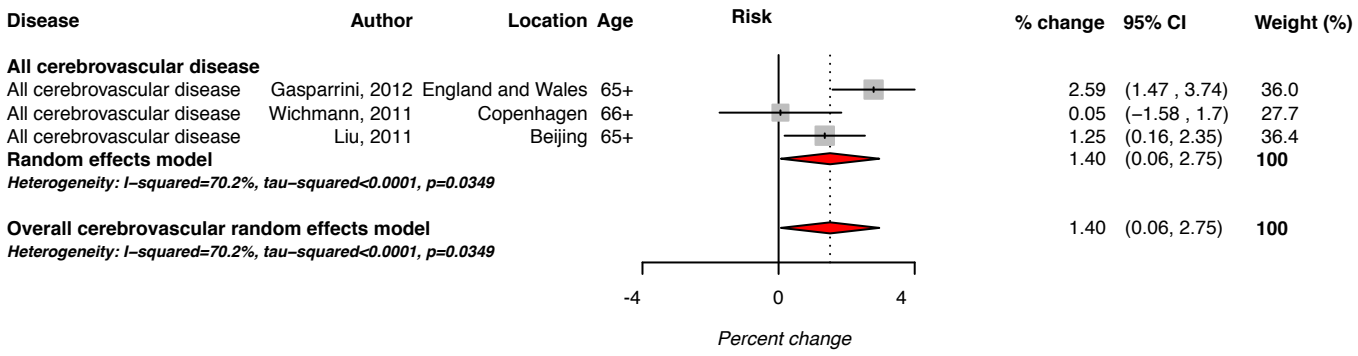
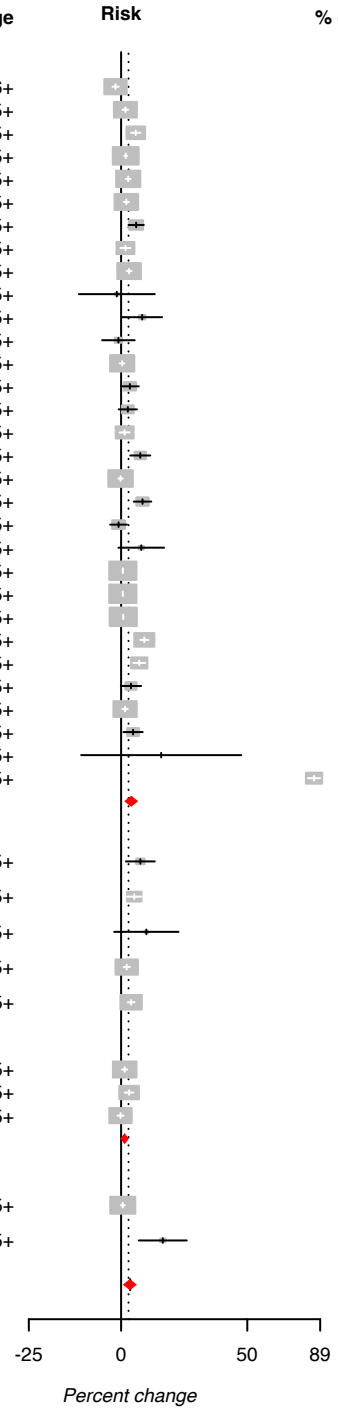


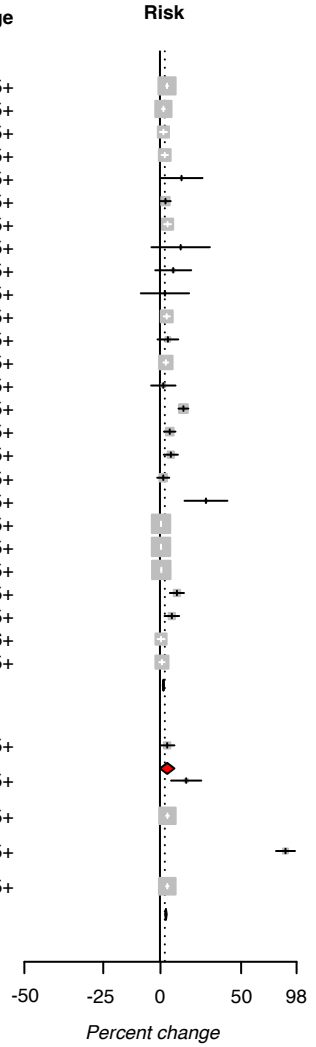
Supplementary file 6a (S6a): Forest plot for mortality heat cerebrovascular diseases

