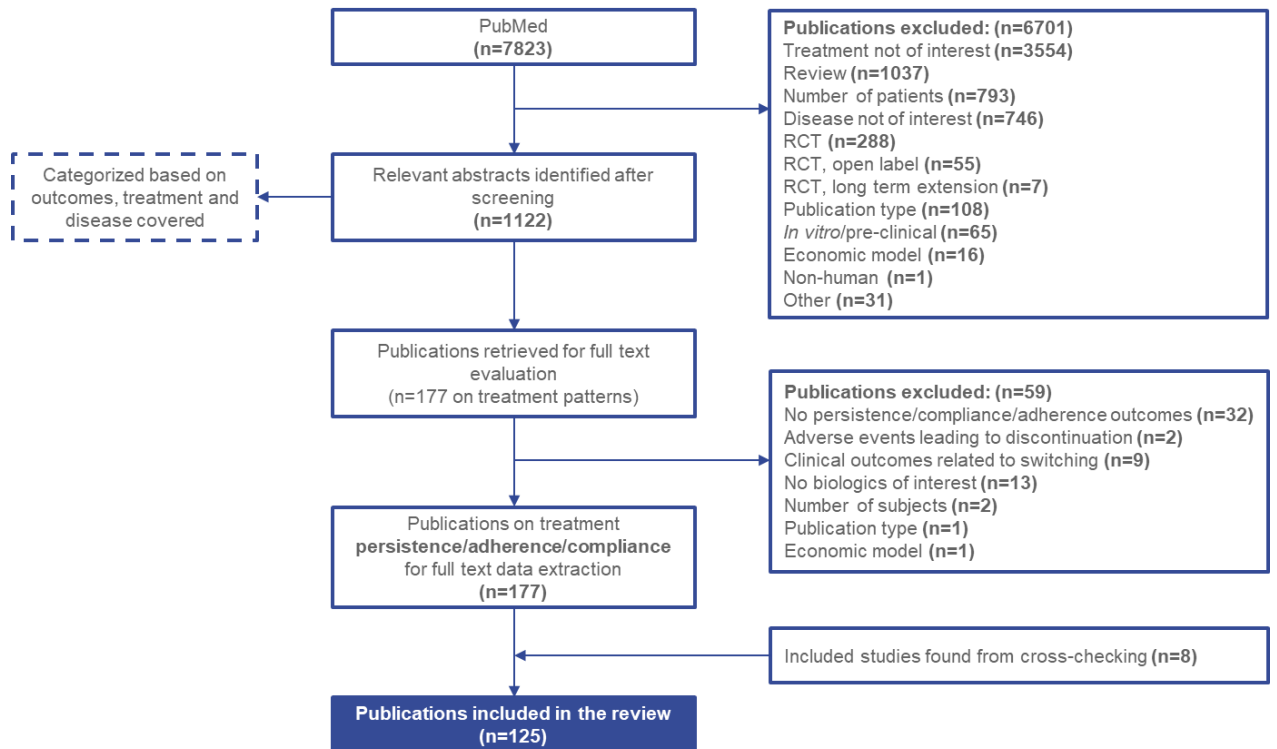
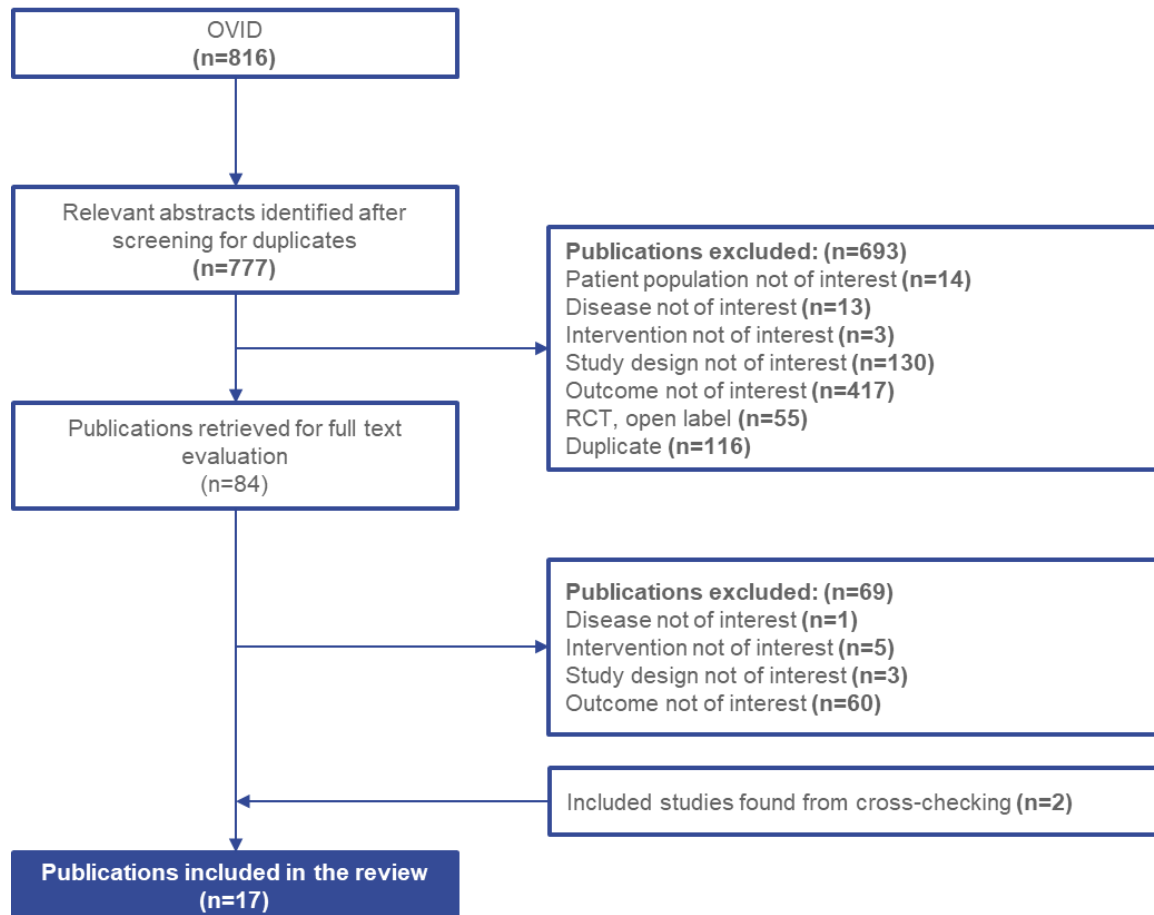


ELECTRONIC SUPPLEMENTARY MATERIALS

Supplementary Figure 1. Prisma flow diagram detailing all articles identified during the first targeted literature review and the associated reasons for exclusion



Supplementary Figure 1. Prisma flow diagram detailing all articles identified during the second targeted literature review and the associated reasons for exclusion



Online Resource 1. A summary of all studies identified reporting rates of treatment persistence and compliance, separated by disease indication

Study	Treatment/Patient population	Type of study	Compliance	Persistence
AS				
Arends et al. Arthritis Res Ther. 2012;14(2):R98.	ETAN, INF, ADA: Total: 111	Prospective longitudinal observational cohort		X
Glintborg et al. Ann Rheum Dis. 2010;69(11):2002–8.	ADA: 247 (29%); ETAN: 150 (18%); INF: 445 (53%)	Retrospective review of clinical records		X
Glintborg et al. Ann Rheum Dis. 2013;72(7):1149–55.	ADA: 532 (37%); ETAN: 231 (16%); INF: 653 (45%); GOL: 20 (1%)	Retrospective review of clinical records		X
Gulyas et al. Eur J Health Econ. 2014;15(Suppl 1):S93–100.	Non-switchers: 98; Switchers: 77	Retrospective, single-center, observational		X
Kristensen et al. Arthritis Care Res. 2010;62(10):1362–9.	Spondylitis: 122; Peripheral arthritis: 121	Prospective, observational study cohort		X
Lie et al. Ann Rheum Dis. 2011;70(1):157–63.	Non-switchers: 437; Switchers: 77	Longitudinal observational multicenter		X
Luc et al. J Rheumatol. 2007;34(10):2078–81.	INF: 74; ETAN: 72; ADA: 29	Retrospective, observational study in a single-center tertiary-referral clinic		X
