankylosing spondylitis: results of a 28-week, prospective, open-label, proof-of-concept study (TOPAS), Annals of the Rheumatic DiseasesANN.RHEUM.DIS., 73, 817-823, 2014	Short follow-up (28 weeks)
Queiro,R., Sarasqueta,C., Torre,J.C., Tinture,T., Lopez-Lagunas,I., 20021007, Spectrum of psoriatic spondyloarthritis in a cohort of 100 Spanish patients, Annals of the Rheumatic DiseasesANN.RHEUM.DIS., 61, 857-858, 2002	Retrospective cross sectional design. Percentage of patients with uveitis in preceding 5 years is reported but unclear if this is purely incident cases.
Radner,H., Ramiro,S., Buchbinder,R., Landewe,R.B., van der Heijde,D., Aletaha,D., 20120626, Pain management for inflammatory arthritis (rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis and other spondylarthritis) and gastrointestinal or liver comorbidity. [Review], Cochrane Database of Systematic ReviewsCochrane Database Syst.Rev., 1, CD008951-, 2012	Cochrane review with 1 included study with a population of people with RA only.
Rahman,P., Gladman,D.D., Cook,R.J., Zhou,Y., Young,G., 19990104, The use of sulfasalazine in psoriatic arthritis: a clinic experience, Journal of RheumatologyJ.RHEUMATOL., 25, 1957-1961, 1998	Tolerability outcomes reported for <1year

