

Supplemental material

Table S1 Average QAIC of models under different specifications of model parameters, including the degrees of freedom of the relative humidity (range from 2 to 5, dfs_1), the exposure dimension of cross-basis of temperature (range from 2 to 5, dfs_2), the lag dimension of cross-basis of temperature (range from 2 to 5, dfs_3), and the time trend (per year) (range from 6 to 12, dfs_4).

dfs_1	dfs_2	dfs_3	Average QAIC under different specification of dfs_4						
			6	7	8	9	10	11	12
2	2	2	11395.6	11395.2	11398.0	11393.4	11376.6	11387.3	11400.1
2	2	3	11345.8	11344.5	11346.8	11342.9	11326.3	11335.6	11347.3
2	2	4	11337.1	11335.9	11337.8	11333.6	11318.0	11327.2	11338.2
2	2	5	11340.1	11338.8	11340.8	11336.4	11320.7	11330.0	11341.0
2	3	2	11402.3	11399.7	11401.6	11396.2	11381.6	11391.6	11404.8
2	3	3	11353.1	11348.6	11350.1	11344.8	11330.9	11339.7	11352.0
2	3	4	11346.3	11342.0	11343.2	11337.4	11324.4	11333.2	11344.8
2	3	5	11345.9	11341.1	11342.8	11336.6	11323.8	11332.6	11344.5
2	4	2	11405.6	11403.2	11404.4	11399.8	11386.1	11396.8	11408.6
2	4	3	11355.5	11351.2	11352.3	11346.7	11333.8	11343.7	11354.6
2	4	4	11349.4	11345.2	11346.1	11339.8	11327.7	11337.6	11348.0
2	4	5	11352.0	11347.3	11348.7	11341.9	11330.0	11340.0	11350.7
2	5	2	11408.4	11407.4	11409.7	11403.6	11391.4	11401.8	11412.6
2	5	3	11357.8	11354.9	11356.7	11349.9	11337.8	11347.7	11357.0
2	5	4	11353.7	11350.8	11352.4	11344.8	11333.7	11343.6	11352.4
2	5	5	11357.4	11354.1	11356.3	11348.4	11337.6	11347.4	11356.6
3	2	2	11396.0	11395.1	11398.0	11393.5	11376.7	11387.5	11400.3
3	2	3	11345.9	11344.1	11346.6	11342.7	11326.2	11335.6	11347.1
3	2	4	11337.0	11335.2	11337.2	11333.2	11317.6	11327.0	11337.9
3	2	5	11340.0	11338.1	11340.3	11336.1	11320.4	11329.9	11340.8
3	3	2	11402.7	11399.7	11401.7	11396.4	11381.8	11391.9	11405.1
3	3	3	11353.3	11348.3	11350.0	11344.6	11330.8	11339.6	11351.9
3	3	4	11346.3	11341.5	11342.9	11337.2	11324.2	11333.1	11344.8
3	3	5	11346.0	11340.7	11342.5	11336.4	11323.7	11332.7	11344.5
3	4	2	11406.0	11403.0	11404.5	11399.9	11386.3	11397.1	11408.9
3	4	3	11355.6	11350.7	11352.1	11346.3	11333.6	11343.5	11354.4
3	4	4	11349.4	11344.5	11345.7	11339.4	11327.5	11337.5	11347.8
3	4	5	11352.0	11346.6	11348.2	11341.5	11329.8	11339.8	11350.5
3	5	2	11408.4	11406.5	11409.1	11403.0	11391.0	11401.4	11412.4
3	5	3	11357.7	11354.1	11356.2	11349.2	11337.3	11347.1	11356.5
3	5	4	11353.6	11349.8	11351.7	11344.1	11333.3	11343.1	11352.0
3	5	5	11357.4	11353.2	11355.7	11347.8	11337.2	11347.0	11356.3
4	2	2	11397.3	11396.2	11398.7	11394.4	11377.3	11387.7	11401.0

