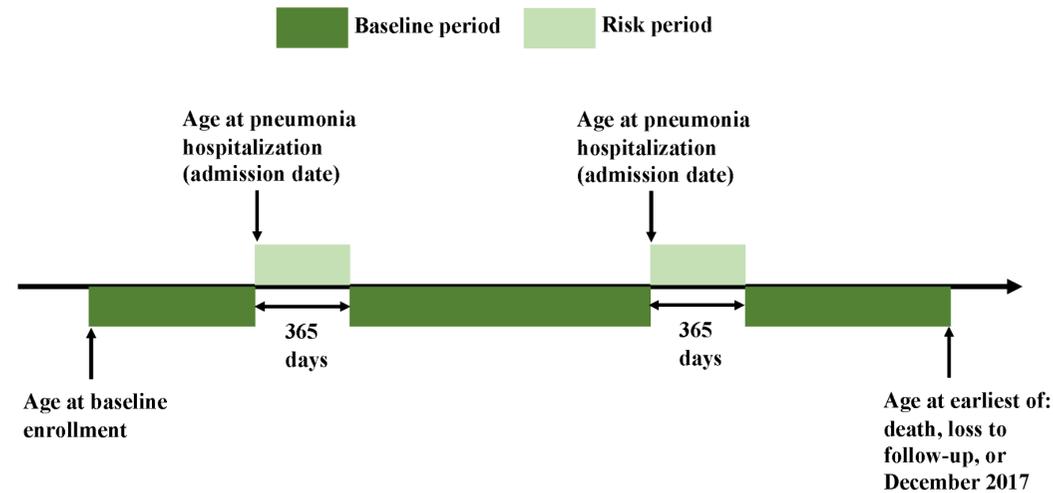




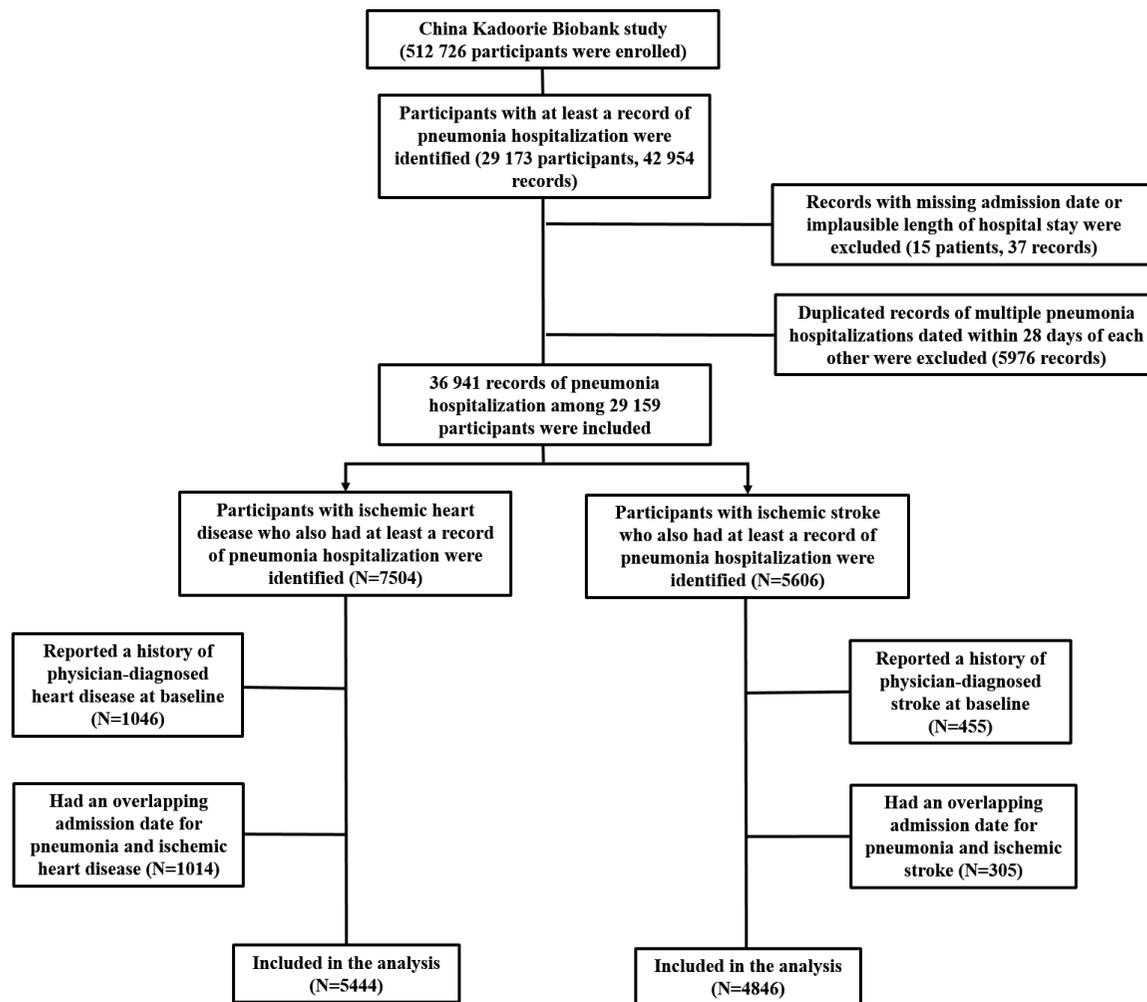
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4 **Supplementary Figure S1 Schematic of the self-controlled case series design**