Disease	Author	Location	Age	% change	95% CI	Weight
All cardiovascular disease						
All cardiovascular disease	Wichmann, 2011	Copenhagen	66+	−1.26	(−2.23 , −0.29)	3.6
All cardiovascular disease	Gasparrini, 2012	England and Wales	65+	1.89	(0.98 , 2.80)	3.8
All cardiovascular disease	Revich, 2008	Moscow	75+	5.30	(3.71 , 6.91)	2.5
All cardiovascular disease	Gouveia, 2003	Sao Paulo	65+	2.00	(1.55 , 2.45)	4.8
All cardiovascular disease	Almeida, 2010	Lisbon	65+	2.80	(2.05 , 3.55)	4.2
All cardiovascular disease	Almeida, 2010	Oporto	65+	2.20	(1.35 , 3.05)	4.0
All cardiovascular disease	Baccini, 2008	Athens	65+	5.42	(2.88 , 8.03)	1.4
All cardiovascular disease	Baccini, 2008	Barcelona	65+	1.90	(0.28 , 3.55)	2.3
All cardiovascular disease	Baccini, 2008	Budapest	65+	3.09	(2.25 , 3.93)	4.0
All cardiovascular disease	Baccini, 2008	Dublin	65+	−0.84	(−12.09 , 11.86)	0.1
All cardiovascular disease	Baccini, 2008	Helsinki	65+	7.47	(0.88 , 14.49)	0.3
All cardiovascular disease	Baccini, 2008	Ljubljana	65+	−0.34	(−5.38 , 4.96)	0.4
All cardiovascular disease	Baccini, 2008	London	65+	0.86	(0.14 , 1.59)	4.2
All cardiovascular disease	Baccini, 2008	Milan	65+	3.35	(0.47 , 6.32)	1.1
All cardiovascular disease	Baccini, 2008	Paris	65+	2.68	(−0.25 , 5.70)	1.0
All cardiovascular disease	Baccini, 2008	Praha	65+	1.64	(0.01 , 3.29)	2.3
All cardiovascular disease	Baccini, 2008	Rome	65+	6.82	(3.48 , 10.27)	0.9
All cardiovascular disease	Baccini, 2008	Stockholm	65+	0.34	(−0.36 , 1.03)	4.3
All cardiovascular disease	Baccini, 2008	Turin	65+	7.58	(4.63 , 10.61)	1.1
All cardiovascular disease	Baccini, 2008	Valencia	65+	−0.30	(−2.91 , 2.38)	1.2
All cardiovascular disease	Baccini, 2008	Zurich	65+	7.16	(−0.34 , 15.23)	0.2
All cardiovascular disease	Ishigami, 2008	Budapest	75+	1.08	(1.04 , 1.12)	5.3
All cardiovascular disease	Ishigami, 2008	London	75+	1.06	(1.05 , 1.07)	5.3
All cardiovascular disease	Ishigami, 2008	Milan	75+	1.20	(1.15 , 1.25)	5.3
All cardiovascular disease	Almeida, 2013	Lisbon	65+	8.20	(6.81 , 9.61)	2.9
All cardiovascular disease	Almeida, 2013	Oporto	65+	6.47	(4.45 , 8.52)	1.9
All cardiovascular disease	Yu, 2011	Brisbane	65+	3.70	(0.40 , 7.10)	0.9
All cardiovascular disease	Liu, 2011	Beijing	65+	1.79	(0.95 , 2.65)	3.9
All cardiovascular disease	Huang, 2014	Changsha	65+	4.04	(1.30 , 7.70)	1.0
All cardiovascular disease	Burkart, 2014	Bangladesh	65+	14.15	(−11.45 , 47.16)	0.0
All cardiovascular disease	Harlan, 2014	Arizona	65+	85.40	(81.83 , 89.04)	1.9
Random effects model				**3.79**	**(3.4 , -4.18)**	**75.9**
Heterogeneity: I−squared=99.3, tau−squared<0.0001, p<0.0001						
Arrhythmias	Gasparrini, 2012	England and Wales	65+	6.84	(2.05 , 11.85)	0.5
Atrial fibrillation	Gasparrini, 2012	England and Wales	65+	4.81	(2.50 , 7.18)	1.5
Atrio−ventricular conduction disorders	Gasparrini, 2012	England and Wales	85+	8.90	(−1.68 , 20.62)	0.1
Chronic ischaemic heart disease	Gasparrini, 2012	England and Wales	65+	2.32	(1.32 , 3.34)	3.6
Heart failure	Gasparrini, 2012	England and Wales	65+	3.76	(2.62 , 4.92)	3.3
Ischemic heart disease						
Ischemic heart disease	Gasparrini, 2012	England and Wales	65+	1.67	(0.85 , 2.49)	4.0
Ischemic heart disease	Revich, 2008	Moscow	75+	3.10	(1.71 , 4.51)	2.8
Ischemic heart disease	Liu, 2011	Beijing	65+	0.32	(−0.65 , 1.30)	3.6
Random effects model				**1.62**	**(0.24 , 3.03)**	**10.4**
Heterogeneity: I−squared=81.5, tau−squared=0.0001, p=0.0045						
Myocardial infarction	Gasparrini, 2012	England and Wales	65+	1.04	(0.42 , 1.66)	4.5
Pulmonary heart disease, unspecified	Gasparrini, 2012	England and Wales	75+	14.72	(6.32 , 23.78)	0.2
Overall cardiovascular random effects model				**3.44**	**(3.1-3.78)**	**100**
Heterogeneity: I−squared=99, tau−squared<0.0001, p<0.0001						



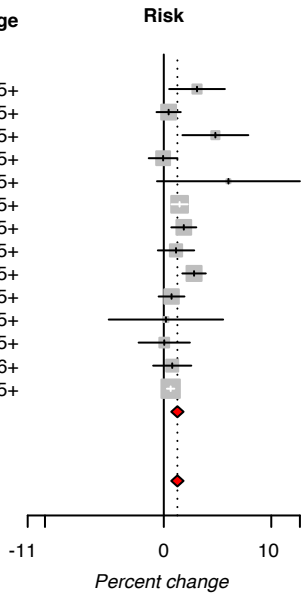
Supplementary file 6b (S6b): Forest plot for mortality heat cardiovascular diseases

Disease	Author	Location	Age	% change	95% CI	Weight (%)
All respiratory disease						
All respiratory disease	Gasparrini, 2012	England and Wales	65+	4.18	(3.63 , 4.73)	8.1
All respiratory disease	Gouveia, 2003	Sao Paulo	65+	2.30	(1.55 , 3.05)	7.2
All respiratory disease	Almeida, 2010	Lisbon	65+	2.30	(0.52 , 4.12)	3.4
All respiratory disease	Almeida, 2010	Oporto	65+	3.00	(1.36 , 4.66)	3.8
All respiratory disease	Baccini, 2008	Athens	65+	12.06	(0.83 , 24.54)	0.1
All respiratory disease	Baccini, 2008	Barcelona	65+	3.37	(0.68 , 6.14)	1.9
All respiratory disease	Baccini, 2008	Budapest	65+	4.47	(2.67 , 6.31)	3.4
All respiratory disease	Baccini, 2008	Dublin	65+	11.59	(−3.65 , 29.24)	0.1
All respiratory disease	Baccini, 2008	Helsinki	65+	7.49	(−1.80 , 17.66)	0.2
All respiratory disease	Baccini, 2008	Ljubljana	65+	3.09	(−8.70 , 16.4)	0.1
All respiratory disease	Baccini, 2008	London	65+	4.03	(2.40 , 5.69)	3.9
All respiratory disease	Baccini, 2008	Milan	65+	4.64	(−0.69 , 10.26)	0.6
All respiratory disease	Baccini, 2008	Paris	65+	3.55	(2.28 , 4.83)	5.0
All respiratory disease	Baccini, 2008	Praha	65+	2.27	(−3.81 , 8.74)	0.4
All respiratory disease	Baccini, 2008	Rome	65+	13.13	(10.36 , 15.97)	2.1
All respiratory disease	Baccini, 2008	Stockholm	65+	5.61	(2.60 , 8.71)	1.6
All respiratory disease	Baccini, 2008	Turin	65+	6.20	(2.50 , 10.04)	1.1
All respiratory disease	Baccini, 2008	Valencia	65+	2.22	(−0.83 , 5.37)	1.5
All respiratory disease	Baccini, 2008	Zurich	65+	26.71	(13.74 , 41.15)	0.1
All respiratory disease	Ishigami, 2008	Budapest	75+	1.08	(1.01 , 1.15)	9.3
All respiratory disease	Ishigami, 2008	London	75+	1.08	(1.06 , 1.1)	9.3
All respiratory disease	Ishigami, 2008	Milan	75+	1.22	(1.14 , 1.31)	9.3
All respiratory disease	Almeida, 2013	Lisbon	65+	9.49	(5.66 , 13.45)	1.1
All respiratory disease	Almeida, 2013	Oporto	65+	6.73	(2.87 , 10.73)	1.1
All respiratory disease	Wichmann, 2011	Copenhagen	66+	1.08	(−0.68 , 2.87)	3.4
All respiratory disease	Liu, 2011	Beijing	65+	1.55	(0.21 , 2.91)	4.7
Random effects model				**2.32**	**(2.02 , 2.62)**	**83.0**
Heterogeneity: I−squared=92.8, tau−squared<0.0001, p<0.0001						
Asthma	Gasparrini, 2012	England and Wales	65+	4.27	(0.55 , 8.13)	1.1
Chronic pulmonary disease	Gasparrini, 2012	England and Wales	75+	14.72	(6.32 , 23.78)	0.3
COPD and chronic bronchitis	Gasparrini, 2012	England and Wales	65+	4.41	(3.70 , 5.12)	7.4
COPD/Asthma	Harlan, 2014	Arizona	65+	89.00	(80.2 , 98.22)	0.7
Respiratory infections (including influenza and pneumonia)	Gasparrini, 2012	England and Wales	65+	4.32	(3.65 , 4.99)	7.6
Overall respiratory random effects model				**3.60**	**(3.18 , 4.02)**	**100**
Heterogeneity: I−squared=97.5, tau−squared<0.0001, p<0.0001						



