Name first author	**Year of publication**	**Country**
SEASONAL (TRIVALENT) INFLUENZA VACCINATION		
Subesinghe	2018	Multi
Huang	2017	Multi
Burmester	2017	Multi
Hua	2014	Multi
Park	2018	Korea
Park	2017	Korea
Winthrop - Study A	2016	USA and Poland
Winthrop - Study B	2016	USA and Poland
Kivitz	2014	USA
Chen	2018	Taiwan
Jain	2017	India
Alten	2016	Multi
Luque Ramos	2016	Germany
Kogure	2014	Japan
Milanetti	2014	Italy
Kobashigawa	2013	Japan

Milanovic	2013	Serbia
Tsuru - *abstract only*	2014	Japan
Mori	2012	Japan
Kogure	2012	Japan
Arad	2011	Israel
Kobie	2011	USA
Rehnberg	2010	Sweden
Salemi	2010	Italy
Huang	2016	Multi
Pugès	2016	Multi
Liao	2016	Multi
Chang	2016	Taiwan
Launay	2013	
Vista	2012	USA
Crowe	2011	USA
Wallin	2009	Brazil
Jaeger	2017	Switzerland
Caso	2016	Italy
Jeffs	2015	Australia
Polachek	2015	Israel

Litinsky	2012	Israel
Kostianovsky	2012	France
MONOVALENT (H1N1) PANDEMIC INFLUENZA VACCINATION		
Kapetanovic	2014	Sweden
Ribeiro	2013	Brazil
Adler	2012	Switzerland
Franca	2012	Brazil
Iwamoto	2012	Japan
Saad	2011	Brazil
Gabay	2011	Switzerland
Miraglia	2011	Brazil
Elkayam	2011	Israel
Ribeiro	2011	Brazil
Müller	2013	Switzerland
Borba	2012	Brazil
Lu	2011	Taiwan
Urowitz	2011	Canada
Mathian	2011	France

Brauner	2017	Sweden
Sampaio-Barros	2017	Brazil
De Medeiros	2014	Brazil
Miossi	2013	Brazil
Shinjo	2012	Brazil

Years of data inclusion	**Type of study**	**Vaccine**	**Adjuvant**
Search October 2016	Meta-analysis	Influenza (and pneumococcal)	NR
Search August 2016	Meta-analysis	Influenza	NR
"Data reported are collected from 1 February 2004 through	Meta-analysis	Influenza	NR
Search March 2013	Meta-analysis	Influenza (and pneumococcal)	NR
2015-16	RCT	Trivalent influenza	NR
2016-17	RCT	Trivalent influenza	NR
2011-12	Cohort	Trivalent influenza	NR
2011-12	Cohort	Trivalent influenza	NR
2009-11	RCT	Trivalent influenza	NR
2000-2010	Cohort (retrospective database)	Trivalent influenza	NR
2014	Cohort	Trivalent influenza	No
NR	Cohort	Trivalent influenza	NR
2009-13	Cohort - proclaim data claims	Influenza	NR
2011-12	Cohort	Influenza	No
2009	Cohort	Both seasonal and pandemic H1N1 influenza	Yes (MF59)
4 seasons between 2000-2007	Cohort	Trivalent influenza	No

2009-10	Cohort	Trivalent influenza	No
NR	Cohort	Trivalent influenza	NR
2012	Cohort	Trivalent influenza	NR
2010-11	Cohort	Trivalant influenza	No
2009	Cohort	Trivalent influenza	No
2006-10	Cohort	Trivalent influenza	NR
2007-8	Cohort	Trivalent influenza (also pneumoccal)	NR
2005-6	Cohort	Trivalent influenza	NR
Search October 2015	Meta-analysis	Influenza	NR
Search May 2015	Meta-analysis	Influenza (and pneumococcal)	NR
Search April 2015	Meta-analysis	Influenza	MF59 in one study
2001-2011	Cohort (retrospective database)	Influenza	NR
2009–2010	Cohort	Trivalent influenza	No
2005-2009	Cohort	Trivalent influenza	No
2005-2008	Cohort	Trivalent influenza	No
2007	Cohort	Trivalent influenza	No
2010-2015	Cohort	Trivalent influenza (and pneumococcal)	NR
2012-14	Cohort	Trivalent influenza	NR
2007	Cohort	Trivalent influenza	No
2012-2013	Cohort	Trivalent influenza	NR

2009-2010	Cohort	Trivalent influenza	NR
2009-10	Cohort	Both seasonal and pandemic H1N1 influenza	No
2009	Cohort	H1N1	Yes (AS03)
2009	Cohort	H1N1	No
2009	Cohort	H1N1	Yes (AS03)
2009	Cohort	H1N1	No
2009	Cohort	H1N1	Mostly no (author's response)
2010	Cohort	H1N1	No
2009	Cohort	H1N1	Yes (AS03)
2010	Cohort	H1N1	No
2009-2010	Cohort	H1N1	Yes (MF59)
2009	Cohort	H1N1	No
2009	Case series	H1N1	Yes (AS03)
2009	Cohort	H1N1	No
2009	Cohort	H1N1	No
2009-2010	Cohort	H1N1	Both with and without
2009	Cohort	H1N1	No

NR	Cohort	H1N1	Yes
2010	Cohort	H1N1	No
2009	Cohort	H1N1	No
2010	Cohort	H1N1	No
2009	Cohort	H1N1	No

Type of AIIRD	**Number of participants**	**Age in years: mean (SD) or median ([interquartile] range)**	**% Women**
RA	Review + Meta-analysis including 7 studies on influenza vaccination, 2 on pneumococcal	Reported separately for all studies	Reported separately for all studies
RA	13 studies with 886 RA and 685 HC	49,8. Patients of any age could be included!	70.4
RA	Total in analysis: 171 RA-anti-TNF vacc. 282 RA anti-TN	Not specified for subpopulation	Not specified for subpopulation
RA	Review included 12 studies with a total of 1 202 patients	56.9 (5.27) (pts could be included regardless of age)	62
RA	MTX 156 MTX hold 2 w 160	52.2 (9.5) 53.7 (10.3)	82.7 87.5
RA	MTX 54 hold 4w bef 44 hold 2 (2w 49	59.1 (13.1) 58.5 (13.3) 58.1 (10.9)	83.3 88.6 85.7
RA	Tofacitinib 102 Placebo 98	53 (25–82) 53 (23–77)	73.5 80.6
RA	Cont. Tofa 92 Stop Tofa 91	57.0 (28–78) 54.0 (24–72	84.8 86.8
RA	Certolizumab pegol 110 (68% + MTX) Placebo 114 (68% +	53.1 (11.8) 52.7 (11.1)	83.6 76.3
RA	3748 RA 3748 RA non-vac	59.8 (12) 59.5(11.8)	79.4 79.4
RA	MTX 51 Naïve 51 HC 45	49.4 (10.5) 43.4 (12.2) 41.4 (6.7)	98 84.3 62.2
RA	RA 184	45.7 (13.8)	85.6
RA	RA: 111,482 HC: 555,410	66.2 (13.7) 66.2 (13.7)	79.7 79.7
RA	RA 57	60.2 (13.2)	91.2
RA	30 RA 13 HC	50 (10) 41.8 (12)	76 77
RA	Ranged from 3661 to 5175. Vaccine coverage from 13.2-28.7%	Mean between 59-60 range 50-68	Between 82.5 and 83.9

SLE, RA, SjS	SLE19 RA14 SjS13	52 (34) 58.68 (11.18) 61.38 (9.63)	86
RA and Castleman's disease	TCZ 28 TNF 15 DMARDs 24	49 (32-63) 52 (22-72) 54 (25-77)	82 80 83
RA	MTX 65 TCZ 62 TCZ + MTX 40	67 (65.0-68.9) 65.2 (61.6-68.8) 63.9 (59.8-65.9)	83 82 80
RA	45	56.2 (13.5)	93
RA	RTX 29 DMARDs 29 HC 16	61.8 (9.7) 61.2 (16.7) 44.5 (15.2)	82 58 87
RA	All RA 164 RA disease control 33 RA + MTX 70	57.1 (13.8) 58.4 (12.2) 55.4 (13.2)	64 77 83
RA	RTX 36w 11 Pre-RTX 1w 8 RA disease controls 10	60 (7.8) 65.4 (11.5) 63.6 (13.9)	90 87 70
RA	RA 22 HC 10	53 (3)	82.1
SLE	15 studies with 1057 SLE and 594 HC	Mean 35.1. Also includes juvenile SLE!	85.5
SLE	17 studies for influenza (1598 pts, 800 HC), 3 for pneumococcal (67 pts	>18 years	NR
SLE	18 studies with 1966 SLE and 1116 HC	Data only given for each separate article. Three studies that included	Data only given for each separate article
SLE	1765 vac. SLE 8360 non vac SLE	46.2 (17.7) 37.3 (13.2)	87 88.7
SLE	27 (Analysis divided into three groups according to treatment: group A:	Median 42,0 (range 25-74)	96.3
SLE	SLE 101 HC 101	43.9 (14) 43.9 (14)	92 92
SLE	SLE 72 HC 72	43 (14) 43 (14)	92
SLE	SLE 47 HC 27	40.57 (9.9) 34.7 (12.0)	97.9 85.2
CAPS (cryopyrin-associated periodic syndrome)	CAPS 68 - 107 influenza vaccine injections in 55 CAPS	36 (18)	55
PsA	25 vac 25 non vac	57.96 (7.31) 56.48 (7.95)	49 44
ANCA-associated vasculitis (AAV)	AAV 24 AAV non vac 67 HC 53	62 (25-86) 65 (55-76)	45.8 42.5
PsA	PsA 63 (+ 4 psoriasis) HC 30	50 (14.2) 43.3 (13)	55 63

SSc (Systemic sclerosis)	SS 26 HC 16	51.7 (12.9) 44.5 (15.3)	85 88
SSc, vasc, Sj, SLE	ALL 199 Vasc 74 SSc 22	NR	NR
RA + SpA	ALL RA MTX 50 RA anti-TNF 28	57 (23 to 87) 62.3 (26 to 87) 63.4 (33 to 86)	64 78 84
RA	11 ABA (6 + MTX) 33 MTX (disease control)	55 (25-75) 52 (27-80) 52 (27-80)	100 88 76
RA, SpA, Vasc, CTD	RA 47 SpA 59 Vasc 15	RA% <40: 17, ≥40 to <60: 32, ≥60: 51; SpA% <40: 22, ≥40 to <60: 54	81 39 40
RA, SpA	Anti-TNF: - RA 41 - AS 57	Anti-TNF 45.1 (11.8) AIIRD DMARDs 46.5 (10.6)	Anti-TNF 50 AIIRD DMARDs 55.7 HC: 68
RA	89 RA 14 HC	67 (29–90)	91
SLE, RA, AS, SSc, PsA PsA, BD, MCTD,PAPS DM, SS,TA,PM,WG	ALL AIIRD 1668 HC 234 SLE 572	47,1 (14.1) 38.7 (12.5)	80.4 65.8
RA, SpA, vasc	173 AIIRD* 138 HC *(82 RA, 45 SpA, 46	53.4 (41.9-63.8) NA	65.3 57.2
RA, JIA and non-AIIRD	RA 260 HC 149 (JIA 83)	58 (24-83) 68 (60-89)	85.7 69.1
RA, SLE, PsA, AS	RA 41 SLE 21 PsA 17	46.5 (12.1) 41.7 (11.5) 48.5 (11.8)	62 80 58
RA	340 RA 234 HC	55.8 (11.5) 36.63 (12.5) Sign. diff.	86.7 66.8
RA+ Sjögren's syndrome	16 RA + SjS	24-65	87
SLE	SLE 555 HC 170	36.7 (12.2) 38.7 (13.2)	93 91
SLE	SLE 21 HC 15	34.4 (11.8) 39.4 (13.9)	95.2 67.7
SLE	103 SLE; 51 adj, 52 nonadj	43.9 (15.2)	91.3
SLE	SLE 111	35.2 (10.6)	91.9

