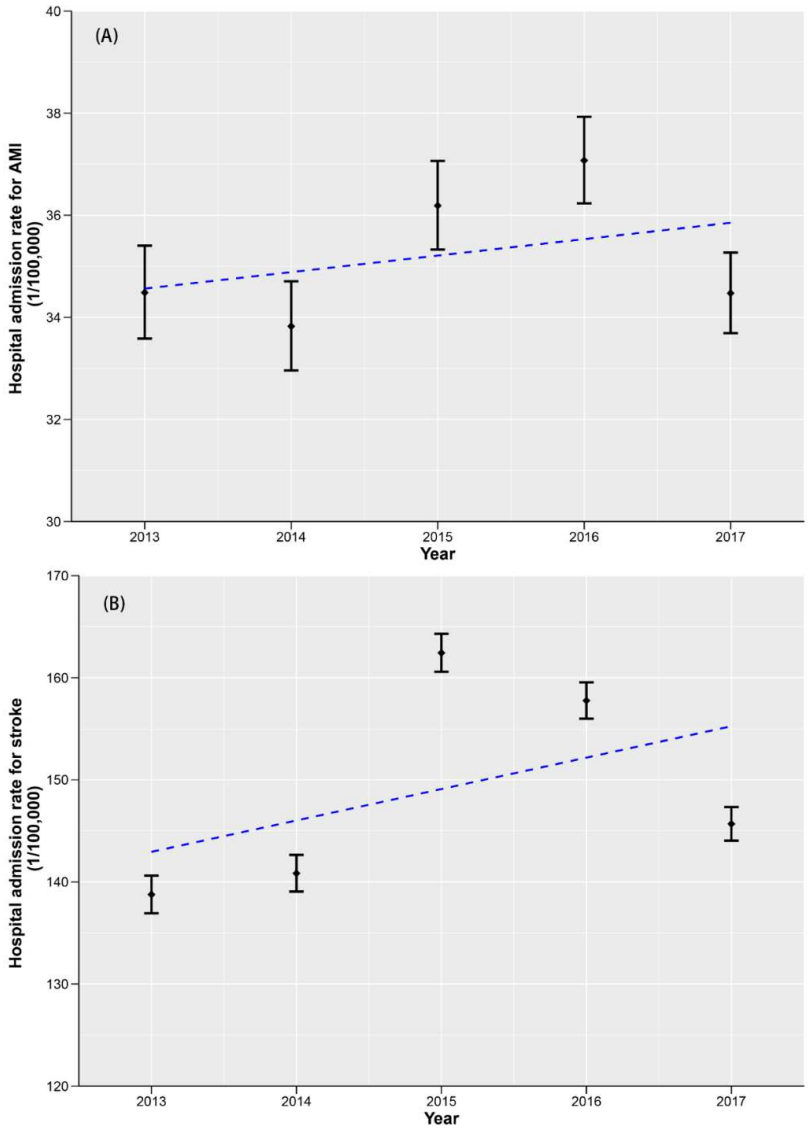
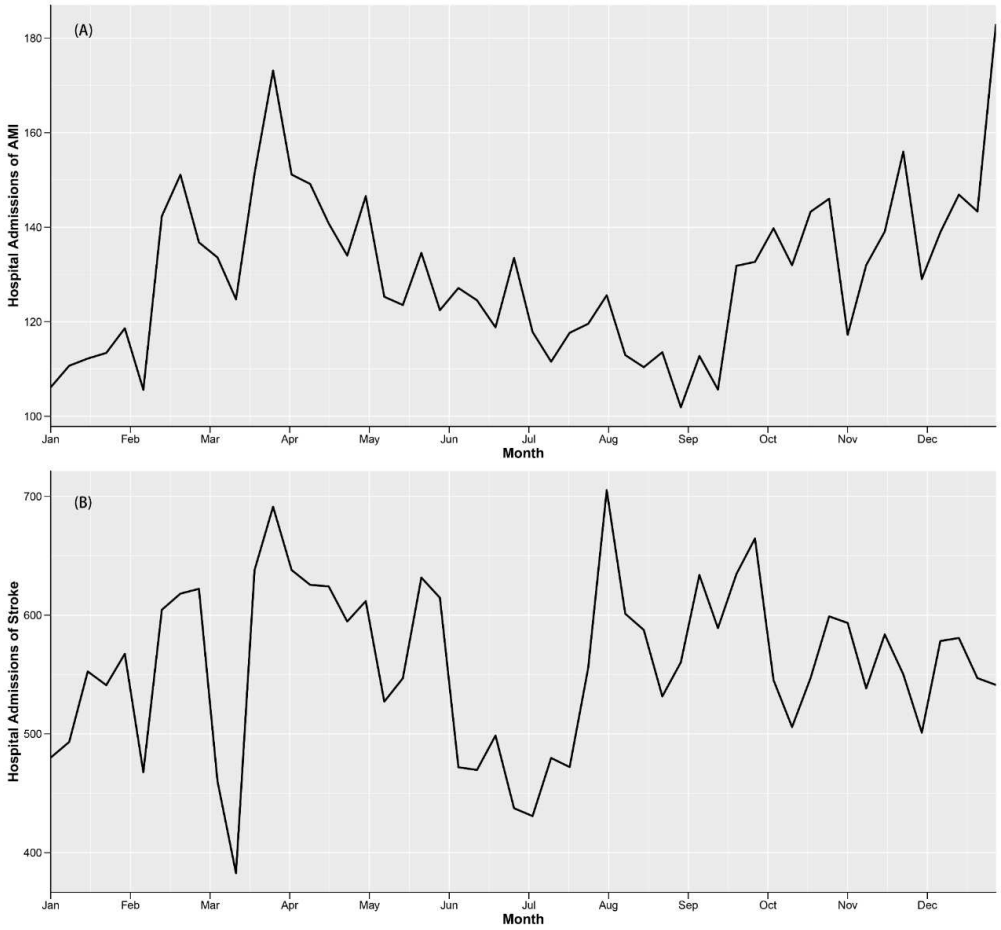
Impact of a comprehensive tobacco control policy package on acute myocardial infarction and stroke hospital admissions in Beijing, China: interrupted time series study

