Table S1 The description of characteristics by CHD Cases vs. Controls (n, %) ----Propensity-score-matched

	All CHD [a]			Simple CHD [a]			Complex CHD [a]			VSD [a]			TOF [a]		
	Cases (n=231)	Controls (n=231)	*p* value	Cases (n=187)	Controls (n=187)	*p* value	Cases (n=186)	Controls (n=186)	*p* value	Cases (n=56)	Controls (n=98)	*p* value	Cases (n=89)	Controls (n=149)	*p* value
Demographic and obstetric characteristics															
Maternal ethnic			0.360			1.000			0.557			0.971			0.926
Han	227, 98.3	224, 97.0		180, 96.3	180, 96.3		179, 96.2	181, 97.3		54, 96.4	93, 94.9		87, 97.8	144, 96.6	
Other	4, 1.7	7, 3.0		7, 3.7	7, 3.7		7, 3.8	5, 2.7		2, 3.6	5, 5.1		2, 2.2	5, 3.4	
Maternal age at delivery			0.873			1.000			0.375			0.776			0.945
<35 years old	209, 90.5	210, 90.9		172, 92.0	172, 92.0		171, 91.9	166, 89.2		50, 89.3	86, 87.8		81, 91.0	136, 91.3	
≥35 years old	22, 9.5	21, 9.1		15, 8.0	15, 8.0		15, 8.1	20, 10.8		6, 10.7	12, 12.2		8, 9.0	13, 8.7	
Maternal education			0.630			0.866			0.294			0.855			0.678
Middle school and below	67, 29.0	58, 25.1		48, 25.7	51, 27.3		65, 34.9	52, 28.0		19, 33.9	29, 29.6		33, 37.1	47, 31.5	
High school	44, 19.0	48, 20.8		44, 23.5	40, 21.4		33, 17.7	41, 22.0		8, 14.3	15, 15.3		23, 25.8	41, 27.5	
College and above	120, 51.9	125, 54.1		95, 50.8	96, 51.3		88, 47.3	93, 50.0		29, 51.8	54, 55.1		33, 37.1	61, 40.9	
Marital status			0.760			1.000			1.000			-			1.000
Married	225, 97.4	226, 97.8		184, 98.4	184, 98.4		182, 97.8	182, 97.8		56, 100.0	98, 100.0		86, 96.6	144, 96.6	
Unmarried/divorced/widowed	6, 2.6	5, 2.2		3, 1.6	3, 1.6		4, 2.2	4, 2.2		0, 0	0, 0		3, 3.4	5, 3.4	
Residence			0.261			0.408			0.604			0.715			0.362
Urban	123, 53.2	135, 58.4		87, 46.5	95, 50.8		86, 46.2	91, 48.9		28, 50.0	52, 53.1		37, 41.6	71, 47.7	
Suburban /rural	108, 46.8	96, 41.6		100, 53.2	92, 49.2		100, 53.8	95, 51.1		28, 50.0	46, 46.9		52, 58.4	78, 52.3	
Maternal prepregnancy obesity			0.805			0.760			0.359			0.962			0.829
Yes	8, 3.5	9, 3.9		6, 3.2	5, 2.7		4, 2.2	7, 3.8		2, 3.6	2, 2.0		6, 6.7	9, 6.0	
No	223, 96.5	222, 96.1		181, 96.8	182, 97.3		182, 97.8	179, 96.2		54, 96.4	96, 98.0		83, 93.3	140, 94.0	
Multiple births			0.517			0.673			0.293			0.926			0.425
Yes	19, 8.2	23, 10.0		13, 7.0	11, 5.9		15, 8.1	21, 11.3		3, 5.4	7, 7.1		14, 15.7	18, 12.1	
No	212, 91.8	208, 90.0		174, 93.0	176, 94.1		171, 91.9	165, 88.7		53, 94.6	91, 92.9		75, 84.3	131, 87.9	