5 This timeline is based on age. The risk period (light-shaded areas) was divided into 1-3, 4-7, 8-28, 29-91, and 92-365 days (not drawn to scale) after  
6 pneumonia hospitalization. We included CKB participants who had both records of new-onset ischemic cardiovascular disease and hospitalization for  
7 pneumonia during the observation period in the analysis. The incidence ratio for new-onset ischemic cardiovascular disease occurring within each risk period  
8 compared with the baseline period (dark-shaded areas) was calculated for each participant.



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**Supplementary Figure S2 Flowchart illustrating the number of participants included in our study**

1 **Supplementary Table S1 Sensitivity analyses for association of pneumonia hospitalization with new-onset ischemic**  
 2 **cardiovascular disease**

	Cases included in analyses, n	RIs (95% CIs)				
		1-3 days	4-7 days	8-28 days	29-91 days	92-365 days
<b>Analyses of IHD risk</b>						
Primary analysis	5444	4.24 (2.92, 6.15)	3.66 (2.59, 5.19)	3.08 (2.59, 3.65)	1.74 (1.52, 2.00)	1.23 (1.12, 1.35)
Sensitivity analysis						
Adjusting for age in 1-year age bands	5444	4.09 (2.82, 5.93)	3.54 (2.50, 5.01)	2.97 (2.50, 3.53)	1.68 (1.47, 1.93)	1.18 (1.08, 1.30)
Adjusting for calendar month	5444	4.22 (2.91, 6.13)	3.65 (2.58, 5.18)	3.07 (2.59, 3.64)	1.74 (1.52, 2.00)	1.23 (1.12, 1.35)
Excluding cases who have died within 30 days of the IHD event	5 082	2.63 (1.61, 4.30)	2.61 (1.70, 4.01)	2.26 (1.84, 2.78)	1.47 (1.26, 1.72)	1.12 (1.01, 1.23)
Including cases who were not hospitalized for pneumonia in the observation period	46 677	4.07 (2.80, 5.90)	3.52 (2.48, 4.99)	2.96 (2.50, 3.51)	1.68 (1.47, 1.93)	1.18 (1.08, 1.29)
Different lengths of pre-exposure period <sup>a</sup>						
2-week before exposure	5444	4.34 (2.99, 6.30)	3.75 (2.65, 5.32)	3.17 (2.67, 3.76)	1.79 (1.56, 2.06)	1.24 (1.13, 1.36)
1-month before exposure	5444	4.41 (3.04, 6.40)	3.83 (2.70, 5.42)	3.16 (2.65, 3.75)	1.80 (1.57, 2.07)	1.24 (1.13, 1.37)
<b>Analyses of IS risk</b>						
Primary analysis	4846	1.85 (1.02, 3.35)	3.44 (2.36, 5.03)	1.59 (1.24, 2.04)	1.25 (1.05, 1.48)	1.04 (0.94, 1.15)
Sensitivity analysis						
Adjusting for age in 1-year age bands	4846	1.78 (0.98, 3.22)	3.31 (2.27, 4.84)	1.53 (1.19, 1.96)	1.20 (1.01, 1.42)	1.00 (0.90, 1.11)
Adjusting for calendar month	4846	1.85 (1.02, 3.34)	3.44 (2.35, 5.02)	1.59 (1.24, 2.04)	1.25 (1.05, 1.48)	1.04 (0.94, 1.15)
Excluding cases who have died within 30 days of the IS event	4727	1.74 (0.94, 3.24)	2.38 (1.49, 3.78)	1.38 (1.06, 1.81)	1.16 (0.97, 1.39)	1.00 (0.90, 1.12)
Including cases who were not hospitalized for pneumonia in the observation period	46 985	1.79 (0.99, 3.24)	3.33 (2.28, 4.87)	1.54 (1.20, 1.97)	1.21 (1.02, 1.43)	1.01 (0.91, 1.12)

