

## Supplemental Online Content

Kuitunen I, Uimonen MM, Haapanen M, Sund R, Helenius I, Ponkilainen VT. Incidence of neonatal developmental dysplasia of the hip and late detection rates based on screening strategy: a systematic review and meta-analysis. *JAMA Netw Open*. 2022;5(8):e2227638. doi:10.1001/jamanetworkopen.2022.27638

**eFigure 1.** Search Strategy and PRISMA Flowchart of the Review Process for Randomized Controlled Trials

**eFigure 2.** Overall Risk of Bias Summary Figure for Assessed Domains

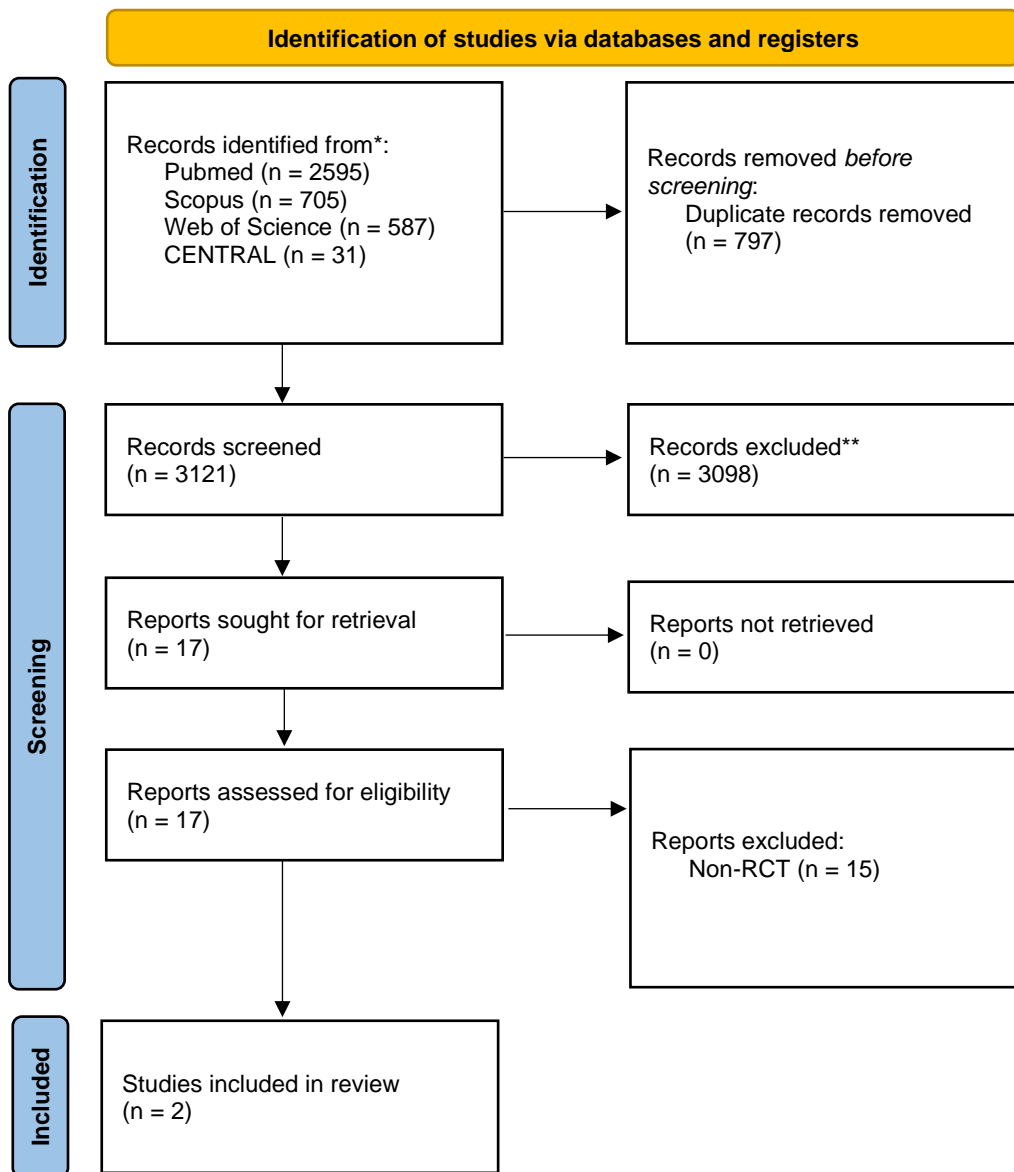
**eTable 1.** Modified PRISMA Flowchart of the Screening Process