Infant gender			0.101			0.836			0.085			0.692			0.404
Male	155, 67.1	138, 59.7		98, 52.4	100, 53.5		126, 67.7	110, 59.1		31, 55.4	51, 52.0		58, 65.2	89, 59.7	
Female	76, 32.9	93, 40.3		89, 47.6	87, 46.5		60, 32.3	76, 40.9		25, 44.6	47, 48.0		31, 34.8	60, 40.3	
Family history of CHD			0.313			0.500			0.760			0.656			1.000
Yes	3, 1.3	6, 2.6		3, 1.6	6, 3.2		5, 2.7	6, 3.2		4, 7.1	4, 4.1		3, 3.4	5, 3.4	
No	228, 98.7	225, 97.4		184, 98.4	181, 96.8		181, 97.3	180, 96.8		52, 92.9	94, 95.9		86, 96.6	144, 96.6	
Maternal health indicators and behaviors															
Diabetes/hypertension			1.000			1.000			1.000			-			0.925
Yes	5, 2.2	5, 2.2		2, 1.1	1, 0.5		4, 2.2	5, 2.7		56, 100.0	98, 100.0		4, 4.5	5, 3.4	
No	226, 97.8	226, 97.8		185, 98.9	186, 99.5		182, 97.8	181, 97.3		0, 0	0, 0		85, 95.5	144, 96.6	
Folic acid supplementation			0.708			0.518			0.453			0.611			0.668
Yes	194, 84.0	191, 82.7		147, 78.6	152, 81.3		142, 76.3	148, 79.6		42, 75.0	77, 78.6		69, 77.5	119, 79.9	
No	37, 16.0	40, 17.3		40, 21.4	35, 18.7		44, 23.7	38, 20.4		14, 25.0	21, 21.4		20, 22.5	30, 20.1	
Smoking/drinking			0.644			0.863			0.304			0.516			0.952
Yes	25, 10.8	22, 9.5		18, 9.6	19, 10.2		16, 8.6	22, 11.8		7, 12.5	9, 9.2		14, 15.7	23, 15.4	
No	206, 89.2	209, 90.5		169, 90.4	168, 89.8		170, 91.4	164, 88.2		49, 87.5	89, 90.8		75, 84.3	126, 84.6	

[a] Controls were matched to cases based on propensity-score-matched analysis.

