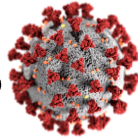


EVENT DEFINITION FORM

Event: Acute aseptic arthritis
Outcome/covariate: outcome
Version: 1.0
Status: Final

Contributing authors

authors	Role	
Tuur Egbers	Medical, draft	14-08-2020
Miriam Sturkenboom	Review	16-08-2020
Leila Belbachir	Review	24-08-2020
Corinne Willame	Concept sets proposal in algorithm	02-09-2020
Miriam Sturkenbom	Inclusion of final codes	16-7-2021



1. Event definition (1)

Acute aseptic arthritis (AAA) is a clinical syndrome characterized by acute onset of signs and symptoms of joint inflammation for a period of no longer than 6 weeks, synovial increased leucocyte count and the absence of microorganisms on Gram stain, routine culture and/or PCR.

AAA doesn't include chronic inflammatory conditions such as rheumatoid arthritis (RA), connective tissue diseases, osteoarthritis vasculitis or spondylarthropathies. These conditions are chronic and are diagnosed later than within 6 weeks.

The case definition has been formulated such that the Level 1 definition is highly specific for the condition. As maximum specificity normally implies a loss of sensitivity, two additional diagnostic levels have been included in the definition, offering a stepwise increase of sensitivity from Level 1 down to Level 3, while retaining an acceptable level of specificity at all levels. In this way it is hoped that all possible cases of AAA can be captured.

All levels of diagnostic certainty

- One or more of the following clinical signs and symptoms assessed by a health care provider
- Articular or peri-articular swelling
- Articular effusion
- Articular or peri-articular erythema
- Increased warmth palpable over capsular contour of the joint
- Restricted range of movement

AND

- Duration of less than 6 weeks until complete resolution of symptoms

AND

- Absence of recent articular trauma Level 1 of diagnostic certainty

Level 1 of diagnostic certainty

- Increased leucocyte count in synovial fluid determined as:
 - o >2000 leukocytes/mm³ on aspirate regardless of age AND
 - o <50% white blood count PMN in synovial fluid

AND

- Absence of pathological synovial fluid cells
- Absence of any microorganism on Gram stain, microscopy or PCR in synovial fluid
- No bacterial growth on routine culture of synovial fluid
- Absence of antibiotic treatment before obtaining the first synovial fluid sample

Level 2 of diagnostic certainty

- Negative bacterial blood cultures

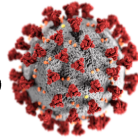
AND

- Negative routine bacterial culture of synovial fluid

AND

-
- Absence of antibiotic treatment before obtaining the first synovial fluid sample

AND Absence of fever¹⁴



Level 3 of diagnostic certainty

- Absence of fever.

Considering this definition of AAA by the Brighton Collaboration (BC), types of diseases that fit this definition are:

- Gout and gout flare
- Inflammatory arthritis other than septic (bacterial)
- Psoriatic arthritis

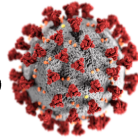
The BC definition really limits the amount of diagnosis that fits. The definition can mainly be used to look at a specific joint in the research setting to determine if it fits the AAA definition or not, it is not a diagnosis in itself. This is the reason why AAA is hard to qualify

AAA	Not AAA
Gouty arthritis	Rheumatoid arthritis (chronic)
Psoriatic arthritis	Osteoarthritis (chronic)
Viral arthritis	Spondylarthropathie (chronic)
	Reactive arthritis (bacterial)
	Felty syndrome (part of RA)
	JIA(chronic)
	Post trauma
	Periarthritis (frozen shoulder) (caused by repetitive movements)
	Lyme arthritis (bacterial)

2. Synonyms / lay terms for the event

Synonyms for acute aseptic arthritis:

- Arthralgia
- Viral arthropathy
- Arthropathy
- Arthritis
- Gout
- Acute gout
- Joint inflammation
- Joint pain
- Articular pain
- Inflammatory arthritis



3. Laboratory tests that are specific for event (1)(2)

AAA is commonly defined as a clinical syndrome characterized by acute onset of signs and symptoms of joint inflammation, increased white blood count (WBC) in synovial fluid and the absence of an identifiable causative organism.

Diagnostic laboratory tests for the characterisation of AAA are:

- **Blood testing**
 - o Increased white blood cell (WBC) count
 - o Leukocyte differentiation
 - % polymorphonuclear
 - o Erythrocyte sedimentation may be normal or slightly elevated
 - o C- reactive protein may be normal or slightly elevated
- **Polymerase chain reaction (PCR)** In recent years, the diagnostic use has become more common in addition to standard and specialized culture techniques to exclude infectious agents in synovial fluid.