Sjogren's syndrome	SjS 14 HC 18	54 48	100 100
SSc	SS 92 HC 92	11.2 (7.3) 11.2 (7.3)	91
PAPS	PAPS 45 HC 33	45.6 (10.3) 41 (10.4)	76 76
MCTD	MCTD 69 HC 69	48.6 (12.6) 48.6 (12.6)	95.6 96.6
IM	IM 58 (37 DM + 21 PM) HC 118	43.1 (9.9) 43.8 (8.4)	75.9 77

Disease duration in years: mean (SD) or median ([interquartile]	**Follow-up**	**Medication**	**Outcome (efficacy, immunogenicity, safety)**
Reported separately for all studies	Vaccine response assessed 3-6 wks postvaccination	MTX: 5 influenza studies incl. 350 RA and 437 HC.	Immunogenicity
14.9	NR	Varying	Immunogenicity, safety
Not specified for subpopulation	NR	Adalimumab (all)	Safety, immunogenicity
Inclusion regardless of disease duration	3-6w	Mainly MTX, TNFα, RTX. For influenza: MTX in 222, anti-TNF in 208	Immunogenicity
6.8 (6.5) 6.9 (6.2)	4w	MTX, two groups of discontinued or continued use	Immunogenicity, safety
5.2 (4.5) 6.1 (4.9) 4.9 (4.4)	4w	MTX	Immunogenicity, safety
NR	4w	Tofacitinib, MTX	Immunogenicity
NR	4w	Tofacitinib, MTX	Immunogenicity
7.4 (8.1) 7.9 (8.4)	4w	Certolizumab pegol, MTX	Immunogenicity, safety
NR	End of the influenza season of that year, or when pt withdrew from	Prednisolone, MTX, RTX, Etanercept and adalimumab	Efficacy
60 (24-96)	4-6w	MTX	Immunogenicity, safety
NR	4w	ABT + MTX	Immunogenicity
NR	NA	NR	Efficacy
NR	4w	Biologics, MTX, tacrolimus, GC, SSZ	Immunogenicity, safety
7.3 (6.3)	21d	MTX + anti-TNF or ABT	Immunogenicity, safety
Median ranged 8-10. Range from 4 to 17 years	6 months during 4 seasons	DMARDs, SSZ bucillamine, MTX, GC, biologicals	Efficacy

NR	10w		Efficacy, immunogenicity, Safety
9.2(3-23) 14.7(4-34) 10.2(1-22)	4.8.12 w	TCZ, anti-TNF	Immunogenicity, safety
9.8 (7.7 to 11.9) 14.6 (11.5 to 17.7) 7.5 (5.8 to 9.2	4-6w	TCZ	Immunogenicity, safety
12.2 (14.1)	4w	MTX, SZP	Immunogenicity
9.5 (1–40) 9 (0.3–41)	4-6w	RTX, DMARDs	Immunogenicity, safety
57.1 (13.8) 58.4 (12.2) 55.4 (13.2)	4w	MTX, anti-TNF	Immunogenicity
17.3 (13.1) 8.6 (5.5) 7.4 (4.6)	4w	Rituximab	Immunogenicity
NR	4w immunogenicity, safety 4w and 180d	NR	Immunogenicity, safety
Mean 8.9 years	NR	Varying	Immunogenicity, safety
NR	3-6w		Immunogenicity, safety
NR	3-6w	"Seven studies showed that drugs such as glucocorticoid	Immunogenicity, safety
Vacc: NR but must be within 0 to 10 years, Urucas: Inouk	NR	CS	Efficacy
NR	30d	One did not receive immunosuppressive drugs, five received	Immunogenicity, safety
NR	12w	NR	Safety
NR	12w	HCQ, GC	Immunogenicity, safety
8.6 (5.4)	6w	23 GC, 8 MTX, 9 AZA	Immunogenicity, safety
30 (19)	NA	Canakinumab	Safety
12 (5) 12.6 (6)	4/12 w	TNF	Safety
2 (1-7) 4.5 (1-15)	6m	AZA, Cyc, MMF, GC	Immunogenicity, safety
PsA median 8, range 1-40	4-6w	55.2% anti-TNF, 31.3% DMARDs	Immunogenicity, safety

8,29 (6,28)	6w	IS, GC	Immunogenicity, safety
NR	6m	IS; biologicals	Immunogenicity, safety
16.0 (1 to 55) 12.5 (1 to 41) 21.1 (3 to 46)	4-6 w	TNF, MTX, RTX, TCZ, ABA	Immunogenicity, safety
17 (8-28) 12 (1-34)	21d	ABA, MTX	Immunogenicity, safety
NR	6m	Glucocorticoids, DMARD incl MTX,TNFi, ABA, RTX	Immunogenicity, safety
Anti-TNF 18.4 (10.1) AIIRD DMARDs 15.6 (10.4)	21d	Anti-TNF, DMARDs in disease controls	Immunogenicity, safety
	3-6w	Glucocorticoids, MTX, leflunomide, mizoribine, tacrolimus	Immunogenicity
NR	3w	Glucocorticoids, IS	Immunogenicity, safety
5 (2-14)	4+8w	DMARDs, RTX, TNF, IS , GC	Immunogenicity, safety
NR	3w	NR	Immunogenicity, safety
9 (0.5–54 11 (3–57 13 (1–30)	4-6w	MTX, leflunomide, anti-TNF, HCQ,Pred	Immunogenicity, safety
16.7 (10.4)	21d	MTX, TNF ,Lef, GC	Immunogenicity, safety
	4+4w	RTX	Immunogenicity, safety
13.0 (8.9)	21d	IS, CS, HCQ	Immunogenicity, safety
NR	6m	NR	Immunogenicity, safety
14.2 (11)	3m	GC, HCQ, IS	NA
10.3±8	21d, 42d, 6m,12m	MMF, AZA	Immunogenicity, safety

NR	45d		Safety, immunogenicity
11.2 (7.3)	3w	IS, MTX, AZA CYC, MMF	Immunogenicity, safety
NR	6m		Safety
12.9 (8.9)	21d	IS,CS, HCQ	Immunogenicity, safety
7.3 (6.3)	21d	IS, GC, MTX, AZA	Immunogenicity, safety

Type of study Oxford Centre - Immunogenicity	**Type of study Oxford Centre - Efficacy**	**Type of study Oxford Centre - Safety**	**Other comments**
2a	NA	NA	
2a	NA	2a	
NA	2a	NA	
2a	NA	NA	
1-2b	NA	2b	
1-2b	NA	2b	
2b	NA	NA	
2b	NA	NA	
2b	NA	4	
NA	2b	NA	
2b	NA	4	
2b	NA	NA	
NA	5	NA	
2b	NA	4	
2b	NA	4	
NA	2b	NA	

2b	4	4	
2b	NA	4	
2b	NA	4	
4	NA	4	Numbers in tables and text are inconsistent
2b	NA	4	
2b	NA	NA	
4	NA	NA	
2b	NA	4	
2a	NA	2a	Also includes juvenile SLE studies
2a	NA	2a	
2a	NA	2a	
NA	2b	NA	
4	NA	4	
NA	NA	4	
4	NA	4	Focuses on differences between low and high responder
2b	NA	4	
NA	NA	4	all 5 serious AE associated with pneum vaccination'
NA	NA	4	
2b	NA	2b	Serious assessment safety.
2b	NA	4	

2b	NA	4	
4	NA	4	
2b	NA	4	No objective measure for assessing disease activity
2b	NA	4	
2b	NA	4	
2b	NA	4	
2b	NA	NA	
2b	NA	4	Large effect. Multivariate logistic regression influence of
2b	NA	4	
2b	NA	4	
2b	NA	4	
2b	NA	2b	
4	NA	5	
2b	NA	2b	
2b	NA	4	
NA	NA	2b	
2b	NA	4	

4	NA	4	
2b	NA	4	Safety: only diary card
NA	NA	2B	
2b	NA	4	Influence on disease activity not assessed due to lack of tools
2b	NA	4	

	Table IV		
Table used for validity assessment	**Are the study groups clearly defined?**	**Selection bias sufficiently prevented?**	**Exposition to vaccination accurately measured?**
Table I			
Table I			
Table IV	Not for vaccinated /non vacc patients	Yes; Data from RCT	NA
Table I			
Table II			
Table II			
Table IV	Yes, but no HC	Yes; patients from RCT	Yes
Table IV	Yes, but no HC	Yes; patients from RCT	Yes
Table IV	Yes, but not HC	Yes, patients from RCT	Yes
Table IV	Yes	Yes	Moderately. Database and ICD codes.
Table IV	Yes	Yes , consecutive patients	NA
Table IV	Yes, but no HC	Yes	Yes
Table IV	Yes	Yes	Moderately. Based on claims data
Table IV	Yes	Unknown ("a random sampling method")	Yes
Table IV	Yes	No details on recruitment	NA
Table IV	Yes. But large share of women (Women's medical University)	Moderately. Vaccination not randomized. Selection	No: questonnaire

Table IV	No	Unclear: "randomly selected from rheumatic reference	NA
Table IV	Yes , but no HC	No indication on how patients were recruited	NA
Table IV	Yes, but no healthy control	Moderately. No details given. Only that patients attended	NA
Table IV	Yes , but no HC	No indication on how patients were recruited	NA
Table IV	Yes	Moderately, consecutive	NA
Table IV	Yes	No indication on how patients were recruited	NA
Table IV	Yes, small groups	Not clear	NA
Table IV	Partially, no indications of drugs except TNF	No indication on how patients were recruited	NA
Table I			
Table I			
Table I			
Table IV	Yes	Yes	Moderately: retrospective database
Table IV	No. Inclusion unclear. Why only 27 pts with 5 centres? Because of	NA	NA
Table IV	No	Moderately. "Randomly" selected patients. However not	NA
Table IV	Yes, but strange that besides steroids and antimalarials no other	Unknown (no information on the manner in which SLE	NA
Table IV	Moderately: In text under Methods.	Yes	NA
Table IV	Yes	Unclear	Yes
Table IV	Yes	Moderately; consecutive	NA
Table IV	Yes	Yes, random	Yes
Table IV	Yes	Yes	NA (vaccination performed in study)