**eTable 2.** Background Characteristics of the Included Studies

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This supplemental material has been provided by the authors to give readers additional information about their work.

**eFigure 1.** Search Strategy and PRISMA Flowchart of the Review Process for Randomized Controlled Trials



As none of these records were novel to the Cochrane review in 2013, we decided not to conduct synthesis of these studies as replication was not needed.

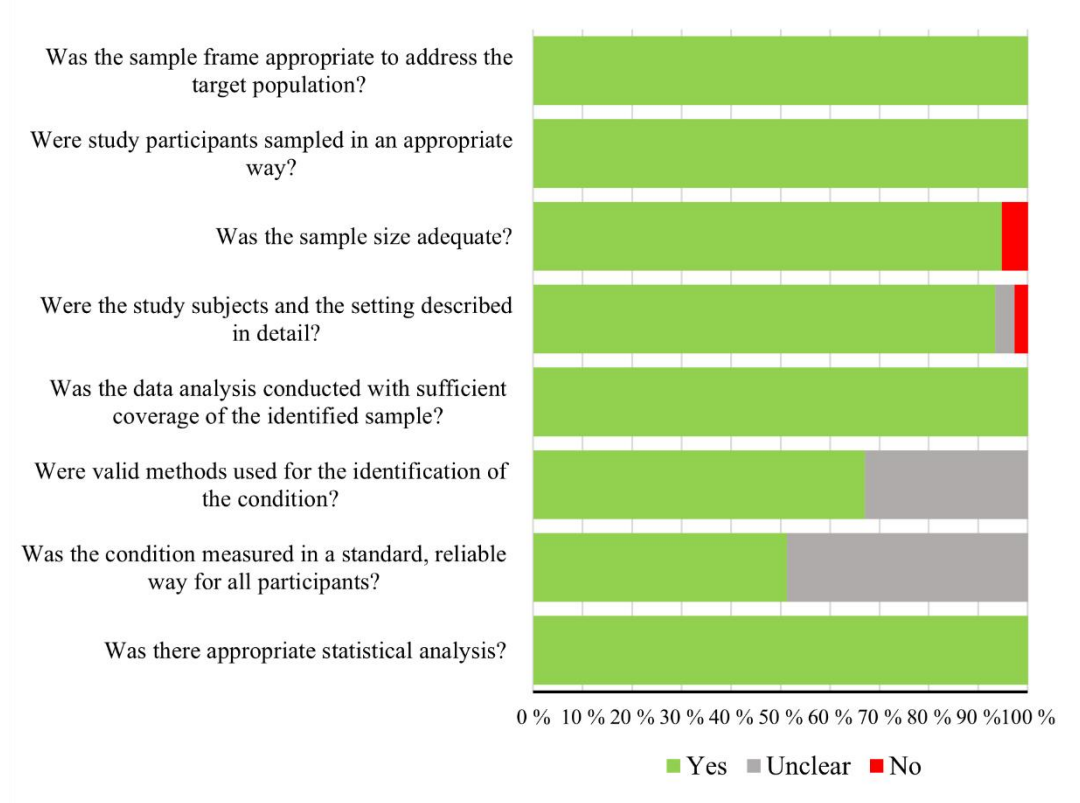
**Search strategy:**

Following search term was used: (hip) AND (ultrasound) AND (luxation or dysplasia) AND (newborn or neonate or congenital)

Following databases were searched: PubMed, Scopus, Web of Science, CENTRAL.