	Cases included in analyses, n	RIs (95% CIs)				
		1-3 days	4-7 days	8-28 days	29-91 days	92-365 days
Different lengths of pre-exposure period <sup>a</sup>						
2-week before exposure	4846	1.88 (1.04, 3.39)	3.49 (2.39, 5.10)	1.62 (1.26, 2.08)	1.28 (1.07, 1.51)	1.06 (0.95, 1.18)
1-month before exposure	4846	1.92 (1.06, 3.46)	3.57 (2.45, 5.22)	1.64 (1.28, 2.11)	1.29 (1.09, 1.53)	1.07 (0.97, 1.19)

1 Abbreviations: RI, relative incidence; CI, confidence interval; IHD, ischemic heart disease; IS, ischemic stroke.

2 <sup>a</sup>A pre-exposure period is a portion of the observation time immediately preceding the index date that was excluded from the baseline period.

1 **Supplementary Table S2 More subgroup analyses for association**  
2 **between pneumonia hospitalization and ischemic heart disease**

Subgroup	RIs (95% CIs)			Baseline (n=4479)	P value for interact ion <sup>a</sup>
	1-28 (n=198)	29-91 (n=218)	92-365 (n=549)		
<b>Overall</b>	3.29 (2.85, 3.80)	1.74 (1.52, 2.00)	1.23 (1.12, 1.35)	1.00	
<b>Sex</b>					0.005
Male	4.07 (3.34, 4.96)	2.03 (1.67, 2.47)	1.18 (1.02, 1.36)	1.00	
Female	2.68 (2.17, 3.31)	1.52 (1.25, 1.85)	1.26 (1.12, 1.42)	1.00	
<b>Region</b>					0.001
Rural	3.77 (3.14, 4.52)	1.78 (1.48, 2.14)	1.40 (1.25, 1.57)	1.00	
Urban	2.70 (2.13, 3.42)	1.70 (1.38, 2.10)	1.00 (0.86, 1.17)	1.00	
<b>Educational attainment</b>					0.007
No formal / primary school	3.63 (3.06, 4.31)	1.63 (1.37, 1.95)	1.33 (1.19, 1.48)	1.00	
Middle school or higher	2.65 (2.02, 3.48)	1.96 (1.57, 2.45)	1.03 (0.87, 1.22)	1.00	
<b>Tobacco smoking</b>					0.015
Nonsmoker	2.78 (2.29, 3.38)	1.64 (1.38, 1.96)	1.26 (1.13, 1.41)	1.00	
Current smoker <sup>b</sup>	4.24 (3.41, 5.27)	1.94 (1.55, 2.43)	1.15 (0.98, 1.36)	1.00	
<b>Alcohol drinking</b>					0.067
Non-weekly drinker	3.22 (2.75, 3.77)	1.70 (1.46, 1.98)	1.28 (1.16, 1.41)	1.00	
Weekly drinker	3.73 (2.60, 5.35)	1.98 (1.41, 2.80)	0.91 (0.69, 1.20)	1.00	
<b>BMI</b>					0.207
18.5-24.9 kg/m <sup>2</sup>	3.46 (2.87, 4.18)	1.96 (1.64, 2.33)	1.26 (1.12, 1.42)	1.00	
<18.5 kg/m <sup>2</sup> or ≥25.0 kg/m <sup>2</sup>	3.07 (2.46, 3.84)	1.48 (1.18, 1.85)	1.18 (1.03, 1.36)	1.00	
<b>Waist circumference</b>					0.120
Male<85 cm, female<80 cm	3.57 (2.94, 4.35)	1.93 (1.60, 2.33)	1.33 (1.17, 1.51)	1.00	
Male≥85 cm, female≥80 cm	3.01 (2.44, 3.72)	1.56 (1.27, 1.92)	1.13 (0.99, 1.29)	1.00	
<b>Family history of CVD<sup>c</sup></b>					0.210
No	3.54 (3.02, 4.14)	1.79 (1.53, 2.08)	1.24 (1.11, 1.37)	1.00	
Yes	2.37 (1.65, 3.42)	1.58 (1.16, 2.16)	1.19 (0.98, 1.45)	1.00	

3 Abbreviations: RI, relative incidence; CI, confidence interval; BMI, body mass index; CVD,  
4 cardiovascular disease.

5 <sup>a</sup> We tested multiplicative interaction by using a likelihood ratio test comparing models with  
6 and without a cross-product term.

