

S1 Table. Precision and risk of bias assessment for dengue prevalence measures in the Middle East and North Africa.

Country, Ref.	Year(s) of study	Population	Sample size	Prevalence	Risk of Bias Assessment			Precision
					Assay	Sampling*	Response rate	
Afghanistan								
Elyan [1]	2008-10	AFI patients	913	19.2%	High ROB	n/a	Unclear ROB	High
Djibouti								
Salah [2]	1987	healthy soldiers	50	0%	High ROB	High ROB	Unclear ROB	Low
		general population	69	0%	High ROB	High ROB	Unclear ROB	Low
		AFI patients	41	0%	High ROB	n/a	Unclear ROB	Low
Rodier [3]	1991	AFI patients	91	7.7-25.0%	Low ROB	n/a	Unclear ROB	Low
Fauld [4]	2011	animal workers	10	10.0%	High ROB	High ROB	Unclear ROB	Low
Andayi [5]	2010-11	general population	911	21.8%	High ROB	Low ROB	High ROB	High
Egypt								
Mohammed [6]	1966	general population	29	3.0-7.0%	High ROB	High ROB	Unclear ROB	Low
		general population	55	4.0-5.0%	High ROB	High ROB	Unclear ROB	Low
Mohammed [7]	1968	AFI patients	120	0%	High ROB	n/a	Unclear ROB	High
		clinic population	78	0%	High ROB	Unclear ROB	Unclear ROB	Low
Darwish [8]	1969	university students	1133	0.3%	High ROB	High ROB	Unclear ROB	High
Iran								
Saidi [9]	1970	n/s	394	6.0%	High ROB	Unclear ROB	Unclear ROB	High
Saidi [10]	1970-71	children	100	0%	High ROB	Low ROB	Unclear ROB	High
Chinikar [11]	2000-12	AFI patients	300	1.0-3.3%	High ROB	n/a	Unclear ROB	High
Aghale [12]	2014	blood donors	540	7.6%	High ROB	High ROB	Unclear ROB	High
Kuwait								
Ibrahim [13]	1966-68	blood donors, patients, children	627	6.5-8.1%	High ROB	Low ROB	Unclear ROB	High
Al-Nakib [14]	1979-82	patients	502	3.2-8.4%**	High ROB	Low ROB	Unclear ROB	High
Pacsa [15]	2002*	general population	425	13.9%	High ROB	Unclear ROB	Unclear ROB	High
		general population	47	0%	High ROB	Unclear ROB	Unclear ROB	Low
		expatriates from South Asia	266	37%	High ROB	Unclear ROB	Unclear ROB	High
		expatriates from Southeast Asia	31	56.6%	High ROB	Unclear ROB	Unclear ROB	Low
		expatriates from Middle East	140	25%	High ROB	Unclear ROB	Unclear ROB	High
		suspected dengue	210	9.0%	Low ROB	n/a	Unclear ROB	High
Lebanon								
Garabedian [16]	1962-65	general population	113	61.9%	High ROB	Low ROB	Unclear ROB	High
		general population	171	49.1%	High ROB	Low ROB	Unclear ROB	High
Hatem [17]	1969	n/s	126	0%	High ROB	Unclear ROB	Unclear ROB	High
		n/s	126	4.0%	High ROB	Unclear ROB	Unclear ROB	High
Libya								
Darwish [18]	1973	children, patients	148	0%	High ROB	Unclear ROB	Unclear ROB	High
Pakistan								
Darwish [19]	1983*	patients	43	9.3%	High ROB	Unclear ROB	Unclear ROB	Low
Akram [20]	1994	AFI patients	122	9.8-14.6%	High ROB	n/a	Low ROB	High
Siddiqui [21]	1999-2001	AFI patients	341	15.8%	High ROB	n/a	Low ROB	High
Tariq [22]	2003	suspected dengue	52	73%	High ROB	n/a	Unclear ROB	Low
Jamil [23]	2005	suspected dengue	106	36.8%	High ROB	n/a	Unclear ROB	High
Khan [24]	2006	suspected dengue	83	50.7-87.9%	Low ROB	n/a	Low ROB	Low
Khan [25]	2006	suspected dengue	250	23.2-74%	Low ROB	n/a	Low ROB	High