Supplementary Files



Supplementary figure 1 Annual hospital admission rate of AMI and stroke in Beijing from 2013 to 2017

AMI, acute myocardial infarction. Panel A, for AMI. Panel B, for stroke. The rates were age- and sex- adjusted according to the population in the sixth demographic census in Beijing. Error bars showed the 95% CIs. The blue dotted line showed the temporal trend of the rates from 2013 to 2017.



Supplementary figure 2 The overall monthly number of hospital admissions for AMI and stroke

AMI, acute myocardial infarction. Panel A: for AMI; Panel B: for stroke. The number of admissions was averaged across years.

Supplementary table 1 Annual hospital admission rates (1/100,000) of AMI and stroke in age and sex subgroups

Subgroups	Year	AMI			Stroke		
		Number of hospital admissions	Crude annual rate (95% CI)	Standardized annual rate (95% CI)	Number of hospital admissions	Crude annual rate (95% CI)	Standardized annual rate (95% CI)
Male	2013	4,374	50.6 (49.2, 52.2)	47.1 (45.7, 48.5)	15,529	179.8 (177.0, 182.7)	165.0 (162.4, 167.7)
	2014	4,598	49.6 (48.2, 51.1)	46.3 (44.9, 47.7)	17,322	186.8 (184.1, 189.6)	172.3 (169.7, 174.9)
	2015	5,363	54.3 (52.8, 55.8)	50.2 (48.8, 51.6)	21,351	216.1 (213.3, 219.1)	197.8 (195.1, 200.5)
	2016	5,922	56.2 (54.8, 57.6)	51.9 (50.5, 53.2)	21,859	207.4 (204.7, 210.2)	189.6 (187.0, 192.2)
	2017 (6 months)	2,932	53.2 (51.8, 54.6)	47.7 (46.4, 48.9)	10,989	199.3 (196.7, 201.9)	177.7 (175.3, 180.1)
	Total	23,189	52.9 (52.3, 53.6)	48.7 (48.1, 49.3)	87,050	198.6 (197.4, 199.9)	180.9 (179.8, 182.1)
Female	2013	1,448	20.5 (19.4, 21.6)	21.1 (20.0, 22.2)	7,533	106.5 (104.1, 109.0)	110.7 (108.2, 113.3)
	2014	1,519	20.2 (19.2, 21.2)	20.5 (19.5, 21.6)	7,826	103.9 (101.6, 106.2)	107.3 (104.9, 109.7)
	2015	1,700	21.2 (20.2, 22.2)	21.2 (20.2, 22.3)	9,760	121.6 (119.2, 124.0)	124.7 (122.1, 127.2)
	2016	1,829	21.4 (20.5, 22.4)	21.3 (20.3, 22.3)	10,390	121.8 (119.5, 124.2)	123.8 (121.3, 126.2)
	2017 (6 months)	933	21.0 (20.0, 21.9)	20.4 (19.4, 21.4)	5,050	113.5 (111.3, 115.7)	111.5 (109.3, 113.8)
	Total	7,429	20.9 (20.4, 21.3)	20.9 (20.4, 21.3)	40,559	113.8 (112.8, 114.9)	115.8 (114.7, 116.9)