Nell-Duxneuner et al. Clin Pharmacol Ther. 2012;50(12):867–72.	ETAN: 123; INF: 154; ADA: 62	Retrospective		X
Pavelka et al. Clin Exp Rheumatol. 2009;27(6):958–63.	INF, ADA, ETAN: Total: 310	Registry study		X
axSpA				
Gulfe et al. Scand J Rheumatol. 2014;43(6):493–7.	INF: 25; ETAN: 53; ADA: 23; GOL: 8; CZP: 3	Prospective		X
CD				
Billioud et al. Inflamm Bowel Dis. 2011;17(1):152–9.	ADA: 108	Observational multicenter	X	
Carter et al. Adv Ther. 2011;28(8):671–83.	INF: Adherent: 466; Non-adherent: 172	Retrospective database	X	
De Bie et al. Aliment Pharmacol Ther. 2010;33(2):243–50.	INF: 152	Observational Multicenter		X
Gonzaga et al. Inflamm Bowel Dis. 2009;15(12):1837–43.	Discontinued INF infusions 1 year: 42; Ongoing INF after 1 year: 112	Retrospective, observational		X
Kane et al. Aliment Pharmacol Ther.	INF: 274	Retrospective database	X	

2006;24(7):1099–103.				
Kane et al. Adv Ther. 2009;26(10):936–46.	INF: Adherent: 375; Non-adherent: 196	Claims data	X	
Nuti et al. J Pediatr Gastroenterol Nutr. 2014;58(5):582–7.	INF and ADA: 78	Retrospective, single-center, cohort		X
Stein et al. Inflamm Bowel Dis. 2010;16(7):1173–9.	INF: 104	Retrospective, observational	X	
IBD				
Desai et al. Inflamm Bowel Dis. 2013;19(2):309–15.	INF: 45; ADA: 9	Retrospective review of clinical records		X
Freling et al. Am J Gastroenterol. 2015;110(8):1186–96.	INF and ADA: 583	Retrospective single-center		X
Hiroz et al. Scand J Gastroenterol. 2014;49(10):1207–18.	CD: 956; UC:775; indeterminate colitis: 40	Cohort		X
Tabibian et al. Dig Dis Sci. 2015;60(5):1366–74.	CD: 78; UC: 58	Cross-sectional	X	
Vahabnezhad et al. Inflamm Bowel Dis. 2014;20(4):606–13.	INF: 188 (CD: 157; UC: 31)	Single-center retrospective cohort		X