Study	Reason for Exclusion
Regnier-Rosencher,E., Farhi,D., Lebrun,A., Salliot,C., Dougados,M., Dupin,N., Factors associated with severe skin infections in patients treated with biologic therapies for inflammatory rheumatic diseases, <i>Dermatology</i> , 224, 72-83, 2012	Case control study - not included in protocol.
Richter,M.B., Kinsella,P., Corbett,M., 19801125, Gold in psoriatic arthropathy, <i>Annals of the Rheumatic DiseasesANN.RHEUM.DIS.</i> , 39, 279-280, 1980	No defined follow up time
Ritchlin,C., 20060926, Efficacy and safety of infliximab for the treatment of psoriatic arthritis, <i>Nature Clinical Practice RheumatologyNat.Clin.Pract.Rheumatol.</i> , 2, 300-301, 2006	Commentary on RCT
Rohekar,S., Tom,B.D., Hassa,A., Schentag,C.T., Farewell,V.T., Gladman,D.D., 20080310, Prevalence of malignancy in psoriatic arthritis, <i>Arthritis &amp; Rheumatism</i> , 58, 82-87, 2008	Not relevant outcome
Roux,C.H., Brocq,O., Breuil,V., Albert,C., Euller-Ziegler,L., 20061214, Safety of anti-TNF-alpha therapy in rheumatoid arthritis and spondylarthropathies with concurrent B or C chronic hepatitis, <i>RheumatologyRheumatology (UK)</i> , 45, 1294-1297, 2006	Case reports, no outcomes of interest
Rovensky,J., Micekova,D., 20000427, Six-month prospective study to monitor the treatment of rheumatic diseases with sustained-release flurbiprofen, <i>Drugs Under Experimental &amp; Clinical Research</i> , 26, 19-24, 2000	Not relevant population (mostly RA, OA)
Rudwaleit,M., Claudepierre,P., Wordsworth,P., Cortina,E.L., Sieper,J., Kron,M., Carcereri-De-Prati,R., Kupper,H., Kary,S., 20090601, Effectiveness, safety, and predictors of good clinical response in 1250 patients treated with adalimumab for active ankylosing spondylitis, <i>Journal of RheumatologyJ.RHEUMATOL.</i> , 36, 801-808, 2009	Short follow-up
Ryu,H.H., Lee,E.Y., Shin,K., Choi,I.A., Lee,Y.J., Yoo,B., Park,M.-C., Park,Y.-B., Bae,S.-C., Yoo,W.H., Kim,S.I., Lee,E.B., Song,Y.W., Hepatitis B virus reactivation in rheumatoid arthritis and ankylosing spondylitis patients treated with anti-TNFalpha agents: A retrospective analysis of 49 cases, <i>Clinical RheumatologyClin.Rheumatol.</i> , 31, 931-936, 2012	Does not state a follow up time, case series
Salinas,G.F., De,Rycke L., Barendregt,B., Paramarta,J.E., Hreggvidsdottir,H., Cantaert,T., van der Burg,M., Tak,P.P., Baeten,D., 20130712, Anti-TNF treatment blocks the induction of T cell-dependent humoral responses, <i>Annals of the Rheumatic DiseasesANN.RHEUM.DIS.</i> , 72, 1037-1043, 2013	No relevant outcomes
Salvarani,C., Macchioni,P., Olivieri,I., Marchesoni,A., Cutolo,M., Ferraccioli,G., Cantini,F., Salaffi,F., Padula,A., Lovino,C., Dovigo,L., Bordin,G., Davoli,C., Pasero,G., Alberighi,O.D., 20020312, A comparison of cyclosporine, sulfasalazine, and symptomatic therapy in the treatment of psoriatic arthritis, <i>Journal of RheumatologyJ.RHEUMATOL.</i> , 28, 2274-2282, 2001	Short follow-up
Salvarani,C., Zizzi,F., Macchioni,P., Mantovani,W., Rossi,F., Baricchi,R., Bellelli,A., Capozzoli,N., Frizziero,L., Portioli,I., 19890825, Clinical response to auranofin in patients with psoriatic arthritis, <i>Clinical RheumatologyClin.Rheumatol.</i> , 8, 54-57, 1989	oral gold therapy
Sampaio-Barros,P.D., Bortoluzzo,A.B., Conde,R.A., Costallat,L.T., Samara,A.M., Bertolo,M.B., 20100708, Undifferentiated spondyloarthritis: a longterm followup, <i>Journal of RheumatologyJ.RHEUMATOL.</i> , 37, 1195-1199, 2010	Association between disease and adverse events, no information on drug use.
Sampaio-Barros,P.D., Costallat,L.T., Bertolo,M.B., Neto,J.F., Samara,A.M., 20000728, Methotrexate in the treatment of ankylosing spondylitis, <i>Scandinavian Journal of RheumatologySCAND.J.RHEUMATOL.</i> , 29, 160-162, 2000	Short follow-up (1 year)
Sampaio-Barros,P.D., Pereira,I.A., Hernandez-Cuevas,C., Berman,A., Burgos-Vargas,R., Gutierrez,M.A., Barcelos,A., Chavez-Corrales,J.E., Moreno,M., Palleiro,D.R., Saenz-Castro,R., Stekman,I., Azevedo,V.F., Braga-da-Silva,J.A.,	Prevalence at baseline