Koo [26]	2006-11	suspected dengue	200	47%	Low ROB	n/a	Unclear ROB	High
Khan [27]	2006-07	suspected dengue	50	40%	High ROB	n/a	Low ROB	Low
Khan [28]	2006-07	suspected dengue	15,040	26.3%	High ROB	n/a	Low ROB	High
Abbasi [29]	2007-08	suspected dengue	114	69.6%	High ROB	n/a	Low ROB	High
Tahir [30]	2008	suspected dengue	3215	54.9%	High ROB	n/a	Low ROB	High
Murad [31]	2008	suspected dengue	70	17.1%	High ROB	n/a	Unclear ROB	Low
Mahmood [32]	2008	suspected dengue	200	39.5%	High ROB	n/a	Low ROB	High
		suspected dengue	341	48.7%	High ROB	n/a	Low ROB	High
Kidwai [33]	2008-09	suspected dengue	599	41.9-83.2%	High ROB	n/a	Low ROB	High
Zafar [34]	2009	general population	96	19.8%	High ROB	Low ROB	Unclear ROB	Low
Zafar [35]	2009	general population	244	28.8%	High ROB	Unclear ROB	Unclear ROB	High
Qureshi [36]	2010-12	suspected dengue	162	9.9%	High ROB	n/a	Low ROB	High
Khan [37]	2010	suspected dengue	125	54.4%	High ROB	n/a	Low ROB	High
Hasan [38]	2010	suspected dengue	259	34.8%	High ROB	n/a	Unclear ROB	High
Umar [39]	2010	suspected dengue	500	6.8%	High ROB	n/a	Low ROB	High
Jameel [40]	2010	suspected dengue	341	48.7%	High ROB	n/a	Low ROB	High
Naeem [41]	2011	suspected dengue	79	25.3%	High ROB	n/a	Unclear ROB	Low
Ahmed [42]	2011	suspected dengue	640	43.9%	High ROB	n/a	Unclear ROB	High
Ijaz [43]	2011	suspected dengue	5,274	49%	High ROB	n/a	Unclear ROB	High
Rashid [44]	2011	suspected dengue	254	36.6%	High ROB	n/a	Low ROB	High
Khan [45]	2011	suspected dengue	50	60-72%	Low ROB	n/a	Low ROB	Low
Hasan [46]	2007-13	suspected Crimean-Congo Hemorrhagic Fever	168	33.9%	Low ROB	n/a	Low ROB	High
Ali [47]	2011	suspected dengue	612	20.2%	High ROB	n/a	Unclear ROB	High
Hisam [48]	2012	AFI patients	500	3.2%	High ROB	n/a	Low ROB	High
Assir[49]	2012	suspected dengue	85	43.5%	Low ROB	n/a	Unclear ROB	Low
Saudi Arabia								
Fakeeh [50]	1994-99	suspected dengue	985	16.2-31.9%	Low ROB	n/a	Low ROB	High
Fakeeh [51]	1994-2002	suspected dengue	1020	10.8-50.5%	Low ROB	n/a	Low ROB	High
Khan [52]	2004	suspected dengue	136	32.4-58.8%	Low ROB	n/a	Unclear ROB	High
Ayyub [53]	2004-05	suspected dengue	80	48.8%	High ROB	n/a	Unclear ROB	Low
Shahin [54]	2006-08	suspected dengue	159	100%	Low ROB	n/a	Low ROB	High
Said [55]	2006	suspected dengue	525	19.2%	High ROB	n/a	Low ROB	High
Memish [56]	2010	adult military	1024	0.1%	High ROB	Unclear ROB	Unclear ROB	High
Gamil [57]	2010-11	suspected dengue	553	47.7%	Unclear ROB	n/a	Unclear ROB	High
Al-Azraqi [58]	2013	patients	268	26.5%	High ROB	Low ROB	Unclear ROB	High
		patients	697	33.7%	High ROB	Low ROB	Unclear ROB	High
Ashshi [59]	2014	blood donors	100	1-7%	High ROB	High ROB	Low ROB	High
Somalia								
Botros [60]	1987	AFI patients	38	14.2-60.7%	Low ROB	n/a	Unclear ROB	Low
Kanesa-thasan [61]	1993	AFI patients	84	17.8%	Low ROB	n/a	Unclear ROB	Low
Sharp [62]	1992-93	AFI military soldiers	129	34.9%	Low ROB	n/a	Unclear ROB	
		adult military	494	7.7%	High ROB	High ROB	Low ROB	High
Nur [63]	1995	children	23	0%	High ROB	High ROB	Unclear ROB	Low
		AFI patients	46	0%	High ROB	n/a	Unclear ROB	Low
Kyobe Bosa [64]	2011	AFI patients	134	62-80%	Low ROB	n/a	Low ROB	High
Sudan								
Omer [65]	1976	general population	109	17.4-27.5%	Low ROB	High ROB	Unclear ROB	High