Date of search: November 16<sup>th</sup>, 2021.

**eFigure 2.** Overall Risk of Bias Summary Figure for Assessed Domains



**eTable 1.** Modified PRISMA Flowchart of the Screening Process

#	Country	Date of search	Results retrieved	Duplicates removed	Abstracts screened	Records excluded	Full texts assessed	Reports excluded	Studies included for review
1	Afghanistan	25.11.2021	0	0	0	0	0	0	0
2	Albania	25.11.2021	0	0	0	0	0	0	0
3	Algeria	25.11.2021	1	0	1	1	0	0	0
4	Andorra	25.11.2021	0	0	0	0	0	0	0
5	Angola	25.11.2021	0	0	0	0	0	0	0
6	Antigua and Barbuda	25.11.2021	0	0	0	0	0	0	0
7	Argentina	25.11.2021	3	0	3	3	0	0	0
8	Armenia	25.11.2021	0	0	0	0	0	0	0
9	Australia	25.11.2021	51	7	44	37	7	1	6
10	Austria	25.11.2021	16	1	15	8	7	5	2
11	Azerbaijan	25.11.2021	0	0	0	0	0	0	0
12	Bahamas	25.11.2021	0	0	0	0	0	0	0
13	Bahrain	25.11.2021	0	0	0	0	0	0	0
14	Bangladesh	25.11.2021	2	1	1	1	0	0	0
15	Barbados	25.11.2021	0	0	0	0	0	0	0
16	Belarus	25.11.2021	0	0	0	0	0	0	0
17	Belgium	25.11.2021	12	1	11	11	0	0	0
18	Belize	25.11.2021	0	0	0	0	0	0	0
19	Benin	25.11.2021	0	0	0	0	0	0	0
20	Bhutan	25.11.2021	0	0	0	0	0	0	0
21	Bolivia	25.11.2021	0	0	0	0	0	0	0
22	Bosnia and Herzegovina	25.11.2021	2	0	2	1	1	0	1

23	Botswana	25.11.2021	0	0	0	0	0	0	0
24	Brazil	25.11.2021	14	1	13	13	0	0	0
25	Brunei	25.11.2021	0	0	0	0	0	0	0
26	Bulgaria	25.11.2021	2	0	2	1	1	1	0
27	Burkina Faso	25.11.2021	2	1	1	1	0	0	0
28	Burundi	25.11.2021	0	0	0	0	0	0	0
29	Côte d'Ivoire	25.11.2021	0	0	0	0	0	0	0
30	Cabo Verde	25.11.2021	0	0	0	0	0	0	0
31	Cambodia	25.11.2021	0	0	0	0	0	0	0
32	Cameroon	25.11.2021	0	0	0	0	0	0	0
33	Canada	25.11.2021	34	2	32	31	1	0	1
34	Central African Republic	25.11.2021	0	0	0	0	0	0	0
35	Chad	25.11.2021	0	0	0	0	0	0	0
36	Chile	25.11.2021	7	2	5	4	1	0	1
37	China	25.11.2021	121	7	114	110	4	3	1
38	Colombia	25.11.2021	3	1	2	2	0	0	0
39	Comoros	25.11.2021	0	0	0	0	0	0	0
40	Congo (Congo-Brazzaville)	25.11.2021	0	0	0	0	0	0	0
41	Costa Rica	25.11.2021	0	0	0	0	0	0	0
42	Croatia	25.11.2021	10	1	9	5	4	4	0
43	Cuba	25.11.2021	0	0	0	0	0	0	0
44	Cyprus	25.11.2021	0	0	0	0	0	0	0
45	Czechia (Czech Republic)	25.11.2021	17	1	16	11	5	4	1
46	Democratic Republic of the Congo	25.11.2021	0	0	0	0	0	0	0
47	Denmark	25.11.2021	37	6	31	28	3	3	0
48	Djibouti	25.11.2021	0	0	0	0	0	0	0

