Table S1. Newcastle-Ottawa scale for quality assessment and bias assessment of observational studies.

Studies	Selection				Comparability	Outcome			*Total
	Representatives of exposed group	Selection of control group	Exposure ascertainment	Outcome of interest		Outcome assessment	Adequacy of follow up duration	Adequacy of follow up of cohort	
De Diego et al.[7]	1	1	1	1	1	1	1	0	6/8
Liu et al.[30]	1	1	1	1	0	1	1	1	7/8
Wu et al.[20]	1	1	1	1	0	1	1	0	6/8
Kopel et al.[31]	1	1	1	1	1	1	1	0	7/8
Blaya-Novakova et al.[34]	1	1	1	1	0	1	1	0	6/8
Vardeny et al.[10]	1	1	1	1	0	0	1	1	6/8
Modin et al.[33]	1	1	1	1	1	0	1	1	7/8
Wu et al.[32]	1	1	1	1	0	1	1	0	6/8
Kaya et al.[36]	1	1	1	1	1	0	1	1	7/8
Jackson et al.[35]	1	1	1	1	0	1	1	0	6/8
Lavallee et al.[21]	1	1	1	1	0	1	1	0	6/8
Mohseni et al.[37]	1	1	1	1	1	0	1	1	7/8

*Score >6 was considered as an adequate quality study.

Table S2. Sensitivity analysis by removal of IVCAD trial.

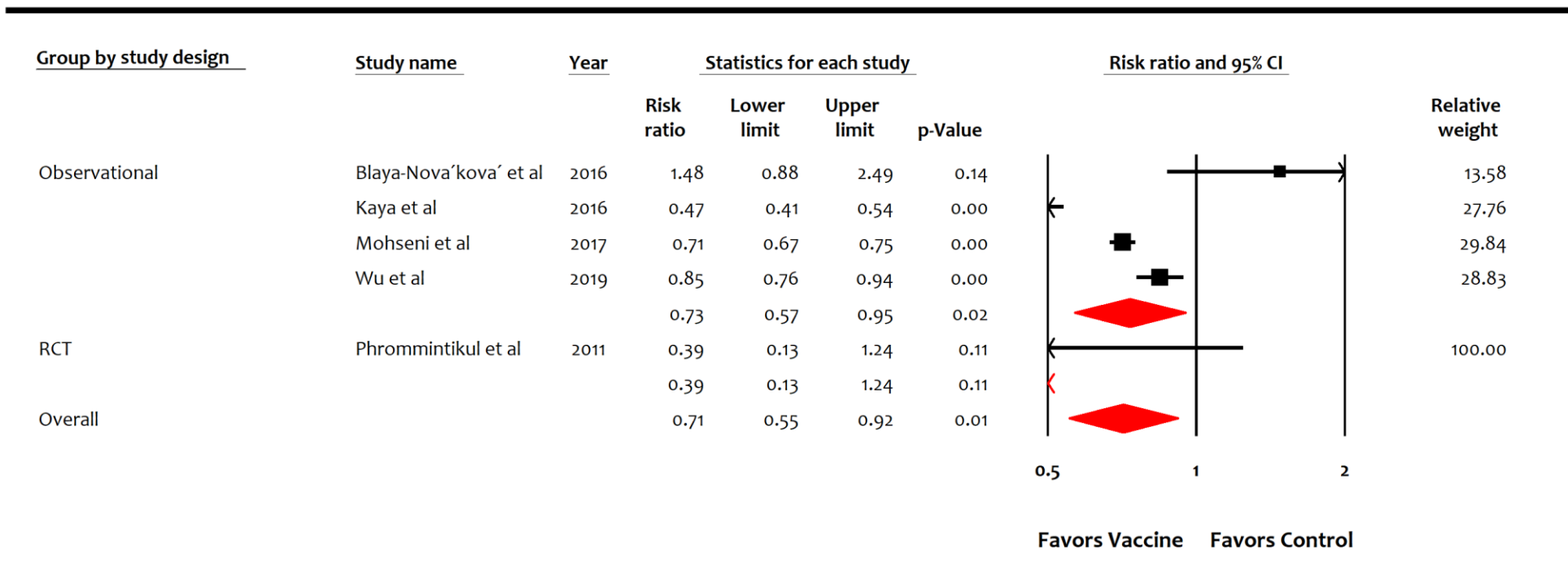| Outcome	RR [95% Confidence Interval]
All-cause mortality	0.48 [0.25, 0.94]
Cardiovascular mortality	0.40 [0.23, 0.71]
MACE	0.56 [0.42, 0.73]
Myocardial infarction	0.64 [0.32, 1.31]

IVCAD, Efficacy of influenza vaccination in reducing cardiovascular events in patients with coronary artery diseases study[18]

Figure S1. Cochrane quality assessment tool for assessment of risk of bias for the randomized controlled trials.

Studies	Randomization	Allocation concealment	Blinding	Outcome assessment bias	Intention to treat	Loss to follow-up	Free of other biases
FLUVACS[17]	(white)	(white)	(white)	(green)	(green)	(green)	(red)
FLUCAD[16]	(green)	(green)	(green)	(green)	(green)	(green)	(white)
IVCAD[18]	(white)	(red)	(red)	(white)	(green)	(green)	(white)
Phrommintikul et al.[19]	(green)	(white)	(red)	(green)	(green)	(white)	(white)
Low risk=Green; Unclear risk=White; High risk= Red							

FLUVACS, Flu vaccination in acute coronary syndromes and planned percutaneous coronary interventions study; FLUCAD, Influenza vaccination in secondary prevention from coronary ischemic events in coronary artery disease study; IVCAD, The efficacy of influenza vaccination in reducing cardiovascular events in patients with coronary artery diseases study.

Figure S2. Effect of influenza vaccine on heart failure.

Group by study design	Study name	Year	Risk ratio	Lower limit	Upper limit	p-Value	Risk ratio and 95% CI	Relative weight
Observational	Blaya-Nova'kova' et al	2016	1.48	0.88	2.49	0.14		13.58
	Kaya et al	2016	0.47	0.41	0.54	0.00		27.76
	Mohseni et al	2017	0.71	0.67	0.75	0.00		29.84
	Wu et al	2019	0.85	0.76	0.94	0.00		28.83
			0.73	0.57	0.95	0.02		
RCT	Phrommintikul et al	2011	0.39	0.13	1.24	0.11		100.00
			0.39	0.13	1.24	0.11		
Overall			0.71	0.55	0.92	0.01		

Favors Vaccine   Favors Control

Studies included: Blaya-Novakova et al[34], Kaya et al[36], Mohseni et al[37], Wu et al[20], Phrommintikul et al[19].