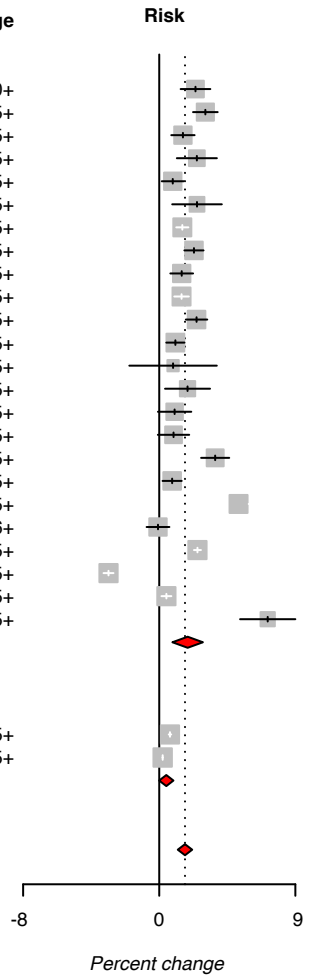
Supplementary file 6c (S6c): Forest plot for mortality heat respiratory diseases

Disease	Author	Location	Age	% change	95% CI	Weight (%)
All cerebrovascular disease						
All cerebrovascular disease	Analitis, 2008	Barcelona	65+	2.99	(0.48 , 5.57)	3.7
All cerebrovascular disease	Analitis, 2008	Budapest	65+	0.43	(−0.64 , 1.52)	9.8
All cerebrovascular disease	Analitis, 2008	Dublin	65+	4.68	(1.66 , 7.78)	2.9
All cerebrovascular disease	Analitis, 2008	Helsinki	65+	−0.06	(−1.33 , 1.22)	8.5
All cerebrovascular disease	Analitis, 2008	Ljubljana	65+	5.90	(−0.60 , 12.83)	0.7
All cerebrovascular disease	Analitis, 2008	London	65+	1.41	(0.68 , 2.15)	12.4
All cerebrovascular disease	Analitis, 2008	Milan	65+	1.79	(0.67 , 2.93)	9.6
All cerebrovascular disease	Analitis, 2008	Praha	65+	1.09	(−0.53 , 2.73)	6.6
All cerebrovascular disease	Analitis, 2008	Rome	65+	2.72	(1.65 , 3.79)	10.0
All cerebrovascular disease	Analitis, 2008	Stockholm	65+	0.69	(−0.45 , 1.86)	9.3
All cerebrovascular disease	Analitis, 2008	Turin	65+	0.19	(−4.77 , 5.40)	1.1
All cerebrovascular disease	Analitis, 2008	Valencia	65+	0.04	(−2.21 , 2.34)	4.2
All cerebrovascular disease	Wichmann, 2011	Copenhagen	66+	0.75	(−0.94 , 2.40)	6.3
All cerebrovascular disease	Liu, 2011	Beijing	65+	0.61	(0.28 , 0.94)	15.0
Random effects model				**1.21**	**(0.66 , 1.77)**	**100**
Heterogeneity: I−squared=60.8%, tau−squared<0.0001, p=0.0016						
Rverall cerebrovascular random effects model				**1.21**	**(0.66 , 1.77)**	**100**
Heterogeneity: I−squared=60.8%, tau−squared<0.0001, p=0.0016						



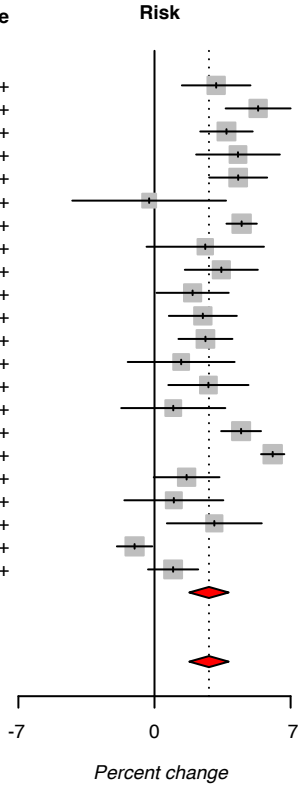
Supplementary file 6d (S6d): Forest plot for mortality cold cerebrovascular diseases