49	Dominica	25.11.2021	0	0	0	0	0	0	0
50	Dominican Republic	25.11.2021	0	0	0	0	0	0	0
51	Ecuador	25.11.2021	0	0	0	0	0	0	0
52	Egypt	25.11.2021	5	2	3	3	0	0	0
53	El Salvador	25.11.2021	0	0	0	0	0	0	0
54	Equatorial Guinea	25.11.2021	0	0	0	0	0	0	0
55	Eritrea	25.11.2021	0	0	0	0	0	0	0
56	Estonia	25.11.2021	0	0	0	0	0	0	0
57	Eswatini (fmr. "Swaziland")	25.11.2021	0	0	0	0	0	0	0
58	Ethiopia	25.11.2021	9	3	6	3	3	1	2
59	Fiji	25.11.2021	0	0	0	0	0	0	0
60	Finland	25.11.2021	11	1	10	10	0	0	0
61	France	25.11.2021	51	5	46	42	4	3	1
62	Gabon	26.11.2021	0	0	0	0	0	0	0
63	Gambia	26.11.2021	0	0	0	0	0	0	0
64	Georgia	26.11.2021	0	0	0	0	0	0	0
65	Germany	26.11.2021	144	18	126	105	21	19	2
66	Ghana	26.11.2021	0	0	0	0	0	0	0
67	Greece	26.11.2021	6	1	5	4	1	0	1
68	Grenada	26.11.2021	2	1	1	1	0	0	0
69	Guatemala	26.11.2021	2	1	1	1	0	0	0
70	Guinea	26.11.2021	0	0	0	0	0	0	0
71	Guinea-Bissau	26.11.2021	0	0	0	0	0	0	0
72	Guyana	26.11.2021	0	0	0	0	0	0	0
73	Haiti	26.11.2021	0	0	0	0	0	0	0
74	Holy See	26.11.2021	0	0	0	0	0	0	0
75	Honduras	26.11.2021	0	0	0	0	0	0	0

76	Hungary	26.11.2021	15	2	13	10	3	2	1
77	Iceland	26.11.2021	0	0	0	0	0	0	0
78	India	26.11.2021	36	5	31	26	5	2	3
79	Indonesia	26.11.2021	0	0	0	0	0	0	0
80	Iran	26.11.2021	11	1	10	5	5	0	5
81	Iraq	26.11.2021	2	0	2	2	0	0	0
82	Ireland	26.11.2021	39	6	33	22	11	7	4
83	Israel	26.11.2021	15	2	13	7	6	3	3
84	Italy	26.11.2021	45	5	40	27	13	11	2
85	Jamaica	26.11.2021	0	0	0	0	0	0	0
86	Japan	26.11.2021	132	27	105	101	4	2	2
87	Jordan	26.11.2021	5	0	5	4	1	1	0
88	Kazakhstan	26.11.2021	0	0	0	0	0	0	0
89	Kenya	26.11.2021	0	0	0	0	0	0	0
90	Kiribati	26.11.2021	0	0	0	0	0	0	0
91	Kuwait	26.11.2021	2	1	1	1	0	0	0
92	Kyrgyzstan	26.11.2021	0	0	0	0	0	0	0
93	Laos	26.11.2021	0	0	0	0	0	0	0
94	Latvia	26.11.2021	0	0	0	0	0	0	0
95	Lebanon	26.11.2021	4	0	4	4	0	0	0
96	Lesotho	26.11.2021	0	0	0	0	0	0	0
97	Liberia	26.11.2021	0	0	0	0	0	0	0
98	Libya	26.11.2021	0	0	0	0	0	0	0
99	Liechtenstein	26.11.2021	0	0	0	0	0	0	0
100	Lithuania	26.11.2021	0	0	0	0	0	0	0
101	Luxembourg	26.11.2021	0	0	0	0	0	0	0
102	Madagascar	26.11.2021	0	0	0	0	0	0	0