Age <65 yrs	2013	2,862	20.0 (19.3, 20.7)	18.7 (18.0, 19.4)	9,958	69.6 (68.2, 70.9)	66.9 (65.6, 68.3)
	2014	3,046	19.9 (19.2, 20.6)	18.7 (18.0, 19.4)	11,011	71.9 (70.6, 73.3)	69.0 (67.7, 70.3)
	2015	3,589	22.0 (21.3, 22.8)	20.5 (19.8, 21.2)	13,837	84.9 (83.5, 86.3)	81.5 (80.1, 82.9)
	2016	3,946	22.8 (22.1, 23.5)	21.2 (20.5, 21.8)	13,977	80.6 (79.3, 82.0)	78.3 (77.0, 79.7)
	2017 (6 months)	1,957	21.7 (21.0, 22.4)	19.7 (19.1, 20.4)	6,866	76.1 (74.8, 77.4)	72.0 (70.8, 73.2)
	Total	15,400	21.3 (21.0, 21.7)	19.8 (19.5, 20.1)	55,649	76.9 (76.3, 77.5)	73.7 (73.1, 74.3)
Age ≥ 65 yrs	2013	2,960	212.2 (204.7, 220.0)	199.8 (192.4, 207.4)	13,104	939.6 (923.6, 955.8)	891.4 (875.6, 907.4)
	2014	3,071	205.6 (198.4, 213.0)	192.6 (185.6, 199.8)	14,137	946.4 (930.8, 962.1)	893.6 (878.3, 909.1)
	2015	3,474	216.4 (209.3, 223.7)	200.5 (193.6, 207.6)	17,274	1,076.1 (1,060.1, 1,092.3)	1,010.6 (995.0, 1,026.5)
	2016	3,805	219.7 (212.8, 226.8)	203.7 (197.0, 210.6)	18,272	1,055.2 (1,039.9, 1,070.6)	989.8 (974.9, 1,004.9)
	2017 (6 months)	1,908	203.1 (196.7, 209.7)	188.8 (182.6, 195.1)	9,173	976.5 (962.4, 990.7)	917.7 (904.0, 931.6)
	Total	15,218	211.3 (208.2, 214.5)	196.9 (193.9, 200.0)	71,960	1,001.1 (994.3, 1,008.1)	942.6 (935.9, 949.4)

AMI, acute myocardial infarction. 95% CI, 95% confidence interval. The standardized annual rates were age- and sex- adjusted according to the population in the sixth demographic census in Beijing.

Supplementary table 2 Average percentage change (%) in hospital admission rates for AMI and stroke after the Beijing tobacco control policy package (on a semesterly basis)

	AMI		Stroke	
	Immediate change (95% CI)	Semester change in the secular trend (95% CI)	Immediate change (95% CI)	Semester change in the secular trend (95% CI)
Overall	-5.4 (-10.0, -0.5)	1.4 (-0.4, 3.2)	-5.6 (-7.8, -3.3)	-8.0 (-8.7, -7.2)
Subgroups				
<65 years	-6.0 (-12.4, 0.9)	1.2 (-1.2, 3.8)	-6.6 (-9.8, -3.2)	-9.4 (-10.5, -8.2)
≥65 years	-3.9 (-10.5, 3.2)	1.5 (-1.0, 4.0)	-3.9 (-6.8, -0.9)	-7.8 (-8.8, -6.7)
Male	-4.8 (-10.2, 0.8)	1.4 (-0.6, 3.5)	-6.4 (-9.0, -3.7)	-8.7 (-9.6, -7.7)
Female	-3.7 (-12.8, 6.3)	1.8 (-1.8, 5.5)	-3.2 (-7.2, 0.9)	-6.2 (-7.6, -4.8)

AMI, acute myocardial infarction.