Disease	Author	Location	Age	% change	95% CI	Weight (%)
All cardiovascular disease						
All cardiovascular disease	Analitis, 2008	Athens	60+	2.35	(1.38 , 3.33)	3.7
All cardiovascular disease	Analitis, 2008	Barcelona	65+	3.00	(2.19 , 3.82)	3.9
All cardiovascular disease	Analitis, 2008	Budapest	65+	1.53	(0.77 , 2.29)	4.0
All cardiovascular disease	Analitis, 2008	Dublin	65+	2.44	(1.14 , 3.77)	3.3
All cardiovascular disease	Analitis, 2008	Helsinki	65+	0.87	(0.17 , 1.59)	4.0
All cardiovascular disease	Analitis, 2008	Ljubljana	65+	2.45	(0.84 , 4.10)	2.9
All cardiovascular disease	Analitis, 2008	London	65+	1.49	(1.09 , 1.88)	4.3
All cardiovascular disease	Analitis, 2008	Milan	65+	2.25	(1.62 , 2.88)	4.1
All cardiovascular disease	Analitis, 2008	Paris	65+	1.45	(0.71 , 2.19)	4.0
All cardiovascular disease	Analitis, 2008	Praha	65+	1.44	(0.97 , 1.92)	4.3
All cardiovascular disease	Analitis, 2008	Rome	65+	2.42	(1.72 , 3.13)	4.1
All cardiovascular disease	Analitis, 2008	Stockholm	65+	1.04	(0.45 , 1.63)	4.2
All cardiovascular disease	Analitis, 2008	Turin	65+	0.89	(−1.9 , 3.76)	1.7
All cardiovascular disease	Analitis, 2008	Valencia	65+	1.83	(0.37 , 3.31)	3.1
All cardiovascular disease	Analitis, 2008	Zurich	65+	0.99	(−0.09 , 2.07)	3.6
All cardiovascular disease	Revich, 2008	Moscow	75+	0.92	(−0.09 , 1.94)	3.7
All cardiovascular disease	Carder, 2005	Glasgow, Edinburgh, and Aberdeen	65+	3.65	(2.72 , 4.59)	3.8
All cardiovascular disease	Cagle, 2005	Washington	55+	0.83	(0.22 , 1.46)	4.1
All cardiovascular disease	Gouveia, 2003	Sao Paulo	65+	6.30	(5.90 , 6.70)	4.3
All cardiovascular disease	Wichmann, 2011	Copenhagen	66+	−0.08	(−0.80 , 0.66)	4.0
All cardiovascular disease	Xu, 2013	Hong Kong	65+	2.48	(2.25 , 2.71)	4.4
All cardiovascular disease	Yu, 2011	Brisbane	65+	−3.20	(−3.51 , −2.89)	4.4
All cardiovascular disease	Liu, 2011	Beijing	65+	0.46	(0.14 , 0.78)	4.4
All cardiovascular disease	Huang, 2014	Changsha	65+	7.20	(5.30 , 9.10)	2.7
Random effects model				**1.84**	**(0.85 , 2.84)**	**91.1**
Heterogeneity: I−squared=98.6, tau−squared=0.0006, p<0.0001						
Ischemic heart disease						
Ischemic heart disease	Revich, 2008	Moscow	75+	0.69	(0.61 , 0.77)	4.4
Ischemic heart disease	Liu, 2011	Beijing	65+	0.22	(0.21 , 0.24)	4.5
Random effects model				**0.45**	**(-0.01 , 0.19)**	**8.9**
Heterogeneity: I−squared=99.2, tau−squared<0.0001, p<0.0001						
Overall cardiovascular random effects model				**1.66**	**1.19 , 2.14**	**100**
Heterogeneity: I−squared=98.9, tau−squared=0.0001, p<0.0001						

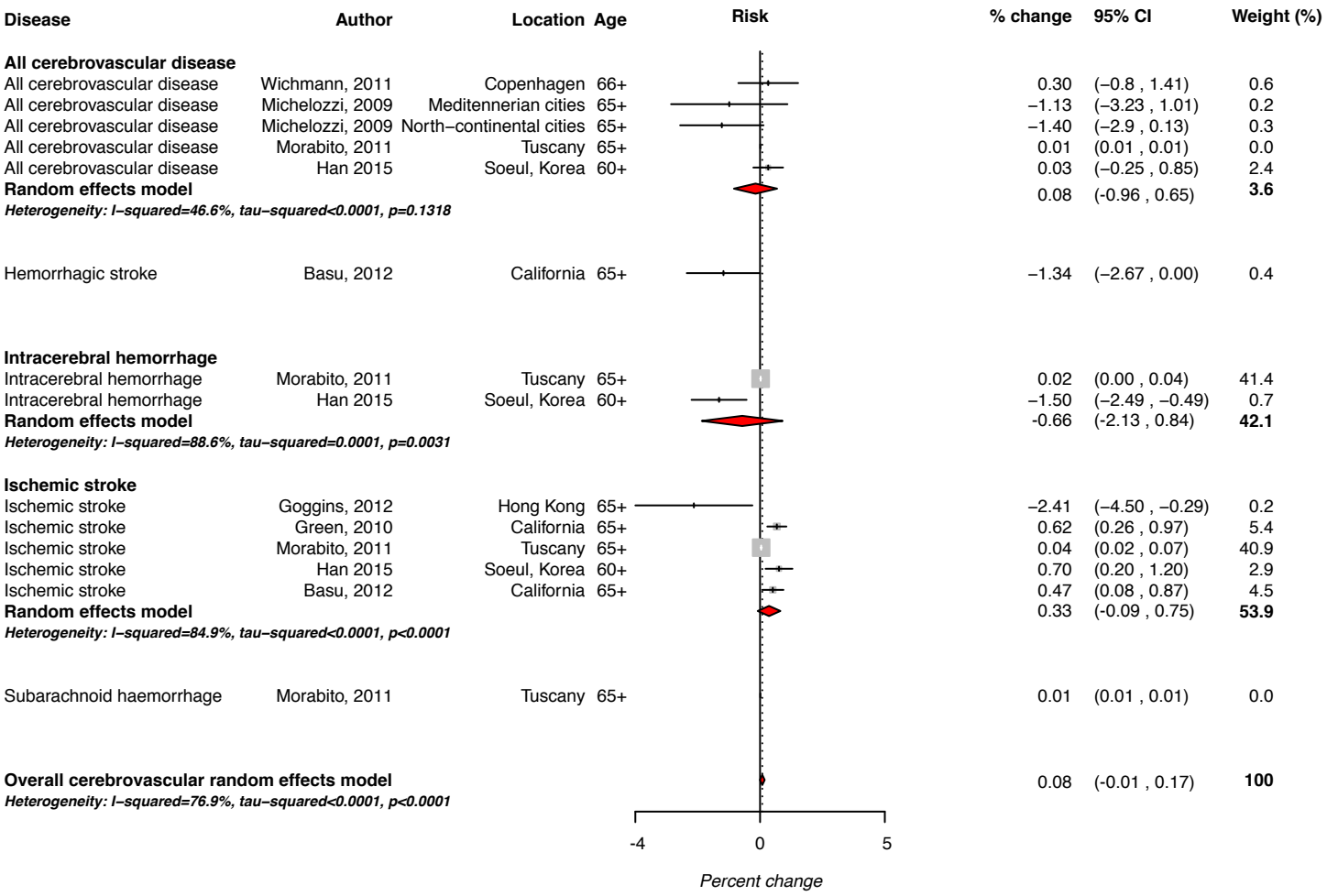


Supplementary file 6e (S6e): Forest plot for mortality cold cardiovascular diseases