JIA				
McErlane et al. Rheumatology (Oxford). 2013;52(10):1905–13.	ETAN (49%); INF (28%); ADA (22%); ANA (1%)	Retrospective observational		X
Tynjala et al. Ann Rheum Dis. 2009;68(4):552–7.	ETAN: 105; INF: 104	Prospective, national, longitudinal, observational		X
PsA				
Chastek et al. Adv Ther. 2012;29(8):691–7.	ADA: 144; ETAN: 202	Retrospective review of clinical records		X
Fagerli et al. Ann Rheum Dis. 2013;72(11):1840–4.	Non-switchers: 344; Switcher 1 st TNFi: 95; Switcher 2 nd TNFi: 95	Longitudinal cohort		X
Fagerli et al. Ann Rheum Dis. 2014;73(1):132–7.	TNFi monotherapy: 170; TNFi combination: 270	Longitudinal observational		X
Glintborg et al. Rheumatology (Oxford). 2014;53(11):2100–9.	DANBIO registry: 376; ICEBIO registry: 86	Observational cohort		X
Glintborg et al. Arthritis Rheum. 2011;63(2):382–90.	ADA: 320; ETAN: 184; INF: 260	Retrospective review of clinical records		X
Glintborg et al. Arthritis Rheum. 2013;65(5):1213–23.	Biologics (ADA, ETAN, INF, GOL, RTX, TCZ, ABA): 1422	Observational cohort		X
Iannone et al. Scand J Rheumatol.	ADA-Polyarticular: 67; ADA-Oligoarticular:	Longitudinal cohort		X

2015;44(3):192–9.	37; ETAN-Polyarticular: 96; ETAN-Oligoarticular: 54; INF - Polyarticular: 50; INF-Oligoarticular: 24			
Kristensen et al. Ann Rheum Dis. 2008;67(3):364–9.	TNFi (ETAN, ADA, INF) with MTX: 161; TNFi without MTX: 100	Prospective observational		X
Saad et al. Arthritis Res Ther. 2009;11(2):R52.	ETAN: 316; ADA: 88; INF: 162	Observational		X
Saugou et al. Semin Arthritis Rheum. 2011;40(5):398–406.	INF: 30; ETAN: 25; ADA: 10	Open-label observational cohort		X
Zhang et al. Arthritis Res Ther. 2014;16(4):420.	Oral non-biologic DMARDs: 1698 (1217 received MTX); Biologic DMARDs: 3263	Retrospective		X