Table IV	Yes	Yes	NA
Table IV		Moderately. No details given. Only that patients attended	NA
Table IV	Yes	Only patients who participated in PCV7	All vaccinated
Table IV	Yes but small group for abatacept	Unknown. No details are given on patients who did not receive	NA
Table IV	Yes	Unknown. No details.	NA
Table IV	Yes	Patients invited, not consecutive	NA (vaccination performed in study)
Table IV	No. No HC characteristics.	Unknown.	NA
Table IV	Yes	Unknown. No details are given on patients who did not receive	NA
Table IV	Yes (although no immunogenicity data in the different groups)	Not clear how patients were recruited	NA
Table IV	Moderately (no information on medication use, type of	Unknown	NA
Table IV	Yes	Yes; consecutive patients.	NA
Table IV	Yes	Unknown. No details are given on patients who did not receive	NA
Table IV	Yes but small group, no HC	No details on recruitment	NA
Table IV	Yes	Patients invited, not consecutive	NA
Table IV	Yes	Unknown. No details.	NA
Table IV	No. No different table for adjuvanted/nonadjuvan	Unknown	NA
Table IV	Yes, but no controls	No details on recruitment	NA

Table IV	Moderately. Limited info in supplementary data	Unknown.	NA
Table IV	Moderately. No details on HC.	Yes. All SSC patients consecutively invited to participate	Yes
Table IV	No: no details on medication use/disease duration	Unknown. Unclear how HC were selected from the larger amount of	NA (vaccination performed in study)
Table IV	Yes	Moderately. No data on how many patients were invited. There is	NA
Table IV	Yes	Unknown. No details are given on patients who did not receive	NA

Outcomes clearly defined and accurately analyzed?	**Outcome assessment blinded for exposition to vaccination?**	**Sufficient f/u?**	**Prevention of selective loss of f/u?**
Yes , but not primary endpoint	NA	Not clear	Not clear
Moderately: no data on specific Ab	NA	Yes	Yes
Moderately: no data on specific Ab	NA	Yes	Yes
Yes	NA	Yes for immunogen. No for safety	Yes
Yes.	Unknown	Yes	NR
Yes	NA	Yes for immunogen.	No mentioning of % loss
Yes	Na	Yes	Yes
No. Only indirect effect of vaccination was observed: lower	NA	Yes	NA
Moderately: simple statistics (only binary testing between groups	NA	Yes	Unknown (limited follow-up time)
Yes	NA	Yes	No loss reported
No: questionnaire that included question whether patients had	No	Yes (6 months), but timing of questionaire not completely clear	Yes; More than 98% of patients returned questionnaire

No. Only measurement antibodies H1N1, although trivalent	Unknown	Unknown: not earlier than 10 weeks, not further specified	No loss reported.
Yes	NA	Yes	No mentioning of % loss
Yes	NA	Yes	No mentioning of % loss
Yes	NA	Yes	No mentioning of % loss
Yes	NA	Yes	No mentioning of % loss
Yes	NA	Yes	No mentioning of % loss
Outcome used not validated	NA	Yes	Not clear
Yes	NA	Yes	No mentioning of % loss
Yes	No	Yes	NA
No. Sera were considered positive when the titre was	Yes	Yes. No loss	Unknown
No: based on ranks	NA	Moderately; up to 12 weeks (safety main objective)	Yes
Moderately. No Seroprotection/seroconversion definition like	NA	Yes: up to 12 weeks postvacc	No loss reported.
Moderately: only binary analysis	NA	Moderately: 6 weeks	Yes
Moderately. No details on how data was retrieved	NA	Unknown. Not specified.	NA. Observational, retrospective analysis.
Yes	NA	Moderately. Short term effect for disease activity	No loss of FU
Yes	No	Yes, 6 months	Yes, only one control withdrew from study due to personal reasons
Yes	NA	Moderately (4-6 weeks)	No mentioning of % loss

Yes	NA	Moderately: 6 weeks	Yes
No. Unclear.	NA	Yes: up to 6 months	Unknown. Numbers unclear.
Yes	NA	Yes	Yes
Yes	NA	Moderately (3 weeks)	No loss of FU reported
Yes	NA	Yes (up to 6 months)	Yes
Yes	NA	Yes for immunogenicity (21 days)	No mentionning of loss of FU
No. No p-value for comparison HC and RA groups	NA	Yes for immunogenicity (3-6 weeks)	No loss reported.
Yes	NA	Yes for immunogenicity (3 weeks)	Yes. 89.6% completed the study
Yes	NA	Yes for immunogenicity	Yes
Yes	NA	Yes for immunogenicity (3 wks)	No loss reported.
Moderately. No p-values are given for the comparisons between	NA	Moderately (4-6 weeks)	Yes. No loss reported.
Yes	NA	Moderately (3 weeks)	No. Only 71.8% of vaccinated controls completed the study
Yes	NA	Yes	No loss reported
Yes	NA	21 d (yes for immunogenicity)	Yes (13% loss)
Yes	NA	Yes: 3 weeks and 6 months	No loss reported
Yes	NA	Yes (3 months)	No loss reported.
Yes	NA	Yes	Yes (1% lost)

No, no unvaccinated disease control group	NA	Yes for immunogenicity	No loss reported
Moderately. Clearly described. However only diary card for	No	Yes for immunogenicity (3 weeks)	Yes
Yes	NA	Yes (up to 6 months)	Moderately: 11 failed to complete the protocol.
Yes	NA	Yes for immunogenicity (3 weeks)	No loss reported.
Yes	NA	Yes for immunogenicity (3 weeks)	Moderately (80% of original)

	Table II		
Important confounders identified and corrected for?	**Method of random**	**Treatment allocation concealed**	**Similar group prognostic sign**
No			
	Yes	Yes	Yes
	Yes	Yes	Yes
Yes			
Yes			
Yes			
Yes. Vaccinated patients higher % of diabetes, hypertension, COPD			
Yes			
Yes			
Yes			
Yes			
Yes			
No			

Unknown.			
Yes			
Yes			
Yes			
Yes			
Partially			
Yes			
No good analysis of possible confounders			
Yes: adjustments were made for sex age and comorbidities. Older			
Yes			
No (medication use!)			
Yes: matched controls.			
Controls younger, no p value for difference is given			
NA.			
Yes			
Yes. HC group younger than patients.			
Control group significantly older.			

Yes			
Moderately: only large groups of treatment analysed			
Yes			
Yes			
Yes			
Yes			
Unknown. No characteristics of HC.			
Yes: subanalysis with matched patients/controls			
Yes			
No (medication use!)			
Yes. Multivariable analysis was performed.			
Yes. Gender (is explained to be unlikely to involve outcome)			
No, Patients treated with rituximab, no report of effect of other			
Yes			
Yes: lymphopenia			
Unknown: No different table for adjuvanted/nonadjuvan			
NA			

Matched controls.			
Yes. Controls were matched for age and gender			
Unknown. Little information on characteristics is given			
NA			
Yes			

Eligibility criteria	**Outcome assessor blinded**	**care provided blinded**	**Was the patient blinded ?**
Yes	Yes	Yes	No
Yes	Yes	Yes	No

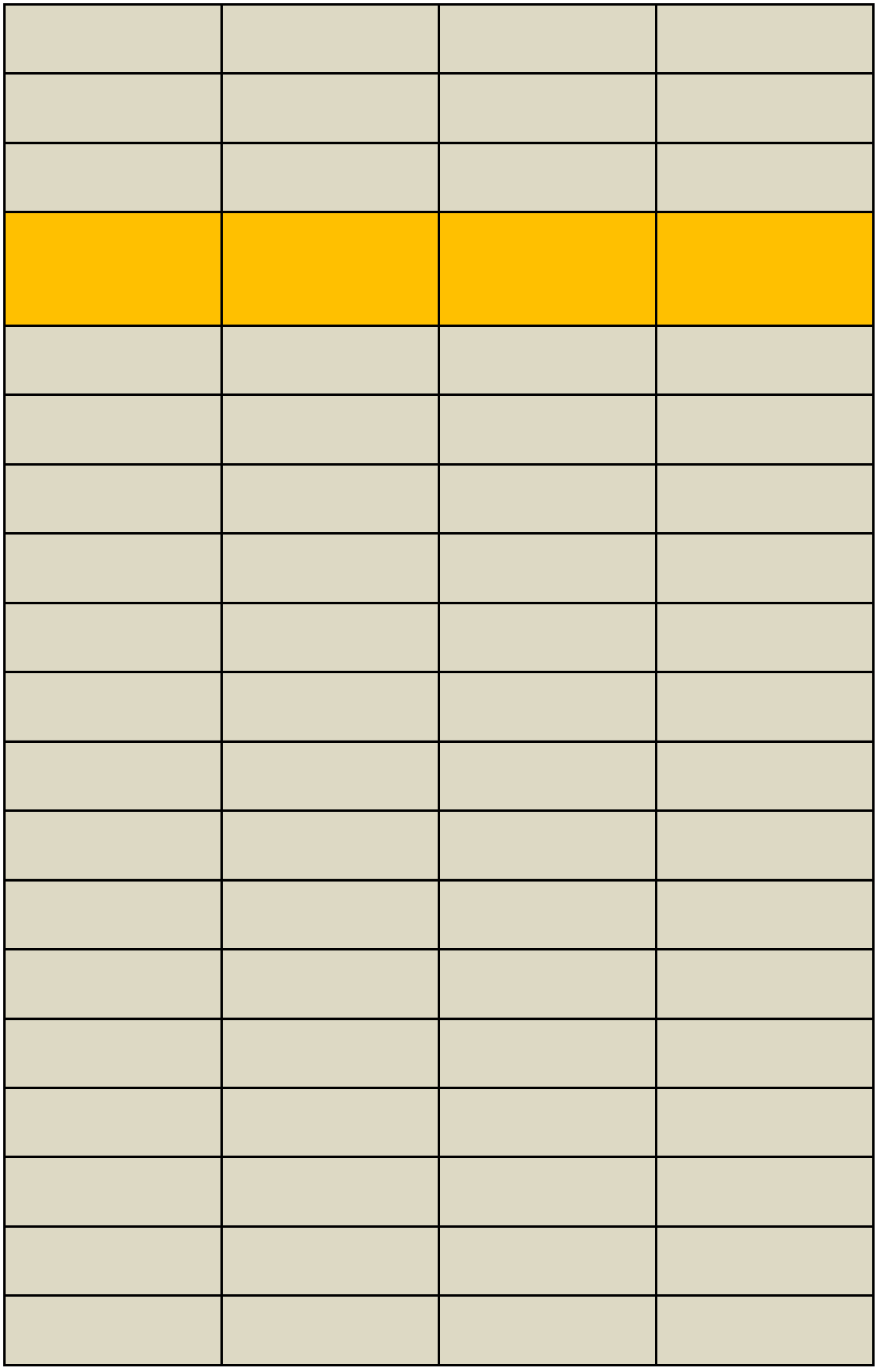
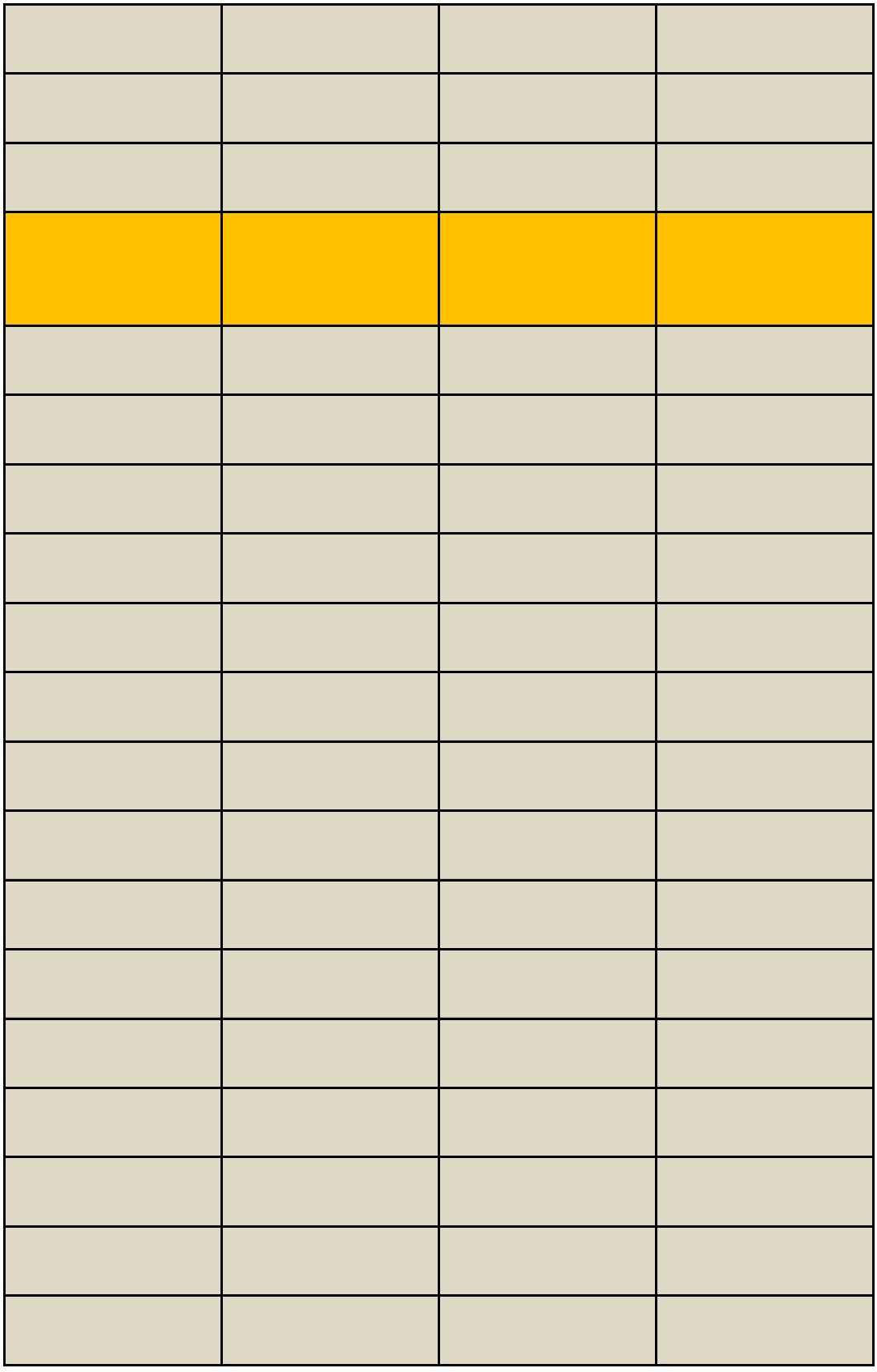


