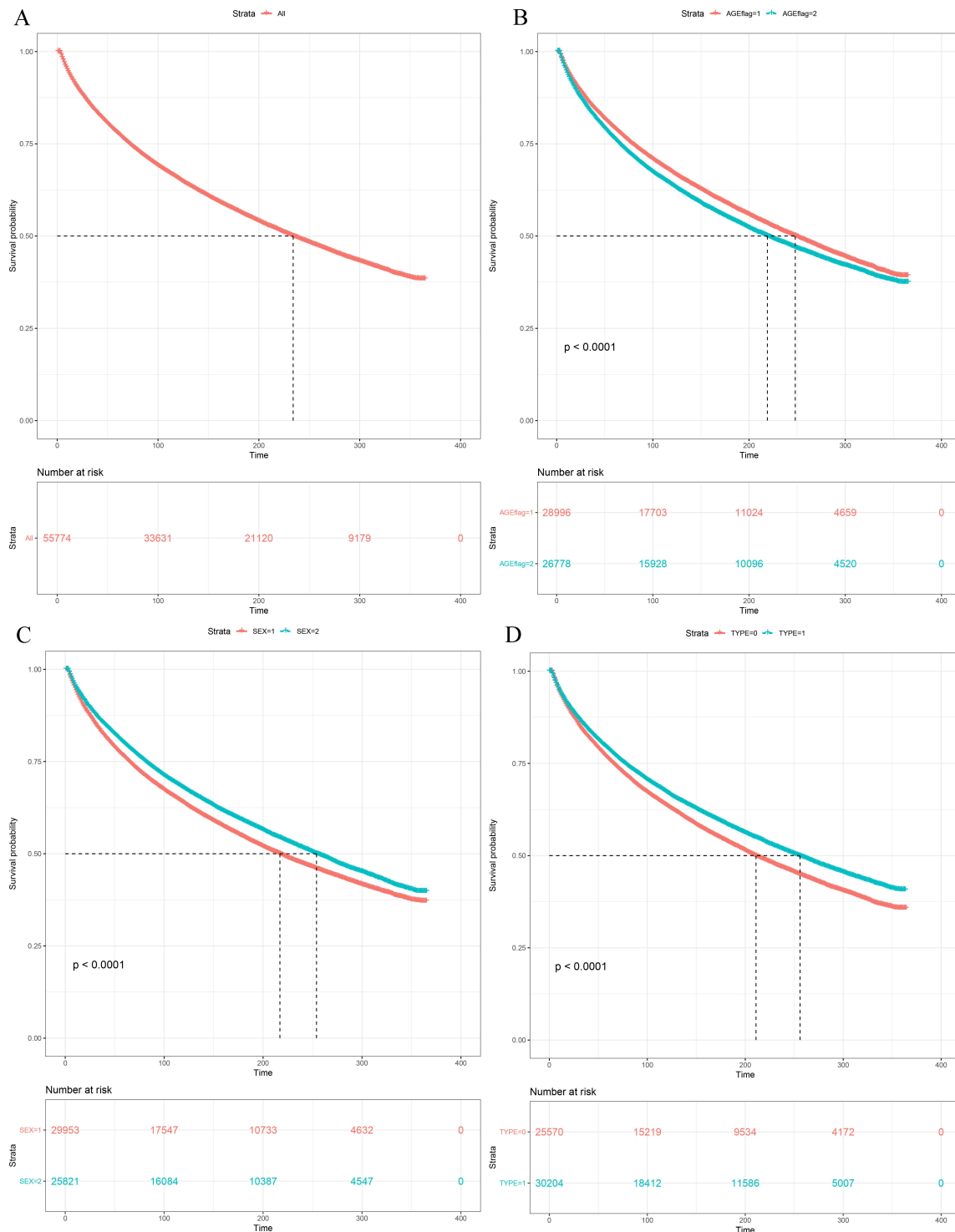
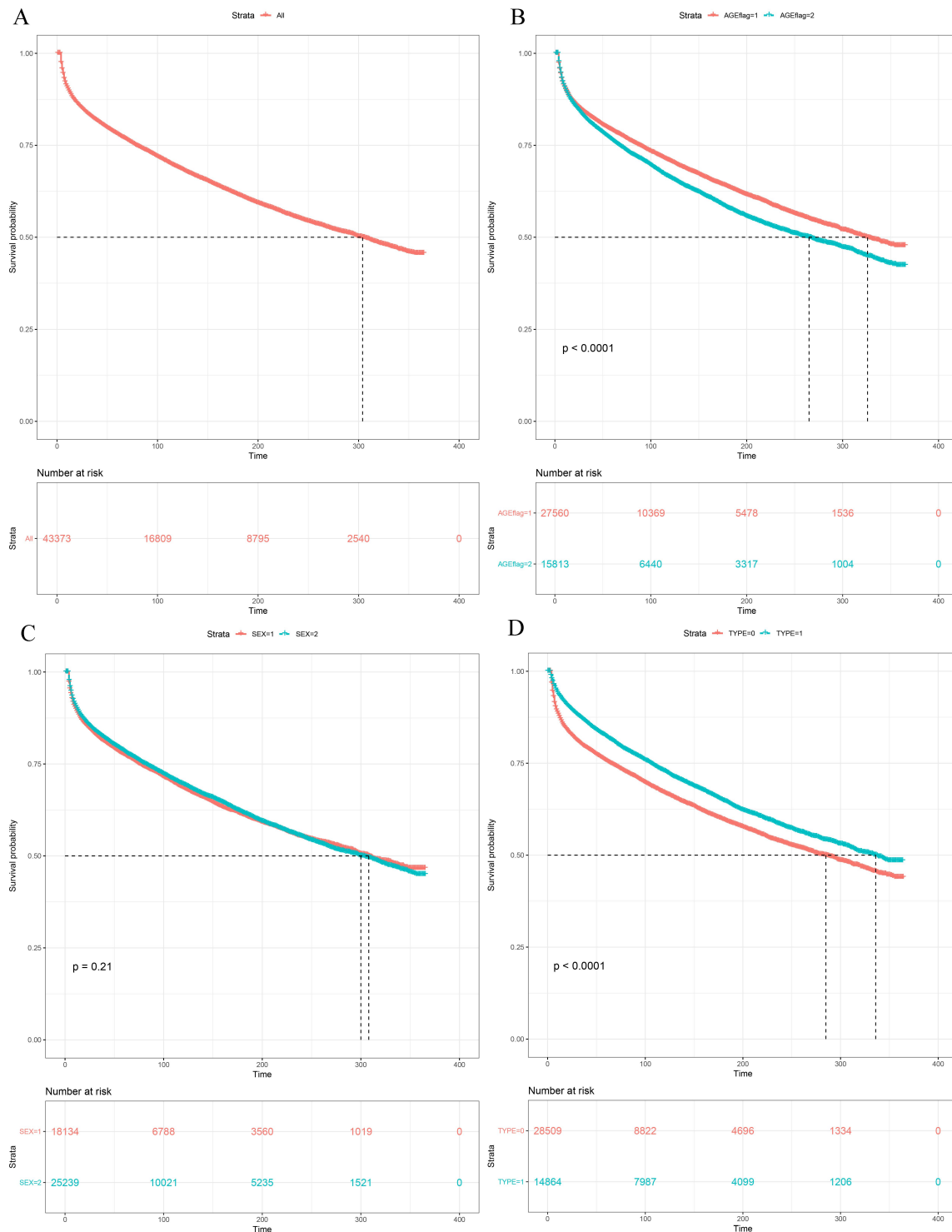


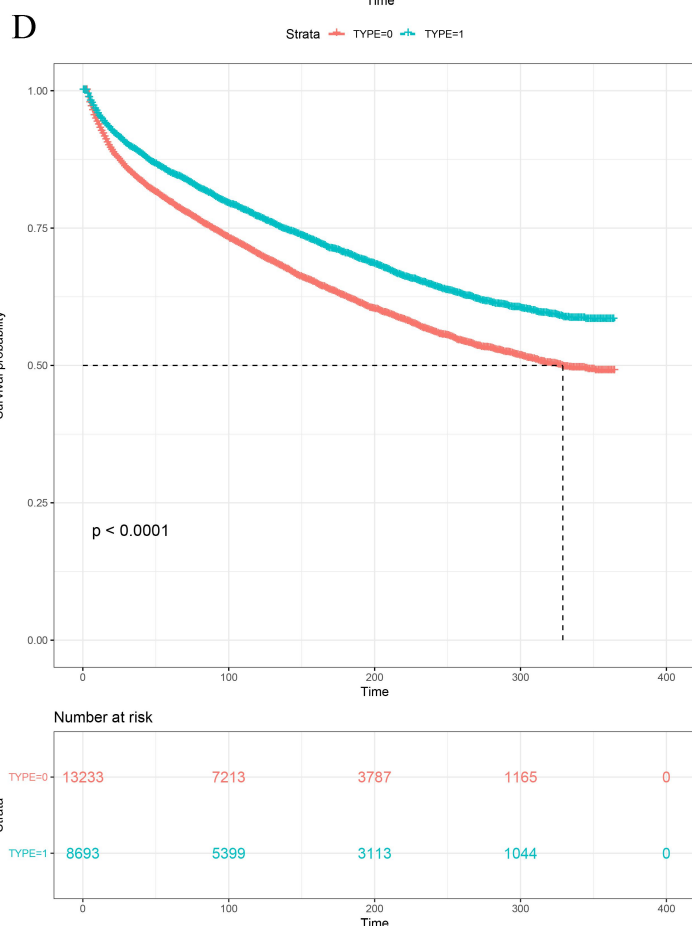
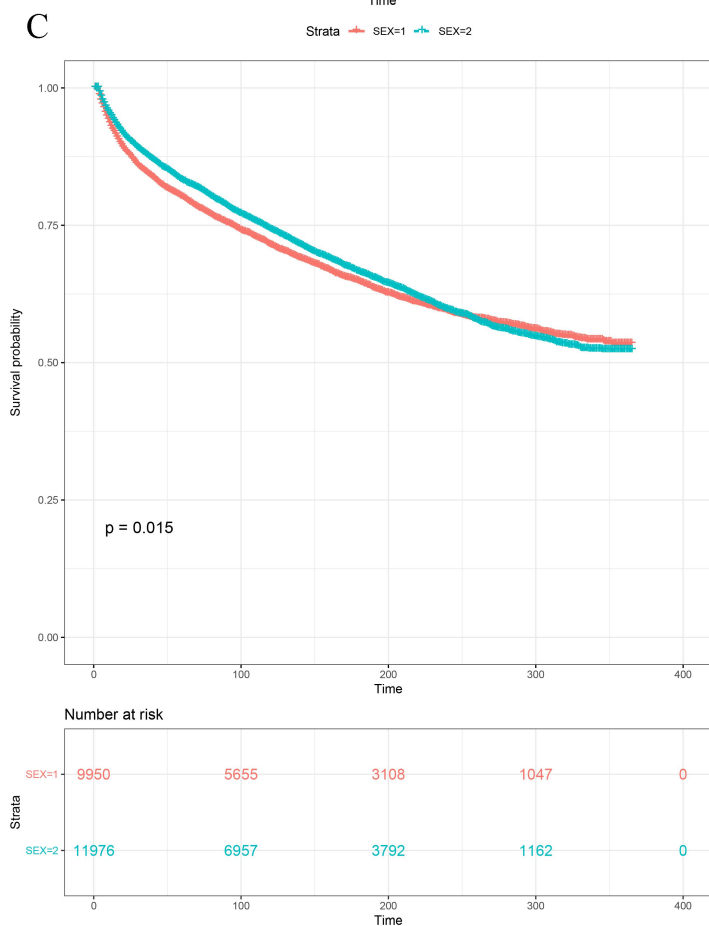
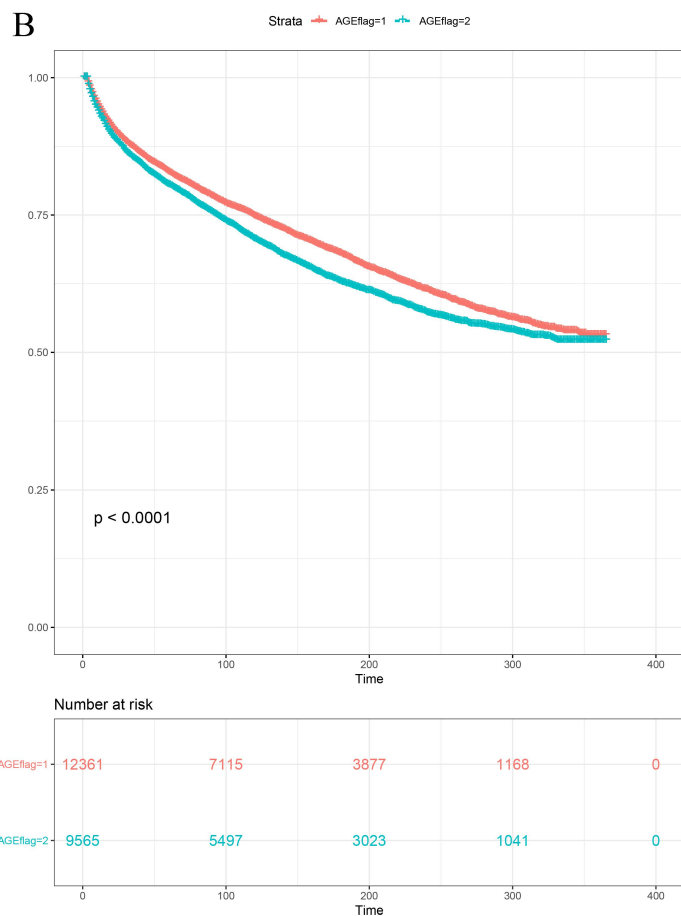
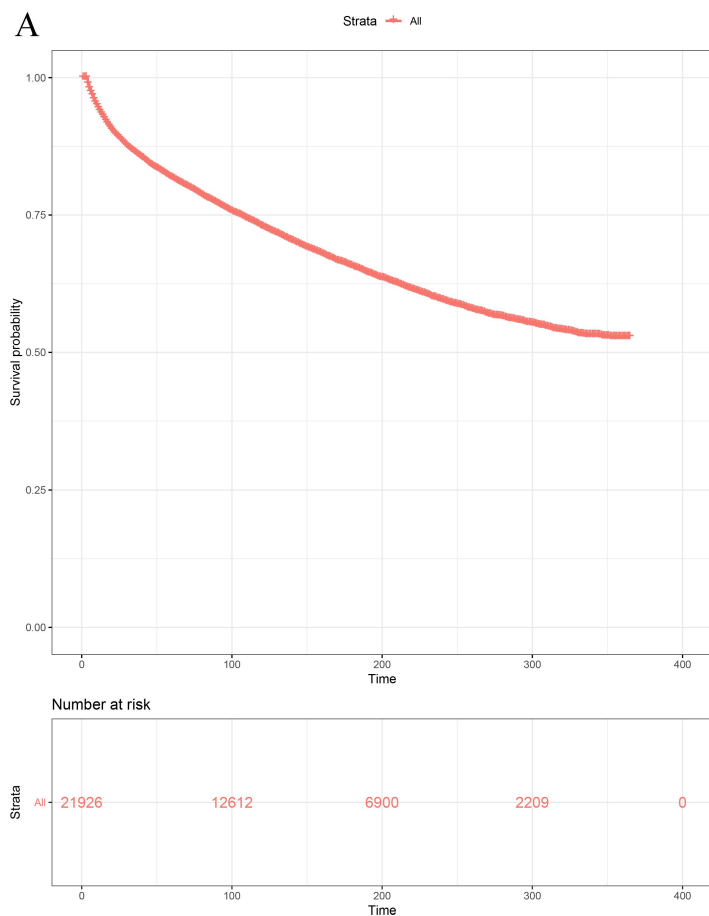