Table S2 Associations of maternal upper respiratory tract infection/ influenza during early pregnancy with congenital heart disease in offspring ---after a propensity-score-matched analysis

	Upper respiratory tract infection/ influenza (Propensity-score-matched)		
	Crude OR (95% CI)	Adjusted OR (95% CI) [a]	Adjusted OR (95% CI) [b]
All CHD	2.85（1.76-4.61）***	2.86（1.75-4.66）***	2.90（1.77-4.74）***
Simple CHD	3.47（2.00-6.01）***	3.55（2.03-6.23）***	3.56（2.03-6.25）***
VSD	3.08（1.40-6.80）**	3.35（1.45-7.71）**	3.40（1.46-7.90）**
Complex CHD	2.28（1.33-3.92）**	2.30（1.32-4.02）**	2.23（1.27-3.91）**
TOF	3.38（1.72-6.66）***	3.35（1.66-6.73）**	3.39（1.67-6.86）**

[a] Model I: adjusted for maternal ethic, maternal age at delivery, maternal education, marital status, residence, maternal prepregnancy obesity, multiple births, infant gender, and family history of CHD.
[b] Model II: based on Model I, further adjusted for prepregnancy diabetes/hypertension, folic acid use, and smoking/drinking.
* *p* value <0.05; ** *p* value <0.01; *** *p* value <0.001

Table S3 The results of Begg's test and Egger's linear regression test for the association of maternal upper respiratory tract infection/influenza and CHD/simple CHD/complex CHD

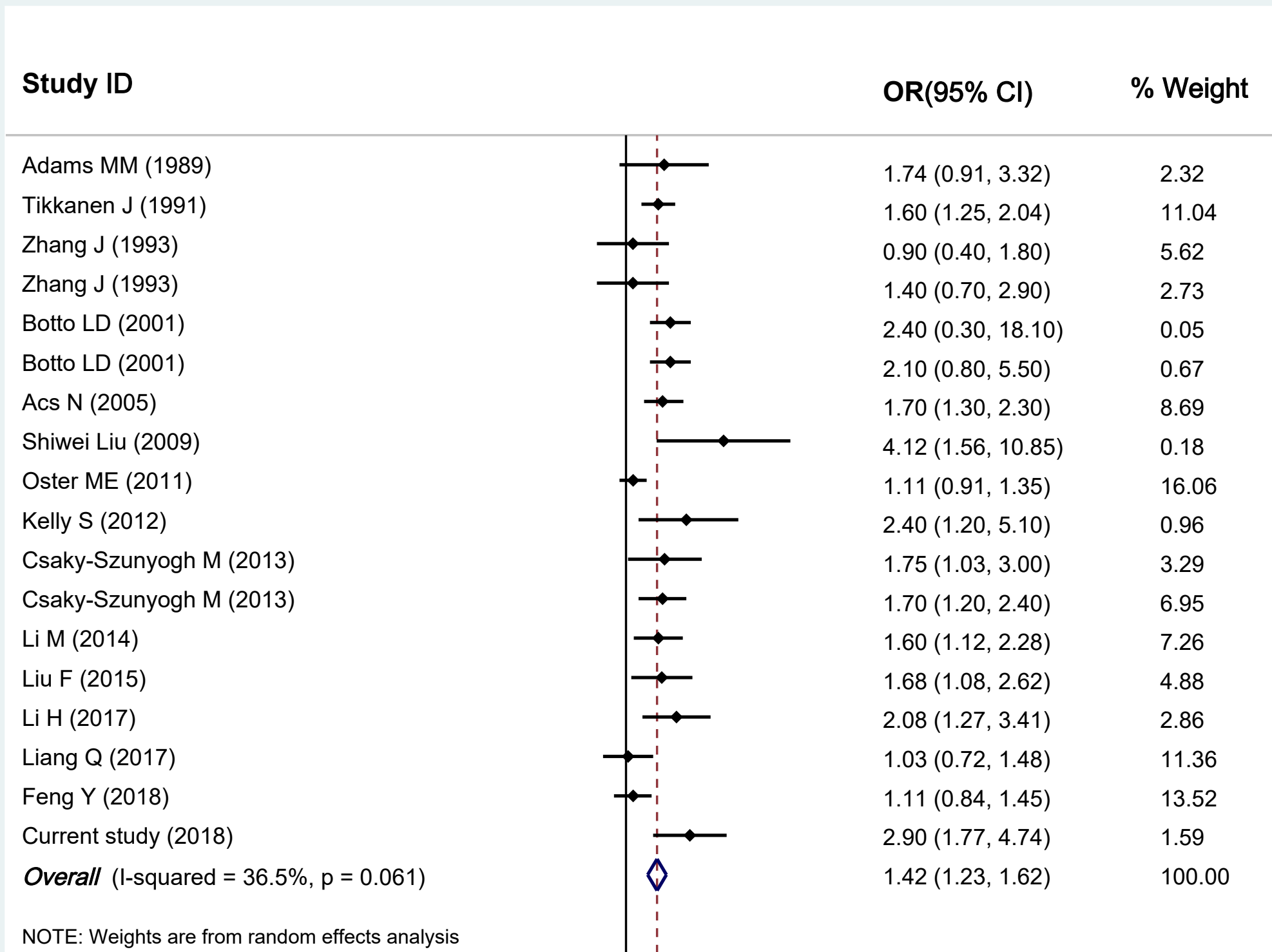| CHD	Begg test	Egger test
CHD	z=1.36, p=0.173	t=2.17, p=0.046
Simple CHD	z=0.49, p=0.626	t=0.29, p=0.776
Complex CHD	z=0.50, p=0.620	t= - 0.33, p=0.743