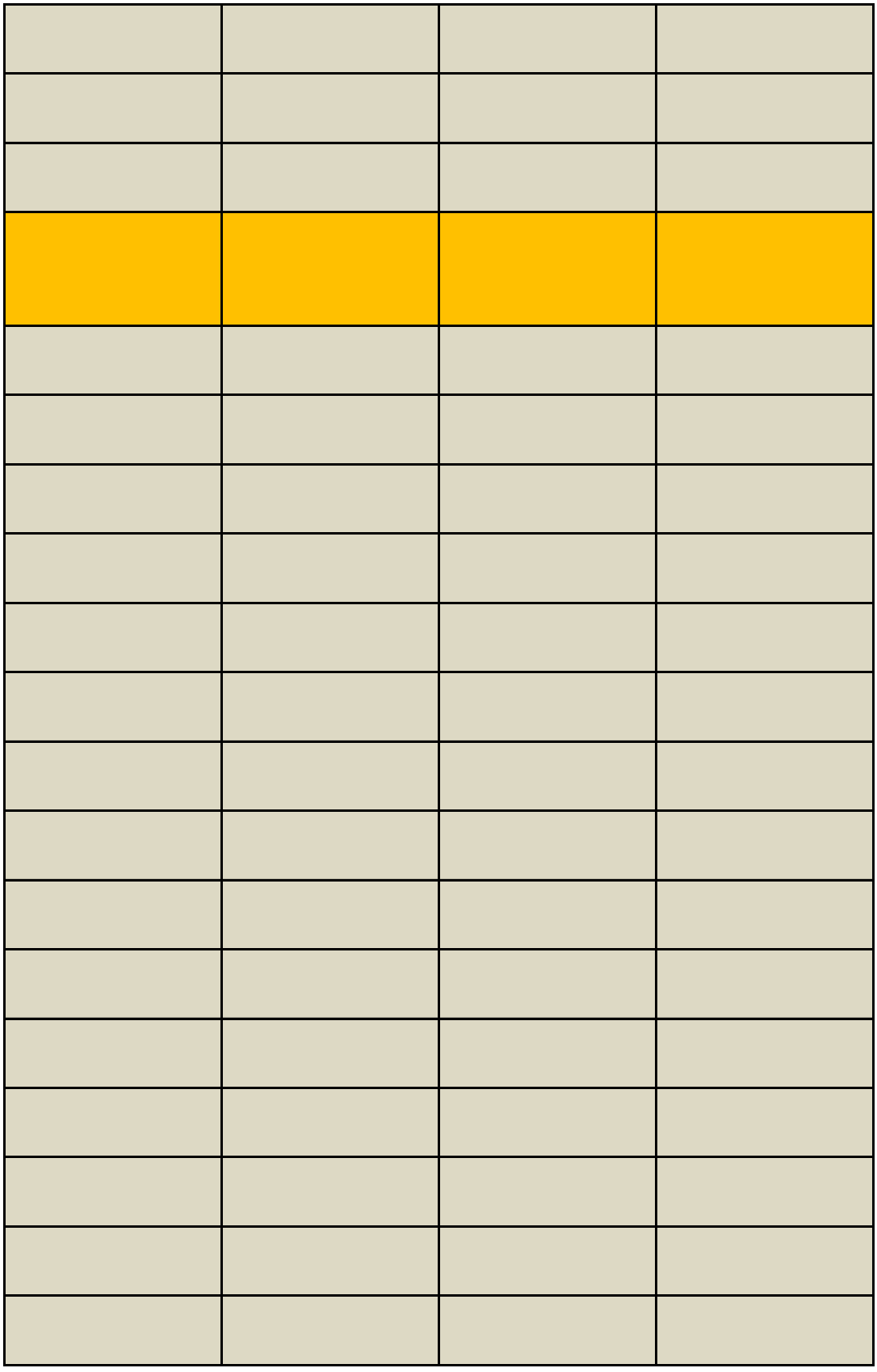
			Table I
Was follow up completed	**Were the points estimates and variability presented**	**Did the analysis include an ITT**	**Literature search accurate?**
			Yes
			Yes
			Yes
Yes	Yes	Yes	
Yes	Yes	Yes	

			Yes
			Moderately. "Only case-control or cohort studies [...] were
			Yes



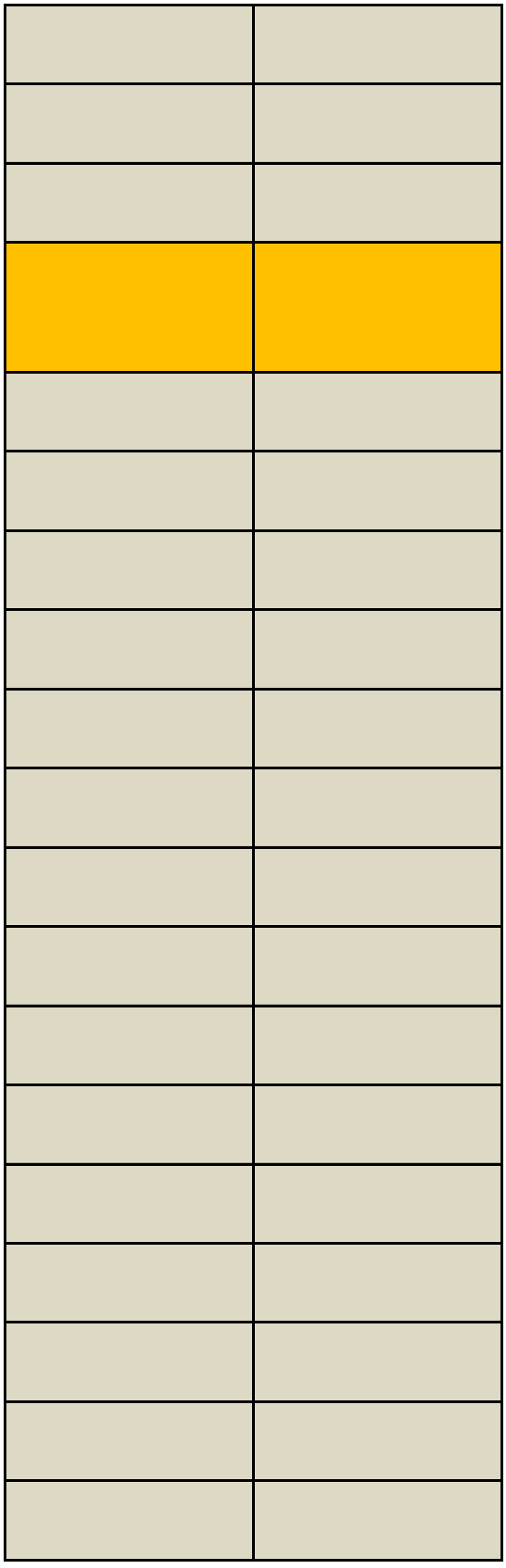
Selection of literature accurate?	**Critical appraisal of included articles accurate?**	**Data extraction accurately described?**	**Important features of included trials accurately described?**
Yes	Yes (online supplement, Newcastle Ottawa Scale)	Yes	Yes
Yes	Yes; Newcastle-Ottawa scale	Yes	Yes
Yes	Yes	Yes (Newcastle-Ottawa Scale)	Yes

Yes	Yes; Newcastle-Ottawa scale	Yes	Yes
Yes	Yes; Newcastle-Ottawa scale	Yes	Yes
Yes.	Moderately. Information could be missing because of	Unknown. Newcastle-Ottawa scale was used, independently by 2	Yes