Disease	Author	Location	Age	% change	95% CI	Weight (%)
All respiratory disease						
All respiratory disease	Analitis, 2008	Athens	60+	3.29	(1.45 , 5.17)	4.7
All respiratory disease	Analitis, 2008	Barcelona	65+	5.59	(3.8 , 7.40)	4.7
All respiratory disease	Analitis, 2008	Budapest	65+	3.85	(2.43 , 5.29)	5.0
All respiratory disease	Analitis, 2008	Dublin	65+	4.48	(2.21 , 6.80)	4.4
All respiratory disease	Analitis, 2008	Helsinki	65+	4.49	(2.91 , 6.09)	4.9
All respiratory disease	Analitis, 2008	Ljubljana	65+	–0.28	(–4.22 , 3.83)	3.0
All respiratory disease	Analitis, 2008	London	65+	4.68	(3.85 , 5.52)	5.3
All respiratory disease	Analitis, 2008	Milan	65+	2.7	(–0.42 , 5.91)	3.7
All respiratory disease	Analitis, 2008	Paris	65+	3.57	(1.60 , 5.57)	4.6
All respiratory disease	Analitis, 2008	Praha	65+	2.02	(0.10 , 3.97)	4.6
All respiratory disease	Analitis, 2008	Rome	65+	2.57	(0.76 , 4.42)	4.7
All respiratory disease	Analitis, 2008	Stockholm	65+	2.71	(1.27 , 4.18)	4.9
All respiratory disease	Analitis, 2008	Turin	65+	1.41	(–1.40 , 4.29)	3.9
All respiratory disease	Analitis, 2008	Valencia	65+	2.87	(0.73 , 5.06)	4.4
All respiratory disease	Analitis, 2008	Zurich	65+	0.99	(–1.73 , 3.79)	3.9
All respiratory disease	Carder, 2005	Glasgow, Edinburgh, Aberdeen	65+	4.65	(3.56 , 5.75)	5.1
All respiratory disease	Gouveia, 2003	Sao Paulo	65+	6.4	(5.75 , 7.05)	5.3
All respiratory disease	Revich, 2008	Moscow	75+	1.7	(–0.04 , 3.47)	4.7
All respiratory disease	Wichmann, 2011	Copenhagen	66+	1.02	(–1.57 , 3.68)	4.0
All respiratory disease	Xu, 2013	Hong Kong	65+	3.19	(0.65 , 5.79)	4.1
All respiratory disease	Liu, 2011	Beijing	65+	–1.04	(–1.95 , –0.11)	5.2
All respiratory disease	Wong, 2014	Hong Kong	65+	0.98	(2.30 , –0.36)	5.0
Random effects model				**2.90**	**(1.84 , 3.97)**	**100**
Heterogeneity: I–squared=90.5%, tau–squared=0.0005, p<0.0001						
Overall respiratory random effects model				**2.90**	**(1.84 , 3.97)**	**100**
Heterogeneity: I–squared=90.5%, tau–squared=0.0005, p<0.0001						

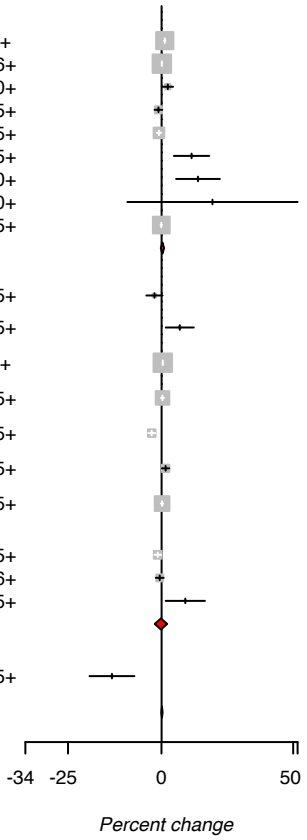


Supplementary file 6f (S6f): Forest plot for mortality cold respiratory diseases

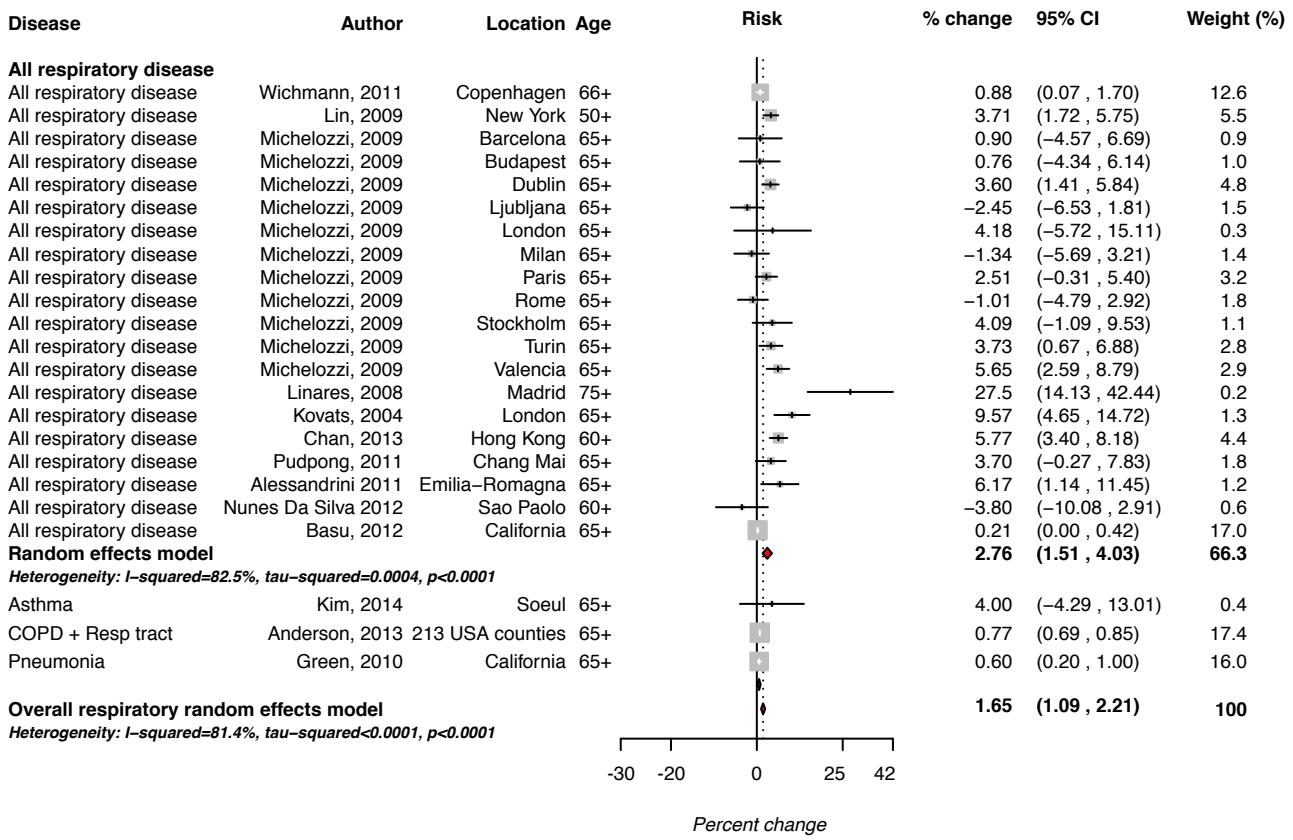


Supplementary file 6g (S6g): Forest plot for morbidity heat cerebrovascular diseases

