

Author, Year	Country	Years	Type of study
Herpes Zoster			
Yun H 2016	US (MPCD)	2007-2010	cohort (data claim)
Winthrop KL 2013	US (4 databases, incl Medicare, Medicaid, Kaiser)	1998-2007	cohort (data claim)
Pappas DA 2015	US (CORRONA)	2001-2014	cohort study
Veetil BM 2013	US (Olmsted County, Minnesota)	1980-2007	cohort study
Liao TL 2017	Taiwan	2001-2011	cohort study
Nakajima A 2015	Japan	2005-2010	cohort study
Segan J 2015	Australian Rheumatology Association Database	?-2012	cohort (survey)
Galloway JB 2013	UK (British Society for Rheumatology Biologics Register)	2001-2013	prospective cohort study
Harada S 2017	Japan (REAL registry)	2005-2013	prospective cohort study
Yun H 2015	US (Medicare)	2006-2011	cohort (data claim)
Cohen SB 2017	International	up to 2015	pooled analysis of RCT and extension studies
Tsai SY 2015	Taiwan	1996-2011	cohort study
Robinson ES 2016	USA	NA	retrospective cohort
Chen SY, Levin 2014	USA (medicaid, medicare)	2005-2009	cohort (data claim)

Schafer VS 2010	USA (Olmsted county)	1950-2004	cohort study
Fardet L 2009	France	1995-2007	retrospective inception cohort study
Chakravarty 2013	USA (national database for	2001-2009	cohort (registry)
Marie I 2011	France	1996-2009	retrospective cohort
Sakai R 2017	Japan (Japan Medical Center claim cohort)	2005-2014	cohort (registry)
Zisman D 2016	Israel (data claim)	2002-2012	cohort study
Curtis JR 2016	USA (medicare, marketscan)	2006-2013 (medicare), 2010-2014 (marketscan)	cohort (data claim)
Chen (Plos) 2015	Taiwan	2001-2008	cohort study
Doo-Ho Lim 2018	Korea (South Korean national health insurance)	2002-2013	cohort study
Chen HH (Clinics) 2011	Taiwan	1996-2006	cohort study
Borba 2010	Brazil	1999-2010	cohort (registry)
Widdifield J 2013	Canada	1992-2010	cohort (administrative data claim)
Burmester GR 2017	International	?-2010	pooled analysis of RCT and extension studies
Che 2014	International		SLR, meta-analysis
Kawai 2014	International		SLR, meta-analysis
HPV			
Author, Year	Country	Years	Type of study
Klumb EM 2010	Brazil	2008-2010	cross-sectional
Lee YH 2010	Korea	2006-2007	cross-sectional

Lyrio LD 2013	Brazil	?-2012	cross-sectional
Rojo-Contreras W 2012	Mexico	?-2012	cross-sectional
Méndez-Martínez S 2018	Mexico	2012-2015	cohort study
Amara JL 2017	Brazil	NA	cross-sectional
Mendoza-Pinto C 2013	Mexico	NA	cross-sectional
Mendoza-Pinto C 2017	Mexico	NA	cross-sectional
			prospective cohort study
Tam LS 2010	Hong Kong, China	NA	cross-sectional
			prospective cohort study
Al-Sherbeni HH 2015	Egypt	2011	cross-sectional
García-Carrasco M 2015	Mexico	NA	cross-sectional
Waisberg MG 2015	Brazil	NA	cohort study
Martin M 2014	France	2010-2011	cross-sectional
HBV			
Zhao J 2010	China	2003-2006	cross-sectional
Zheng B 2012	China	2001-2010	cross-sectional
Hsu SC 2016	Taiwan (Taiwan's National Health Insurance Research Database)	1999 - 2009	a nationwide cohort study (claim data)

Sui M 2014	China	1999 - 2009	cross-sectional
Chiu YM 2018	Taiwan (single hospital data)	2004-2013	cross-sectional
Chen X 2015	China (single center)	1996-2011	cross-sectional
Alishiri GH 2013	Iran	2012	cross-sectional
Feuchtenberger 2016	Germany (single center)	2011-2015	cross-sectional
Watanabe R 2014	Japan	2010-2011	cross-sectional
Watanabe R 2013	Japan	2008-2010	cross-sectional
Pneumococcal dis			
Shea KM 2014	USA (3 large healthcare	2007-2010	retrospective
Shigayeva A 2016	Canada	1995-2012	population-based surveillance for IPD
Schurder J 2018	France	2005-2014	retrospective cohort
Luijten RK 2014	The Netherlands.	2010-2012	retrospective cohort