4	2	3	11348.4	11346.5	11349.0	11345.2	11328.4	11337.7	11349.5
4	2	4	11339.5	11337.5	11339.5	11335.6	11319.8	11329.1	11340.2
4	2	5	11342.5	11340.4	11342.6	11338.4	11322.6	11331.9	11343.1
4	3	2	11404.0	11400.6	11402.3	11397.2	11382.4	11392.1	11405.7
4	3	3	11355.8	11350.6	11352.4	11347.1	11333.1	11341.8	11354.2
4	3	4	11348.9	11343.8	11345.2	11339.5	11326.5	11335.2	11347.0
4	3	5	11348.5	11343.0	11344.7	11338.6	11325.9	11334.7	11346.7
4	4	2	11407.3	11403.8	11405.0	11400.6	11386.8	11397.2	11409.5
4	4	3	11358.1	11353.0	11354.3	11348.6	11335.8	11345.6	11356.6
4	4	4	11352.0	11346.8	11347.9	11341.7	11329.7	11339.6	11350.1
4	4	5	11354.5	11348.8	11350.3	11343.7	11331.9	11341.8	11352.7
4	5	2	11409.6	11407.3	11409.6	11403.8	11391.6	11401.6	11412.9
4	5	3	11360.2	11356.3	11358.4	11351.6	11339.5	11349.2	11358.8
4	5	4	11356.2	11352.2	11354.0	11346.6	11335.6	11345.3	11354.4
4	5	5	11359.9	11355.5	11357.9	11350.1	11339.4	11349.1	11358.5
5	2	2	11399.3	11398.1	11400.8	11396.7	11379.4	11390.2	11403.5
5	2	3	11350.6	11348.7	11351.3	11347.5	11330.6	11340.2	11352.0
5	2	4	11341.6	11339.7	11341.8	11338.0	11322.0	11331.6	11342.7
5	2	5	11344.7	11342.6	11344.8	11340.8	11324.8	11334.4	11345.6
5	3	2	11405.9	11402.6	11404.3	11399.4	11384.4	11394.5	11408.1
5	3	3	11357.9	11352.7	11354.4	11349.3	11335.1	11344.2	11356.6
5	3	4	11350.9	11345.9	11347.3	11341.8	11328.5	11337.7	11349.5
5	3	5	11350.7	11345.2	11347.0	11341.1	11328.1	11337.2	11349.3
5	4	2	11409.3	11405.8	11407.1	11402.9	11388.8	11399.6	11411.9
5	4	3	11360.1	11355.0	11356.4	11350.9	11337.8	11348.0	11359.1
5	4	4	11354.0	11348.9	11350.1	11344.0	11331.8	11342.0	11352.6
5	4	5	11356.8	11351.1	11352.7	11346.2	11334.2	11344.4	11355.3
5	5	2	11411.7	11409.5	11411.9	11406.2	11393.7	11404.1	11415.4
5	5	3	11362.4	11358.6	11360.7	11354.0	11341.7	11351.8	11361.3
5	5	4	11358.5	11354.5	11356.4	11349.0	11337.8	11347.9	11357.0
5	5	5	11362.4	11358.0	11360.4	11352.8	11341.8	11351.8	11361.2

Table S2 Average QAIC of models under different specifications of model parameters, including the maximum lag period of the relative humidity (range from 0 to 7, lag₁), the temperature (including 7, 14, 21, and 28, lag₂), and the PM_{2.5} (range from 0 to 7, lag₃).