Figure S1 Forest plot of ORs and 95% CIs for the association of maternal upper respiratory tract infection/influenza and CHD--- after a propensity-score-matched analysis
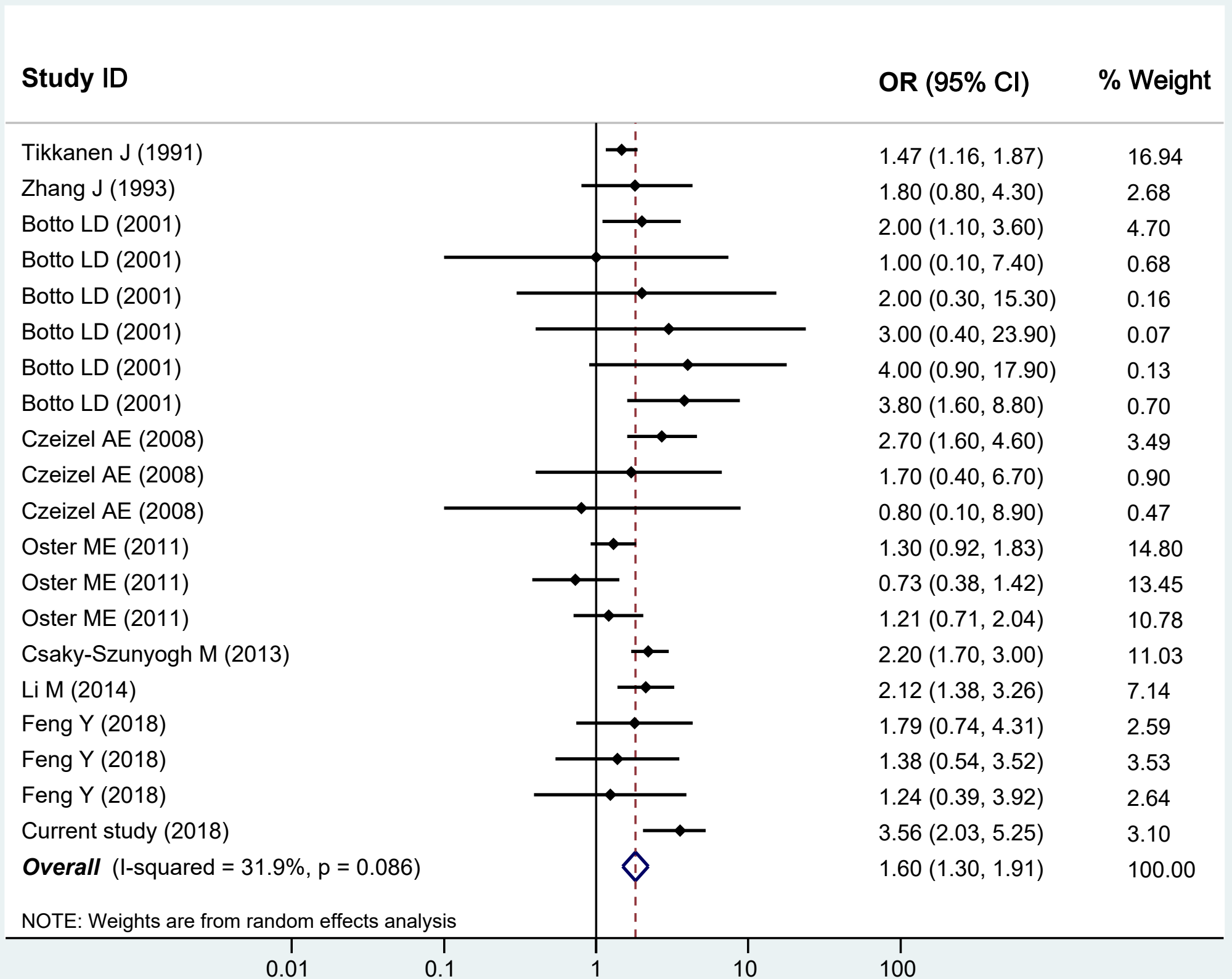
Figure S2 Forest plot of ORs and 95% CIs for the association of maternal upper respiratory tract infection/influenza and simple CHD--- after a propensity-score-matched analysis