Wotton CJ 2012	UK	Oxford Record Linkage Study (1963-2008), English national linked Hospital Episode Statistics (1999-2008)	retrospective cohort
Weycker D 2016	USA (3 large healthcare database claims)	2007-2010	retrospective cohort
Backhaus 2016	Sweden	1996-2008	retrospective cohort
Influenza			
Blumentals WA 2012	USA (MarketScan data calims)	2000-2007	retrospective cohort
Bello SL 2012	Italy	2009 - 2010	cross-sectional
Driven L 2012	The Netherlands	2009-2010	cross-sectional
Influenza and pneumonia			
Mohammed AJ 2017	Sweden	1998-2010	cohort study

AIIRD	Sample size	Age, yr (mean, SD)	Control group	Control group size
SLE, IBD, RA, PsA, PsO, AS, gout	No data per dis group	No data per dis group	yes	330,727
RA				
SLE				
PsA				
AS				
RA, PsA, AS	No data per dis group	No data per dis group	no	
RA	28,852	58 (13)	no	
RA	813	55.9(15.7)	yes	813
RA	27,609	53.6 (14.1)	yes	11436
RA	7,986	58.5 (median)	no	
RA	1,870	NA (age groups only)	no	
RA	15,554	NA	no	
RA	1,987	60	no	
RA	29,129	64(13)	no	
RA	6,194	NA	no	
Dermatomyositis, Polymyositis	2,210	46 (18)	yes	7409
Cutaneous LE	186	66.1 (14.9)	yes	152
DM	103	55.2 (14.5)		
SLE	144,137	46.9 (13.2)	yes	51,022,838
RA	571,555	52.7 (13.9)		

GCA	204	76 (8.2)	yes	407
primary DM and malignancy associated DM	121	52 (15)	no	
SLE	1,485	48.3 (13)	yes	2775
DM/PM	275	52 (median)	no	
RA	6,712	52 (median)	yes	33560
PsA	3,131	50.3 (14.5)	no	
RA		NA		
Sjogren	4,287	55.32 (14)	yes	25722
AS	1,079	NA (age groups only)	no	
SLE	10,337	89.8	yes	62022
SLE	1,145	39 (13.7)	no	
RA	86039	72.4 (6.9)	yes	102,860
RA, PSO, PsA, AS, JIA, Crohn dis	23458	NA	no	
RA				
RA, SLE				
AIIRD	Sample size	Age, yr (SD)	Control group	Control group size
SLE	173	39.7 (11.2)	yes	216
SLE	134	39.5 (9.4)	yes	4595

SLE	88	41.4 (11.6)	yes	70
SLE	34	38.12 (8.37)	yes	146
RA	43	38.7 (7.67)	yes	
SLE	148	45.8 (11.6)	no	
SLE	70	18-57	no	
SLE	148	42.5 (11.8)	no	
SLE	151	45 (11)	no	
SLE	127 (prospective f/u for incidence)	45 (11)	no	
SLE	150	41 (9)	no	
SLE	144	41 (9)	no	
SLE	32	31.06 (7.170)	yes	20
SLE	67	44.8 (10.6)	no	
RA	50	49 (median)	yes	50
SSc (limited 81%)	25	59.8 (11)	yes	50
SLE	859	Males 30.69 (14), Females 32.76 (13)	yes	83830
AS	439	28 (10)	yes	606
PsA, ReA, enteropathic arthritis, and USpA	172	26 (12)		
RA	698	53 (16)		
RA	38969	53.4 (13.99)	non-RA	701,476

autoimmune hepatitis (AIH), primary biliary cirrhosis (PBC), (SLE) and ulcerative colitis (UC) - inpatients only!	4060	50 (median)	non-autoimmune conditions	3122
SLE	155			
RA, AS, PSO, PsA (anti-TNF vs cDMARD cohort)	783 (anti-TNF cohort - 472, cDMARD cohort - 311)	anti-TNF cohort - 52.1, cDMARD cohort - 50.3 (median)	no	
RA	564			
AS	142			
Psoriasis/PsA	77			
SLE (inpatients only)	3981	31.1 (14.5)	yes (2006 general population survey)	NA
RA	268	46 (14)	no	
rheumatic diseases	1338	60.98	no	2006 general population survey
Axial spondyloarthritis	58			
RA	766			
Connective tissue dis	65			
Peripheral SpA	226			
Vasculitis	36			
Other inflammatory disorders	187			
RA	7650		no	
SLE	1,031			
SLE	248		no	
RA, SLE, Crohn dis	NA	Age groups	yes	NA
SLE, systemic sclerosis, Sjögren	20427	Age groups	no	
immunosuppressive therapy	55300	Age groups		
SLE	190	42.2	no	
SLE	260	29 (12)	no	