Zhu et al. Clin Ther. 2013;35(9):1376–85.	Biologics: 2143; Biologic + DMARD: 1021	Retrospective claims database		X
PsO				
Carrascosa et al. J Eur Acad Dermatol Venereol. 2014;28(7):907–14.	Biologics: 1162	Prospective inception cohort		X
Chastek et al. J Dermatolog Treat. 2013;24(1):25–33.	ADA: 330; ETAN: 497	Retrospective review of clinical records		X
Di Lernia et al. J Dermatolog Treat. 2012;23(6):404–9.	194 (ETAN, INF, ADA)	Retrospective observational		X
Esposito et al. Br J Dermatol. 2013;169(3):666–72.	ADA: 114; ETAN: 389; INF: 147	Retrospective analysis		X
Esposito et al. Drug Dev Res. 2014;75(Suppl 1):S31–4.	Total: 367; ETAN intermittent: 110 (72.4%); ETAN continuous: 42 (27.6%)	Retrospective analysis		X
Gniadecki et al. Br J Dermatol. 2011;164(5):1091–6.	ADA: 347; ETAN: 271; INF: 129	Retrospective claims database		X
Gniadecki et al. Br J Dermatol. 2015;172(1):244–52.	ADA: 567; ETAN: 364; INF: 176; UST: 170	Prospective cohort		X
Kim et al. J Am Acad Dermatol. 2015;73(2):237–41.	UST: 176; ETAN: 175; ADA: 134; INF: 60	Multicenter retrospective chart review		X
Lopes et al. Rev Saude Publica. 2014;48(4):651–61 (discussion 61).	ADA: 14; EFA: 43; ETAN: 35; INF: 111	Descriptive cross-sectional		X
Luber et al. J Am Acad Dermatol. 2014;70(3):525–32.	INF: 93	Retrospective cohort		X
Piaserico, S et al. J Am Acad Dermatol. 2014;70(2):257–62.e3.	5423 identified; 4389 with data; 228 switch to 2 nd TNFi; complete follow-up data for 105 (n=105 for outcomes)	Prospective, observational, cohort		X
Svedbom et al. J Eur Acad Dermatol	Biologics: 506	Database analysis		X

Venereol. 2015;29(2):215–23.				