Supplementary Figure 1: Flowchart of the sample selection for the study. NSHIS: National Social Health Insurance system.



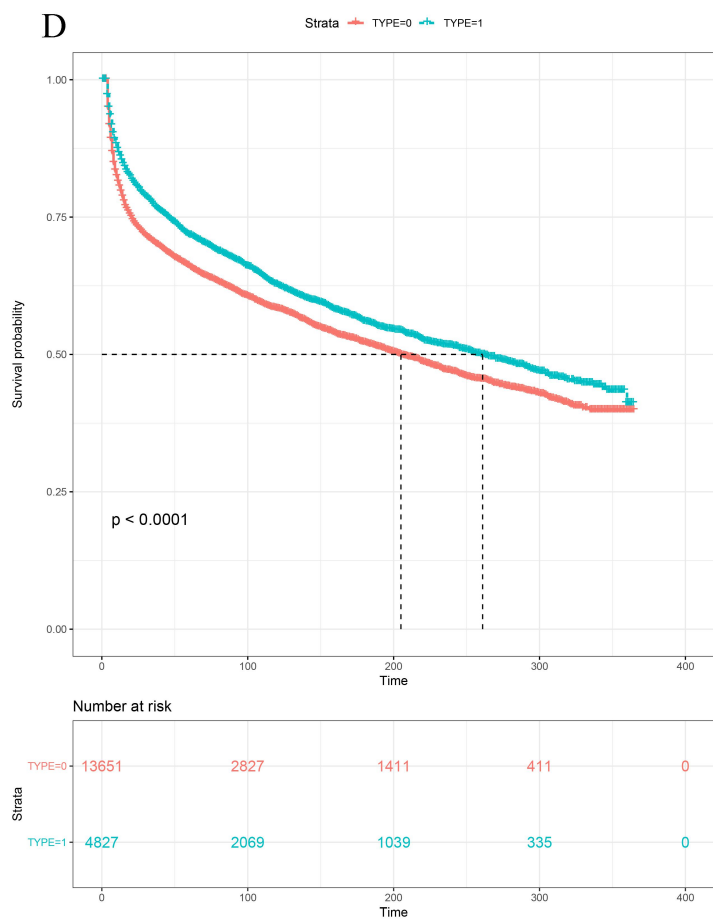
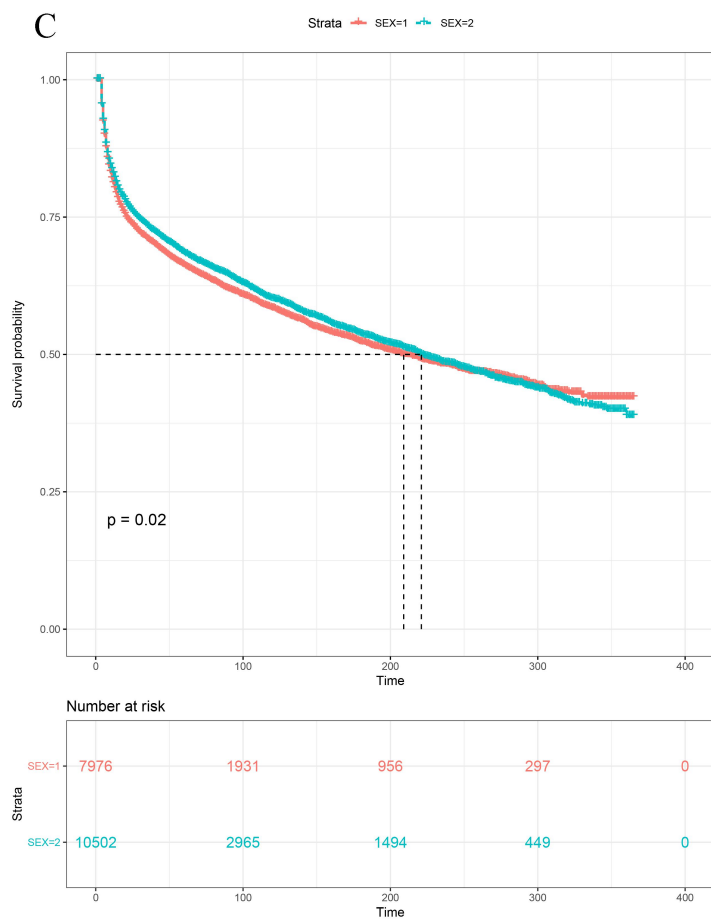
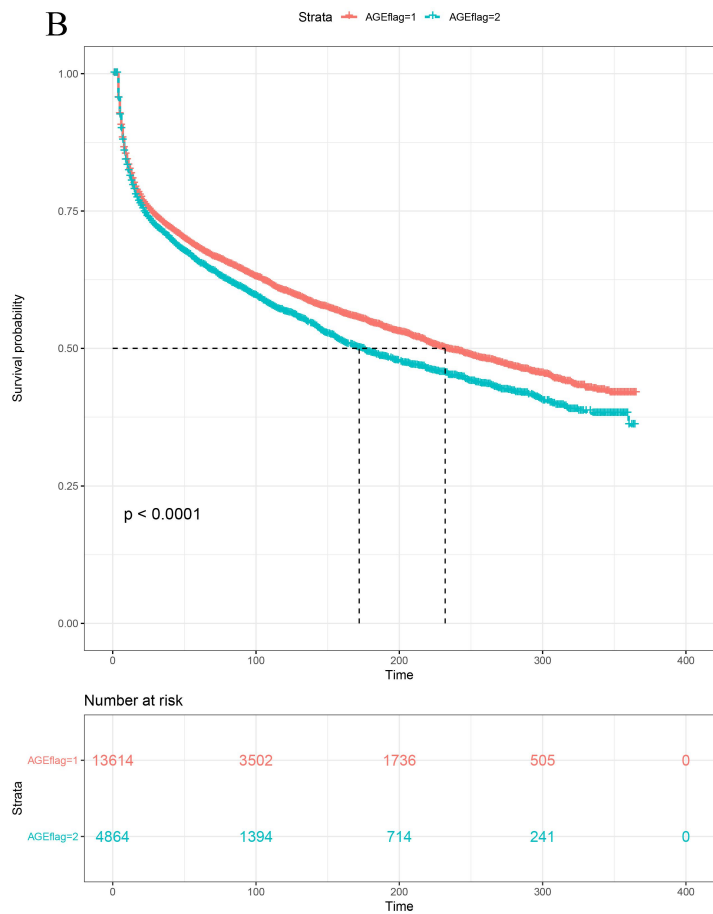
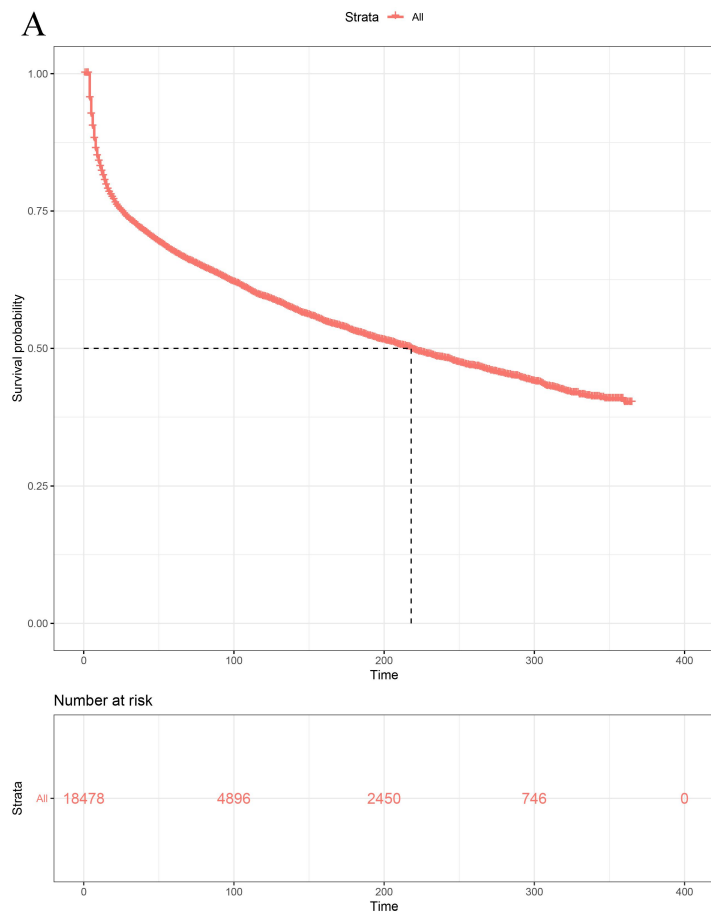
Supplementary Figure 2: Kaplan-Meier curves of the (A) overall COPD, and stratified by (B) age, (C) gender, and (D) insurance types. The orange and green lines represent $65 \leq \text{age} \leq 75$ and $\text{age} \geq 75$, respectively, in (B). The orange and green lines represent male and female in (C), while they designate BMIUE and BMIURR in (D). BMIUE: Basic medical insurance for urban employees; BMIURR: Basic medical insurance urban and rural residents; COPD: Chronic obstructive pulmonary disease.