RA, AS, SLE, DM/PM, PAN, SSc, Sjogren	NA	NA	no	
RA, SLE	NA	NA	yes	
RA, SLE, Crohn	RA 8500, SLE 830	NA	yes	NA
RA	46030	56.61 (14.79)	yes	56
RA, PsA, AS, SpA treated with biologics	159	47.6	no	
RA	879	61 (13)	no	
AAV	186	NA	yes	NA

Age Controls, yr (SD)	Outcome	Type of study Oxford Centre	Quality score assessment: Good, moderate, low	Table used for validity assessment (critical appraisal adjusted to HZ)	Are the study groups clearly defined? ACR/EULAR criteria
No data per dis group	incidence	2b	moderate		yes
	incidence	2b	good		yes
	incidence	2b	moderate		yes
55.9(15.7)	incidence	2b	good		yes
55.5 (14.2)	incidence	2b	good		no
	incidence	2b	moderate		yes
	incidence	4	low		yes
	incidence	2b	moderate		yes
	incidence	2b	moderate		yes
	incidence	2b	moderate		yes
	incidence	2b	moderate		yes
46 (18)	incidence	2b	good		yes
48.2 (11.1)	incidence	2b	moderate		no
43.1 (15.8)	incidence	2b	good		no

75.6 (8.4)		2b	moderate		no
	incidence	4	low		yes
64.9 (12)	incidence	2b	moderate		yes
	incidence	4	low		yes
52 (median)	incidence	2b	good		yes
	incidence	2b	good		yes
	incidence	2b	good		yes
55,6 (13.9)	incidence	2b	good		yes
	incidence	2b	good		yes
89.8	incidence	2b	good		yes
	incidence	2b	moderate		yes
78.7 (6.1)	incidence	2b	moderate		no
	incidence	2b	moderate		yes
	pooled risk ratio	2a			
	pooled risk ratio	2a			
					Are the study groups
Age Controls, yr (SD)	Outcome	Type of study Oxford Centre	Critical appraisal for cohort studies, NOS for		
37.3 (10.3)	prevalence	3b	good		
NA (age groups)	prevalence	3b	good		

29 (5.9)	prevalence	3b	good		
36.79 (7.09)	prevalence	3b	good		
36.79 (7.09)					
	prevalence, incidence	2b	good		
	prevalence	3b	good		
	prevalence	3b	good		
	prevalence	2b	moderate		
	incidence				yes
	prevalence	2b	good		
	incidence				
30.2 (7.5)	prevalence	3b	moderate		
	prevalence	3b	good		
49 (median)	prevalence	2b	moderate		yes
60.2 (8.3)	prevalence	3b	moderate		
			Critical appraisal for cohort studies, Newcastle-Ottawa		
NA	prevalence	3b	good		
28 (10)	prevalence	3b	good		
41.7 (16.86)	prevalence	2b	moderate		no (ICD-9)

29 (median)	prevalence	3b	good		
	prevalence	3b	good		
NA	prevalence	3b	moderate		
	prevalence	4	low		
NA	prevalence	3b	good		
	prevalence	3b	moderate		
	prevalence	3b	good		
			Critical appraisal for cohort		Are the study groups clearly defined? ACR/EULAR criteria
age groups	incidence	2b	moderate		no
	incidence	2b	moderate		no
	incidence	2b	moderate		yes
	incidence	2b	moderate		yes

	Risk of invasive pneumococcal disease in people admitted to hospital with selected immune-mediated diseases	4	low		no
age groups	incidence	2b	moderate		no
	incidence	2b	moderate		no
			Critical appraisal for cohort, Newcastle-Ottawa scale for cross sectional		
	incidence	2b	moderate		no
	incidence	4	low		
	incidence	3b	moderate		
	incidence	2b	good		yes