van den Reek et al. Br J Dermatol. 2014;171(5):1189–96.	ADA: 101; ETAN: 82; UST: 66	Prospective registry		X
RA				
Agarwal et al. J Rheumatol. 2008;35(9):1737–44.	Not using a TNFi: 419; Using a TNFi: 503 (ETAN: 304; INF: 71; ADA: 128)	Prospective, observational, single-center cohort		X
Blom et al. J Rheumatol. 2009;36(10):2171–7.	Non-responders: 49; Loss of response: 75; AEs: 75	Observational registry		X
Bluett et al. Rheumatology (Oxford). 2015;54(3):494–9.	TNFi (ETAN, ADA, CZP, GOL): 392	Observational cohort	X	
Borah et al. Curr Med Res Opin. 2009;25(6):1365–77.	ETAN: 2537; ADA: 1293	Retrospective cohort analysis	X	X
Cho et al. Rheumatol Int. 2012;32(12):3851–6.	ADA: 219; ETAN: 143; INF: 26	Retrospective database		X
Curkendall et al. Arthritis Rheum. 2008;59(10):1519–26.	ETAN/ADA: 2285	Retrospective cohort	X	X
De Keyser et al. J Rheumatol. 2014;41(9):1761–5.	RTX: 649	Database analysis		X
De Keyser et al. J Rheumatol. 2014;41(7):1276–81.	INF: 507	-		X
den Broeder et al. Ann Rheum Dis. 2006;65(6):760–2.	ANA: 150	Prospective, in part retrospective, cohort		X
Du Pan et al. Arthritis Rheum. 2009;61(5):560–8.	ETAN: 887; ADA: 882; INF: 597	Longitudinal, observational, population-based cohort		X
Favalli et al. Rheumatology (Oxford). 2014;53(9):1664–8.	201 discontinued their 1st TNFi; 119 (59.2%) switched to a 2nd TNFi	Retrospective observational		X
Fisher et al. Curr Med Res Opin. 2013;29(5):561–8.	ETAN New: 1595; ETAN Continuing: 1203; ADA New: 417; ADA Continuing: 507; INF New: 414; INF Continuing: 849	Retrospective cohort		X
Fisher et al. BMJ Open. 2014;4(9):e005532.	INF: 571 (21%); ADA: 453 (16%) ;ETAN: 1718 (63%)	Population based cohort		X
Flouri et al. Semin Arthritis Rheum. 2014;43(4):447–57.	INF: 560; ADA: 435; ETAN: 302	Prospective cohort		X
Genevay et al. Arthritis Rheum. 2007;57(4):679–85.	Elderly RA >65years old: 344; Young RA <65 years old: 1228	Longitudinal population- based cohort		X
Gibofsky et al. Clin Exp Rheumatol. 2015;33(3):297–301.	ETAN monotherapy: 982 ETAN + MTX: 1356; ETAN + MTX + other DMARDs: 537; ETAN +	Prospective, multicenter, observational registry		X

	other DMARDs: 609			
Gomez-Reino et al. Ann Rheum Dis. 2012;71(3):382–5.	2000–2003: 1170; 2004–2006: 955; 2007–2009: 782	Prospective registry		X
Greenberg et al. Ann Rheum Dis. 2012;71(7):1134–42.	ADA (biologic-naïve): 460; ETAN (biologic-naïve): 480; INF (biologic-naïve): 535; ADA (First-time switcher): 311; ETAN; (First-time switcher): 139; INF (First-time switcher): 166	Prospective cohort		X
Gulfe et al. J Rheumatol. 2009;36(3):517–21.	TNFi (ADA, ETAN, INF): 1789	Database study		X
Harley et al. Am J Manag Care. 2003;9(6 Suppl):S136–43.	INF: 141; ETAN: 853; MTX: 1668	Retrospective analysis	X	