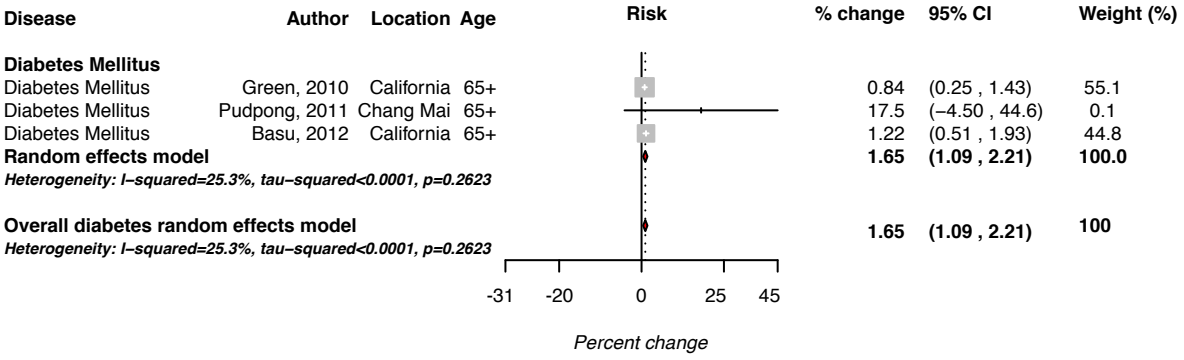
Disease	Author	Location	Age	% change	95% CI	Weight (%)
All cardiovascular disease						
All cardiovascular disease	Pudpong, 2011	Chang Mai	65+	1.02	(0.83 , 1.22)	14.1
All cardiovascular disease	Wichmann, 2011	Copenhagen	66+	0.11	(0.10 , 0.13)	16.2
All cardiovascular disease	Lin, 2009	New York	50+	1.96	(0.32 , 3.63)	1.4
All cardiovascular disease	Michelozzi, 2009	Meditennerian cities	65+	−0.93	(−2.10 , 0.26)	2.4
All cardiovascular disease	Michelozzi, 2009	North−continental cities	65+	−0.77	(−1.46 , −0.07)	5.4
All cardiovascular disease	Alessandrini 2011	Emilia−Romagna	65+	9.71	(3.89 , 15.85)	0.1
All cardiovascular disease	Nunes Da Silva, 2012	Sao Paolo	60+	11.90	(4.61 , 19.7)	0.1
All cardiovascular disease	Giang, 2014	Thai Nguyen Province	60+	17.00	(−9.97 , 52.05)	0.0
All cardiovascular disease	Basu, 2012	California	65+	−0.06	(−0.28 , 0.17)	13.4
Random effects model				**0.30**	**(−0.12 , 0.81)**	**53.1**
Heterogeneity: I−squared=93.5%, tau−squared<0.0001, p<0.0001						
Aneurysm	Basu, 2012	California	65+	−2.14	(−4.56 , 0.34)	0.6
Congestive heart failure	Koken, 2003	Denver	65+	5.80	(1.33 , 10.46)	0.2
Coronary atherosclerosis	Koken, 2003	Denver	65+	0.40	90.37 , 0.43)	16.2
Dysrhythmia	Basu, 2012	California	65+	0.31	(−0.15 , 0.76)	8.8
Essential hypertension	Basu, 2012	California	65+	−2.96	(−4.01 , −1.89)	2.7
Hypotension	Basu, 2012	California	65+	1.28	(0.14 , 2.45)	2.6
Ischemic heart disease	Basu, 2012	California	65+	0.19	(−0.18 , 0.56)	10.4
Myocardial infarction						
Myocardial infarction	Hopstock, 2011	Tromso	65+	−1.14	(−2.17 , −0.10)	2.9
Myocardial infarction	Wichmann, 2011	Copenhagen	66+	−0.54	(−1.74 , 0.67)	2.3
Myocardial infarction	Koken, 2003	Denver	65+	7.61	(1.29 , 14.32)	0.1
Random effects model				**-0.16**	**(−2.05 , 1.77)**	**5.4**
Heterogeneity: I−squared=73.4%, tau−squared=0.0002, p=0.0233						
Pulmonary heart disease	Koken, 2003	Denver	65+	−14.14	(−19.88 , −8.00)	0.1
Overall cardiovascular random effects model				**0.15**	**(−0.05 , 0.35)**	**100**
Heterogeneity: I−squared=96%, tau−squared<0.0001, p<0.0001						



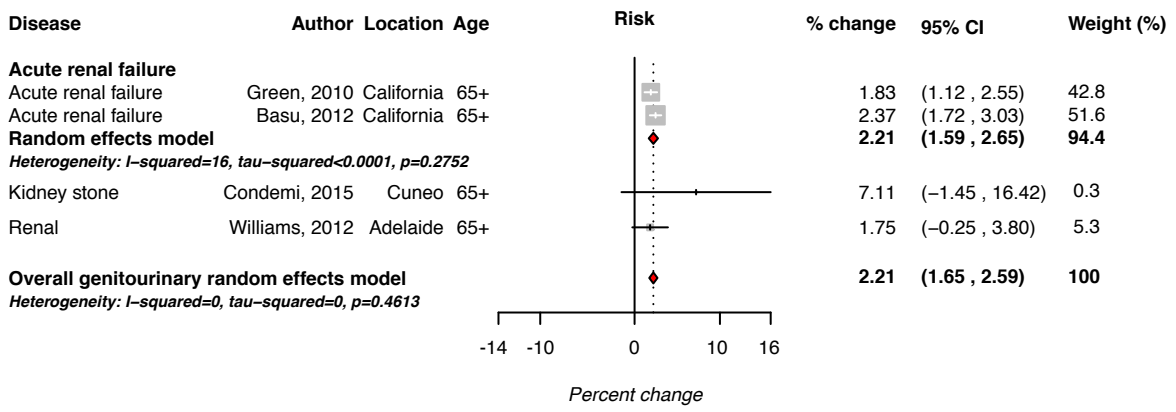
Supplementary file 6h (S6h): Forest plot for morbidity heat cardiovascular diseases



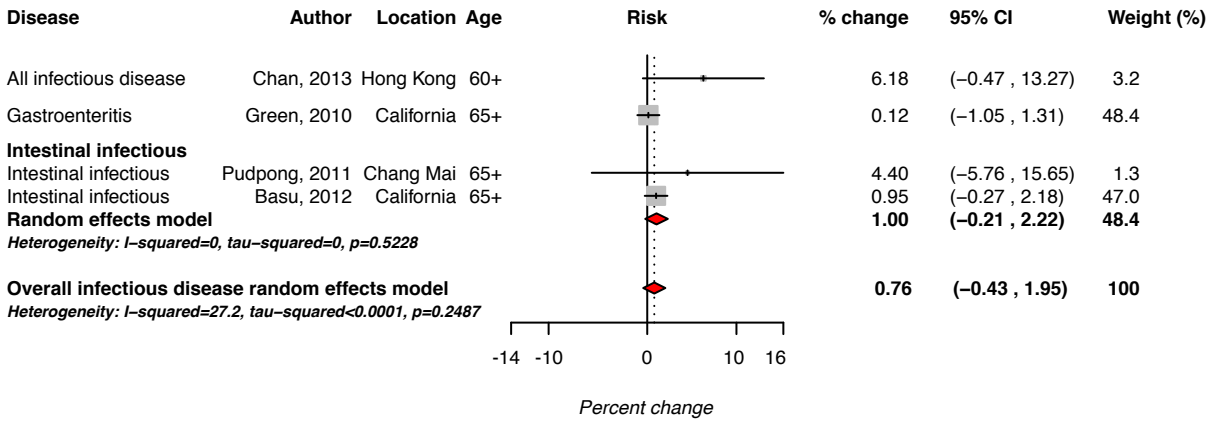
Supplementary file 6i (S6i): Forest plot for morbidity heat respiratory diseases