These test are necessary to discriminate between inflammatory (septic) and non-inflammatory disease. A WBC count > 50,000/mm³ with >75% PMN, should be considered highly suggestive for a septic joint.

Results that are suggestive for AAA are a WBC count of >2000 leukocytes/mm³ on aspirate regardless of age and less that 50% PMN leucocytes in the leucocyte differentiation in synovial fluid.

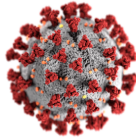
Other laboratory tests aiming to substantiate or exclude an existing or preceding joint infection include:

- **Synovial membrane biopsy,**
- **Synovial immunofluorescence microscopy**
- **Synovial fluid leucocyte investigations.**
- **Arthrocentesis** should be performed in affected swollen joints to exclude diagnoses including infectious arthritis or crystal disease, if it has not already been performed. Testing should include a cell count, differential, Gram stain, culture, and crystal search.

Undifferentiated early inflammatory arthritis in adults

laboratory testing:

- **A complete blood count** blood urea nitrogen and creatinine; hepatic aminotransferases; uric acid; and thyroid-stimulating hormone.
- **Autoantibody testing** in patients in whom RA or a systemic rheumatic disease has not already been excluded, including rheumatoid factor (RF), anti-citrullinated peptide antibody (ACPA), and antinuclear antibody (ANA).
- **Acute phase reactants** including erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP).
- **Serologic testing for Lyme borreliosis** To exclude Lyme arthritis as a possible bacterial cause of AAA. in patients with a recent history of having resided in or traveled to an area endemic for Lyme disease and a risk factor for exposure to ticks; and for parvovirus B19 infection.



4. Diagnostic tests that are specific for event (1)(2)

To determine if an inflamed joint is a AAA, an arthrocentesis is best way to go. Synovial fluid can be tested in the laboratory.

Radiology findings

Plain radiographs, ultrasound (US) or MRI may reveal various articular structural changes. However, in the context of AAA, they are only helpful in identifying articular effusion or periarticular soft tissue swelling, and to exclude traumatic lesions

- **Plain radiography** particularly useful because of its utility in identifying findings that are characteristic of RA, particularly joint erosions, which may be useful diagnostically
- **US and MRI** may be helpful in identifying involved joints in patients suspected of RA in whom at least one joint is clinically swollen due to synovitis

5. Drugs that are used to treat event (3)(4)

A singular event of arthritis is best treated with NSAIDs starting with a high dosis of **naproxen** (2 dd 500 mg), **diclofenac** (3 dd 50 mg) or **ibuprofen** (3 dd 600 mg).

If this treatment doesn't give enough pain relieve an intra-articular corticosteroid-injection can be considered.

Gout can be treated with:

- **colchicine** it a biologic agents that lowers urete concentrations, so that they are less likely to accumulate in the joint. (eg, allopurinol, febuxostat, probenecid, lesinurad, benzbromarone, or pegloticase)

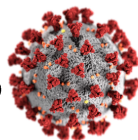
Several different therapies, including **systemic and intraarticular glucocorticoids**, nonsteroidal anti-inflammatory drugs (**NSAIDs**), and **colchicine**, are each effective for the treatment of the gout flare; there is no single best agent for all patients experiencing a flare.

6. Procedures used specific for event treatment

If oral medicinal treatment doesn't give enough pain relieve a intra-articular corticosteroid-injection can be considered. Otherwise this event is treated with medicine only

7. Setting (outpatient specialist, in-hospital, GP, emergency room) where condition will be most frequently /reliably diagnosed

AAA often occurs outside the controlled setting of a clinical trial or hospital. The setting in with the enter the hospital is at the outpatient specialist.



8. Diagnosis codes or algorithms used in different papers to extract the events in Europe/USA: seek literature for papers that have studied this event, and see how they extracted/measured the event.