Study	Reason for Exclusion
Citera,G., Flores-Alvarado,D., Goncalves,C.R., Graf,C., Nitsche,A., Saavedra,J., Ximenes,A.C., Vazquez-Mellado,J., Collantes-Estevez,E., Respondia Group, 20131029, An analysis of 372 patients with anterior uveitis in a large Ibero-American cohort of spondyloarthritis: the RESPONDIA Group, <i>Clinical &amp; Experimental Rheumatology</i> , 31, 484-489, 2013	
Saxena,R.P., Saxena,U., 19780828, A comparative trial of ketoprofen and ibuprofen in patients with rheumatic disease, <i>Current Medical Research &amp; Opinion</i> , 5, 484-488, 1978	Not relevant population (mostly RA, OA)
Scarpa,R., Atteno,M., Lubrano,E., Provenzano,G., D'Angelo,S., Spadaro,A., Costa,L., Olivieri,I., 20111129, The effectiveness and safety of TNF-alpha blockers in the treatment of early psoriatic arthritis: an Italian multicentre longitudinal observational pilot study, <i>Clinical Rheumatology</i> Clin.Rheumatol., 30, 1063-1067, 2011	No relevant outcomes
Seppala,J., Laulainen,M., Reunala,T., 19890619, Comparison of etretinate (Tigason) and parenteral gold in the treatment of psoriatic arthropathy, <i>Clinical Rheumatology</i> Clin.Rheumatol., 7, 498-503, 1988	Comparative trial of etretinate - not included in protocol
Sfriso,P., Salaffi,F., Montecucco,C.M., Bombardieri,S., Todesco,S., 20090917, MonitorNet: the Italian multi-centre observational study aimed at estimating the risk/benefit profile of biologic agents in real-world rheumatology practice, <i>Reumatismo</i> , 61, 132-139, 2009	Not relevant population (mostly RA)
Sidiropoulos,P., Kritikos,H.D., Siakka,P., Mamoulaki,M., Kouroumalis,H., Voudouris,K., Boumpas,D.T., 20051202, Low dose of infliximab is inadequate in most patients with spondylarthropathies, <i>Clinical &amp; Experimental Rheumatology</i> , 23, 513-516, 2005	Short follow-up (36 weeks)
Song,I.H., Heldmann,F., Rudwaleit,M., Haibel,H., Weiss,A., Braun,J., Sieper,J., 20110713, Treatment of active ankylosing spondylitis with abatacept: an open-label, 24-week pilot study, <i>Annals of the Rheumatic Diseases</i> ANN.RHEUM.DIS., 70, 1108-1110, 2011	Short follow-up (24 weeks)
Song,I.H., Heldmann,F., Rudwaleit,M., Listing,J., Appel,H., Haug-Rost,I., Braun,J., Sieper,J., 20130312, One-year follow-up of ankylosing spondylitis patients responding to rituximab treatment and re-treated in case of a flare, <i>Annals of the Rheumatic Diseases</i> ANN.RHEUM.DIS., 72, 305-306, 2013	No relevant outcomes
Spadaro,A., Ricciari,V., Sili-Scavalli,A., Sensi,F., Taccari,E., Zoppini,A., 19960314, Comparison of cyclosporin A and methotrexate in the treatment of psoriatic arthritis: a one-year prospective study, <i>Clinical &amp; Experimental Rheumatology</i> , 13, 589-593, 1995	Short follow-up (one year)
Sun,L.-M., Muo,C.-H., Liang,J.-A., Chang,S.-N., Sung,F.-C., Kao,C.-H., Increased risk of cancer for patients with ankylosing spondylitis: A nationwide population-based retrospective cohort study, <i>Scandinavian Journal of Rheumatology</i> Scand.J.Rheumatol., 43, 301-306, 2014	Not treatment related
Suwannalai,P., Auethavekiat,P., Udomsubpayakul,U., Janvitayanujit,S., 20100702, The infectious profiles of anti-tumor necrosis factor agents in a Thai population: a retrospective study at the university-based hospital, <i>International Journal of Rheumatic Diseases</i> Int.J.Rheum.Dis., 12, 118-124, 2009	No defined follow up time
Takezaki,S., Okura,Y., Ichikawa,M., Suzuki,D., Ohshima,J., Kaneda,M., Cho,Y., Yamada,M., Kawamura,N., Iguchi,A., Kobayashi,I., Ariga,T., 20130108, Development of germinoma during the treatment of systemic-onset juvenile idiopathic arthritis with infliximab, <i>Modern Rheumatology</i> Mod.Rheumatol., 22, 621-624, 2012	Case report
Temekonidis,T.I., Alamanos,Y., Nikas,S.N., Bougias,D.V., Georgiadis,A.N., Voulgari,P.V., Drosos,A.A., 20040126, Infliximab therapy in patients with ankylosing spondylitis: an open label 12 month study, <i>Annals of the Rheumatic Diseases</i> ANN.RHEUM.DIS., 62, 1218-1220, 2003	Short follow-up (12 months)