Hyams [66]	1984	AFI patients	100	21%	Low ROB	n/a	Unclear ROB	High
Woodruff [67]	1986	AFI patients	130	40.0%	High ROB	n/a	Unclear ROB	High
McCarthy [68]	1988	patients	100	49%	High ROB	High ROB	Unclear ROB	High
		AFI patients	196	48%	High ROB	n/a	Low ROB	High
Watts [69]	1989	AFI patients	185	24.0%	High ROB	n/a	Unclear ROB	High
Ibrahim [70]	1997-99	suspected measles	188	3.2%	High ROB	n/a	Low ROB	High
Malik [71]	2004-05	Hospitals; suspected dengue	40	90.0%	Low ROB	n/a	Low ROB	Low
Gould [72]	2005	AFI patients	34	5.9%**	High ROB	n/a	Low	Low
Farnon [73]	2005	general population	87	1.1%	Low ROB	Low ROB	Unclear ROB	Low
Seidahmed [74]	2008-09	general population	791	5.2%	High ROB	Low ROB	Low ROB	High
Adam [75]	2008-09	pregnant women	10,820	0.7%	High ROB	High ROB	Low ROB	High
Himatt [76]	2011	general population	489	0.6-9.4%	High ROB	Low ROB	Low ROB	High
Abdalla [77]	2012	AFI patients	60	11.7%	High ROB	n/a	Low ROB	Low
Elduma [78]	2012	pregnant women with AFI	39	12.8%	Low ROB	n/a	Low ROB	Low
Soghaier [79]	2014	general population	600	27.7%	High ROB	Low ROB	Low ROB	High
Turkey								
Ari [80]	1971	general population	270	0%	High ROB	High ROB	Unclear ROB	High
Radda [81]	1973*	general population	270	0.3%	High ROB	High ROB	Unclear ROB	High
		general population	90	0%	High ROB	High ROB	Unclear ROB	Low
		general population	95	0%	High ROB	High ROB	Unclear ROB	Low
Ergunay [82]	2010	blood donors	2435	0.9%	High ROB	Low ROB	Unclear ROB	High
Tezcan [83]	2010-11	blood donors	920	0.9-16.6%	High ROB	Low ROB	Unclear ROB	High
Yemen								
Bin Ghouth [84]	2011	suspected dengue	982	50.6-64.1%	Low ROB	n/a	Low ROB	High
Malik [85]	2010-11	AFI patients	136	8.1-87.5%	High ROB	n/a	Low ROB	High
Madani [86]	2010	suspected viral hemorrhagic fever	207	0.9-78.7%	Low ROB	n/a	Low ROB	High
Rezza [87]	2012	suspected dengue	400	13.8%	Low ROB	n/a	Unclear ROB	High
Qassem [88]	2013	suspected dengue or West Nile fever	42	19.0%	High ROB	n/a	Unclear ROB	Low

* Since the populations of acute febrile illness and suspected dengue infection are defined as populations presenting to a health facility with acute infection, no population-based sampling is needed to capture these populations and they are denoted 'n/a' in the sampling column.

Abbreviation: AFI, acute febrile illness

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