lag ₁	lag ₂	Average QAIC under different specification of lag ₃							
		0	1	2	3	4	5	6	7
0	7	11406.6	11401.2	11395.6	11389.3	11383.9	11378.5	11372.1	11364.8
0	14	11402.3	11396.8	11391.2	11384.9	11379.6	11374.2	11367.8	11360.5
0	21	11380.5	11380.5	11380.5	11379.0	11378.9	11373.5	11367.0	11359.9
0	28	11323.2	11323.0	11323.1	11321.7	11321.5	11321.2	11321.3	11321.3
1	7	11403.9	11398.6	11393.1	11386.8	11381.7	11376.3	11369.9	11362.7
1	14	11399.2	11393.8	11388.4	11382.1	11377.0	11371.7	11365.2	11358.0
1	21	11378.5	11378.5	11378.8	11377.2	11377.3	11372.0	11365.5	11358.4
1	28	11321.5	11321.4	11321.6	11320.3	11320.3	11320.1	11320.2	11320.2
2	7	11402.3	11396.8	11391.2	11384.9	11379.8	11374.5	11368.0	11360.7
2	14	11397.6	11392.0	11386.5	11380.3	11375.2	11369.9	11363.5	11356.2
2	21	11376.7	11376.6	11376.8	11375.2	11375.4	11370.1	11363.7	11356.5
2	28	11319.2	11318.9	11319.1	11317.7	11317.8	11317.6	11317.8	11317.7
3	7	11404.9	11399.3	11393.5	11387.1	11381.9	11376.6	11370.2	11362.9
3	14	11400.5	11394.8	11389.1	11382.7	11377.6	11372.3	11365.9	11358.7
3	21	11379.1	11379.0	11378.9	11377.2	11377.4	11372.2	11365.8	11358.7
3	28	11321.6	11321.3	11321.3	11319.8	11319.8	11319.7	11319.9	11319.9
4	7	11407.3	11401.8	11396.0	11389.4	11384.1	11378.8	11372.5	11365.2
4	14	11402.8	11397.2	11391.4	11384.8	11379.6	11374.4	11368.0	11360.9
4	21	11381.2	11381.2	11381.1	11379.2	11379.2	11374.1	11367.7	11360.6
4	28	11323.9	11323.6	11323.6	11321.9	11321.8	11321.7	11322.0	11322.0
5	7	11406.5	11401.1	11395.3	11388.6	11383.2	11377.9	11371.5	11364.4
5	14	11401.8	11396.3	11390.5	11383.9	11378.5	11373.2	11366.9	11359.8
5	21	11380.3	11380.4	11380.2	11378.4	11378.2	11373.0	11366.7	11359.7
5	28	11323.3	11323.1	11323.0	11321.4	11321.1	11320.9	11321.2	11321.3
6	7	11406.4	11401.0	11395.1	11388.4	11382.9	11377.5	11371.2	11364.1
6	14	11401.8	11396.3	11390.5	11383.8	11378.3	11372.9	11366.7	11359.6
6	21	11380.6	11380.6	11380.4	11378.5	11378.2	11372.9	11366.7	11359.7
6	28	11324.0	11323.8	11323.7	11321.9	11321.6	11321.4	11321.7	11321.8
7	7	11406.6	11401.3	11395.5	11388.7	11383.2	11377.6	11371.4	11364.3
7	14	11402.3	11396.8	11391.0	11384.3	11378.7	11373.3	11367.0	11360.0
7	21	11381.0	11381.0	11380.9	11378.9	11378.6	11373.2	11366.9	11360.0
7	28	11324.5	11324.4	11324.3	11322.5	11322.1	11321.8	11322.2	11322.3

Table S3 Summary statistics (mean \pm standard deviation) for the daily level of cause-specific hospital admissions and environmental factors.

Variables	Mean \pm SD	Quantiles				
		Minimum	25%	50%	75%	Maximum
MI	11 \pm 4	1	8	11	13	31
HS	12 \pm 5	2	9	12	15	30
IS	75 \pm 23	15	57	75	89	173
Temperature	22.07 \pm 6.07	3.46	17.29	23.47	27.26	31.44
Relative humidity	78.57 \pm 10.9	29.47	72.65	79.54	86.67	100.00
HTV01	2.78 \pm 1.08	0.23	2.03	2.69	3.37	7.31
HTV02	2.92 \pm 1.00	0.59	2.21	2.81	3.46	6.75
HTV03	3.02 \pm 0.96	0.69	2.34	2.90	3.56	6.32
HTV04	3.11 \pm 0.94	0.69	2.46	2.95	3.63	6.43
HTV05	3.19 \pm 0.92	1.10	2.55	3.02	3.69	6.41
HTV06	3.25 \pm 0.91	1.33	2.61	3.07	3.76	6.60
HTV07	3.30 \pm 0.90	1.40	2.65	3.11	3.80	6.40

Notes: Abbreviations: MI, Myocardial infarction; HS, Hemorrhagic stroke; IS, Ischemic stroke.