Heterogeneity between studies handled accurately?/Meta-	**Is statistical pooling correctly performed?**
Yes	Yes
Yes	Yes
Yes	Yes

Yes	Yes
Yes	Yes
Yes.	Yes



Name first author	**Year of publication**	**Country**	**Years of data inclusion**
PNEUMOCOCCAL VACCINATION			
Winthrop - Study A	2016	USA and Poland	2011-12
Winthrop - Study B	2016	USA and Poland	2011-12
Kivitz	2014	USA	2009-11
Hesselstrand	2018	Sweden	NR
Chatham	2017	USA	2012-15
Alten	2016	Multi	NR
Migita	2015	Japan	2010-12
Migita	2015	Japan	2010-12
Migita	2015	Japan	2010-12
Bingham	2015	USA and UK	2010-12
Fischer	2015	Switzerland	2008-11
Tsuru	2014	Japan	NR
Mori	2013	Japan	2011-12

Rehnberg	2010	Sweden	2007-8
Grabar	2017	France	2008-11
David Morgan	2016	UK	From 2009
Nagel	2015	Sweden	2008-9
Kapetanovic	2013	Sweden	2008
Kapetanovic	2013	Sweden	2008-9
Kapetanovic	2011	Sweden	2008-2009
Kapetanovic	2011	Sweden	2002-2009
Nguyen	2017	Denmark	2014-17
Bahuaud	2018	France	2014-15
Kapetanovic	2017	Sweden	2012-13
Nived	2017	Sweden	NR
Nagel	2017	Sweden	NR
Rakoczi	2016	Hungary	NR
Groh	2017	France	NR

Jaeger	2017	Switzerland	2010-15
Broyde	2016	Israel	2012
Coulson	2011	UK	
Izumi	2017	Japan	2010-12
Rezende	2016	Brazil	2013-14

Type of study	**Vaccine**	**Adjuvant**	**Type of AIIRD**
Cohort	PPSV23 (also influenza)	NR	RA
Cohort	PPSV23	NR	RA
Cohort	PPSV23	NR	RA
Cohort	PPSV23/PCV13	NR	SSc
Cohort	PPSV23 4w before belimumab and after 24w belimumab	NR	SLE
Cohort	PPSV23	NR	RA
Cohort	PPSV23	NR	RA
Cohort	PPSV23	NR	RA
Cohort	PPSV23	NR	RA
Cohort	PPSV23	NR	RA
Cohort	PPSV23	NR	RA,SpA, vasc, CTD
Cohort	PPSV23	NR	RA
Cohort	PPSV23	NR	RA

Cohort	PPSV23	NR	RA
RCT	PCV7, PPSV23	NR	SLE
Cohort	PCV7	NR	GPA, MPA, EGA
Cohort	PCV7	NR	RA
Cohort	PCV7	NR	RA+SpA
Cohort	PCV7	NR	RA
Cohort	PCV7	NR	RA + SpA
Cohort	PCV7, PPSV23	NR	RA + SpA
RCT	PCV13 + PPSV23 (16w) PCV13 + PPSV23 (24w) PCV13+PCV13+PPSV23	NR	RA
Cohort	PCV13+ PPSV23 after 8w	NR	RA
Cohort	PCV13	NR	RA
Cohort	PCV13	NR	Vasculitis
Cohort	PCV13	NR	SLE
Cohort	PCV13	NR	RA
Case series	PCV13/PCV7 ± PPSV23	NR	AAV

Cohort	PCV13 and PPSV23	NR	CAPS
Cohort retrospective	PPSV23	NR	RA, SpA
Cohort retrospective	PPSV23	NR	RA
RCT	PPSV23	NR	RA
Cohort	PPSV23	NR	SLE

Number of participants	**Age in years: mean (SD) or median ([interquartile] range)**	**% Women**	**Disease duration in years: mean (SD) or median ([interquartile]**
Tofacitinib 102 Placebo 98	53 (25–82) 53 (23–77)	73.5 80.6	NR
Cont Tofa 92 Stop Tofa 91	57.0 (28–78) 54.0 (24–72)	84.8 86.8	
CTZ 110 (68%+MTX) Placebo 114 (68% +MTX)	53.1 (11.8) 7.4 (8.1)	83.6 76.3	7.4 (8.1) 7.9 (8.4)
13PCV13 / 31PPSV23 49 HC	SSc without DMARD: 57.0 (12.5) SSc on DMARD: 55.5	94 100 63	11.4 (7.4) 6.2 (6.3
4 weeks bef B: 34 24 w after B: 45	41.0 (12.57) 38.6 (12.31)	85.3 95.6	7.9 (8.71) 7.7 (7.36)
ABA + MTX 125	45.7 (13.8)	85.6	
DMARDs 35 MTX 55 ABA+MTX 21	70.5 (10.8) 63.8 (11.5) 59.8 (12)	65 80 80	11.6 (12.5) 14.1 (10.9) 13.5 (11.2)
DMARDs 35 MTX 55 TAC 29	70.5 (10.8) 63.8 (11.5) 69.2 (9.87)	65 80 68	11.6 (12.5) 14.1 (10.9) 10.5 (9.7)
DMARDs 35 MTX 55 GOL+MTX 24	70.5 (10.8) 63.8 (11.5) 62.6 (11.9)	65 80 91	11.6 (12.5) 14.1 (10.9) 15.8 (12.3)
MTX 27 TCZ+MTX 54	51.4 (9.5) 51.1 (8.9)	81.5 75.9	8.4 (7.0) 13.2 (11.5)
57 vacc 122 non vac	53.9 (43.3–65.7)	58	NR
TCZ 21	54 (28-67)	80	9 (3-23)
MTX 62 MTX+TCZ 54 TCZ 50	68.3 (66.6-70.1) 65.1 (63.1- 67.0) 68.3 (65.8-70.8)	82 92 86	10.0 (7.8-12.1) 9.1 (7.3-10.8) 12.5 (9.6-15.3)

RTX 36w 11 Pre-RTX 1w 8 RA disease controls (low	60 (7.8) 65.4 (11.5) 63.6 (12.9)	90 87 70	17.3 (13.1) 8.6 (5.5) 7.4 (4.6)
27 Placebo-PPSV23 19 PCV7-PPSV23	41.4 (36.4–50.7) 35.7 (31.3-48.2)	82 92	7.6 (3.1–18.6) 7.2 (4.5–14.2
92	48	48	5.6 (2.7-8.7)
248 RA 249 SpA	60.8 (12.4) 50.6 (11.6)	81 45	NR
RTX 29 RTX+MTX 26 ABA 17	68.9 (9) 59.9 (12) 56.6 (13)	72 62 88	21.3 (14) 14.5 (12) 14.9 (2.9)
RA MTX 57 RA anti-TNF 50 RA anti-TNF+MTX 56	63.5 (11) 59.9 (14) 60.5 (9)	77 90 75	
RA MTX 85 RA MTX + anti-TNF 89 RA anti-TNF 79	61.4 (14) sign. diff. 60.1 (10) 59.8 (14)	79 77 87	11.4 (10) 16.2 (12) sign. diff. 20.6 (11) sign. diff.
RA MTX PCV7 85 RA MTX PPSV23 37 RA anti-TNF PCV7 79	61.4 (24-85) 61.3 (21-81) 59.8 (24-86)	79 68 87	11.4 (0-40) 7 (1-47) 20.6 (1-48)
in analysis: csDMARDs (not randomised) 35	bDMARD: 62 (32–82) csDMARDS: 59 (23–82)	65 64	12 (0.5–33) 7 (0–54)
23 RA (MTX + anti-TNF)	62.5 (32-71)	72	NA
MTX 10 No treatment 10	67.4 (39.1–78.6)	70	8 (1–39)
49 Vasculitis 49 HC	65 (22–85) 57 (17–85)	51 63	5.1 (0–42)
21 HC 7 no DMARD 9 AZA or DMARD other	43.6 (20.6–61.2) 63.3 (26.0–80.1) 58.3 (35.0–73.3)	85.7 100 100	x 20.1 (0–37) 21.9 (4–50)
22 RA 24 OA	55.1 (10.4) 63.9 (9.8) sign. diff.	77 75	12.7 (12) 0.7 (0-1.7)
9 Induction: 9 GC + CYC or RTX 10 maintenance: GC	55 (17)	55	

2 PCV13 14 PPSV23	31 (30) 41 (17)	100 71	30 (31) 36 (21)
Vacc 88 Non Vacc 42	All 54.6 (20–88)	80	
Vac 124 Non vacc 28	63 62	72 70	13 (all)
RA 464 RA Placebo 436	63.3 (12.1) 62.7 (11.8)	80.6 75.7	12.1 (10.4) 11.6 (9.7)
SLE 68 : IS 28 non IS 26	IS: 35.5 (9.4) Non IS : 43.3 (11.7)	IS: 92.8 non IS:88.4	IS: 9.1 (7.2) non IS :(12.1 (6.2)

Follow-up	**Medication**	**Outcome (efficacy, immunogenicity, safety)**	**Type of study Oxford Centre - Immunogenicity**
35d	Tofacitinib, MTX	Immunogenicity	2b
35d		Immunogenicity	2b
4-6w	CTZ	Immunogenicity, safety	1b-2b
4w	DMARDs	Immunogenicity	2b
4w	Belimumab	Immunogenicity, safety	2b
4-6w	ABT + MTX (Only 10 without MTX)	Immunogenicity, safety	2b
4-6w	Abatacept	Immunogenicity, safety	2b
4-6w	Tacrolimus, MTX	Immunogenicity, safety	2b
4-6w	Golimumab, MTX	Immunogenicity, safety	2b
8w	TCZ, MTX	Immunogenicity, safety	2b
4-6w	CS, IS, RTX	Immunogenicity and efficacy	4
4-6w	TCZ	Immunogenicity	2b
4-6w	TCZ, MTX	Immunogenicity, safety	2b

4w	Rituximab	Immunogenicity	4
28w	HCQ, GC, IS	Immunogenicity, safety	1b
4w, 2y	Past CYC and RTX, AZA, MMF, Loe pred	Immunogenicity and efficacy	2b
4.5y	MTX, TNF	Immunogenicity, efficacy	2b
4w	RTX, TCZ, ABA	Immunogenicity, safety	2b
1.5y	MTX, anti-TNF	Immunogenicity	2b
4w	MTX, anti-TNF	Immunogenicity, safety	2b
4w	MTX, anti-TNF	Immunogenicity, safety	2b
4w after each vacc	bDMARDs csDMARDs	Immunogenicity, safety	2b
4m, 12m and 24m	MTX	Immunogenicity	2b
4 w	MTX	Immunogenicity	4
4-6w	AZA,MTX,CyC, MMF,GC	Immunogenicity, safety	2b
4-6w	IS, HCQ, Belimumab	Immunogenicity, safety	2b
4-8w	Etanercept 7 Etanercept + MTX 15	Immunogenicity, safety	2b
9-45m	CYC, RTX, AZA, GC	Immunogenicity	4

	Canakinumab	Safety	NA
14 (0-55)	TNF, MTX	Immunogenicity	2b
10y	MTX, CS	Immunogenicity, efficacy	2b
1.7y 1.6y	TNF, IL6, MTX, ABA, TAC, CS	Efficacy and safety	NA
4-6 w	Prednisone, HCQ, MMF, CYC, AZA	Immunogenicity and safety	2b