Hetland et al. Ann Rheum Dis. 2008;67(7):1023–6.	2000/2001: 273; 2002: 187; 2003: 331; 2004: 534; 2005: 488	Prospective observational		X
Hirabara et al. Clin Rheumatol. 2014;33(9):1247–54.	ABA: 25; TCZ: 38; ETAN: 26	Retrospective multicenter		X
Hishitani et al. Scand J Rheumatol. 2013;42(4):253–9.	TCZ: 97; INF: 103; ETAN: 143; ADA: 58	Observational cohort		X
Hjardem et al. Ann Rheum Dis. 2007;66(9):1184–9.	Switchers: 235; INF: 178; ETAN: 18; ADA: 39	Observational		X
Hyrich et al. Arthritis Rheum. 2007;56(1):13–20.	ADA: 876; ETAN: 2826; INF:3037 Stopped 1 st agent for inefficacy (switch): 338; Stopped 1 st agent for inefficacy (no switch): 503; Stopped 1 st agent for AEs (switch): 670; Stopped 1 st agent for AEs (no switch): 357	Prospective cohort		X
Iannone et al. J Rheumatol. 2012;39(6):1179–84.	ADA: 324; ETAN: 311; INF: 218	Prospective cohort		X
Iannone et al. Clin Exp Rheumatol. 2015;33(4):524–30.	INF: 565	Prospective cohort		X
Kaufmann et al. Clin Rheumatol. 2013;32(9):1347–55.	254 (TCZ: 126; TNFi monotherapy: 128)	Retrospective cohort-based		X
Koike et al. Rheumatol Int. 2012;32(6):1617–24.	ETAN (with prior INF): 908; ETAN (without prior INF): 6191	Prospective registry		X

Kristensen et al. Arthritis Res Ther. 2006;8(6):R174.	INF (MTX A): 501; INF (other DMARD): 116; INF (B Monotherapy C): 104; ETAN (MTX A): 179; ETAN (other DMARD): 68; ETAN (B Monotherapy C): 198	Observational		X
Lee et al. Rheumatol Int. 2014;34(10):1449–53.	TNFi (ETAN, INF, ADA): 567	Population-based observational cohort		X
Leffers et al. Ann Rheum Dis. 2011;70(7):1216–22.	ABA: 150; TCZ: 178	Retrospective review of clinical records		X
Li et al. Value Health. 2010;13(6):805–12.	ETAN: 1359 (Patients without cancer diagnoses: 1253); ANA: 267 (without cancer diagnoses: 241); INF: 1012 (without cancer diagnoses: 887)	Retrospective study	X	
Marchesoni et al. Ann N Y Acad Sci. 2009;1173:837–46.	INF: 519; ADA: 303; ETAN: 244	Observational		X
Markatseli et al. Clin Exp Rheumatol. 2012;30(1):31–8.	INF: 82; ADA: 49; ETAN: 20	Prospective cohort		X
Markenson et al. J Rheumatol. 2011;38(7):1273–81.	ETAN: 694; INF: 1427; ADA: 297	Retrospective analysis		X
Matsubara et al. J Rheumatol. 2014;41(8):1583–9.	ETAN: 588	Database analysis		X
Meissner et al. J Med Econ. 2014;17(4):259–65.	1 st line switchers: 765; 1 st line non-switchers: 8992; 2 nd line switchers: 300; 2 nd line non-switchers: 1874	Retrospective longitudinal analysis		X
Navarro-Sarabia et al. BMC Musculoskelet Disord. 2009;10:91.	1st TNFi: 417; 2 nd TNFi: 83; 3 rd TNFi: 18	Observational, prospective cohort		X
Oei et al. Clin Exp Rheumatol. 2009;27(6):926–34.	No switch: 112; Switch/stopped: 101	Retrospective analysis		X
Oladapo et al. J Manag Care Spec Pharm. 2014;20(7):657–67.	ETAN: 578; ADA: 401; INF: 563	Retrospective database analysis	X	