Study	Reason for Exclusion
Tilling,L., Townsend,S., David,J., 20070103, Methotrexate and hepatic toxicity in rheumatoid arthritis and psoriatic arthritis, Clinical Drug Investigation Clin. Drug Invest., 26, 55-62, 2006	Duration of follow-up unclear, comparison with RA
Toussiro, E., Mourot, L., Dehecq, B., Wendling, D., Grandclement, E., Dumoulin, G., TNFalpha blockade for inflammatory rheumatic diseases is associated with a significant gain in android fat mass and has varying effects on adipokines: A 2-year prospective study, European Journal of Nutrition Eur. J. Nutr., 53, 951-961, 2014	No relevant outcomes
Ujfalussy, I., Koo, E., Sesztak, M., Gergely, P., 20040106, Termination of disease-modifying antirheumatic drugs in rheumatoid arthritis and in psoriatic arthritis. A comparative study of 270 cases, Zeitschrift fur Rheumatologie Z. Rheumatol., 62, 155-160, 2003	No defined follow up point
van der Heijde, D., Pangan, A.L., Schiff, M.H., Braun, J., Borofsky, M., Torre, J., Davis, J.C., Jr., Wong, R.L., Kupper, H., Collantes, E., ATLAS Study Group, 20081028, Adalimumab effectively reduces the signs and symptoms of active ankylosing spondylitis in patients with total spinal ankylosis, Annals of the Rheumatic Diseases ANN. RHEUM. DIS., 67, 1218-1221, 2008	No relevant outcomes
van der Heijde, D., Zack, D., Wajdula, J., Sridharan, S., Koenig, A.S., 20140320, Rates of serious infections, opportunistic infections, inflammatory bowel disease, and malignancies in subjects receiving etanercept vs. controls from clinical trials in ankylosing spondylitis: a pooled analysis, Scandinavian Journal of Rheumatology Scand. J. Rheumatol., 43, 49-53, 2014	Pooled analysis of RCT data - and open label extension.
Vassilopoulos, D., Apostolopoulou, A., Hadziyannis, E., Papatheodoridis, G.V., Manolakopoulos, S., Koskinas, J., Manesis, E.K., Archimandritis, A.I., 20100727, Long-term safety of anti-TNF treatment in patients with rheumatic diseases and chronic or resolved hepatitis B virus infection, Annals of the Rheumatic Diseases ANN. RHEUM. DIS., 69, 1352-1355, 2010	No relevant outcomes
Ventura-Rios, L., Banuelos-Ramirez, D., Hernandez-Quiroz, Mdel C., Robles-San, Roman M., Irazoque-Palazuelos, F., Goycochea-Robles, M.V., 20121129, Patient survival and safety with biologic therapy. Results of the Mexican National Registry Biobadamex 1.0, Reumatologia Clinica Reumatol. Clin., 8, 189-194, 2012	Not relevant population
Wang, J., Zhang, Y., Zhao, L., Li, Z.H., Shi, Z.J., 20140515, The efficacy and safety of infliximab used in patients with ankylosing spondylitis after unilateral total hip arthroplasty, Hip International HIP Int., 23, 406-410, 2013	Not relevant population
Ward, M.M., Kuzis, S., Medication toxicity among patients with ankylosing spondylitis, Arthritis Care and Research Arthritis Care Res., 47, 234-241, 2002	Duration of treatment part of the outcome, different durations for each participant
Wasko, M.C., Hsia, E.C., Kirkham, B., Touboul, P.J., Fleischmann, R., Genovese, M.C., Matteson, E.L., Lu, J., Xu, W., Rahman, M.U., 20140904, Effect of golimumab on carotid atherosclerotic disease measures and cardiovascular events in inflammatory arthritides, JCR: Journal of Clinical Rheumatology, 20, 1-10, 2014	Not relevant population (RA)
Watson, D.J., Bolognese, J.A., Yu, C., Krupa, D., Curtis, S., 20050419, Use of gastroprotective agents and discontinuations due to dyspepsia with the selective cyclooxygenase-2 inhibitor etoricoxib compared with non-selective NSAIDs, Current Medical Research & Opinion, 20, 1899-1908, 2004	Not relevant population (mostly RA or OA)
Wendling, D., Dougados, M., Berenbaum, F., Brocq, O., Schaeffer, T., Mazieres, B., Marcelli, C., Leparc, J.M., Bertin, P., Robin, M., Sibilia, J., Lafforgue, P., Prati, C., Combe, B., Gottenberg, J.E., French Society of Rheumatology and the Club Rhumatismes et Inflammation, 20130514,	No defined follow up times, small number of participants,