Table S4 Excess risk of cause-specific hospitalization (% , 95% CI) associated with per 1°C increase of HTV, which was estimated by changing the maximum lag of mean temperature and the degrees of freedom for the exposure dimension (dfs_1) and lag dimension (dfs_2) of cross-basis function of temperature, relative humidity (dfs_3), and time trend (dfs_4).

Parameters setting					Excess risk (% , 95% CI)		
dfs_1	dfs_2	dfs_3	dfs_4	Maximum lag	MI	HS	IS
2	4	3	10	28	2.24 (0.42, 4.08)	1.72 (0.03, 3.43)	1.55 (0.35, 2.75)
3	4	3	10	28	2.29 (0.45, 4.16)	1.73 (0.02, 3.47)	1.80 (0.58, 3.02)
4	4	3	10	28	2.36 (0.51, 4.24)	1.63 (-0.08, 3.37)	1.74 (0.52, 2.96)
2	3	3	10	28	2.12 (0.32, 3.95)	1.47 (-0.20, 3.18)	1.42 (0.23, 2.63)
2	4	3	10	28	2.24 (0.42, 4.08)	1.72 (0.03, 3.43)	1.55 (0.35, 2.75)
2	5	3	10	28	2.18 (0.37, 4.02)	1.65 (-0.03, 3.36)	1.49 (0.29, 2.71)
2	4	2	10	28	2.25 (0.44, 4.10)	1.72 (0.03, 3.43)	1.56 (0.37, 2.77)
2	4	3	10	28	2.24 (0.42, 4.08)	1.72 (0.03, 3.43)	1.55 (0.35, 2.75)
2	4	4	10	28	2.28 (0.46, 4.13)	1.69 (0.00, 3.40)	1.55 (0.36, 2.76)
2	4	3	9	28	2.18 (0.39, 4.01)	1.55 (-0.13, 3.25)	1.52 (0.33, 2.73)
2	4	3	10	28	2.24 (0.42, 4.08)	1.72 (0.03, 3.43)	1.55 (0.35, 2.75)
2	4	3	11	28	2.28 (0.46, 4.13)	1.81 (0.11, 3.54)	1.60 (0.40, 2.82)
2	4	3	10	14	2.10 (0.28, 3.94)	1.60 (-0.08, 3.31)	1.31 (0.11, 2.52)
2	4	3	10	21	2.18 (0.38, 4.02)	1.57 (-0.12, 3.28)	1.32 (0.12, 2.53)
2	4	3	10	28	2.24 (0.42, 4.08)	1.72 (0.03, 3.43)	1.55 (0.35, 2.75)

Notes: Abbreviations: MI, Myocardial infarction; HS, Hemorrhagic stroke; IS, Ischemic stroke.