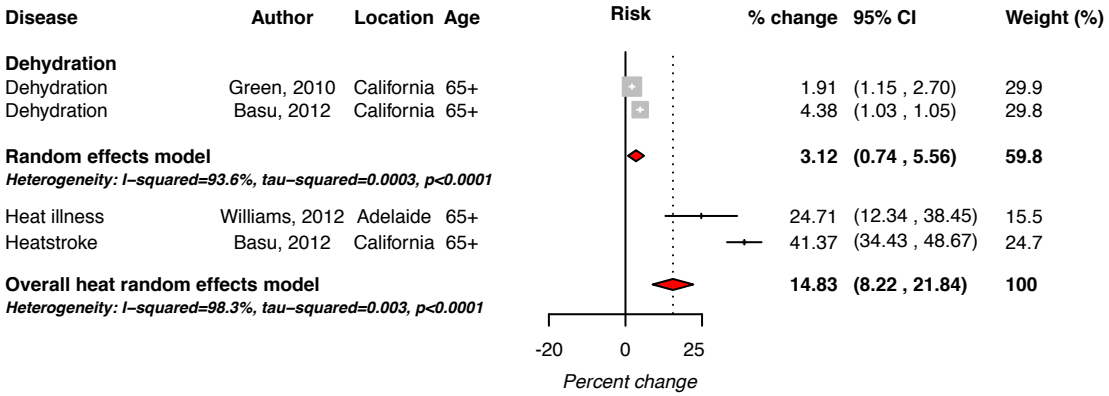
Supplementary file 6j (S6j): Forest plot for morbidity heat endocrine diseases



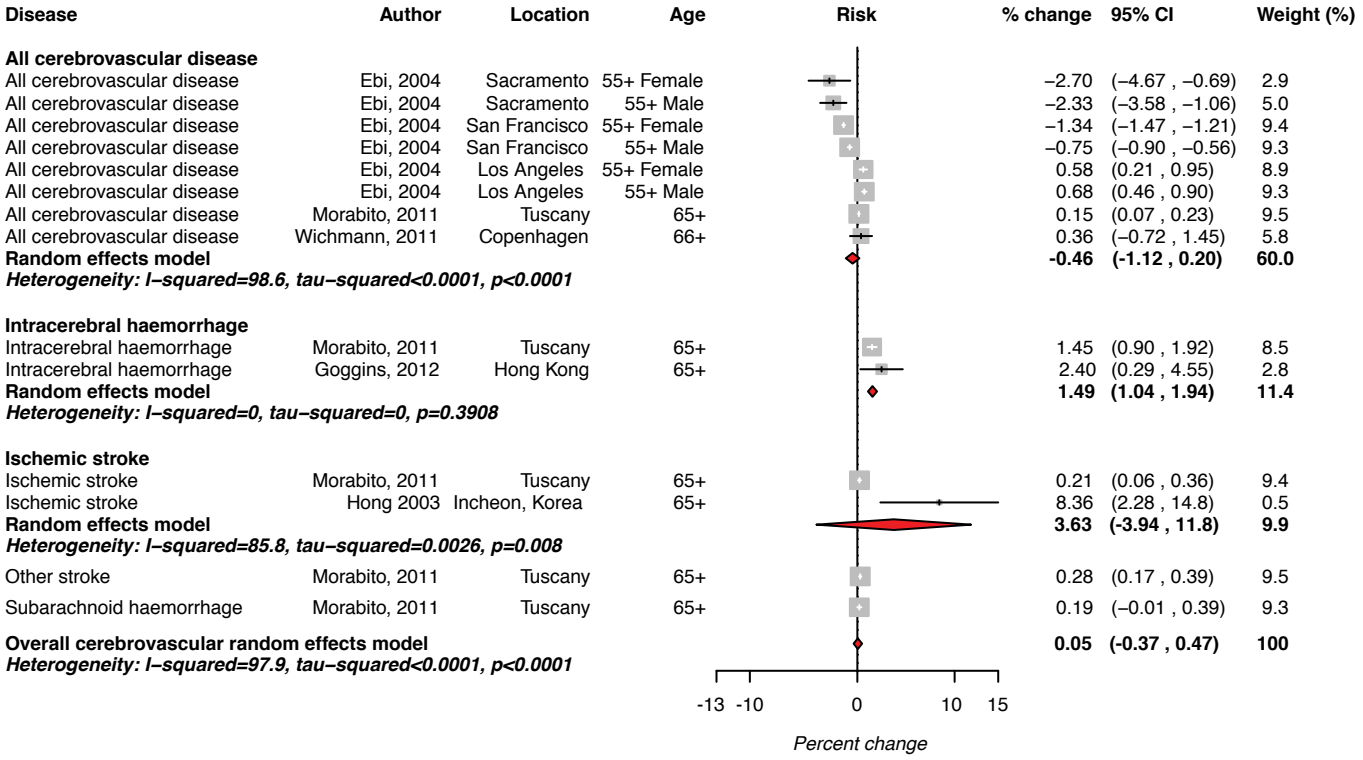
Supplementary file 6k (S6k): Forest plot for morbidity heat genitourinary diseases



Supplementary file 6l (S6l): Forest plot for morbidity heat infectious diseases

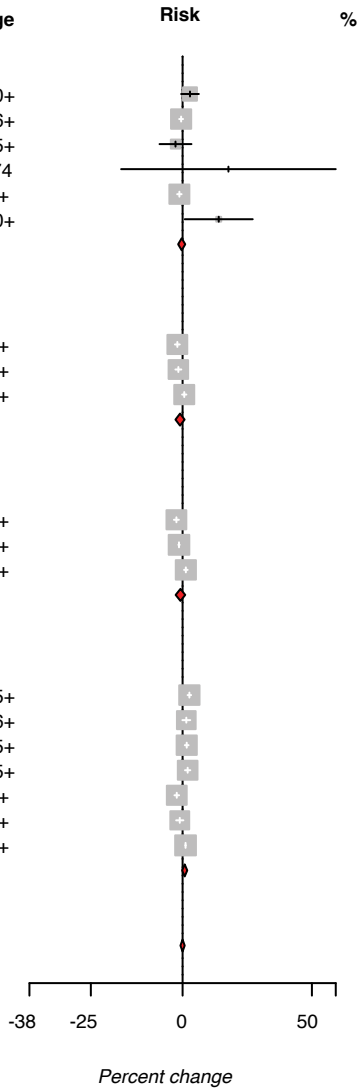


Supplementary file 6m (S6m): Forest plot for morbidity heat heat-related diseases