Study	Reason for Exclusion
Rituximab treatment for spondyloarthritis. A nationwide series: data from the AIR registry of the French Society of Rheumatology, <i>Journal of Rheumatology</i> J.RHEUMATOL., 39, 2327-2331, 2012	mean 1 course of rituximab
Wendling,D., Streit,G., Toussiroto,E., Prati,C., 20090205, Herpes zoster in patients taking TNFalpha antagonists for chronic inflammatory joint disease, <i>Joint, Bone, Spine: Revue du Rhumatisme</i> , 75, 540-543, 2008	Mixed population, number of patients with AS not reported
Westhovens,I., Lories,R.J., Westhovens,R., Verschueren,P., de,Vlam K., 20141017, Anti-TNF therapy and malignancy in spondyloarthritis in the Leuven spondyloarthritis biologics cohort (BIOSPAR), <i>Clinical &amp; Experimental Rheumatology</i> , 32, 71-76, 2014	Follow-up time not defined. Outcomes measured as patient-year
Winthrop,K.L., Baddley,J.W., Chen,L., Liu,L., Grijalva,C.G., Delzell,E., Beukelman,T., Patkar,N.M., Xie,F., Saag,K.G., Herrinton,L.J., Solomon,D.H., Lewis,J.D., Curtis,J.R., 20130308, Association between the initiation of anti-tumor necrosis factor therapy and the risk of herpes zoster, <i>JAMA</i> , 309, 887-895, 2013	Results given for PsA and AS together
Wittenborg,A., Wilmsky,H., 19830324, Carprofen in ankylosing spondylitis, <i>European Journal of Rheumatology &amp; Inflammation</i> , 5, 527-535, 1982	Short follow-up (12 weeks)
Wollina,U., Stander,K., Barta,U., 20020507, Toxicity of methotrexate treatment in psoriasis and psoriatic arthritis--short- and long-term toxicity in 104 patients, <i>Clinical Rheumatology</i> Clin.Rheumatol., 20, 406-410, 2001	Follow-up unclear between short-term and long-term
Yazdani-Biuki,B., Wohlfahrt,K., Mulabecirovic,A., Mueller,T., Hermann,J., Graninger,W.B., Brezinschek,H.P., Brezinschek,R.I., 20041214, Long term treatment of psoriatic arthritis with infliximab, <i>Annals of the Rheumatic Diseases</i> ANN.RHEUM.DIS., 63, 1531-1532, 2004	Case series, brief report
Zachariae,H., Zachariae,E., 19871019, Methotrexate treatment of psoriatic arthritis, <i>Acta Dermato-Venereologica</i> Acta Derm.-Venereol., 67, 270-273, 1987	No relevant outcomes
Zeidler,H., Kaltwasser,J.P., Leonard,J.P., Kohlmann,T., Sigmund,R., Degner,F., Hettich,M., 20070711, Prescription and tolerability of meloxicam in day-to-day practice: postmarketing observational cohort study of 13,307 patients in Germany, <i>JCR: Journal of Clinical Rheumatology</i> , 8, 305-315, 2002	Not relevant population (mostly RA, OA).

## F.6 Information for people with spondyloarthritis

### F.6.1 Information for people with spondyloarthritis

Review Question 27

- What information on treatment, long-term complications and self-management do young people and adults with spondyloarthritis find useful?