ICD-10 version: 2019

M07 Psoriatic and enteropathic arthropathies

- M07.0 Distal interphalangeal psoriatic arthropathy
- M07.3 Other psoriatic arthropathies

M10 Gout

- M10.0 Idiopathic gout

ICD-9 version:2015

Arthropathies and Related Disorders 710-719

711 Arthropathy associated with infections:

- 711.5 Arthropathy associated with other viral diseases

712 Crystal arthropathies

- 712.1 Chondrocalcinosis due to dicalcium phosphate crystals
- 712.2 Chondrocalcinosis due to pyrophosphate crystals
- 712.3 Chondrocalcinosis cause unspecified
- 712.8 Other specified crystal arthropathies
- 712.9 Unspecified crystal arthropathy

716 Other and unspecified arthropathies

- 716.6 Unspecified monoarthritis
- 716.9 Unspecified arthropathy

274 Gout

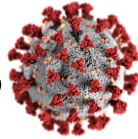
- 274.0 Gouty arthropathy
 - o 274.01 Acute gouty arthropathy

9. Experience of participating data sources in extracting the events prior to ACCESS

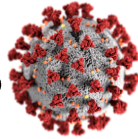
FISABIO - Y - 714.00-714.9, M05.XXX, M06.XXX - Not validated - Publication is pending

10. Codes used in ACCESS

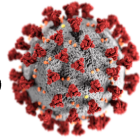
Coding system	Code	Code name	Concept	Algorithm
ICD10/CM	M11.9	Crystal arthropathy, unspecified	C0152087	Possible
ICD10/CM	M10	Gout	C0018099	Possible
ICD10/CM	M10.9	Gout, unspecified	C0018099	Possible
ICD10/CM	M10.0	Idiopathic gout	C0149896	Possible
ICD10/CM	M10	Acute gout	C0149896	Possible
ICD10/CM	M10.00	Idiopathic gout, unspecified site	C0837800	Possible
ICD10/CM	M10	Gout	C0018099	Possible
ICD10/CM	M19.90	Arthritis NOS	C0003864	Possible
ICD10/CM	M13.9	Arthritis, unspecified	C0003864	Possible



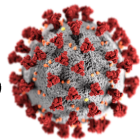
ICD9CM	712	Crystal arthropathies	C0152087	Possible
ICD9CM	712.9	Unspecified crystal arthropathy	C0152087	Possible
ICD9CM	712.90	Unspecified crystal arthropathy, site unspecified	C0152087	Possible
ICD9CM	711.5	Arthropathy associated with other viral diseases	C0157801	Possible
ICD9CM	711.50	Arthropathy associated with other viral diseases, site unspecified	C0157801	Possible
ICD9CM	274	Gout	C0018099	Possible
ICD9CM	274.9	Gout, unspecified	C0018099	Possible
ICD9CM	274.01	Acute gouty arthropathy	C0149896	Possible
ICD9CM	712.1	Chondrocalcinosis due to dicalcium phosphate crystals	C0157852	Possible
ICD9CM	274.0	Gouty arthropathy	C0003868	Possible
ICD9CM	274.00	Gouty arthropathy, unspecified	C0003868	Possible
ICD9CM	274	Gout	C0018099	Possible
ICD9CM	274.9	Gout, unspecified	C0018099	Possible
ICD9CM	716.90	Not specified arthropathy location not specified		Possible
ICD9CM	716.40	Transitory arthropathy location not specified		Possible
ICPC	T92	Gout	C0018099	Possible
ICPC2P	T99048	Arthropathy;crystal	C0152087	Possible
ICPC2P	L70010	Arthritis;viral	C0003875	Possible
ICPC2P	T92001	Gout	C0018099	Possible
ICPC2P	T92001	Gout	C0018099	Possible
ICPC2P	L20009	Arthritis	C0003864	Possible
ICPC2P	L88003	Arthritis;inflammatory	C0003864	Possible
ICPC2P	L91009	Arthritis	C0003864	Possible
RCD2	N02z0	Crystal arthr.NOS-site unspec.	C0152087	Possible
RCD2	N02z.	Crystal arthropathy NOS	C0152087	Possible
RCD2	N02..	Crystal arthropathies	C0152087	Possible
RCD2	N0150	Arthr.+oth.viral dis-site unsp	C0157801	Possible
RCD2	N015z	Arthropathy+oth.viral dis. NOS	C0157801	Possible
RCD2	N015.	Arthropathy+other viral diseases	C0157801	Possible
RCD2	C34z.	Gout NOS	C0018099	Possible
RCD2	C34..	Gout	C0018099	Possible
RCD2	N023.	Gouty arthritis	C0018099	Possible
RCD2	44K2.	Blood urate raised	C0018099	Possible
RCD2	C342.	Idiopathic gout	C0149896	Possible
RCD2	N020.	Chondrocalc.-dicalc.phos.cryst	C0157852	Possible
RCD2	N020z	Chondrocalc.dicalc.phos.NOS	C0157852	Possible
RCD2	N0230	Gouty arthritis-site unspecif.	C0003868	Possible
RCD2	C340.	Gouty arthropathy	C0003868	Possible
RCD2	N023.	Gouty arthritis	C0003868	Possible