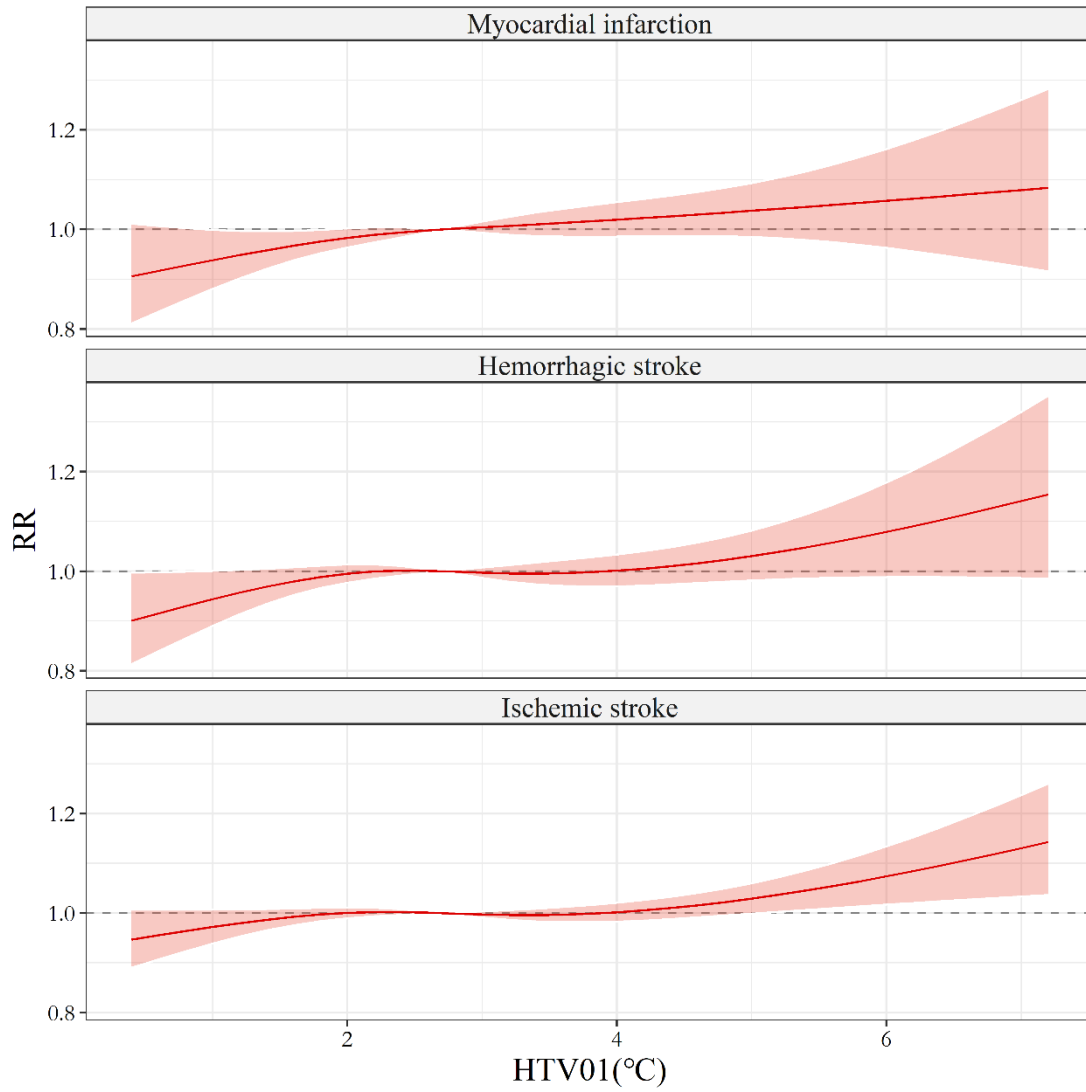


Fig. S1 Potential nonlinear relationship between HTV01 and cardiovascular disease hospitalizations explored by using a natural cubic function.