Study	Reason for Exclusion
Andre,M., Hagelberg,S., Stenstrom,C.H., Education in the management of juvenile chronic arthritis. Changes in self-reported competencies among adolescents and parents of young children, Scandinavian journal of rheumatology, 30, 323-327, 2001	Population: Mean age of participants less than 16 years
Barlow,J.H., Macey,S.J., Struthers,G., Psychosocial factors and self-help in ankylosing spondylitis patients, Clinical Rheumatology, 11, 220-225, 1992	Outcome: Study does not report on outcomes of interest
Barlow,J.H., Shaw,K.L., Harrison,K., Consulting the 'experts': children's and parents' perceptions of psycho-educational interventions in the context of juvenile chronic arthritis, Health Education Research, 14, 597-610, 1999	Population: Mean age of participants less than 16 years
Bartholomew,L.K., Koenning,G., Dahlquist,L., Barron,K., An educational needs assessment of children with juvenile rheumatoid arthritis, Arthritis Care & Research (08937524), 7, 136-144, 1994	Population: Parents interviewed rather than patients.
Borras-Blasco,J., Gracia-Perez,A., Castera,M.D., Rosique-Robles,J.D., Abad,J., Educational session as a tool to increase patient satisfaction of switching etanercept from the prefilled syringe to the autoinjection pen, Expert Opinion on Biological Therapy, 13, 1103-1108, 2013	Population: More than 50% of participants had rheumatoid arthritis.
Borras-Blasco,J., Gracia-Perez,A., Rosique-Robles,J.D., Castera,M.D., Abad,F.J., Acceptability of switching adalimumab from a prefilled syringe to an autoinjection pen, Expert Opinion on Biological Therapy, 10, 301-307, 2010	Population: More than 50% of participants had rheumatoid arthritis.
Burbage,M.L., Mason,M.B., Nabors,L.A., Kichler,J.C., An evaluation of a juvenile idiopathic arthritis retreat for families, Pediatric Rheumatology Online Journal, 13, 12-, 2015	Population: Age range 7-18, data not separated for age 16. Survey completed by parents rather than those with disease. Outcome: Evaluation focussed on retreat rather than information provided.
Gronning,K., Skomsvoll,J.F., Rannestad,T., Steinsbekk,A., The effect of an educational programme consisting of group and individual arthritis education for patients with polyarthritis--a randomised controlled trial, Patient Education & Counseling, 88, 113-120, 2012	Population: More than 50% of participants had rheumatoid arthritis
Gross,M., Brandt,K.D., Educational support groups of patients with ankylosing spondylitis: a preliminary report, Patient Counselling & Health Education, 3, 6-12, 1981	Outcome: Study does not report on outcomes of interest
Hamilton,L., Gilbert,A., Skerrett,J., Dickinson,S., Gaffney,K., Services for people with ankylosing spondylitis in the UK--a survey of rheumatologists and patients, Rheumatology, 50, 1991-1998, 2011	Outcome: Study does not report on outcomes of interest