Type of study Oxford Centre - Efficacy	**Type of study Oxford Centre - Safety**	**Other comments**	**Table used for validity assessment**
NA	NA		Table IV
NA	NA		Table IV
NA	NA		Table IV
NA	4		Table IV
NA	4	Sponsored by GSK	Table IV
NA	4		Table IV
NA	4		Table IV
NA	4		Table IV
NA	4		Table IV
NA	4		Table IV
4	NA		Table IV
NA	NA		Table IV
NA	4		Table IV

NA	NA		Table IV
NA	4	Underpowered for safety	Table II
4	NA		Table IV
4	NA		Table IV
NA	4		Table IV
NA	NA		Table IV
NA	4	Table IV+U63:AB63	Table IV
NA	4	Comparison between data on paper on PCV7 and PPSV23	Table IV
NA	4		Table II
NA	NA		Table IV
NA	NA		Table IV
NA	4		Table IV
NA	4		Table IV
NA	4		Table IV
NA	NA		Table IV

NA	4		Table IV
NA	NA		Table IV
4	NA		Table IV
1-2b	4	Underpowered	Table II
NA	4		Table IV

Table IV			
Are the study groups clearly defined?	**Selection bias sufficiently prevented?**	**Exposition to vaccination accurately measured?**	**Outcomes clearly defined and accurately analyzed?**
Yes but no HC	Yes; patients from RCT	Yes	Moderately: no data on specific Ab
Yes but no HC	Yes, patients from RCT	Yes	Moderately : no data on specific Ab
Yes, but not HC	Yes, patients from RCT	Yes	Yes
Yes	Yes	Yes (only non-vaccinated)	Yes
Yes but no HC	Not clear	Yes	Yes but primary outcome: response in 1 out of 23 !
Yes, but no HC	Yes, patients on CT	Yes	Yes
Yes	May be, no indication on how patients were recruited	NA	Yes
Yes	May be, no indication on how patients were recruited	NA	Yes
Yes	May be, no indication on how patients were recruited	NA	Yes
Yes, but no HC	Patients from RCT	NA	Yes
Yes, but very heterogenous	Not clear	NA	Too many outcomes , no clear primary outcome
Yes, but no HC	May be, no indication on how patients were recruited	NA	Yes
No , but no HC	No	NA	Yes

Yes, small groups	Not clear	NA	Outcome used not validated
Yes, no HC	Only patients in remission	NA	Yes
Yes	No indication on how patients were recruited	No data on PPSV23 in Controls	Moderately; Definition only based on ICD 9
Yes	May be, no indication on how patients were recruited	NA	Yes
Yes	May be, no indication on how patients were recruited	NA	Yes
Yes	May be, no indication on how patients were recruited	NA	Yes
Yes	May be, no indication on how patients were recruited	NA	Yes
Yes, but no HC	May be, no indication on how patients were recruited	NA	Yes
Yes, but small groups	Yes	NA	Yes, but mostly focused on mechanism of MTX on vaccine response
Yes	No	NA	Yes
Yes, but small sub-groups	May be, no indication on how patients were recruited	NA	Yes
Yes	May be, no indication on how patients were recruited	NA	Yes, but outcome not validated
Yes, but small group and no HC	May be, no indication on how patients were recruited	NA	Yes

Yes	No. Observational study.	Yes	Moderately. No details on how data was retrieved.
Yes	No , consecutive pts	NA	Yes , but outcome of immunogen not validated
Yes	Not clear	Yes	Outcome used not validated
Yes , but no HC	No	Yes	Yes

Outcome assessment blinded for exposition to vaccination?	**Sufficient f/u?**	**Prevention of selective loss of f/u?**	**Important confounders identified and corrected for?**
NA	Yes	Yes	Yes
NA	Yes	Yes	Yes
NA	Yes for immunogen.	Yes	Yes
NA	Yes for Immunogenicity	No loss	Yes
NA	Yes	Yes	Yes
Yes	Yes	Yes	Yes
NA	Yes for immunogen.	No mentioning of % loss	Yes
NA	Yes for immunogen.	No mentioning of % loss	Yes
NA	Yes for immunogen.	No mentioning of % loss	Yes
NA	Yes	Yes	Only for age and treatment with TCZ
NA	Yes	Yes	Yes
NA	Yes	No mentioning of % loss	Yes
NA	Yes for immunogen.	No mentioning of % loss	Yes

NA	Yes	Not clear	Yes
NA	Yes	No mentioning of % loss	Yes
NA	Yes	Yes	No matching for co - morbidities
NA	Yes	Yes	Yes
NA	Yes	Yes	Yes
NA	Yes	Yes	Yes
NA	Yes	Yes	Yes
NA	Yes	No mentioning of % loss	Yes
NA	Yes	No loss reported.	Yes
NA	Yes	No mentioning of % loss	Yes
NA	Yes	No mentioning of % loss	Yes
NA	Yes	No mentioning of % loss	Yes
NA	Yes	No mentioning of % loss	Yes

NA (all pts vaccinated)	Unknown. Not specified.	NA. Observational, retrospective analysis.	NA.
NA	Yes	Yes	Yes
NA	Yes	Yes	Yes
NA	Yes for Immunogenicity	Yes	Yes

Table II			
Method of random	**Treatment allocation concealed**	**Similar group prognostic sign**	**Eligibility criteria**

Yes	Yes	Yes	Yes
Yes	No	Yes	Yes

Yes	Yes	Yes	Yes

Outcome assessor blinded	**care provided blinded**	**Was the patient blinded ?**	**Was follow up completed**

Yes	Yes	Yes	Yes
No	No	No	Yes

Yes	Yes	Yes	Yes

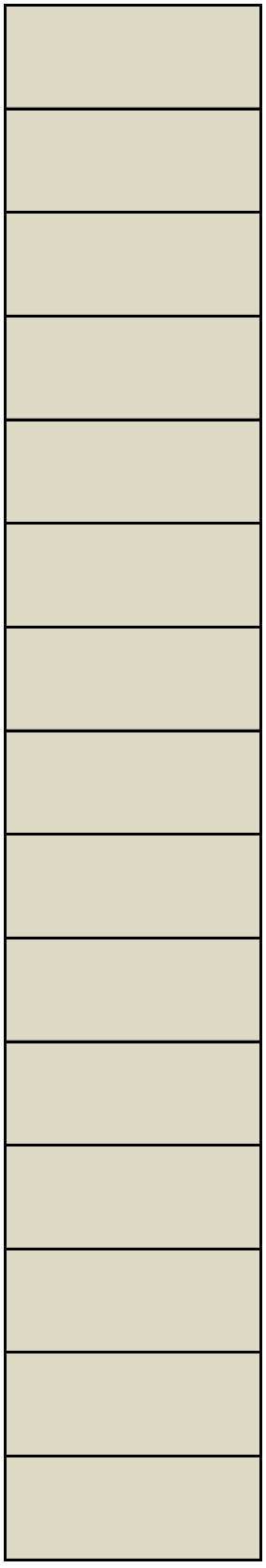
		Table I	
Were the points estimates and variability presented	**Did the analysis include an ITT**	**Literature search accurate?**	**Selection of literature accurate?**

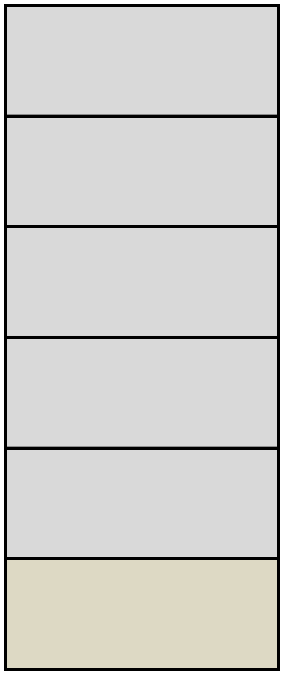
Yes	No		
Yes	No		

Yes	Yes		

Critical appraisal of included articles accurate?	**Data extraction accurately described?**	**Important features of included trials accurately described?**	**Heterogeneity between studies handled accurately?/Meta-**

Is statistical pooling correctly performed?





Name first author	**Year of publication**	**Country**
HEPATITIS A VACCINATION		
Rosdahl	2018	Sweden
Askling	2013	Sweden
van der Bijllaardt	2013	The Netherlands

Years of data inclusion	**Type of study**	**Vaccine**
NR	Cohort	Hep A, vaccine at month 0,1,6 or two at month 0 and 1 at month 6. HC: vaccine at month 0 and 6
NR	Cohort	HAV: Havrix and epaxal
2005-12	Cohort (retrospective)	HAV

Adjuvant	**Type of AIIRD**	**Number of participants**
Havrix: aluminium, Expaxal: virosomes	RA	RA 69 HC 48
NR	RA	RA 52
NR	Not specifically AIIRD, but IS-treated	All 173 Anti-TNF 31 DMARDs 123 Other 19

Age in years: mean (SD) or median ([interquartile] range)	**% Women**	**Disease duration in years: mean (SD) or median ([interquartile] range)**
55 (40-70) 60 (19-73)	85 55	12 (1-43)
60 (32-75)	73	12 (2-45)
x 50 (22–76) 49 (19–78) 51 (20–61)	x 61 63 58	NR

Follow-up	**Medication**	**Outcome (efficacy, immunogenicity, safety)**
12m	TNFi and/or MTX, 1 anti-IL6	Immunogenicity, safety
1, 12, 24m		Immunogenicity, safety
At least 4 weeks	TNF, DMARDs, other IS	Immunogenicity

Type of study Oxford Centre - Immunogenicity	**Type of study Oxford Centre - Efficacy**	**Type of study Oxford Centre - Safety**
2b	NA	4
2b	na	4
2b	NA	NA

		Table IV
Other comments	**Table used for validity assessment**	**Are the study groups clearly defined?**
	Table IV	Yes
	Table IV	Yes, but no HC
	Table IV	No, no details on diseases, only based on drugs

Selection bias sufficiently prevented?	**Exposition to vaccination accurately measured?**	**Outcomes clearly defined and accurately analyzed?**
Yes	Yes	Yes, some problems with measuring anti-HAV but this was adequately identified and dealt with
Not clear how patients were recruited	No	Yes
Not clear	NA	Yes

Outcome assessment blinded for exposition to vaccination?	**Sufficient f/u?**	**Prevention of selective loss of f/u?**
NA (all vaccinated)	Yes	Yes
NA	Yes	Yes
NA	Yes	NA: retrospective

	Table II	
Important confounders identified and corrected for?	**Method of random**	**Treatment allocation concealed**
Identified yes, but not all were possible to correct. Those are mentioned (age, %females). Different vaccine		
Yes		
Yes		

Similar group prognostic sign	**Eligibility criteria**	**Outcome assessor blinded**

care provided blinded	**Was the patient blinded ?**	**Was follow up completed**

		Table I
Were the points estimates and variability presented for the primary outcome?	**Did the analysis include an ITT**	**Literature search accurate?**

Selection of literature accurate?	**Critical appraisal of included articles accurate?**	**Data extraction accurately described?**