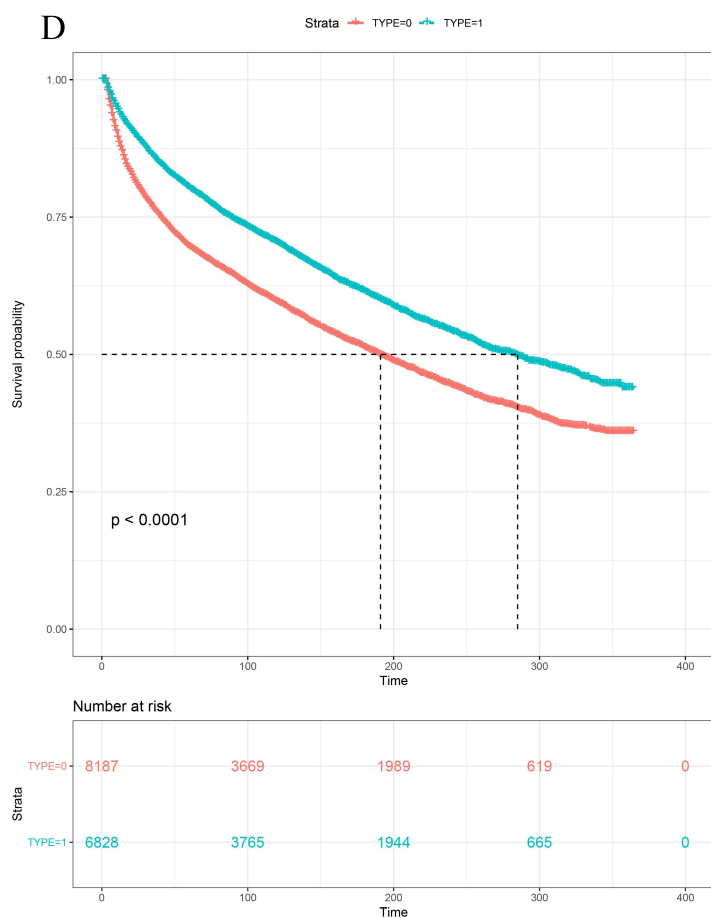
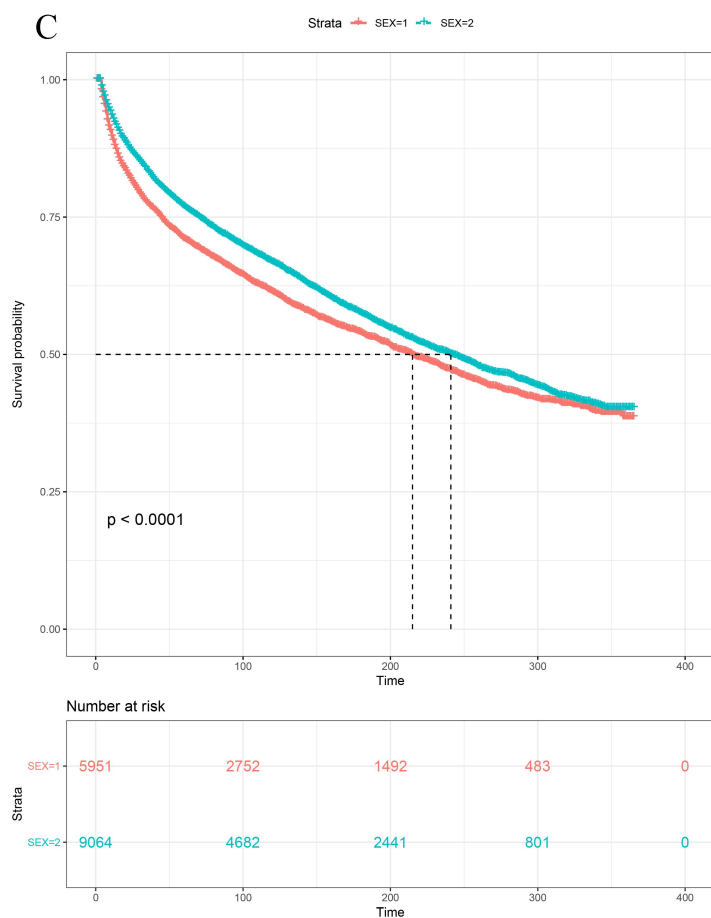
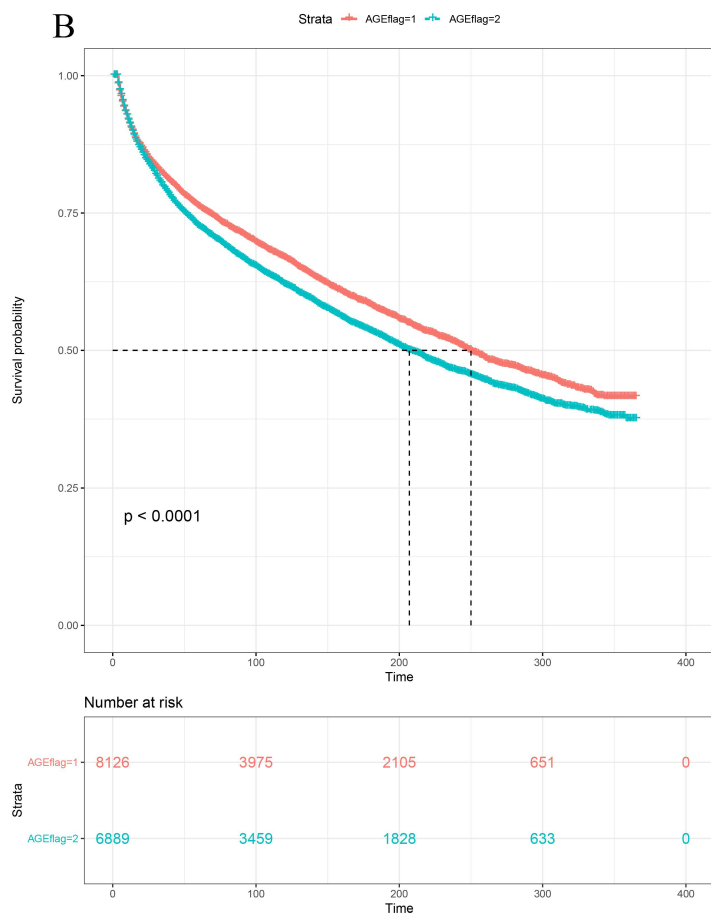
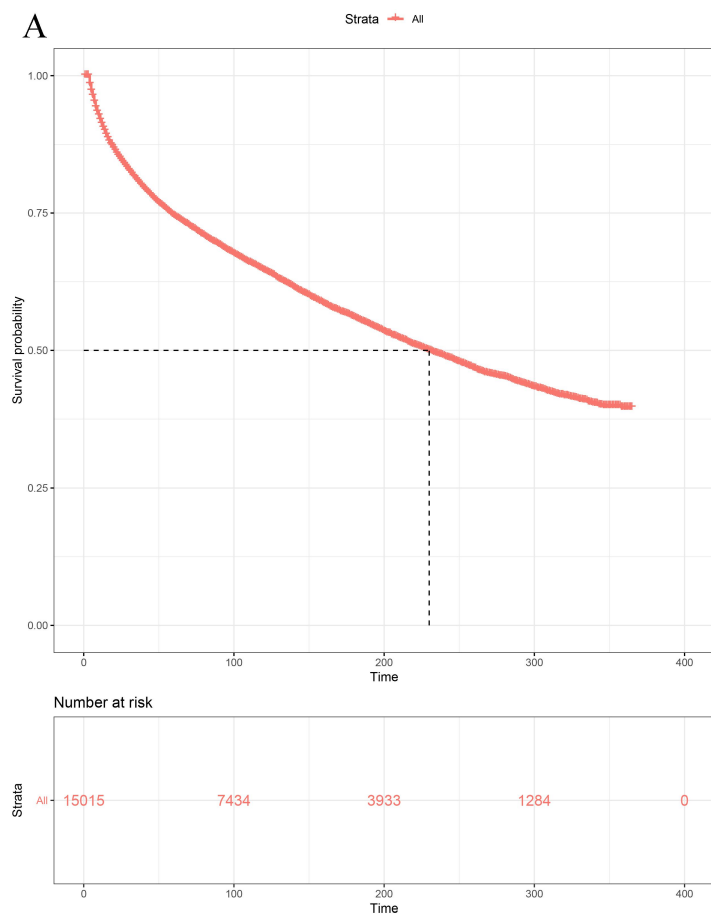
Supplementary Figure 3: Kaplan-Meier curves of the (A) overall hypertension, and stratified by (B) age, (C) gender, and (D) insurance types. The orange and green lines represent $65 \leq \text{age} \leq 75$ and $\text{age} \geq 75$, respectively, in (B). The