Study	Reason for Exclusion
Homer,D., Nightingale,P., Jobanputra,P., Providing patients with information about disease-modifying anti-rheumatic drugs: Individually or in groups? A pilot randomized controlled trial comparing adherence and satisfaction, <i>Musculoskeletal Care</i> , 7, 78-92, 2009	Population: More than 50% of participants had rheumatoid arthritis
Kjeken,I., Dagfinrud,H., Mowinckel,P., Uhlig,T., Kvien,T.K., Finset,A., Rheumatology care: Involvement in medical decisions, received information, satisfaction with care, and unmet health care needs in patients with rheumatoid arthritis and ankylosing spondylitis, <i>Arthritis &amp; Rheumatism</i> , 55, 394-401, 2006	Population: More than 50% of participants had rheumatoid arthritis
Konkol,L., Lineberry,J., Gottlieb,J., Shelby,P.E., Miller,J.J.III, Lorig,K., Impact of juvenile arthritis on families. An educational assessment, <i>Arthritis care &amp; research</i> , 2, 40-48, 1989	Outcome: No measure of information usefulness.
Lipstein,E.A., Lovell,D.J., Denson,L.A., Moser,D.W., Saeed,S.A., Dodds,C.M., Britto,M.T., Parents' information needs in tumor necrosis factor-alpha inhibitor treatment decisions, <i>Journal of Pediatric Gastroenterology &amp; Nutrition</i> , 56, 244-250, 2013	Population: Median age of participants less than 16 years
Lubrano,E., Helliwell,P., Parsons,W., Emery,P., Veale,D., Patient education in psoriatic arthritis: A cross sectional study on knowledge by a validated self-administered questionnaire, <i>Journal of Rheumatology</i> .25 (8) (pp 1560-1565), 1998.Date of Publication: August 1998., 1560-1565, 1998	Outcome: Study assessed usefulness of questionnaire as opposed to usefulness of information provided.
McDonagh,J.E., Foster,H.E., Hall,M.A., Chamberlain,M.A., Audit of rheumatology services for adolescents and young adults in the UK. British Paediatric Rheumatology Group, <i>Rheumatology</i> , 39, 596-602, 2000	Study concerned with audit of services available for adolescents and young people with juvenile idiopathic arthritis
McDonagh,J.E., Shaw,K.L., Southwood,T.R., Growing up and moving on in rheumatology: development and preliminary evaluation of a transitional care programme for a multicentre cohort of adolescents with juvenile idiopathic arthritis, <i>Journal of Child Health Care</i> , 10, 22-42, 2006	Population: Mean age of participants less than 16 years
Ndosi,M., Bremander,A., Hamnes,B., Horton,M., Kukkurainen,M.L., Machado,P., Marques,A., Meesters,J., Stamm,T.A., Tennant,A., Torre-Aboki,J., Vliet Vlieland,T.P., Zangi,H.A., Hill,J., Validation of the educational needs assessment tool as a generic instrument for rheumatic diseases in seven European countries, <i>Annals of the Rheumatic Diseases</i> , 73, 2122-2129, 2014	Outcome: Study compares cross-cultural use of tool to assess educational needs, doesn't provide outcome measure of information usefulness.
Richter,J.G., Becker,A., Koch,T., Willers,R., Nixdorf,M., Schacher,B., Monser,R., Specker,C., Alten,R., Schneider,M., Changing attitudes towards online electronic health records and online patient documentation in rheumatology outpatients, <i>Clinical &amp; Experimental Rheumatology</i> , 28, 261-264, 2010	Population: More than 50% of participants had rheumatoid arthritis.
Shaw,K.L., Hackett,J., Southwood,T.R., McDonagh,J.E., The prevocational and early employment needs of adolescents with Juvenile Idiopathic Arthritis: The adolescent perspective, <i>British Journal of Occupational Therapy</i> .69 (3) (pp 98-105), 2006.Date of Publication: March 2006., 98-105, 2006	Population: Median age of participants less than 16 years