Selection bias					
Controls from the same community	Consecutive patients	Age/gender matched controls	Case of infection excluded before the index date	Outcome measure of infections: ICD9	Outcome measure of infection: ICD9+microbiology or treatment for infection
no	yes	no	yes	yes	no
yes	yes	no	no	yes	yes
no	yes	no	no	yes	no
yes	yes	yes	no	yes	yes
yes	yes	yes	yes	yes	no
no	yes	no	no	yes	yes
no	yes	no	no	yes	no
yes	yes	no	no	yes	no
no	yes	no	no	yes	no
no	yes	no	yes	yes	no
no	no	no	no	yes	no
yes	yes	yes	yes	yes	no
no	yes	yes	yes	yes	yes
yes	yes	yes	yes	yes	no

yes	yes	yes	no	yes	no
no	yes	no	no	yes	no
yes	yes	no	no	yes	no
yes	yes	yes	yes	yes	yes
no	yes	yes	yes	yes	yes
no	yes	yes	yes	yes	no
yes	yes	yes	yes	yes	no
no	yes	no	yes	yes	yes
yes	yes	yes	yes	yes	no
no	yes	no	no	yes	no
yes	yes	yes	no	yes	no
no	no	no	no	yes	no
Controls	Consecutiv	Age/gende	Case of	Outcome measure of	Outcome

no	yes	no	no	no	yes
yes	no	yes	no	no	yes
wa scale for cross-sectional					
yes	yes	no (non-matched)	no	yes	no

no	yes	no	no	yes	no
no	yes	yes	no	yes	yes
yes	yes	no	no	yes	yes
yes	yes	yes	no	yes	no
yes	yes	yes	no	yes	no

Sufficient follow up	Prevention of selective fu (loss f/u)	Confounders	Total Score			
yes	no	yes	6			
yes	no	yes	7			
yes	no	yes	5			
yes	no	yes	8			
yes	no	yes	7			
yes	no	yes	6			
no	no	yes	4			
yes	no	yes	6			
yes	no	yes	5			
yes	no	yes	6			
yes	yes	yes	5			
yes	no	yes	8			
yes	no	no	6			
yes	no	yes	7			

yes	no	no	5			
no	no	yes	4			
yes	no	yes	6			
no	no	no	4			
yes	no	yes	9			
yes	no	yes	8			
yes	no	yes	7			
yes	no	yes	8			
yes	no	yes	7			
yes	no	yes	8			
yes	no	yes	5			
yes	no	yes	6			
yes	no	yes	5			
				NEWCASTLE - OTTAWA QUALITY ASSESSMEN T SCALE (<u>cross sectional</u>)		
Sufficient	Prevention	Confounde	Total Score	Selection (max 5)		
				Representat iveness of the sample*	Sample size: Truly representati ve of the average in	Non- respondent s/Comparability between
				*	*	no
				*	*	no

				*	*	no
				*	no	*
			7			
				*	*	no
				*	*	no
yes	yes	yes	6			
			7			
				*	no	no
				*	no	no
no	yes	yes	6			
				*	no	no
				NOS for cross-sectional studies		
				*	*	*
				*	*	*
yes	no	yes	5			

				*	*	*
				*	*	*
				*	no	no
				*	no	no
				*	*	no
				no	*	no
				*	*	no
Sufficient follow up	Prevention of selective fu (loss f/u)	Confounders	Total Score			
yes	no	yes	6			
yes	no	no	5			
yes	no	no	5			
yes	no	yes	6			

yes	no	no	3			
yes	no	no	5			
yes	no	yes	6			
				NOS for cross-sectional studies		
				Representativeness of the sample*	Sample size: Truly representative of the average in the target population. * (all subjects or random sampling) / (non-random sampling)*	Non-respondents/Comparability between respondents and non-respondents characteristics is established, and the response rate is satisfactory *
yes	no	yes	6			
				*	no	no
				*	*	no
yes	no	yes	7			

**	*	*	no	**	no	*	9
**	*	no	no	**	no	*	8
**	*	*	no	**	no	*	9
**	*	*	no	**	no	*	9
**	no	no	no	**	no	no	5
**	*	no	no	**	no	*	7
**	*	no	no	**	no	no	6
**	no	no	no	**	no	*	8
*	*	no	no	**	no	*	8

**	*	no	no	**	no	*	9
**	*	no	no	**	no	*	8
*	*	no	no	**	no	*	6
*	no	no	no	**	no	no	3
**	no	no	**	no	no	*	7
*	*	no	no	**	no	*	6
**	*	no	no	**	no	*	8
						no	*
						no	*
						*	no
						*	no

Ascertainment of the exposure (risk factor)**, Non-validated measurement tool, but the tool is available or described.*	Study controls for the most important factor.*	study controls for any additional factor*	Independent blind assessment.**	Record linkage. **	Self report *	Statistical test*	
*	no	*	no	no	*	no	4
*	*	no	no	no	*	*	6