orange and green lines represent male and female in (C), while they designate BMIUE and BMIURR in (D). BMIUE: Basic medical insurance for urban employees; BMIURR: Basic medical insurance urban and rural residents.



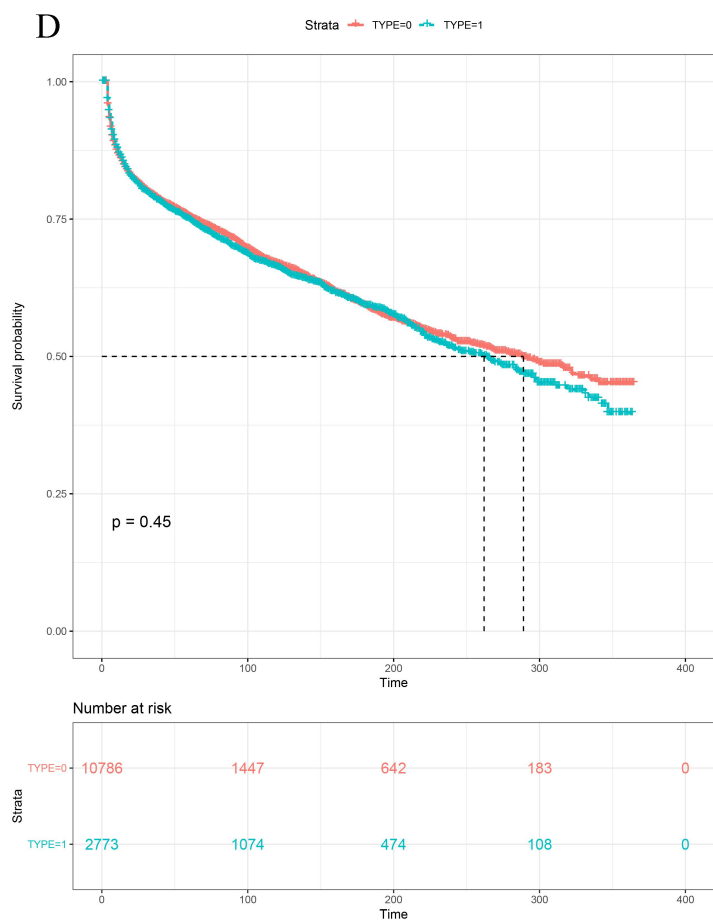
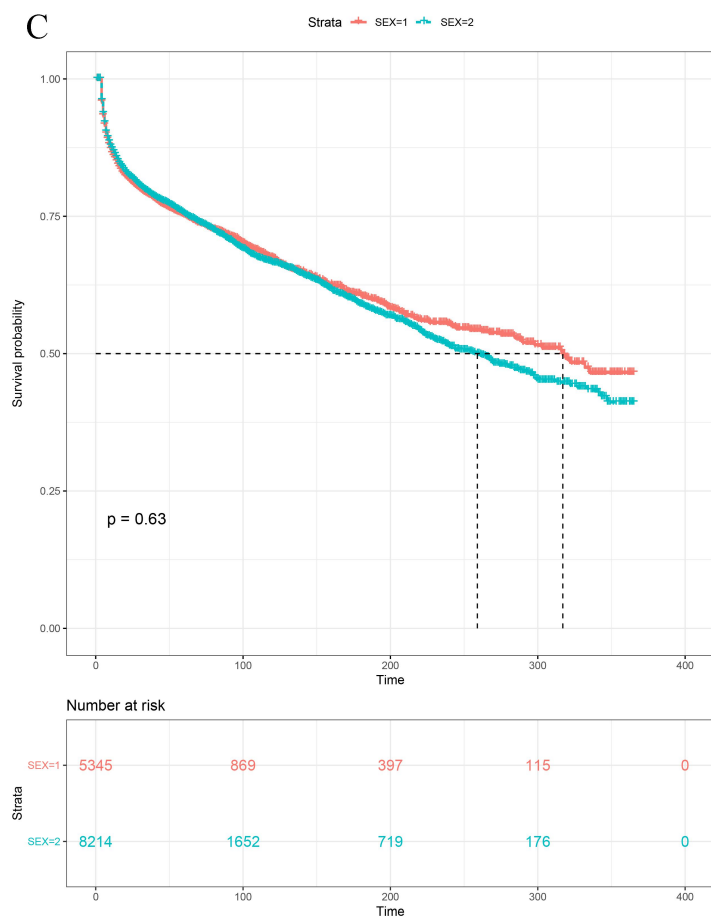
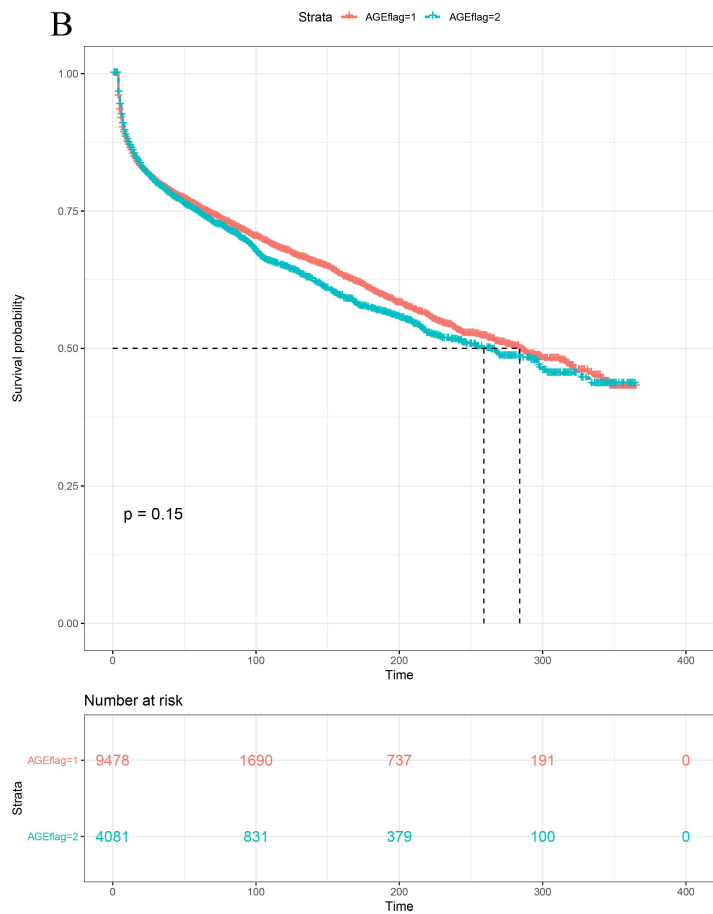
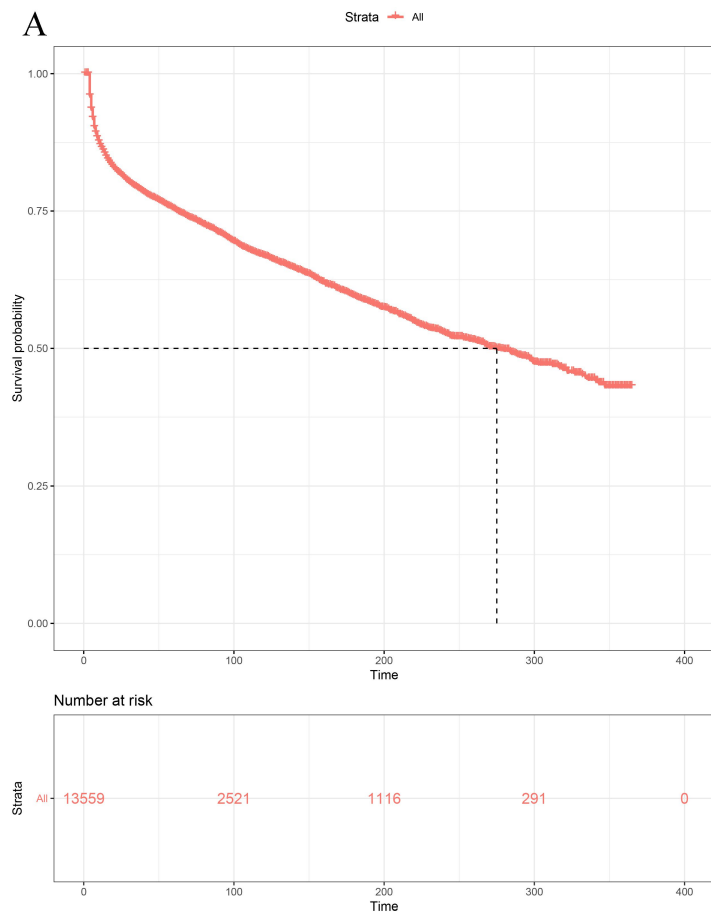
Supplementary Figure 4: Kaplan–Meier curves of the (A) overall stroke, and stratified by (B) age, (C) gender, and (D) insurance types. The orange and green lines represent $65 \leq \text{age} \leq 75$ and $\text{age} \geq 75$, respectively, in (B). The orange and green lines represent male and female in (C), while they designate BMIUE and BMIURR in (D). BMIUE: Basic medical insurance for urban employees; BMIURR: Basic medical insurance urban and rural residents.