Supplementary table 3 Average percentage change (%) after the false dates for AMI and stroke hospital admissions

False dates	AMI		Stroke	
	Immediate change (95% CI)	Annual change in the secular trend (95% CI)	Immediate change (95% CI)	Annual change in the secular trend (95% CI)
2014/6/24	-5.4 (-31.0, 29.7)	2.6 (-15.1, 24.1)	7.3 (-25.6, 54.8)	-5.9 (-24.5, 17.3)
2014/7/15	-0.1 (-25.8, 34.4)	5.0 (-12.4, 25.9)	16.7 (-17.2, 64.6)	-3.5 (-21.7, 19.0)
2014/9/23	7.4 (-16.4, 38.0)	7.5 (-8.2, 26.0)	2.5 (-22.5, 35.5)	-10.2 (-24.9, 7.5)
2014/10/7	5.8 (-16.9, 34.6)	7.0 (-8.3, 24.9)	0.8 (-22.9, 31.6)	-10.9 (-25.2, 6.0)
2014/10/28	13.6 (-9.7, 42.8)	8.9 (-6.1, 26.4)	1.5 (-21.2, 30.7)	-11.2 (-25.0, 5.0)

AMI, acute myocardial infarction. 95% CI, 95% confidence interval.

Supplementary table 4 Average percentage change (%) in hospital admission rates for AMI and stroke using spline model of secular trend of time (95% CI)

	AMI		Stroke	
	Immediate change (95% CI)	Annual change in the secular trend (95% CI)	Immediate change (95% CI)	Annual change in the secular trend (95% CI)
Overall	-6.8 (-11.4, -1.9)	-24.1 (-36.1, -9.9)	-5.8 (-8.0, -3.5)	-19.3 (-24.8, -13.5)
Subgroups				
<65 years	-8.3 (-14.6, -1.5)	-36.9 (-50.6, -19.5)	-6.6 (-9.8, -3.2)	-17.9 (-20.4, -15.4)
≥65 years	-3.9 (-10.5, 3.2)	3.0 (-2.0, 8.3)	-3.9 (-6.8, -0.9)	-14.9 (-16.8, -13.0)
Male	-6.4 (-11.6, -0.8)	-26.3 (-39.4, -10.2)	-6.6 (-9.2, -3.9)	-19.5 (-25.2, -13.3)
Female	-4.5 (-13.6, 5.6)	-10.7 (-31.9, 17.1)	-3.7 (-7.7, 0.5)	-20.0 (-29.6, -9.0)

AMI, acute myocardial infarction. 95% CI, 95% confidence interval.

Supplementary table 5 Average percentage change (%) in hospital admission rates for AMI including readmission within 28 days

	Linear time model		Spline time model	
	Immediate change (95% CI)	Annual change in the secular trend (95% CI)	Immediate change (95% CI)	Annual change in the secular trend (95% CI)
Overall	-5.1 (-9.7, -0.3)	2.6 (-0.9, 6.2)	-6.6 (-11.1, -1.8)	-26.0 (-37.6, -12.2)
Subgroups				
<65 years	-5.8 (-12.1, 1.0)	2.3 (-2.5, 7.4)	-8.3 (-14.5, -1.6)	-39.1 (-52.2, -22.4)
≥65 years	-3.3 (-9.8, 3.7)	2.6 (-2.3, 7.7)	-3.3 (-9.8, 3.7)	2.6 (-2.3, 7.7)
Male	-4.9 (-10.2, 0.6)	2.4 (-1.6, 6.6)	-6.6 (-11.8, -1.1)	-28.5 (-41.2, -13.1)
Female	-2.1 (-11.2, 8.0)	4.0 (-3.1, 11.5)	-2.8 (-12.0, 7.2)	-11.9 (-33.2, 16.1)

AMI, acute myocardial infarction. 95% CI, 95% confidence interval.