Ostergaard et al. Scand J Rheumatol. 2007;36(2):151–4.	INF: 278; ETAN: 22	Database		X
Punzi et al. Reumatismo. 2011;63(1):18–28.	INF: 248; ETAN: 259; ADA: 196	Observational multicenter retrospective cohort		X
Santoleri et al. J Med Econ. 2014;17(5):320–5.	ETAN: 43; ADA: 44	Observational retrospective study	X	X
Schulze-Koops et al. Clin Exp Rheumatol. 2015;33(2):201–8.	GOL: Self-injection: 2222; No self-injection: 1058	Open-label, multinational, multicenter prospective trial	X	

Staples et al. Rheumatology (Oxford). 2011;50(1):166–75.	ETAN: 1018; ADA: 643; INF: 140	Prospective cohort		X
Stockl et al. J Manag Care Phar. 2010;16(8):593–604.	DTM ITT: 340; DTM completer: 244; Specialty pharmacy: 244; Community pharmacy: 244 Treatment: ETAN, ADA, ANA, ABA, INF, RTX	Observational cohort	X	
Takahashi et al. Clin Rheumatol. 2014;33(1):39–47.	ADA: 120; TCZ: 97; ABA MDA: 86; ABA HDA: 128	Observational		X
Tanaka et al. Rheumatol. 2008;18(2):146–52.	INF: 410	Retrospective clinical		X
Tang et al. Clin Ther. 2008;30(7):1375–84.	ADA: 145; ETAN: 607; INF 492	Retrospective cohort		X
Tkacz et al. Clin Ther. 2014;36(5):737–47.	ADA: 1532; ETAN: 2099; GOL: 261	Exploratory	X	
Vander Cruyssen et al. Arthritis Res Ther. 2010;12(3):R77.	INF: 511	Prospective cohort		X
Voulgari et al. Am J Med. 2005;118(5):515–20.	INF: 84	Observational		X
Wendler et al. Arthritis Res Ther. 2014;16(2):R80.	RTX: 2484	Multicenter, prospective, non-interventional		X
Yang et al. Clin Rheumatol. 2012;31(11):1549–57.	ETAN: 181; ADA: 36	Retrospective cohort study		X
Yazici et al. J Rheumatol. 2009;36(5):907–13.	ETAN: 4643; ADA: 1365; INF: 3068	Retrospective analysis		X
Zhang et al. Arthritis Care Res (Hoboken). 2015;67(5):624–32.	Biologic agent combination (with MTX): ABA: 4143; ADA: 2919; ETAN: 2704; INF: 5571; TCZ: 662 Biologic monotherapy (no MTX or other non-biologic DMARDs): ABA: 3575; ADA: 1934; ETAN: 2039; INF: 2238; TCZ: 725	Retrospective cohort study	X	X
Zink et al. Ann Rheum Dis. 2005;64(9):1274–9.	Leflunomide only: 120; Leflunomide + MTX: 141; ETAN: 511; INF: 343; ANA: 70	Retrospective, observational study		X
Multiple Disease Indications				
Bonafede et al. Adv Ther. 2012;29(8):664–74.	ETAN: 4224; ADA: 2941; INF: 1289	Retrospective cohort study		X
Bonafede et al. J Dermatolog Treat. 2013;24(5):369–73.	ETAN (PsO): 1609; ETAN (PsA): 679; ETAN (PsO/PsA): 246; ADA (PsO): 1166; ADA (PsA): 518; ADA (PsO/PsA): 235	Retrospective database analysis		X
Borrás-Blasco et al. Expert Opin Biol Ther.	ADA: RA: 29; PsA: 17; AS: 9	A two-phase cross-sectional	X	

2010;10(3):301–7.		study		
Borrás-Blasco et al. Expert Opin Biol Ther. 2013;13(8):1103–7.	ETAN: RA: 58; PsA: 31; AS: 15	A two-phase cross-sectional study	X	