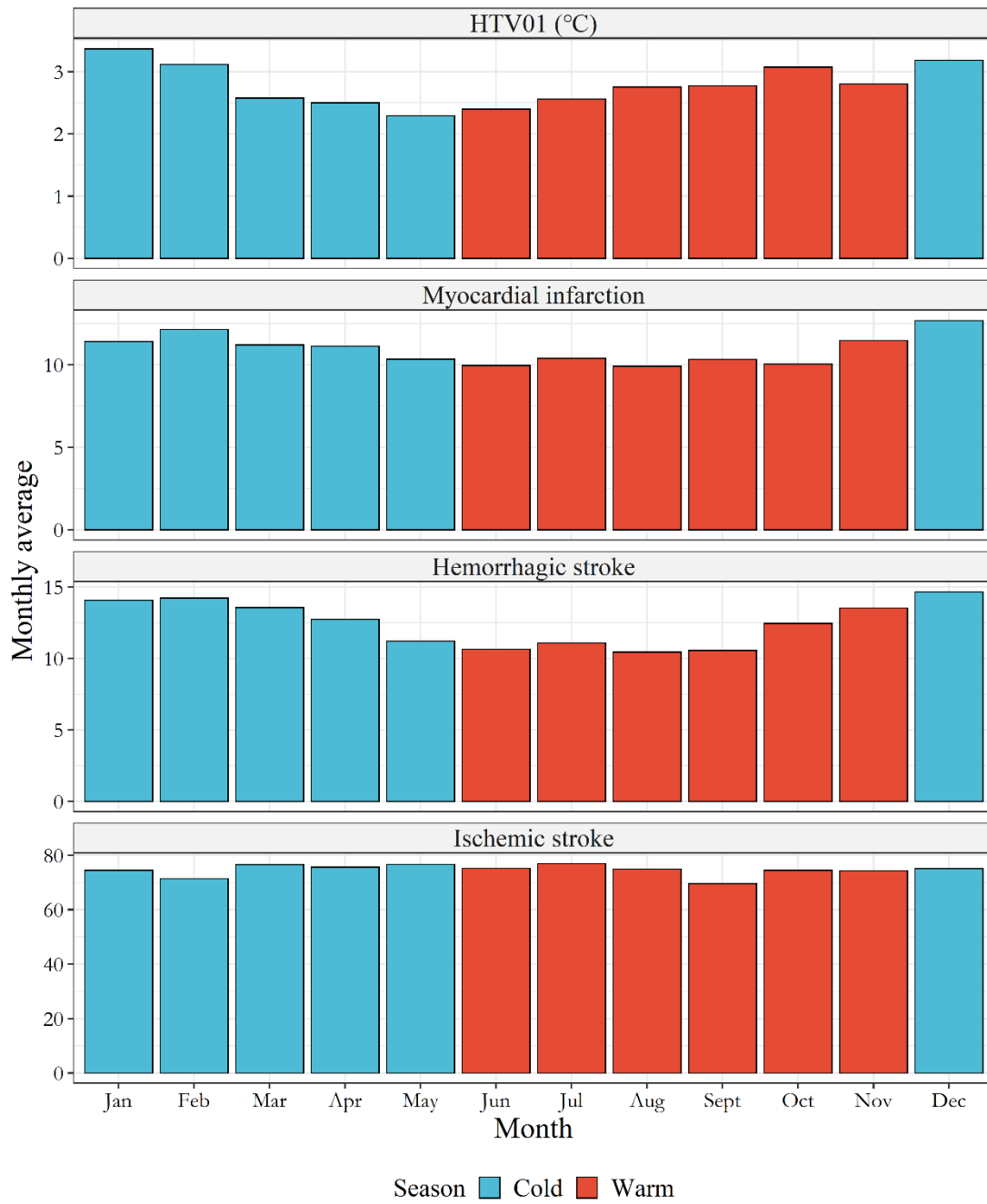


Fig. S2 Monthly distribution of environmental factors and cause-specific hospital admissions. Months were categorized into cold and warm seasons.

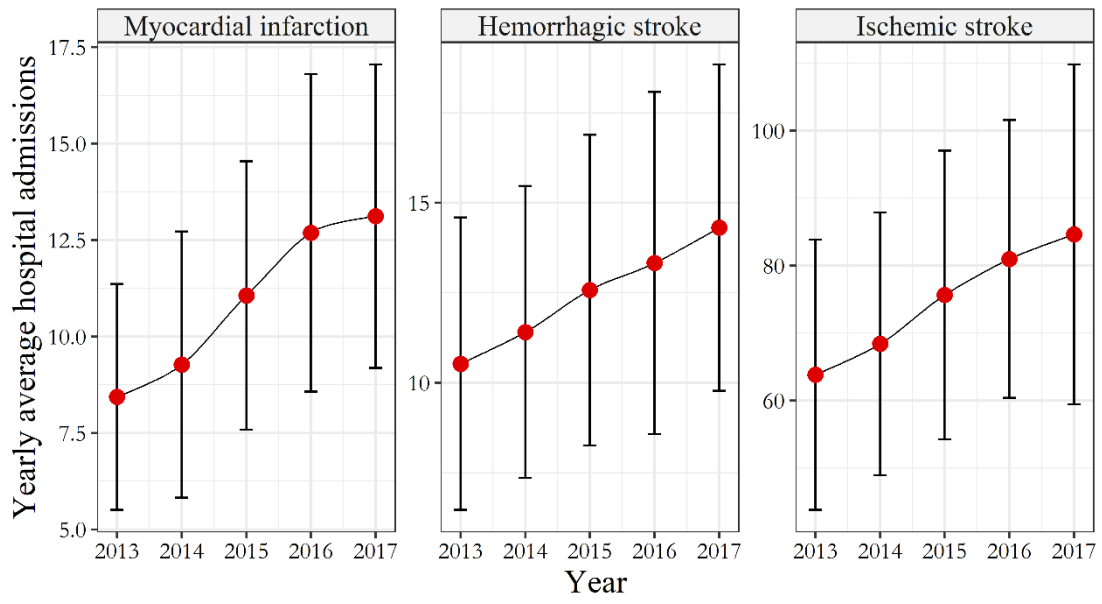


Fig. S3 Long-term trend of yearly average cause-specific hospital admissions.