Study	Reason for Exclusion
Shaw,K.L., Southwood,T.R., McDonagh,J.E., British Paediatric Rheumatology Group, Transitional care for adolescents with juvenile idiopathic arthritis: a Delphi study, <i>Rheumatology</i> , 43, 1000-1006, 2004	Outcome: Doesn't measure usefulness of information.
Shaw,K.L., Southwood,T.R., McDonagh,J.E., British Paediatric Rheumatology Group, User perspectives of transitional care for adolescents with juvenile idiopathic arthritis, <i>Rheumatology</i> , 43, 770-778, 2004	Outcome: Study does not report on outcomes of interest
Shaw,K.L., Southwood,T.R., McDonagh,J.E., British Paediatric Rheumatology Group, Developing a programme of transitional care for adolescents with juvenile idiopathic arthritis: results of a postal survey, <i>Rheumatology</i> , 43, 211-219, 2004	Study concerned with surveying professional views on transition care
Shaw,K.L., Southwood,T.R., McDonagh,J.E., British Society of Paediatric and Adolescent Rheumatology, Young people's satisfaction of transitional care in adolescent rheumatology in the UK, <i>Child: Care, Health &amp; Development</i> , 33, 368-379, 2007	Population: Mean age of participants less than 16 years
Shaw,K.L., Southwood,T.R., McDonagh,J.E., British Society of Paediatric and Adolescent Rheumatology, Growing up and moving on in rheumatology: a multicentre cohort of adolescents with juvenile idiopathic arthritis, <i>Rheumatology (Oxford, England)</i> , 44, 806-812, 2005	Outcome: Doesn't measure usefulness of information.
Sonneveld,H.M., Strating,M.M., van Staa,A.L., Nieboer,A.P., Gaps in transitional care: what are the perceptions of adolescents, parents and providers?, <i>Child: Care, Health &amp; Development</i> , 39, 69-80, 2013	Intervention: No assessment of information delivered in transitional care.
Stinson,J., McGrath,P., Hodnett,E., Feldman,B., Duffy,C., Huber,A., Tucker,L., Hetherington,R., Tse,S., Spiegel,L., Campillo,S., Gill,N., White,M., Usability testing of an online self-management program for adolescents with juvenile idiopathic arthritis, <i>Journal of Medical Internet Research</i> , 12, e30-, 2010	Population: Mean age of participants less than 16 years
Stinson,J.N., Feldman,B.M., Duffy,C.M., Huber,A.M., Tucker,L.B., McGrath,P.J., Tse,S.M., Hetherington,R., Spiegel,L.R., Campillo,S., Benseler,S., Gill,N., White,M.E., Baker,N., Vijenthira,A., Jointly managing arthritis: information needs of children with juvenile idiopathic arthritis (JIA) and their parents, <i>Journal of Child Health Care</i> , 16, 124-140, 2012	Population: Mean age of participants less than 16
Stinson,J.N., Toomey,P.C., Stevens,B.J., Kagan,S., Duffy,C.M., Huber,A., Malleson,P., McGrath,P.J., Yeung,R.S., Feldman,B.M., Asking the experts: exploring the self-management needs of adolescents with arthritis, <i>Arthritis &amp; Rheumatism</i> , 59, 65-72, 2008	Population: Mean age of participants less than 16 years
Ullrich,G., Mattussek,S., Dressler,F., Thon,A., How do adolescents with juvenile chronic arthritis consider their disease related knowledge, their unmet service needs, and the attractiveness of various services?, <i>European Journal of Medical Research</i> , 7, 8-18, 2002	Population: Mean age of participants less than 16 years
ciVan Eijk-Hustings, Y., Ammerlaan, J., Voorneveld-Nieuwenhuis, H., Maat, B., Veldhuizen, C., Repping-Wuts, H., Patients' needs and expectations with regard to rheumatology nursing care: Results of multicentre focus group interviews, <i>Annals of the Rheumatic Diseases</i> , 72, 831-835, 2013	Population: More than 50% of participants had rheumatoid arthritis.

Study	Reason for Exclusion
van Staa,A.L., Jedeloo,S., van,Meeteren J., Latour,J.M., Crossing the transition chasm: experiences and recommendations for improving transitional care of young adults, parents and providers, Child: Care, Health & Development, 37, 821-832, 2011	Population: Only 3/24 young adults had juvenile rheumatoid arthritis.
White,M., Stinson,J.N., Lingley-Pottie,P., McGrath,P.J., Gill,N., Vijenthira,A., Exploring therapeutic alliance with an internet-based self-management program with brief telephone support for youth with arthritis: a pilot study, Telemedicine Journal & E-Health, 18, 271-276, 2012	Population: Mean age of participants less than 16 years

## **F.6.2 Information and education for flare management in spondyloarthritis**

Review Question 28

- What is the effectiveness of information and education in the management of flare episodes?

None