Study ID	OR (95% CI)	% Weight
Tikkanen J (1991)	1.47 (1.16, 1.87)	16.94
Zhang J (1993)	1.80 (0.80, 4.30)	2.68
Botto LD (2001)	2.00 (1.10, 3.60)	4.70
Botto LD (2001)	1.00 (0.10, 7.40)	0.68
Botto LD (2001)	2.00 (0.30, 15.30)	0.16
Botto LD (2001)	3.00 (0.40, 23.90)	0.07
Botto LD (2001)	4.00 (0.90, 17.90)	0.13
Botto LD (2001)	3.80 (1.60, 8.80)	0.70
Czeizel AE (2008)	2.70 (1.60, 4.60)	3.49
Czeizel AE (2008)	1.70 (0.40, 6.70)	0.90
Czeizel AE (2008)	0.80 (0.10, 8.90)	0.47
Oster ME (2011)	1.30 (0.92, 1.83)	14.80
Oster ME (2011)	0.73 (0.38, 1.42)	13.45
Oster ME (2011)	1.21 (0.71, 2.04)	10.78
Csaky-Szunyogh M (2013)	2.20 (1.70, 3.00)	11.03
Li M (2014)	2.12 (1.38, 3.26)	7.14
Feng Y (2018)	1.79 (0.74, 4.31)	2.59
Feng Y (2018)	1.38 (0.54, 3.52)	3.53
Feng Y (2018)	1.24 (0.39, 3.92)	2.64
Current study (2018)	3.56 (2.03, 5.25)	3.10
Overall (I-squared = 31.9%, p = 0.086)	1.60 (1.30, 1.91)	100.00

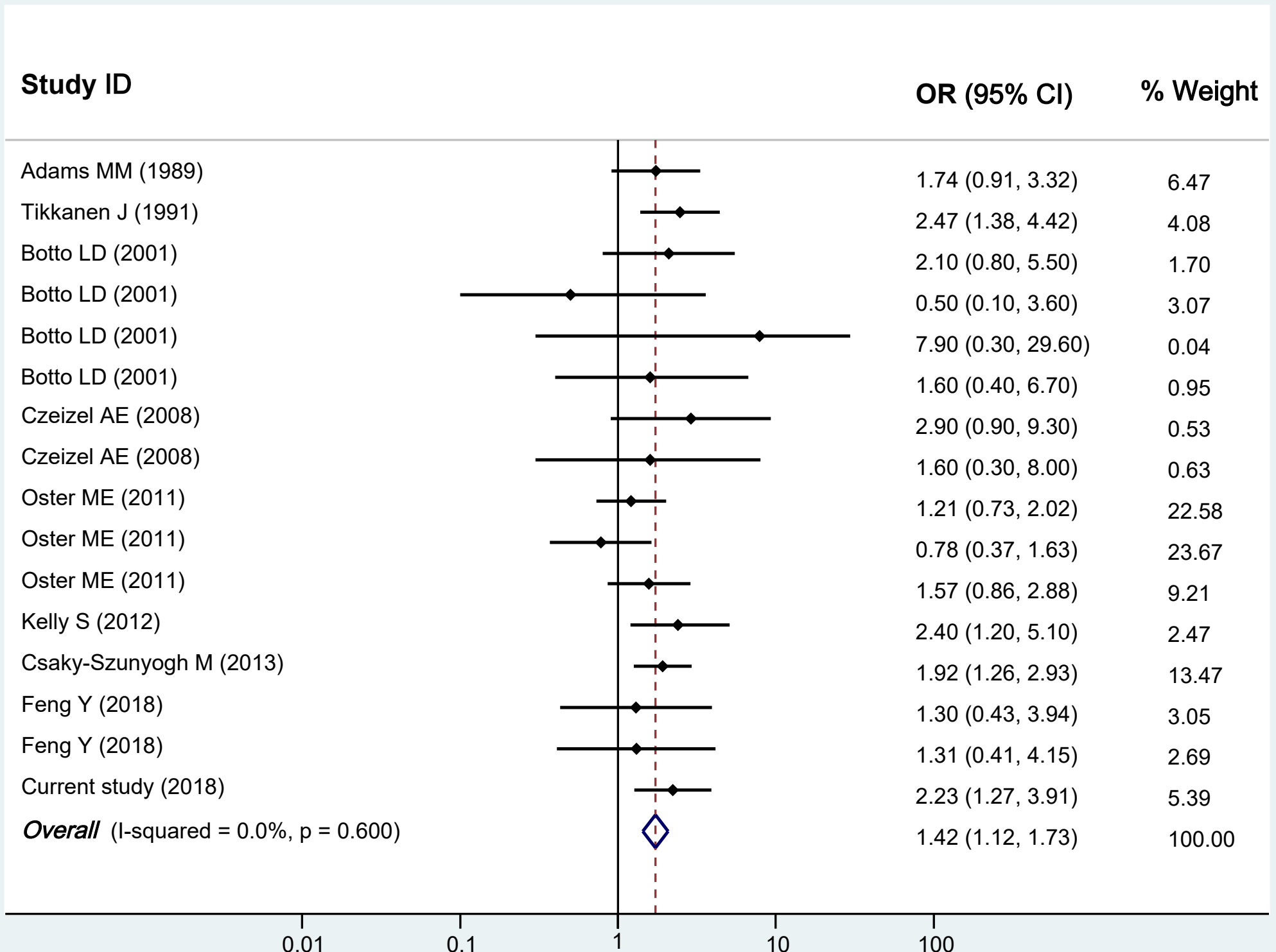NOTE: Weights are from random effects analysis