103	Malawi	26.11.2021	3	1	2	1	1	1	0
104	Malaysia	26.11.2021	5	1	4	1	3	2	1
105	Maldives	26.11.2021	0	0	0	0	0	0	0
106	Mali	26.11.2021	0	0	0	0	0	0	0
107	Malta	26.11.2021	0	0	0	0	0	0	0
108	Marshall Islands	26.11.2021	0	0	0	0	0	0	0
109	Mauritania	26.11.2021	0	0	0	0	0	0	0
110	Mauritius	26.11.2021	0	0	0	0	0	0	0
111	Mexico	26.11.2021	9	1	8	7	1	1	0
112	Micronesia	26.11.2021	0	0	0	0	0	0	0
113	Moldova	26.11.2021	0	0	0	0	0	0	0
114	Monaco	26.11.2021	0	0	0	0	0	0	0
115	Mongolia	26.11.2021	5	2	3	1	2	1	1
116	Montenegro	26.11.2021	1	0	1	1	0	0	0
117	Morocco	26.11.2021	0	0	0	0	0	0	0
118	Mozambique	26.11.2021	0	0	0	0	0	0	0
119	Myanmar (formerly Burma)	26.11.2021	1	0	1	1	0	0	0
120	Namibia	26.11.2021	0	0	0	0	0	0	0
121	Nauru	26.11.2021	0	0	0	0	0	0	0
122	Nepal	26.11.2021	3	1	2	2	0	0	0
123	Netherlands	26.11.2021	50	7	43	38	5	2	3
124	New Zealand	26.11.2021	17	3	14	14	0	0	0
125	Nicaragua	26.11.2021	0	0	0	0	0	0	0
126	Niger	26.11.2021	0	0	0	0	0	0	0
127	Nigeria	26.11.2021	2	0	2	2	0	0	0
128	North Korea	26.11.2021	0	0	0	0	0	0	0



129	North Macedonia	26.11.2021	0	0	0	0	0	0	0
130	Norway	26.11.2021	49	5	44	36	8	5	3
131	Oman	26.11.2021	0	0	0	0	0	0	0
132	Pakistan	26.11.2021	5	1	4	4	0	0	0
133	Palau	26.11.2021	0	0	0	0	0	0	0
134	Palestine State	26.11.2021	0	0	0	0	0	0	0
135	Panama	26.11.2021	0	0	0	0	0	0	0
136	Papua New Guinea	26.11.2021	0	0	0	0	0	0	0
137	Paraguay	26.11.2021	0	0	0	0	0	0	0
138	Peru	26.11.2021	0	0	0	0	0	0	0
139	Philippines	27.11.2021	2	1	1	1	0	0	0
140	Poland	27.11.2021	25	4	21	17	4	4	0
141	Portugal	27.11.2021	7	1	6	6	0	0	0
142	Qatar	27.11.2021	3	0	3	3	0	0	0
143	Romania	27.11.2021	9	2	7	3	4	2	2
144	Russia	27.11.2021	8	1	7	7	0	0	0
145	Rwanda	27.11.2021	0	0	0	0	0	0	0
146	Saint Kitts and Nevis	27.11.2021	0	0	0	0	0	0	0
147	Saint Lucia	27.11.2021	0	0	0	0	0	0	0
148	Saint Vincent and the Grenadines	27.11.2021	0	0	0	0	0	0	0
149	Samoa	27.11.2021	0	0	0	0	0	0	0
150	San Marino	27.11.2021	0	0	0	0	0	0	0
151	Sao Tome and Principe	27.11.2021	0	0	0	0	0	0	0
152	Saudi Arabia	27.11.2021	19	4	15	9	6	6	0
153	Senegal	27.11.2021	0	0	0	0	0	0	0
154	Serbia	27.11.2021	1	0	1	1	0	0	0