Important features of included trials accurately described?	**Heterogeneity between studies handled accurately?/Meta-analysis**	**Is statistical pooling correctly performed?**

Name first author	**Year of publication**	**Country**	**Years of data inclusion**
HEPATITIS B VACCINATION			
Intongkam	2018	Thailand	2013-16

Type of study	**Vaccine**	**Adjuvant**	**Type of AIIRD**
Cohort	Hepatitis B Eu Vax B	NR	RA

Number of participants	**Age in years: mean (SD) or median ([interquartile] range)**	**% Women**	**Disease duration in years: mean (SD) or median ([interquartile] range)**
RA 46 HC 9 RA non-vacc. 47 disease control (safety)	60.1 (10.2) 60.6 (8.1)	100 100	NR

Follow-up	**Medication**	**Outcome (efficacy, immunogenicity, safety)**	**Type of study Oxford Centre - Immunogenicity**
32w	cDMARDs, bDMARDs	Immunogenicity, safety	2b

Type of study Oxford Centre - Efficacy	**Type of study Oxford Centre - Safety**	**Other comments**	**Table used for validity assessment**
NA	4		Table IV

Table IV			
Are the study groups clearly defined?	**Selection bias sufficiently prevented?**	**Exposition to vaccination accurately measured?**	**Outcomes clearly defined and accurately analyzed?**
Yes, small number HC	Yes	Yes	Yes

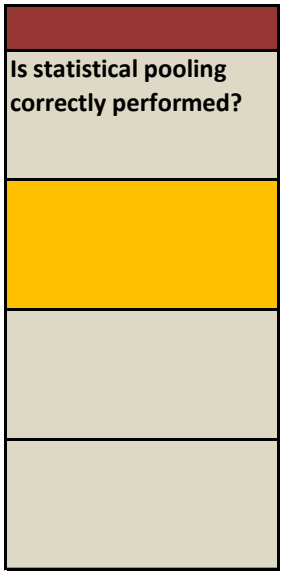
Outcome assessment blinded for exposition to vaccination?	**Sufficient f/u?**	**Prevention of selective loss of f/u?**	**Important confounders identified and corrected for?**
Not clear how non vaccination of RA control group was assessed	Yes	Yes	Yes

Table II			
Method of random	**Treatment allocation concealed**	**Similar group prognostic sign**	**Eligibility criteria**

Outcome assessor blinded	**care provided blinded**	**Was the patient blinded ?**	**Was follow up completed**

		Table I	
Were the points estimates and variability presented for the primary	**Did the analysis include an ITT**	**Literature search accurate?**	**Selection of literature accurate?**

Critical appraisal of included articles accurate?	**Data extraction accurately described?**	**Important features of included trials accurately described?**	**Heterogeneity between studies handled accurately?/Meta-analysis adequately**


Is statistical pooling correctly performed?

Name first author	**Year of publication**	**Country**	**Years of data inclusion**
TETANUS TOXOID VACCINATION			
Jaeger	2017	Switzerland	2010-2015
Bingham	2015	USA and UK	2010-12

Type of study	**Vaccine**	**Adjuvant**	**Type of AIIRD**
Cohort	Tetanus toxoid - Simultaneous tetanus and diphtheria	NR	CAPS (cryopyrin-associated periodic syndrome)
Cohort	Tetanus toxoid (simultaneous PPSV23)	NR	RA

Number of participants	**Age in years: mean (SD) or median ([interquartile] range)**	**% Women**	**Disease duration in years: mean (SD) or median ([interquartile]**
12 CAPS	24 (13)	55	19 (12) [symptom duration]
MTX 27 TCZ+MTX 54	51.4 (9.5) 51.1 (8.9)	81.5 75.9	8.4 (7.0) 13.2 (11.5)

Follow-up	**Medication**	**Outcome (efficacy, immunogenicity, safety)**	**Type of study Oxford Centre - Immunogenicity**
NA	Canakinumab	Safety	NA
8w	TCZ, MTX	Immunogenicity, safety	2b

Type of study Oxford Centre - Efficacy	**Type of study Oxford Centre - Safety**	**Other comments**	**Table used for validity assessment**
NA	4	all 5 serious AE associated with pneum vaccination'	Table IV
NA	4		Table IV

Table IV			
Are the study groups clearly defined?	**Selection bias sufficiently prevented?**	**Exposition to vaccination accurately measured?**	**Outcomes clearly defined and accurately analyzed?**
Yes	Unclear	Yes	Moderately. No details on how data was retrieved
Yes, but no HC	Patients from RCT	NA	Yes

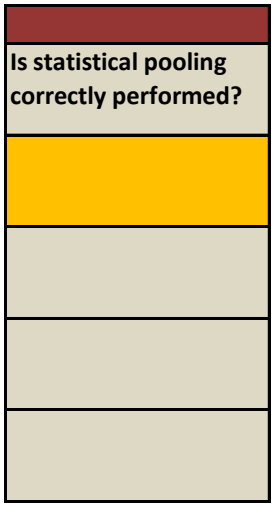
Outcome assessment blinded for exposition to vaccination?	**Sufficient f/u?**	**Prevention of selective loss of f/u?**	**Important confounders identified and corrected for?**
NA	Unknown. Not specified.	NA. Observational, retrospective analysis.	NA.
NA	Yes	Yes	Only for age and treatment with TCZ

Table II			
Method of random	**Treatment allocation concealed**	**Similar group prognostic sign**	**Eligibility criteria**

Outcome assessor blinded	**care provided blinded**	**Was the patient blinded ?**	**Was follow up completed**

		Table I	
Were the points estimates and variability presented	**Did the analysis include an ITT**	**Literature search accurate?**	**Selection of literature accurate?**

Critical appraisal of included articles accurate?	**Data extraction accurately described?**	**Important features of included trials accurately described?**	**Heterogeneity between studies handled**


Is statistical pooling correctly performed?

Name first author	**Year of publication**	**Country**	**Years of data inclusion**
HERPES ZOSTER VACCINATION			
Winthrop	2017	US	2014-15
Russell	2015	NA, Europe	2007-10
Koh	2018	South Korea	2014-15
Zhang	2012	USA	2006-9
Yun	2017	USA	2006-13
Guthridge	2013	USA	2012

Type of study	**Vaccine**	**Adjuvant**	**Type of AIIRD**
Cohort	Zostavax	NR	RA
RCT	Zostavax	NR	CS treated
Cohort	Zostavax	NA	RA
Cohort	Zostavax	NR	RA,PsA,AS, IBD, PSO
Cohort - Medicare data	Zostavax	NA	RA,PsA,AS, IBD, PSO
Cohort	Zostavax	NA	SLE

Number of participants	**Age in years: mean (SD) or median ([interquartile]**	**% Women**	**Disease duration in years: mean (SD) or median**
RA Tofacitinib 55 RA Placebo 57	61.7 (6.2) 62 (8.7)	66.7 76.4	NR
207 Zostavax 102 Placebo	69.8 (6.9) 69.9 (7.2)	67.6 78.4	NR
RA 41 OA 28	60 (55-63) 62 (58-67)	92.7 85.7	7.5 (2.4-14.6)
292169 RA, 11030 PsA, 4026 AS, 66751 IBD, 89565 PSO, total	74 (8)	72.3	NR
59627 (53.1% RA, 1.4% AS, 20.9% IBD, 31.6% PSO, 4.7% PsA)	73.5 (7.3) 73.5 (7.3)	RA vacc :69.7 RA non vacc:69.7	NR
10 SLE 10 HC	60.5 (5.4) 55.3 (4.2)	100 100	NR

Follow-up	**Medication**	**Outcome (efficacy, immunogenicity, safety)**	**Type of study Oxford Centre - Immunogenicity**
2,6,14 w	MTX, tofacitinib	Immunogenicity, safety	2b
182d safety	CS	Immunogenicity, safety	2b
12 weeks	GC 61%, MTX 92.7%, sulfasalazine 7.3%, leflunomide 22%, HCQ 22%	Immunogenicity, safety	2b
2 (0.8-3) Median	741 anti-TNF, 107 non-TNF, 1184 cDMARDs	Efficacy and safety	NA
Yearly analysis after vaccination up to 7 years	Biologic: 11%, DMARD 46.1%, GC 16,5%	Efficacy	NA
12 weeks	4 GC, 7 HCQ, 2 MTX	Immunogenicity, safety	2b

Type of study Oxford Centre - Efficacy	**Type of study Oxford Centre - Safety**	**Other comments**	**Table used for validity assessment**
NA	4		Table IV
NA	4	Is RCT, but was downgraded. Only humoral response,	Table II
NA	4		Table IV
2b	4		Table IV
2b	NA		Table IV
NA	4		Table IV

Table IV			
Are the study groups clearly defined?	**Selection bias sufficiently prevented?**	**Exposition to vaccination accurately**	**Outcomes clearly defined and accurately analyzed?**
Yes, no HC	Yes, candidates of RCT	Yes	Yes
Yes	Yes	NA (all were vaccinated)	Moderately (Humoral immunity using index value for VZV-IgG,
Yes	Yes	Moderately (Case definition relied on the assumption that	Yes
Yes	Yes	Moderately (Case definition relied on the assumption that	Yes
Yes	Yes	NA (all were vaccinated)	Yes

Outcome assessment blinded for exposition to	**Sufficient f/u?**	**Prevention of selective loss of f/u?**	**Important confounders identified and**
Yes	Yes	Yes	Yes
No - all vaccinated	Moderately: 3 months	Yes: no loss	Yes
NA	Yes (median 2 years)	NA	Yes
NA	Yes	NA	Yes. Matched vacc:unvacc 1:2
No - all vaccinated	Moderately: 3 months	Yes: no loss	No: SLE patients significantly older (60.5 vs 55.3 years)

Table II			
Method of random	**Treatment allocation concealed**	**Similar group prognostic sign**	**Eligibility criteria**
Yes	Yes	Yes	Yes

Outcome assessor blinded	**care provided blinded**	**Was the patient blinded ?**	**Was follow up completed**
Yes	Yes	Yes	Yes

		Table I	
Were the points estimates and variability presented for the primary	**Did the analysis include an ITT**	**Literature search accurate?**	**Selection of literature accurate?**
Yes	No		

Critical appraisal of included articles accurate?	**Data extraction accurately described?**	**Important features of included trials accurately**	**Heterogeneity between studies handled**


Is statistical pooling correctly performed?