Brocq et al. Joint Bone Spine. 2007;74(2):148–54.	RA: 304 (ETAN=157; INF=104; ADA=43); AS 92 (ETAN=65.2; INF=53; ADA=0); SpA: 46 (ETAN=32;INF=9; ADA=5)	Retrospective study		X
Carmona et al. Arthritis Res Ther. 2006;8(3):R72.	RA: 4006 (68.46%); SpA total: 1524(26.0%) (Subgroup SpA: AS: 657; PsA: 570; Undifferentiated SpA: 187; CD: 68; Juvenile spondylitis: 19; Reactive arthritis: 12; Chronic seronegative Oligoarthritis: 13)	Registry analysis		X
Dalen et al. Rheumatol Int. 2016;36(7):987–95.	ADA: 1823; ETAN: 1704; CZP: 622; GOL: 754	Retrospective register study		X
Duclos et al. J Rheumatol. 2006;33(12):2433–8.	RA: 440; SpA: 290; Others: 40 INF: 244 (31.7%); ETAN: 419 (54.4%); ADA: 107 (13.9%)	Retrospective		X
Ducourau et al. Arthritis Res Ther. 2011;13(3):R105.	RA-ATI positive: 7; RA-ATI negative: 10; SpA-ATI positive: 14; SpA-ATI negative: 77	Retrospective		X
Fabroni et al. Mediators Inflamm. 2014;2014:862969.	ADA: 64; ETAN: 135; INF: 69	Retrospective cohort		X
Gomez-Reino et al. Arthritis Res Ther. 2006;8(1):R29.	TNFi: 4706	Registry		X
Ip et al. N Z Med J. 2015;128(1415):34–40.	ADA: 139; ETAN: 25; INF: 19	Retrospective review of clinical records		X
Kadar et al. Clin Rheumatol. 2014;33(3):329–33.	RA: 126; AS: 38; PsA: 11	Retrospective, multi-center observational		X
Lie et al. Ann Rheum Dis. 2015;74(6):970–8.	AS, cDMARD comedication: 557; AS, no cDMARD comedication: 808; Undifferentiated SpA, cDMARD comedication: 581; Undifferentiated SpA, no cDMARD comedication: 574	Prospective registry		X
Scire et al. Clin Exp Rheumatol. 2013;31(6):857–63.	RA: 2640; SpA: 1220 (722 PsA, 498 AS)	Observational		X
Titton et al. Rev Bras Reumatol. 2011;51(2):152–60.	RA: 569; AS: 131; Others: 180	Prospective registry		X
Ventura-Ríos et al. Reumatol Clin.	ETAN: 679; INF: 525; ADA: 386; RTX: 281	Multicenter ambispective registry		X

2012;8(4):189–94.				
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ABA, abatacept; ADA, adalimumab; AE, adverse event; ANA, anakinra; AS, ankylosing spondylitis; axSpA axial spondyloarthritis; bDMARD: biologic disease-modifying antirheumatic drug; CD, Crohn's disease; cDMARD, conventional disease-modifying antirheumatic drug; CZP, certolizumab pegol; DMARD, disease-modifying antirheumatic drug; DTM, disease therapy management; EFA, efalizumab; ETAN, etanercept; GOL, golimumab; HDA: high disease activity; IBD, inflammatory bowel disease; INF, infliximab; ITT, intention to treat; JIA, juvenile idiopathic arthritis; MDA, moderate disease activity; MTX, methotrexate; PsA, psoriatic arthritis; PsO, psoriasis; RA, rheumatoid arthritis; RTX, rituximab; SpA, spondyloarthritis; TCZ, tocilizumab; TNFi, tumor necrosis factor inhibitor; UC, ulcerative colitis; UST, ustekinumab