RCD2	N023z	Gouty arthritis-NOS	C0003868	Possible
RCD2	6693.	Joints gout affected	C0003868	Possible
RCD2	C34z.	Gout NOS	C0018099	Possible
RCD2	C34..	Gout	C0018099	Possible
RCD2	N023.	Gouty arthritis	C0018099	Possible
RCD2	44K2.	Blood urate raised	C0018099	Possible
RCD2	N06z.	Arthropathy NOS	C0003864	Possible
RCD2	N023...	Gouty Arthritis		Possible
RCD2	N0230..	Gouty Arthritis		Possible
RCD2	N06zA	Acute arthritis		Possible
SCTSPA	18834007	artropatía por cristales	C0152087	Possible
SCTSPA	201687008	artropatía por cristales, SAI	C0152087	Possible
SCTSPA	201688003	artropatía por cristales, SAI, de sitio no especificado	C0152087	Possible
SCTSPA	201721000	artropatía por cristales, SAI	C0152087	Possible
SCTSPA	201521003	artropatía asociada con otras enfermedades virales	C0157801	Possible
SCTSPA	201522005	artropatía asociada con otra enfermedad viral, de localización no especificada	C0157801	Possible
SCTSPA	201532003	artropatía asociada con otra enfermedad viral, SAI	C0157801	Possible
SCTSPA	239780003	artritis causada por infección viral	C0003875	Possible
SCTSPA	111213004	artropatía asociada con enfermedad viral	C0409626	Possible
SCTSPA	90560007	gota	C0018099	Possible
SCTSPA	24595009	gota primaria	C0149896	Possible
SCTSPA	36009009	artritis gotosa aguda	C0149896	Possible
SCTSPA	770924008	gota aguda	C0149896	Possible
SCTSPA	201625003	condrocalcinosis por cristales de fosfato dicálcico	C0157852	Possible
SCTSPA	201636005	condrocalcinosis por cristales de fosfato dicálcico, SAI	C0157852	Possible
SCTSPA	170733007	articulaciones afectadas por gota	C0003868	Possible
SCTSPA	190828008	artropatía gotosa	C0003868	Possible
SCTSPA	201662001	artritis gotosa de sitio no especificado	C0003868	Possible
SCTSPA	201672003	artritis gotosa, SAI	C0003868	Possible
SCTSPA	48440001	gota articular	C0003868	Possible
SCTSPA	190844004	gota, SAI	C0018099	Possible
SCTSPA	90560007	gota	C0018099	Possible
SCTSPA	363178003	trastorno inflamatorio articular	C0003864	Possible
SCTSPA	372091005	artritis	C0003864	Possible
SCTSPA	3723001	artritis	C0003864	Possible
SCTSPA	448394006	Inflammation of joint of foot (disorder)		Possible
SCTSPA	448589005	Inflammation of joint of hand (disorder)		Possible
SCTSPA	699462004	Monoarthritis (disorder)		Possible
SCTSPA	239838005	Chondrocalcinosis (disorder)		Possible