Figure S3 Forest plot of ORs and 95% CIs for the association of maternal upper respiratory tract infection/influenza and complex CHD--- after a propensity-score-matched analysis
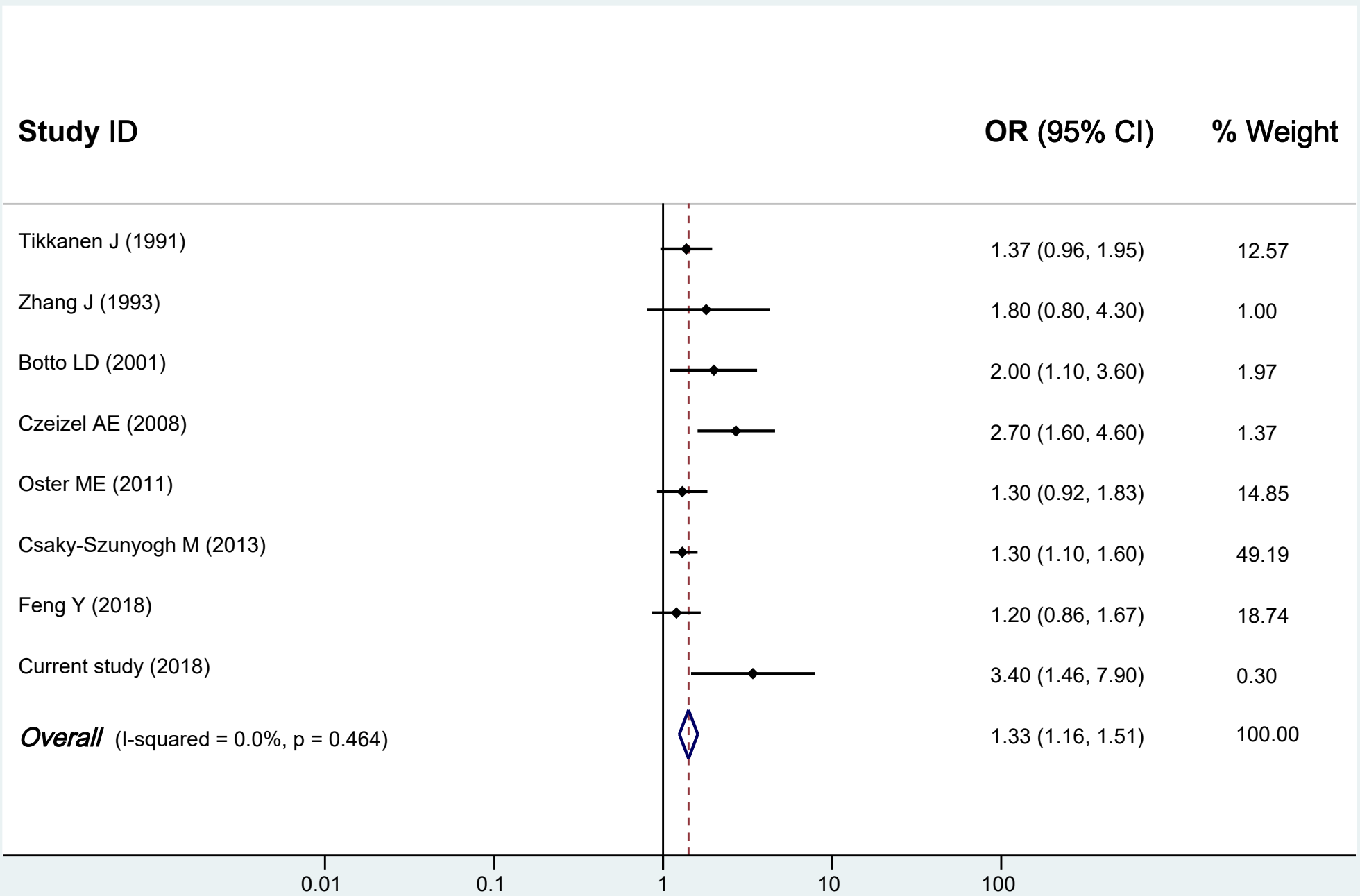
Study ID		OR (95% CI)	% Weight
Tikkanen J (1991)		1.37 (0.96, 1.95)	12.57
Zhang J (1993)		1.80 (0.80, 4.30)	1.00
Botto LD (2001)		2.00 (1.10, 3.60)	1.97
Czeizel AE (2008)		2.70 (1.60, 4.60)	1.37
Oster ME (2011)		1.30 (0.92, 1.83)	14.85
Csaky-Szunyogh M (2013)		1.30 (1.10, 1.60)	49.19
Feng Y (2018)		1.20 (0.86, 1.67)	18.74
Current study (2018)		3.40 (1.46, 7.90)	0.30
Overall (I-squared = 0.0%, p = 0.464)		1.33 (1.16, 1.51)	100.00