155	Seychelles	27.11.2021	0	0	0	0	0	0	0
156	Sierra Leone	27.11.2021	0	0	0	0	0	0	0
157	Singapore	27.11.2021	10	3	7	5	2	1	1
158	Slovakia	27.11.2021	15	3	12	10	2	1	1
159	Slovenia	27.11.2021	3	1	2	0	2	0	2
160	Solomon Islands	27.11.2021	0	0	0	0	0	0	0
161	Somalia	27.11.2021	0	0	0	0	0	0	0
162	South Africa	27.11.2021	12	2	10	10	0	0	0
163	South Korea	27.11.2021	11	1	10	10	0	0	0
164	South Sudan	27.11.2021	0	0	0	0	0	0	0
165	Spain	27.11.2021	29	1	28	25	3	3	0
166	Sri Lanka	27.11.2021	0	0	0	0	0	0	0
167	Sudan	27.11.2021	0	0	0	0	0	0	0
168	Suriname	27.11.2021	0	0	0	0	0	0	0
169	Sweden	27.11.2021	27	6	21	18	3	1	2
170	Switzerland	27.11.2021	38	5	33	31	2	1	1
171	Syria	27.11.2021	0	0	0	0	0	0	0
172	Tajikistan	27.11.2021	0	0	0	0	0	0	0
173	Tanzania	27.11.2021	0	0	0	0	0	0	0
174	Thailand	27.11.2021	7	1	6	4	2	0	2
175	Timor-Leste	27.11.2021	0	0	0	0	0	0	0
176	Togo	27.11.2021	1	0	1	1	0	0	0
177	Tonga	27.11.2021	0	0	0	0	0	0	0
178	Trinidad and Tobago	27.11.2021	0	0	0	0	0	0	0
179	Tunisia	27.11.2021	0	0	0	0	0	0	0
180	Turkey	27.11.2021	65	7	58	49	9	5	4
181	Turkmenistan	27.11.2021	0	0	0	0	0	0	0

182	Tuvalu	27.11.2021	0	0	0	0	0	0	0
183	Uganda	27.11.2021	0	0	0	0	0	0	0
184	Ukraine	27.11.2021	1	0	1	1	0	0	0
185	United Arab Emirates	27.11.2021	3	1	2	0	2	1	1
186	United Kingdom	27.11.2021	231	52	179	155	24	13	11
187	United States of America	27.11.2021	349	38	311	304	7	5	2
188	Uruguay	27.11.2021	1	0	1	1	0	0	0
189	Uzbekistan	27.11.2021	0	0	0	0	0	0	0
190	Vanuatu	27.11.2021	0	0	0	0	0	0	0
191	Venezuela	27.11.2021	0	0	0	0	0	0	0
192	Vietnam	27.11.2021	0	0	0	0	0	0	0
193	Yemen	27.11.2021	0	0	0	0	0	0	0
194	Zambia	27.11.2021	0	0	0	0	0	0	0
195	Zimbabwe	27.11.2021	2	1	1	1	0	0	0
	<b>TOTAL</b>		<b>189 9</b>	<b>270</b>	<b>1629</b>	<b>1426</b>	<b>203</b>	<b>127</b>	<b>76</b>

**eTable 2.** Background Characteristics of the Included Studies

	N	%
Screening method		
Clinical	15	19
Selective US	29	39
Universal US	32	42
Geographical location		
Europe	45	59
Asia	21	28
Australia and Oceania	6	8
North America	3	4
South America	1	1
Africa	0	0
Study design		
Register	16	21
Hospital	60	79
Follow-up		
Prospective	33	43
Retrospective	43	57

**eTable 3.** Risk of Bias Assessment of the Individual Studies Based on the Joanna Briggs Institute Critical Appraisal Tool for Prevalence Studies