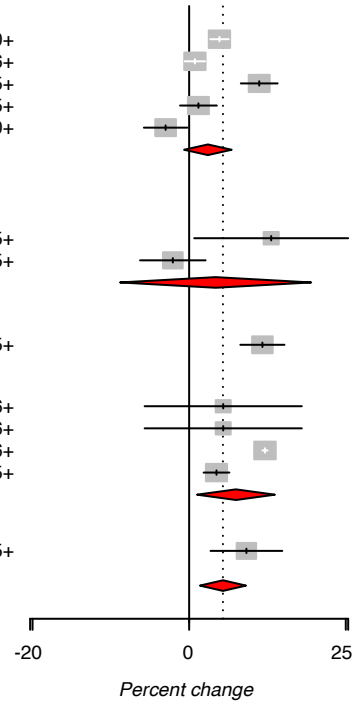
Supplementary file 6n (S6n): Forest plot for morbidity cold cerebrovascular diseases

Disease	Author	Location	Age	% change	95% CI	Weight (%)
All cardiovascular disease						
All cardiovascular disease	Chan, 2013	Hong Kong	60+	2.35	(−0.46 , 5.23)	3.1
All cardiovascular disease	Wichmann, 2011	Copenhagen	66+	−0.46	(−1.07 , 0.15)	6.5
All cardiovascular disease	Hajat 2002	London	65+	−2.20	(−6.98 , 2.82)	1.4
All cardiovascular disease	Alessandrini 2011	Emilia−Romagna	65−74	15.46	(−17.53 , 61.65)	0.0
All cardiovascular disease	Nunes Da Silva 2011	Sao Paolo	60+	−1.00	(−1.69 , −0.31)	6.4
All cardiovascular disease	Giang 2014	Thai Nguyen Province	60+	12.00	(0.68 , 24.60)	0.4
Random effects model				**-0.28**	**(-1.39 , 0.84)**	**17.8**
Heterogeneity: I−squared=57.3, tau−squared<0.0001, p=0.0388						
Angina pectoris						
Angina pectoris	Ebi, 2004	Sacramento	55+	−1.63	(−2.37 ,−0.88)	6.3
Angina pectoris	Ebi, 2004	San Francisco	55+	−1.32	(−2.23 , −0.39)	6.1
Angina pectoris	Ebi, 2004	Los Angeles	55+	0.52	(−0.16 , 1.19)	6.4
Random effects model				**-0.80**	**(-2.21 , 0.64)**	**18.8**
Heterogeneity: I−squared=90.1, tau−squared=0.0001, p<0.0001						
Heart failure						
Heart failure	Ebi, 2004	Sacramento	55+	−1.92	(−2.68 , −1.16)	6.3
Heart failure	Ebi, 2004	San Francisco	55+	−1.12	(−1.32 , −0.91)	6.8
Heart failure	Ebi, 2004	Los Angeles	55+	1.03	(0.45 , 1.60)	6.5
Random effects model				**-0.67**	**(-2.15 , 0.83)**	**19.7**
Heterogeneity: I−squared=96.4, tau−squared=0.0002, p<0.0001						
Myocardial infarction						
Myocardial infarction	Bhaskaran, 2010	England and Wales	65+	2.15	(1.58 , 2.72)	6.6
Myocardial infarction	Wichmann, 2012	Copenhagen	66+	1.17	(−0.07, 2.43)	5.6
Myocardial infarction	Vasconcelos, 2013	Lisbon	65+	1.30	(0.7 , 1.9)	6.5
Myocardial infarction	Vasconcelos, 2013	Oporto	65+	1.60	(0.75 , 2.45)	6.2
Myocardial infarction	Ebi, 2004	Sacramento	55+	−1.81	(−2.53 , −1.09)	6.3
Myocardial infarction	Ebi, 2004	San Francisco	55+	−0.88	(−2 , 0.25)	5.7
Myocardial infarction	Ebi, 2004	Los Angeles	55+	0.93	(0.84 , 1.03)	6.9
Random effects model				**0.66**	**(-0.14 , 1.48)**	**43.7**
Heterogeneity: I−squared=93, tau−squared=0.0001, p<0.0001						
Overall cardioavascular random effects model				**-0.00**	**(-0.67 , 0.66)**	**100**
Heterogeneity: I−squared=96.6, tau−squared=0.0002, p<0.0001						



Supplementary file 6o (S6o): Forest plot for morbidity cold cardiovascular diseases

Disease	Author	Location	Age	% change	95% CI	Weight (%)
All respiratory disease						
All respiratory disease	Chan, 2013	Hong Kong	60+	4.41	(3.05 , 5.80)	9.1
All respiratory disease	Wichmann, 2011	Copenhagen	66+	0.82	(−0.63 , 2.29)	9.1
All respiratory disease	Hajat, 2002	London	65+	10.5	(7.64 , 13.44)	8.8
All respiratory disease	Alessandrini, 2011	Emilia−Romagna	65+	1.33	(−1.29 , 4.02)	8.8
All respiratory disease	Nunes Da Silva, 2012	Sao Paolo	60+	−3.3	(−6.25 , −0.26)	8.6
Random effects model				**2.70**	**(-0.72 , 6.24)**	**44.3**
Heterogeneity: I−squared=93%, tau−squared=0.0014, p<0.0001						
Asthma						
Asthma	Hajat, 2002	London	65+	12.4	(0.72 , 25.43)	4.6
Asthma	Kim, 2014	Soeul	65+	−2.3	(−6.76 , 2.37)	7.8
Random effects model				**3.84**	**(-9.38 , 18.99)**	**12.4**
Heterogeneity: I−squared=81.2%, tau−squared=0.008, p=0.0212						
Lower respiratory disease	Hajat, 2002	London	65+	11	(7.56 , 14.55)	8.5
Pneumonia						
Pneumonia	Ebi, 2001	Sacramento	56+	4.97	(−6.15 , 17.41)	4.5
Pneumonia	Ebi, 2001	San Francisco	56+	4.97	(−6.15 , 17.41)	4.5
Pneumonia	Ebi, 2001	Los Angeles	56+	11.41	(11.00 , 11.83)	9.3
Pneumonia	Liu, 2014	Shanghai	65+	3.97	(2.07 , 5.89)	9.0
Random effects model				**6.89**	**(1.20 ,12.99)**	**27.2**
Heterogeneity: I−squared=94.5%, tau−squared=0.0022, p<0.0001						
Upper respiratory disease	Hajat, 2002	London	65+	8.5	(3.09 , 14.19)	7.6
Pverall respiratory random effects model				**4.93**	**(1.54 , 8.44)**	**100**
Heterogeneity: I−squared=97.1%, tau−squared=0.003, p<0.0001						



Supplementary file 6p (S6p): Foest plot for morbidity cold respiratory diseases