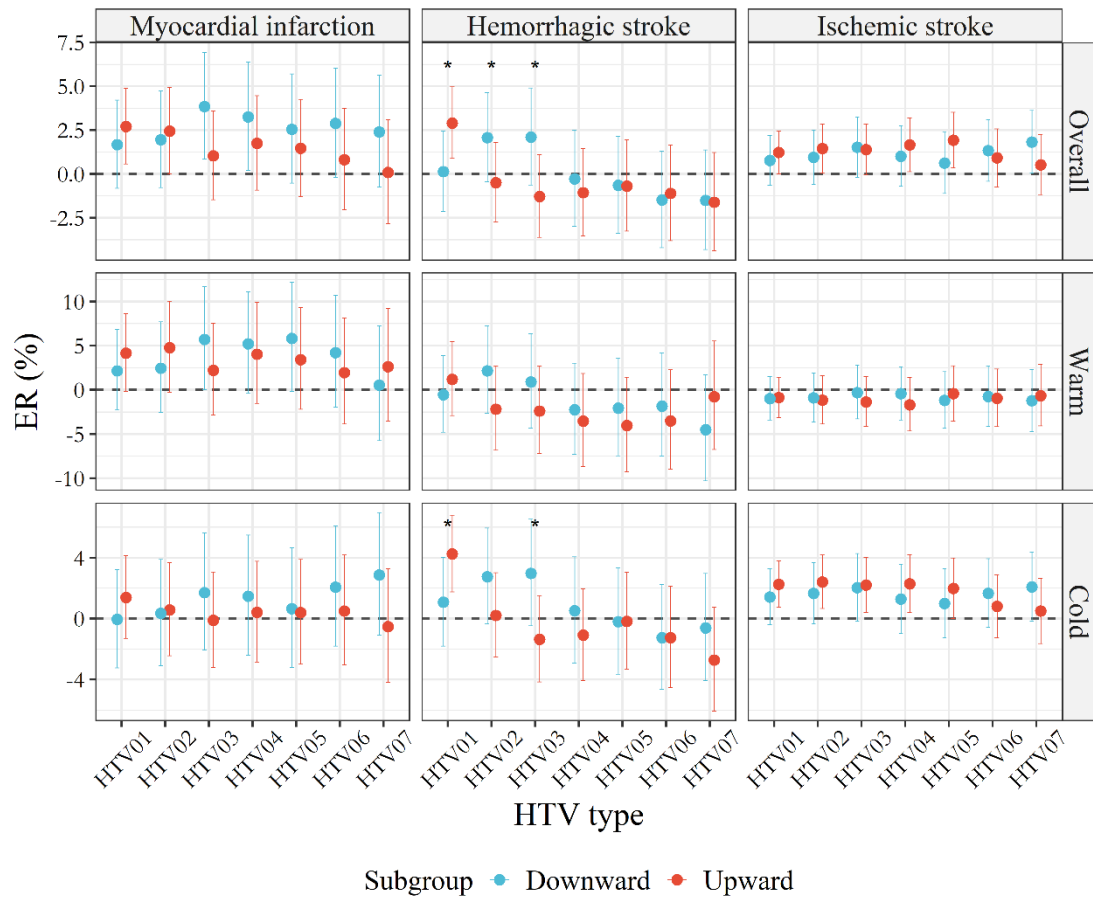


Fig. S4 Estimated excess risk (%; 95% CI) on cause-specific daily hospital admissions due to 1°C increase in HTVs, stratified by HTV change direction and season. Stars indicated significant differences.