7 <sup>b</sup> Participant who quit smoking because of illness was classified as a current smoker.

8 <sup>c</sup>A family history of CVD was defined as having at least one first-degree relative (biological  
9 father, mother, and siblings) with heart disease or stroke

1 **Supplementary Table S3 More subgroup analyses for association**  
2 **between pneumonia hospitalization and ischemic stroke**

Subgroup	RIs (95% CIs)			Baseline (n=4193)	P value for interaction <sup>a</sup>
	1-28 (n=102)	29-91 (n=139)	92-365 (n=412)		
<b>Overall</b>	1.89 (1.55, 2.30)	1.25 (1.05, 1.48)	1.04 (0.94, 1.15)	1.00	
<b>Sex</b>					0.702
Male	1.86 (1.39, 2.47)	1.17 (0.90, 1.51)	0.98 (0.84, 1.15)	1.00	
Female	1.92 (1.46, 2.52)	1.32 (1.05, 1.65)	1.09 (0.95, 1.25)	1.00	
<b>Region</b>					0.195
Rural	2.27 (1.72, 3.01)	1.42 (1.11, 1.82)	1.07 (0.92, 1.25)	1.00	
Urban	1.61 (1.22, 2.13)	1.12 (0.88, 1.42)	1.01 (0.88, 1.17)	1.00	
<b>Educational attainment</b>					0.209
No formal / primary school	2.09 (1.63, 2.67)	1.31 (1.05, 1.62)	1.12 (0.98, 1.28)	1.00	
Middle school or higher	1.61 (1.15, 2.24)	1.16 (0.88, 1.53)	0.93 (0.78, 1.10)	1.00	
<b>Tobacco smoking</b>					0.833
Non-smoker	1.76 (1.36, 2.27)	1.24 (1.00, 1.53)	1.04 (0.92, 1.18)	1.00	
Current smoker <sup>b</sup>	2.13 (1.55, 2.92)	1.26 (0.94, 1.69)	1.03 (0.87, 1.24)	1.00	
<b>Alcohol drinking</b>					0.899
Non-weekly drinker	1.89 (1.53, 2.35)	1.27 (1.06, 1.53)	1.03 (0.92, 1.15)	1.00	
Weekly drinker	1.86 (1.11, 3.12)	1.09 (0.68, 1.74)	1.09 (0.84, 1.42)	1.00	
<b>BMI</b>					0.674
18.5-24.9 kg/m <sup>2</sup>	1.86 (1.43, 2.43)	1.27 (1.01, 1.59)	1.10 (0.96, 1.26)	1.00	
<18.5 kg/m <sup>2</sup> or ≥25.0 kg/m <sup>2</sup>	1.92 (1.43, 2.59)	1.21 (0.93, 1.58)	0.96 (0.82, 1.13)	1.00	
<b>Waist circumference</b>					0.578
Male<85 cm, female<80 cm	1.80 (1.36, 2.40)	1.38 (1.09, 1.73)	1.07 (0.93, 1.24)	1.00	
Male≥85 cm, female≥80 cm	1.98 (1.50, 2.60)	1.11 (0.86, 1.44)	1.01 (0.87, 1.17)	1.00	
<b>Family history of CVD<sup>c</sup></b>					0.120
No	1.99 (1.59, 2.49)	1.30 (1.07, 1.58)	1.11 (0.98, 1.25)	1.00	
Yes	1.58 (1.02, 2.44)	1.08 (0.75, 1.56)	0.84 (0.67, 1.06)	1.00	

3 Abbreviations: RI, relative incidence; CI, confidence interval; BMI, body mass index; CVD,  
4 cardiovascular disease.

5 <sup>a</sup> We tested multiplicative interaction by using a likelihood ratio test comparing models with  
6 and without a cross-product term.

7 <sup>b</sup> Participant who quit smoking because of illness was classified as a current smoker.

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9 father, mother, and siblings) with heart disease or stroke.