0.01   0.1   1   10   100

Figure S4 Forest plot of ORs and 95% CIs for the association of maternal upper respiratory tract infection/influenza and VSD--- after a propensity-score-matched analysis

Study ID	OR (95% CI)	% Weight
Botto LD (2001)	0.50 (0.10, 3.60)	9.84
Oster ME (2011)	0.78 (0.37, 1.63)	75.90
Feng Y (2018)	1.30 (0.43, 3.94)	9.78
Current study (2018)	3.39 (1.67, 6.86)	4.48
Overall (I-squared = 26.2%, p = 0.255)	0.92 (0.37, 1.47)	100.00

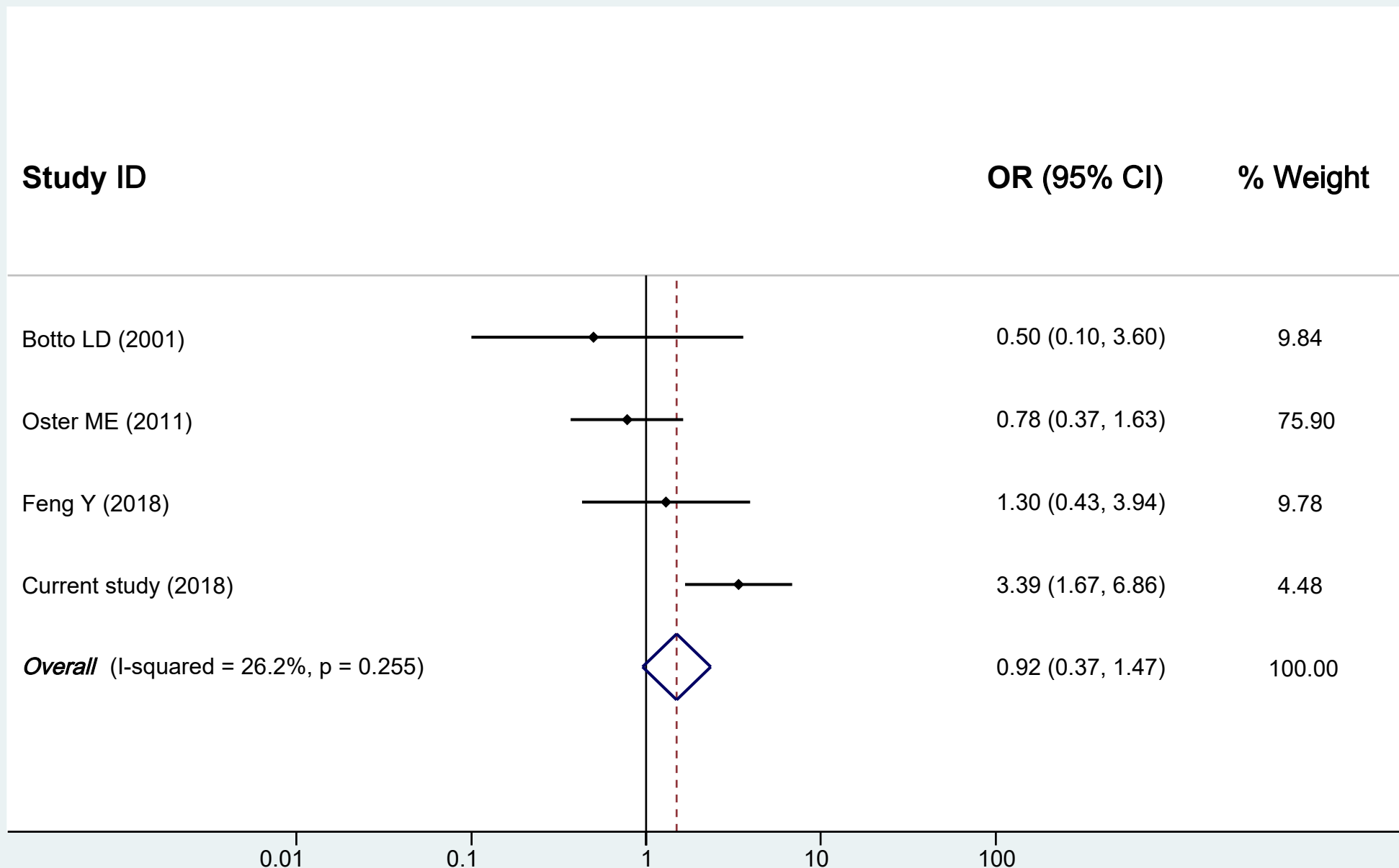0.01   0.1   1   10   100

Figure S5 Forest plot of ORs and 95% CIs for the association of maternal upper respiratory tract infection/influenza and TOF--- after a propensity-score-matched analysis
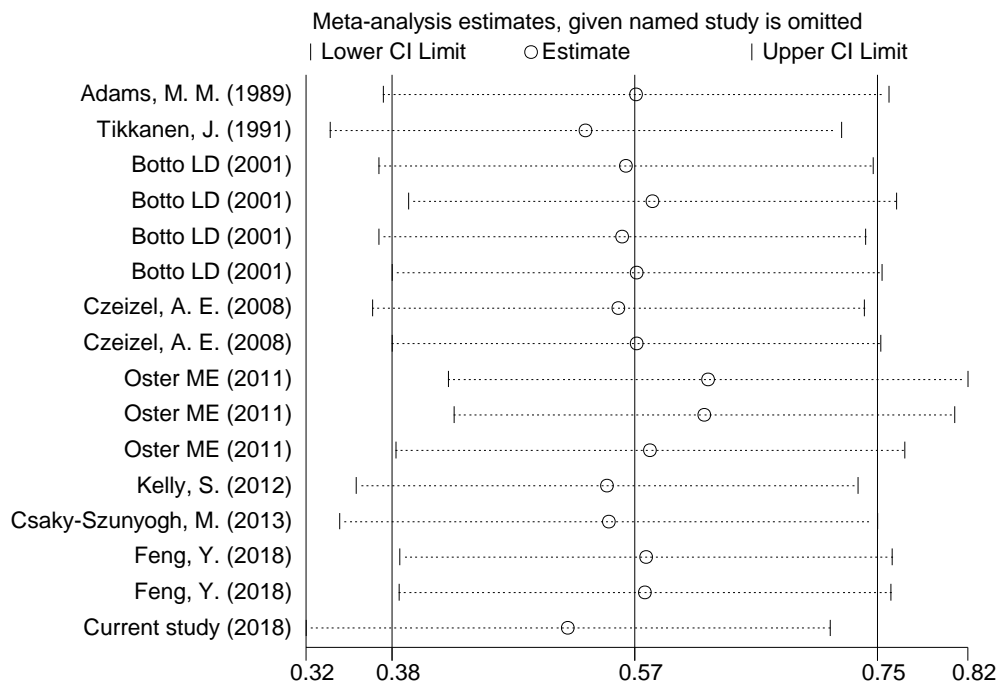
Figure S6 Plot of sensitivity analysis for the association of maternal upper respiratory tract infection/influenza and CHD

Figure S7 Plot of sensitivity analysis for the association of maternal upper respiratory tract infection/influenza and simple CHD

Meta-analysis estimates, given named study is omitted

| Lower CI Limit ○ Estimate | Upper CI Limit

Adams, M. M. (1989)
Tikkanen, J. (1991)
Botto LD (2001)
Botto LD (2001)
Botto LD (2001)
Botto LD (2001)
Czeizel, A. E. (2008)
Czeizel, A. E. (2008)
Oster ME (2011)
Oster ME (2011)
Oster ME (2011)
Kelly, S. (2012)
Csaky-Szunyogh, M. (2013)
Feng, Y. (2018)
Feng, Y. (2018)
Current study (2018)

0.32 0.38   0.57   0.75 0.82

Figure S8 Plot of sensitivity analysis for the association of maternal upper
respiratory tract infection/influenza and complex CHD