Name first author	**Year of publication**	**Country**	**Years of data inclusion**
YELLOW FEVER VACCINATION			
Kerneis	2013	France	2008-11
Wieten	2016	The Netherlands	NR
Oliveira	2015	Brazil	2007-8
Sheinberg	2010	Brazil	NR

Type of study	**Vaccine**	**Adjuvant**	**Type of AIIRD**
Cohort	YF	NR	RA (and non-AIIRD CS-treated)
Case series	17D Yellow Fever	No	15 heterogeneous immunocompromised, also non-AIIRD: 4 RA, 2 SSc, 2 SpA, 2 IBD, 1
Case series	YF	NR	23 RA 5 SLE 2 SSc 1 AS
Case series	YF	NR	RA

Number of participants	**Age in years: mean (SD) or median ([interquartile] range)**	**% Women**	**Disease duration in years: mean (SD) or median ([interquartile] range)**
CS 34* Non CS 68 * CS treated-RA (n=9) Non-AIIRD CS-treated	55 (43-59) 55 (46-61)	65 57	NR
15 immunocompromised 30 HC	Range 20-65 range 23-69	80 67	NR
31	46.7 (12.7)	100	NR
17 RA anti-TNF 15 HC	Range 26-58	76	NR

Follow-up	**Medication**	**Outcome (efficacy, immunogenicity, safety)**	**Type of study Oxford Centre - Immunogenicity**
10d safety 6 months	CS	Immunogenicity, safety	2b
Vacc 0-22y ago	GC, MTX, biologics, tacrolimus	Immunogenicity, safety	4
2y	MTX 16, LEF 9	Immunogenicity, safety	4
not clear, retrospective	Anti-TNF+MTX	Immunogenicity, safety	4

Type of study Oxford Centre - Efficacy	**Type of study Oxford Centre - Safety**	**Other comments**	**Table used for validity assessment**
NA	4		Table IV
NA	4		Table IV
NA	4		Table IV
NA	4		Table IV

Table IV			
Are the study groups clearly defined?	**Selection bias sufficiently prevented?**	**Exposition to vaccination accurately measured?**	**Outcomes clearly defined and accurately analyzed?**
Yes, but CS-use based, not disease based. Includes also non AIIRDs	Not clear	NA	Yes
Yes (characteristics HC in supplemental data)	Yes	Yes, in report	Yes
Yes, but small heterogeneous group	Yes	NA	Yes
Retrospective, small group	Probably	NA	Yes

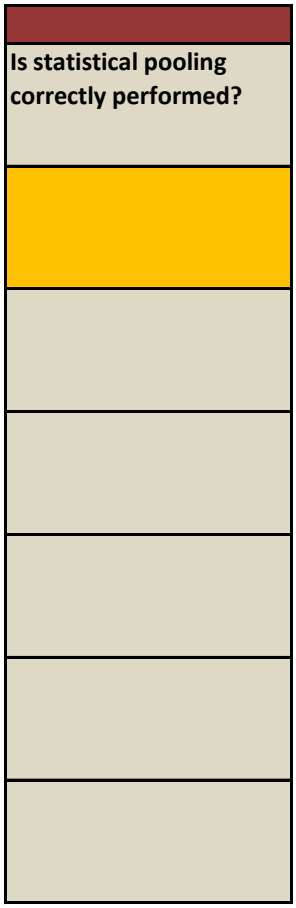
Outcome assessment blinded for exposition to vaccination?	**Sufficient f/u?**	**Prevention of selective loss of f/u?**	**Important confounders identified and corrected for?**
NA	Yes	No	Yes
NA (all vaccinated)	No. Very long and varied.	NA	Yes, matched controls
NA	Yes	Yes	No analysis of confounding factors (not possible in such a small and heterogeneous
NA	Yes	Not indicated	No analysis of confounding factors (not possible in such a small and heterogeneous

Table II			
Method of random	**Treatment allocation concealed**	**Similar group prognostic sign**	**Eligibility criteria**

Outcome assessor blinded	**care provided blinded**	**Was the patient blinded ?**	**Was follow up completed**

		Table I	
Were the points estimates and variability presented for the primary outcome?	**Did the analysis include an ITT**	**Literature search accurate?**	**Selection of literature accurate?**

Critical appraisal of included articles accurate?	**Data extraction accurately described?**	**Important features of included trials accurately described?**	**Heterogeneity between studies handled accurately?/Meta-analysis adequately**


Is statistical pooling correctly performed?

Name first author	**Year of publication**	**Country**	**Years of data inclusion**
HUMAN PAPILLOMAVIRUS VACCINATION			
Dhar	2017	United States	NR
Dhar	2018	United States	NR
Mok	2013	China	2011
Mok	2018	China	2011
Esposito	2014	Italy	NR
Soybilgic	2013	United States	NR

Type of study	**Vaccine**	**Adjuvant**	**Type of AIIRD**
prospective cohort	4-valent HPV (gardasil)	Aluminum Hydroxyphosphate Sulfate	SLE
prospective cohort	4-valent HPV (gardasil)	Aluminum Hydroxyphosphate Sulfate	SLE
Cohort study	4-valent HPV (gardasil)	Aluminum Hydroxyphosphate Sulfate	SLE
Cohort	4-valent HPV (gardasil)	Aluminum Hydroxyphosphate Sulfate	SLE
Cohort	2-valent HPV	AS04	JIA
Cohort (prospective)	4-valent HPV (gardasil)	Aluminum Hydroxyphosphate Sulfate	jSLE

Number of participants	**Age in years: mean (SD) or median ([interquartile] range)**	**% Women**	**Disease duration in years: mean (SD) or median ([interquartile]**
34 SLE	38.1	100	9.5
34 SLE	38.1	100	9.5
SLE-vacc 50 HC 50 SLE disease control	25.8 (3.9) 25.8 (3.9) 26.6 (4.4)	100 100	6.6 (4.5) 7.5 (3.5)
SLE 50 Non-vacc 50	25.8 (3.9) 25.8 (3.9)	100 100	6.6 (4,5)
JIA 21 HC 21	15.0 (12.0-25.0) 15.0 (12.0-25.0)	100 100	5 (1-15)
27 jSLE	20.5	100	3.5

Follow-up	**Medication**	**Outcome (efficacy, immunogenicity, safety)**	**Type of study Oxford Centre - Immunogenicity**
12M	NR	Immunogenicity, safety (AE)	2b
7m	NR	Immunogenicity (neutralizing Ig) in relation to preceding	2b
12m	HCQ (66%), GC (70%, 4.8 ± 2mg/day max 10 mg), AZA (48%), CsA	Immunogenicity, safety (AE, flare)	2b
12m	HCQ (66%), GC (70%, 4.8 ± 2mg/day max 10 mg), AZA (48%), CsA	Immunogenicity	2b
7m	MTX (23.8%), ETA (28.6%)	Immunogenicity (neutralizing Ig), safety (AE, disease activity)	2b
7M	HCQ (100%), GCs (59.2%), AZA (33.3%), MMF (33.3%), MTX	Immunogenicity, safety (AE, flare)	4

Type of study Oxford Centre - Efficacy	**Type of study Oxford Centre - Safety**	**Other comments**	**Table used for validity assessment**
NA	NA	2 papers on the same patients	Table IV
NA	NA	relevance?	Table IV
NA	4		Table IV
NA	NA		Table IV
ND	4		Table IV
ND	4		Table IV

Table IV			
Are the study groups clearly defined?	**Selection bias sufficiently prevented?**	**Exposition to vaccination accurately measured?**	**Outcomes clearly defined and accurately analyzed?**
Yes, no controls	Yes	Yes	Yes
Yes, no controls	Yes	Yes	Yes
Yes	Yes	Yes	Yes for Ig, no systematic assessment of AE
Yes	Yes	Yes	Yes
Yes	selection not described	Yes	Yes
Yes	Moderate	Yes	No, disease activity time of assessment unknown

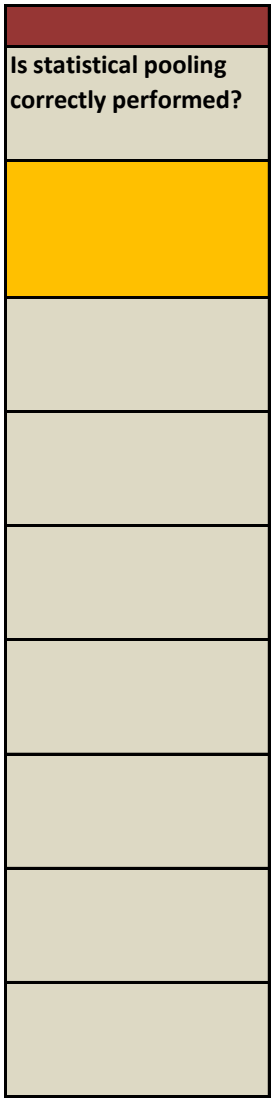
Outcome assessment blinded for exposition to vaccination?	**Sufficient f/u?**	**Prevention of selective loss of f/u?**	**Important confounders identified and corrected for?**
NA, all patients vaccinated	Yes	Yes	no (medication use unknown)
NA, all patients vaccinated	Yes	Yes	no (medication use unknown)
NA,	Yes	only 39 SLE patients with available IgG data	Yes
NA, all patients vaccinated	Yes	no	no
NA, all patients vaccinated	Yes	Yes	Yes
NA, all patients vaccinated	Yes	no	no

Table II			
Method of random	**Treatment allocation concealed**	**Similar group prognostic sign**	**Eligibility criteria**

Outcome assessor blinded	**care provided blinded**	**Was the patient blinded ?**	**Was follow up completed**

		Table I	
Were the points estimates and variability presented	**Did the analysis include an ITT**	**Literature search accurate?**	**Selection of literature accurate?**

Critical appraisal of included articles accurate?	**Data extraction accurately described?**	**Important features of included trials accurately described?**	**Heterogeneity between studies handled**


Is statistical pooling correctly performed?

Name first author	**Year of publication**	**Country**
TICK-BORNE ENCEPHALITIS VACCINATION		
Hertzell	2016	Sweden

Years of data inclusion	**Type of study**	**Vaccine**
	Cohort	Tick-borne Encephalitis

Adjuvant	**Type of AIIRD**	**Number of participants**
NR	RA	RA 65 + 1 AS HC 56

Age in years: mean (SD) or median ([interquartile] range)	**% Women**	**Disease duration in years: mean (SD) or median ([interquartile] range)**
58.5 58.5	Matched	

Follow-up	**Medication**	**Outcome (efficacy, immunogenicity, safety)**
12m	TNF, MTX, TNF+MTX	Immunogenicity, safety

Type of study Oxford Centre - Immunogenicity	**Type of study Oxford Centre - Efficacy**	**Type of study Oxford Centre - Safety**
2b	NA	4

		Table IV
Other comments	**Table used for validity assessment**	**Are the study groups clearly defined?**
	Table IV	Yes

Selection bias sufficiently prevented?	**Exposition to vaccination accurately measured?**	**Outcomes clearly defined and accurately analyzed?**
Yes	Yes	Yes

Outcome assessment blinded for exposition to vaccination?	**Sufficient f/u?**	**Prevention of selective loss of f/u?**
No	Yes	Yes

	Table II	
Important confounders identified and corrected for?	**Method of random**	**Treatment allocation concealed**
Yes		

Similar group prognostic sign	**Eligibility criteria**	**Outcome assessor blinded**

care provided blinded	**Was the patient blinded ?**	**Was follow up completed**

		Table I
Were the points estimates and variability presented for the primary outcome?	**Did the analysis include an ITT**	**Literature search accurate?**

Selection of literature accurate?	**Critical appraisal of included articles accurate?**	**Data extraction accurately described?**

Important features of included trials accurately described?	**Heterogeneity between studies handled accurately?/Meta-analysis**	**Is statistical pooling correctly performed?**