SCTSPA	91944005	Arthritis of temporomandibular joint (disorder)		Possible
SCTSPA	396234004	Infective arthritis (disorder)		Possible
SCTSPA	156370009	Psoriatic arthritis		Possible
SCTSPA	439656005	Arthritis of elbow (disorder)		Possible
SCTSPA	371081002	Arthritis of knee (disorder)		Possible
SCTSPA	250131003	Lower limb joint arthritis (disorder)		Possible
SCTSPA	429459001	Arthritis of acromioclavicular joint (disorder)		Possible
SCTSPA	371082009	Arthritis of spine (disorder)		Possible
SCTSPA	699302001	Lumbar arthritis (disorder)		Possible
SCTSPA	239845005	Gout secondary to drug (disorder)		Possible
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SNOMEDCT_US	201721000	Crystal arthropathy NOS	C0152087	Possible
SNOMEDCT_US	201521003	Arthropathy associated with other viral diseases	C0157801	Possible
SNOMEDCT_US	201522005	Arthropathy associated with other viral disease, of unspecified site	C0157801	Possible
SNOMEDCT_US	201532003	Arthropathy associated with other viral disease NOS	C0157801	Possible
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SNOMEDCT_US	24595009	Primary gout	C0149896	Possible
SNOMEDCT_US	36009009	Acute gouty arthritis	C0149896	Possible
SNOMEDCT_US	770924008	Acute gout	C0149896	Possible
SNOMEDCT_US	201625003	Chondrocalcinosis due to dicalcium phosphate crystals	C0157852	Possible
SNOMEDCT_US	201636005	Chondrocalcinosis due to dicalcium phosphate crystals, NOS	C0157852	Possible
SNOMEDCT_US	147966005	Joints gout affected	C0003868	Possible
SNOMEDCT_US	154745008	Gouty arthritis	C0003868	Possible
SNOMEDCT_US	154746009	Gouty arthropathy	C0003868	Possible
SNOMEDCT_US	170733007	Joints gout affected	C0003868	Possible
SNOMEDCT_US	190827003	Gouty arthritis	C0003868	Possible
SNOMEDCT_US	190828008	Gouty arthropathy	C0003868	Possible
SNOMEDCT_US	201661008	Gouty arthritis	C0003868	Possible
SNOMEDCT_US	201662001	Gouty arthritis of unspecified site	C0003868	Possible
SNOMEDCT_US	201672003	Gouty arthritis NOS	C0003868	Possible
SNOMEDCT_US	48440001	Articular gout	C0003868	Possible



SNOMEDCT_US	190844004	Gout NOS	C0018099	Possible
SNOMEDCT_US	90560007	Gout	C0018099	Possible
SNOMEDCT_US	202059001	Arthritis	C0003864	Possible
SNOMEDCT_US	363178003	Inflammatory disorder of joint	C0003864	Possible
SNOMEDCT_US	372091005	Arthritis	C0003864	Possible
SNOMEDCT_US	3723001	Arthritis	C0003864	Possible
SNOMEDCT_US	11939005	Acute arthritis		Possible

Codes derived initially from Codemapper: Becker BFH, Avillach P, Romio S, van Mulligen EM, Weibel D, Sturkenboom MCJM, Kors JA; ADVANCE consortium. CodeMapper: semiautomatic coding of case definitions. A contribution from the ADVANCE project. *Pharmacoepidemiol Drug Saf.* 2017 Aug;26(8):998-1005. doi: 10.1002/pds.4245.

11. Algorithm proposal

Broad algorithm:

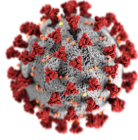
- All concept sets (Aseptic_arthritis, Gout, Arthropathy) = Any of the codes in any provenance, no prior codes
- Index date: first occurrence of any of these concept sets

Narrow algorithm:

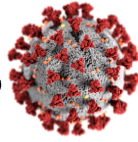
- Concept set = (Aseptic_arthritis), no prior codes
- Index date: first occurrence of any of these concept sets

12. References

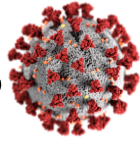
1. Woerner A, Pourmalek F, Panozzo C, Pileggi G, Hudson M, Caric A, et al. Acute aseptic arthritis: Case definition & guidelines for data collection, analysis, and presentation of immunisation safety data. *Vaccine.* 2019 Jan 7;37(2):384–91.
2. Undifferentiated early inflammatory arthritis in adults - UpToDate [Internet]. [cited 2020 Aug 15]. Available from: https://www.uptodate-com.proxy.library.uu.nl/contents/undifferentiated-early-inflammatory-arthritis-in-adults?search=arthritis&source=search_result&selectedTitle=2~150&usage_type=default&display_rank=2
3. Artritis | NHG-Richtlijnen [Internet]. [cited 2020 Aug 15]. Available from: <https://richtlijnen.nhg.org/standaarden/artritis>
4. Treatment of gout flares - UpToDate [Internet]. [cited 2020 Aug 15]. Available from: <https://www.uptodate-com.proxy.library.uu.nl/contents/treatment-of-gout-flares>



5. Kuo C-F, Grainge MJ, Zhang W, Doherty M. Global epidemiology of gout: prevalence, incidence and risk factors. *Nat Rev Rheumatol*. 2015 Nov;11(11):649–62.
6. Scotti L, Franchi M, Marchesoni A, Corrao G. Prevalence and incidence of psoriatic arthritis: A systematic review and meta-analysis. *Semin Arthritis Rheum*. 2018;48(1):28–34.