#	1st author	year	Was the sample frame appropriate to address the target population?	Were study participants sampled in an appropriate way?	Was the sample size adequate?	Were the study subjects and the setting described in detail?	Was the data analysis conducted with sufficient coverage of the identified sample?	Were valid methods used for the identification of the condition?	Was the condition measured in a standard, reliable way for all participants?	Was there appropriate statistical analysis?	Was the response rate adequate, and if not, was the low response rate managed appropriately?	Overall
1	Ang	1997	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
2	Arti	2013	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
3	Azzopardi	2017	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
4	Bache	2003	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
5	Barik	2021	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
6	Bhalvani	2011	yes	yes	no	yes	yes	yes	yes	yes	Not applicable	Include
7	Bialik	1997	yes	yes	no	yes	yes	yes	yes	yes	Not applicable	Include
8	Bialik	1999	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
9	Biedermann	2018	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
10	Bjerkreim	1987	yes	yes	yes	yes	yes	yes	unclear	yes	Not applicable	Include
11	Boere-Boonekamp	1998	yes	yes	yes	yes	yes	yes	unclear	yes	Not applicable	Include
12	Broadhurst	2019	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
13	Buonsenso	2021	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
14	Burger	1990	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
15	Cekic	2015	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
16	Chotigavanichaya	2012	yes	yes	yes	unclear	yes	unclear	unclear	yes	Not applicable	Include

17	Clarke	2012	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
18	Colta	2016	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
19	Degnan	2021	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
20	De Martino	1994	yes	yes	yes	no	yes	yes	yes	yes	Not applicable	Include
21	Den	2021	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
22	Donnelly	2015	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
23	Geertsema	2018	yes	yes	no	yes	yes	yes	yes	yes	Not applicable	Include
24	Gharehdaghi	2011	yes	yes	yes	unclear	yes	yes	yes	yes	Not applicable	Include
25	Giannakopoulou	2002	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
26	Goss	2002	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
27	Güler	2016	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
28	Gyurkovits	2019	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
29	Hesaraki	2017	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
30	Ishikawa	2008	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
31	Kamath	2007	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
32	Kokavec	2007	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
33	Kolb	2015	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
34	Krolo	2003	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
35	Kumar	2016	yes	yes	yes	yes	yes	yes	unclear	yes	Not applicable	Include
36	Kural	2019	yes	yes	yes	yes	yes	yes	unclear	yes	Not applicable	Include
37	Kose	2006	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
38	Lange	2017	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include

39	Lisle	2012	yes	yes	yes	no	yes	unclear	unclear	yes	Not applicable	Include
40	Mamouri	2003	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
41	Maxwell	2002	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
42	McAllister	2018	yes	yes	yes	yes	yes	yes	unclear	yes	Not applicable	Include
43	Milligan	2020	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
44	Moosa	2009	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
45	Munkhuu	2013	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
46	Muresan	2019	yes	yes	no	yes	yes	yes	yes	yes	Not applicable	Include
47	Olsen	2018	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
48	Paton	2005	yes	yes	yes	yes	yes	yes	unclear	yes	Not applicable	Include
49	Peled	2008	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
50	Peled	2008	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
51	Phelan	2014	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
52	Pollet	2016	yes	yes	yes	yes	yes	yes	unclear	yes	Not applicable	Include
53	Puol	1998	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
54	Reidy	2019	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
55	Riboni	2003	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
56	Rosendahl	1996	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
57	Schams	2017	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
58	Sepulveda	2021	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
59	Sharpe	2005	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
60	Sirisabya	2019	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include

61	Studer	2016	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
62	Talbot	2017	yes	yes	yes	yes	yes	yes	unclear	yes	Not applicable	Include
63	Tong	2011	yes	yes	yes	unclear	yes	unclear	unclear	yes	Not applicable	Include
64	Treiber	2008	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
65	Treiber	2021	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
66	Tyagi	2016	yes	yes	yes	yes	yes	yes	unclear	yes	Not applicable	Include
67	Vafae	2017	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
68	Von Kries	2003	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include
69	Walter	1992	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
70	Wenger	2013	yes	yes	yes	yes	yes	yes	unclear	yes	Not applicable	Include
71	Wenger	2019	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
72	Wilf-Miron	2017	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
73	Wirth	2004	yes	yes	yes	yes	yes	yes	unclear	yes	Not applicable	Include
74	Woodacre	2016	yes	yes	yes	yes	yes	yes	unclear	yes	Not applicable	Include
75	Yiv	1997	yes	yes	yes	yes	yes	yes	yes	yes	Not applicable	Include
76	Zenios	2000	yes	yes	yes	yes	yes	unclear	unclear	yes	Not applicable	Include