Meta-analysis estimates, given named study is omitted

| Lower CI Limit ○ Estimate | Upper CI Limit

Tikkanen, J. (1991)
Zhang, J. (1993)
Botto LD (2001)
Czeizel, A. E. (2008)
Oster ME (2011)
Csaky-Szunyogh, M. (2013)
Feng, Y. (2018)
current (2018)

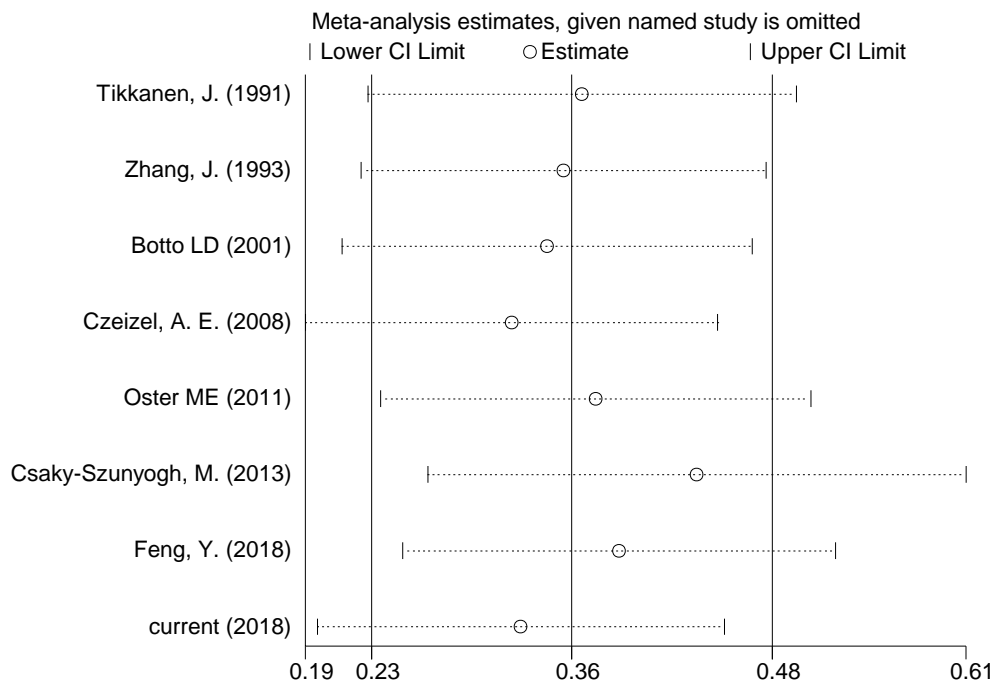0.19 0.23   0.36   0.48 0.61

Figure S9 Plot of sensitivity analysis for the association of maternal upper
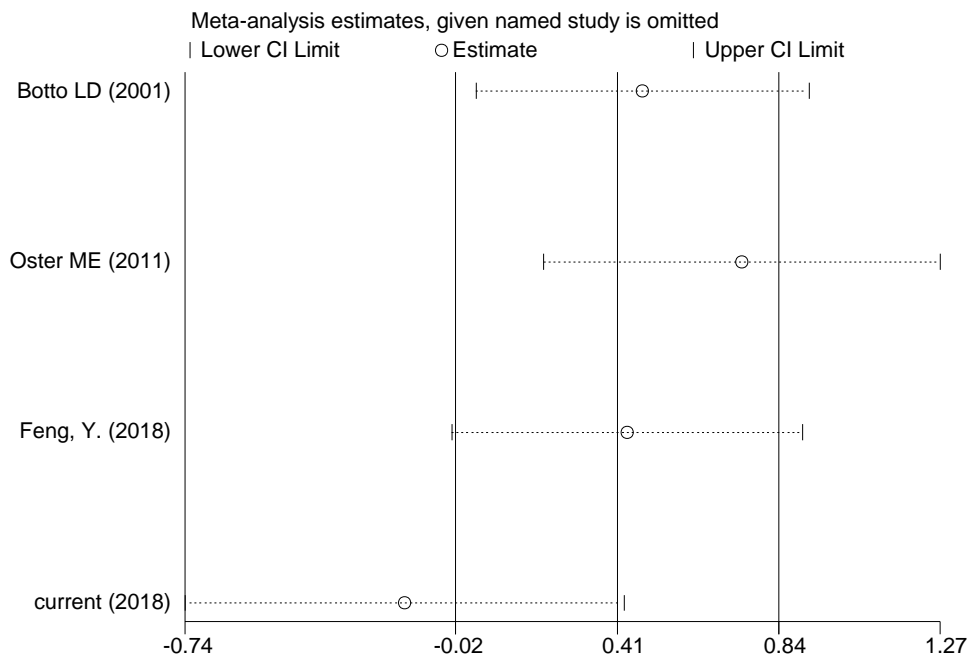respiratory tract infection/influenza and VSD

Figure S10 Plot of sensitivity analysis for the association of maternal upper respiratory tract infection/influenza and TOF