Country	Study population	Year(s) of data collection	Age range (years)	Case definition	Incidence (per 1,000 person-years or persons at risk)			Reference
					Overall	Men	Women	
USA	4,626 individuals in Sudbury, MA	1964	All ages	Clinical examination	1.0	–	–	O'Sullivan (1968) ⁹¹
	89,433 nurses in the Nurses' Health Study	1980–2006	30–55	Self-reported	–	–	0.42	Choi <i>et al.</i> (2010) ¹⁷⁶
	47,150 male health professionals in the Health Professional Follow-up Study	1986–1998	40–75	Self-reported	–	1.52	–	Choi <i>et al.</i> (2004) ¹²³
	1,271 white medical students in the Johns Hopkins Precursors Study	1957–1987	Median 22	Self-reported	–	1.73	–	Roubenoff <i>et al.</i> (1991) ¹⁷⁷
	352 black and 571 white medical students still alive in 1987 in the Meharry Cohort Study and Johns Hopkins Precursors Study	1957–1987	Black mean 29 White mean 26	Self-reported	–	Black: 3.11 White: 1.82	–	Hochberg <i>et al.</i> (1995) ¹⁷⁸
	2,046 veterans in the Normative Ageing Study	1963–1978	Mean 42	Self-reported	–	2.8	–	Campion <i>et al.</i> (1987) ¹⁰¹
	11,963 middle-aged adults in the Atherosclerosis Risk in Communities Study	1987–2012	45–64	Self-reported	0.84	Black: 1.55 White: 0.94	Black: 1.20 White: 0.50	Maynard <i>et al.</i> (2014) ⁹²
	Entire population of Rochester, MN in the Rochester Epidemiology Project	1977–1978 1995–1996	All ages	Physician diagnosis	0.45 0.62	–	–	Arrondee <i>et al.</i> (2002) ⁹³
	5,209 adults in the Framingham study	1948–1980	30–69	Clinical examination	0.84	1.6	0.25	Abbott <i>et al.</i> (1988) ³
12,490 patients at high risk of cardiovascular events in the Multiple Risk Factor Intervention Trial	1973–1982	35–57	Self-reported	–	Black: 8.7 White: 9.4	–	Krishnan (2014) ¹⁷⁹	
UK	374,832 patients in general practice based on Royal College of General Practitioners records	1971–1975	>15	Physician diagnosis	0.30	–	–	Currie (1979) ¹⁸⁰
	All registered patients in 64 practices in the Second and Third National Studies of Morbidity in General Practice	1971–1975 1981–1982	All ages	Self-reported	1.0 1.4	1.6 2.1	0.4 0.7	Stewart & Silman (1990) ⁹⁴
	1,716,276 patients in the General Practice Research Database	1991–1999	All ages	Physician diagnosis	1.31	2.15	0.71	Mikuls <i>et al.</i> (2005) ⁵⁷
	4,507,059 patients in the Clinical Practice Research Data-link	1997–2012	All ages	Physician diagnosis	1.77	2.58	0.99	Kuo <i>et al.</i> (2014) ⁹⁹
	1,775,505 adults in the Health Improvement Network	2000–2007	>20	Physician diagnosis	2.68	4.42	1.32	Cea Soriano <i>et al.</i> (2011) ¹³⁴
	920,000 patients in the Royal College of General Practitioners Weekly Returns Service	1994–2007	All ages	Physician diagnosis	1.24	1.86	0.64	Elliot <i>et al.</i> (2009) ⁹⁵
Finland	15,600 patients in hospital records	1974	>16	Physician diagnosis	0.06	0.12	0	Isomäki <i>et al.</i> (1978) ¹⁸¹
Italy	Registered patients in 650 practices in the Health Search/CSD Longitudinal Patient Database	2005–2009	>18	Physician diagnosis	0.95	1.50	0.48	Trifiro <i>et al.</i> (2013) ¹⁴
Czech Republic	153,844 individuals in the Town of Ceske Budejovice and District of Cheb	2002–2003	>16	Physician diagnosis	0.41	0.69	0.16	Hanova <i>et al.</i> (2006) ⁹⁰
New Zealand	531 New Zealand Maori individuals	1962–1974	42	Self-reported	6.51	9.4	3.9	Brauer & Prior (1978) ¹⁰
Taiwan	23,371,362 beneficiaries in the National Health Insurance Research Database	2010	All ages	Physician diagnosis	2.74	4.10	1.49	Kuo <i>et al.</i> (2015) ⁹³



Appendix 2 (6) Incidence of psoriatic arthritis

Forest plot of incidence estimates