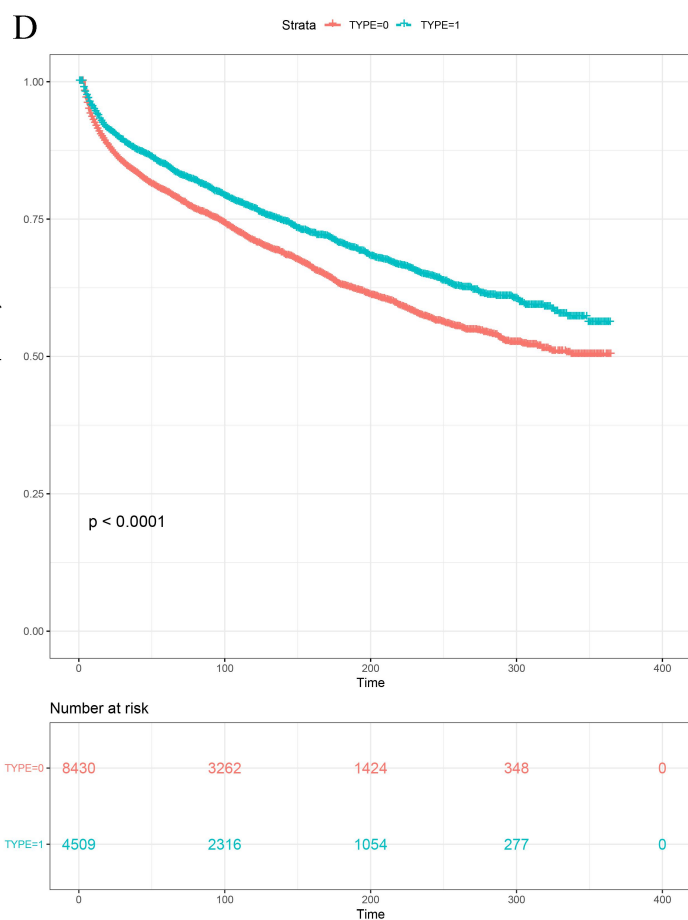
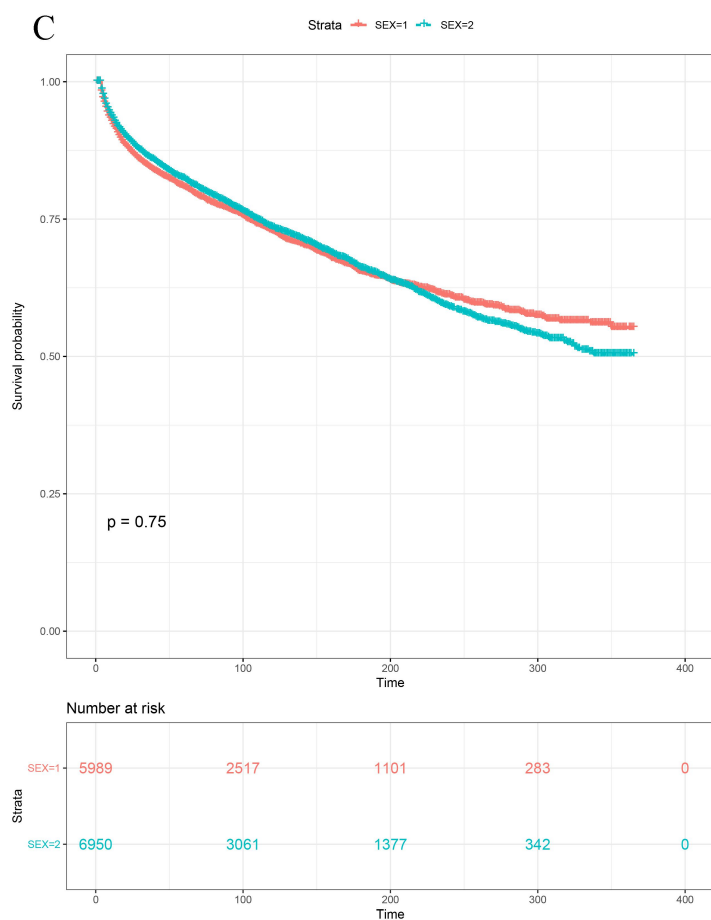
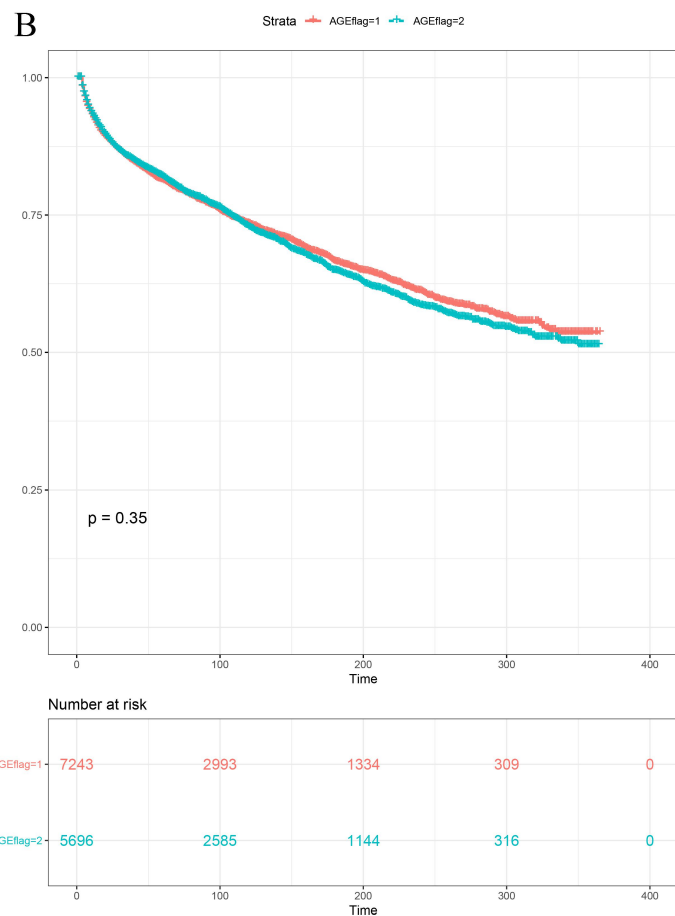
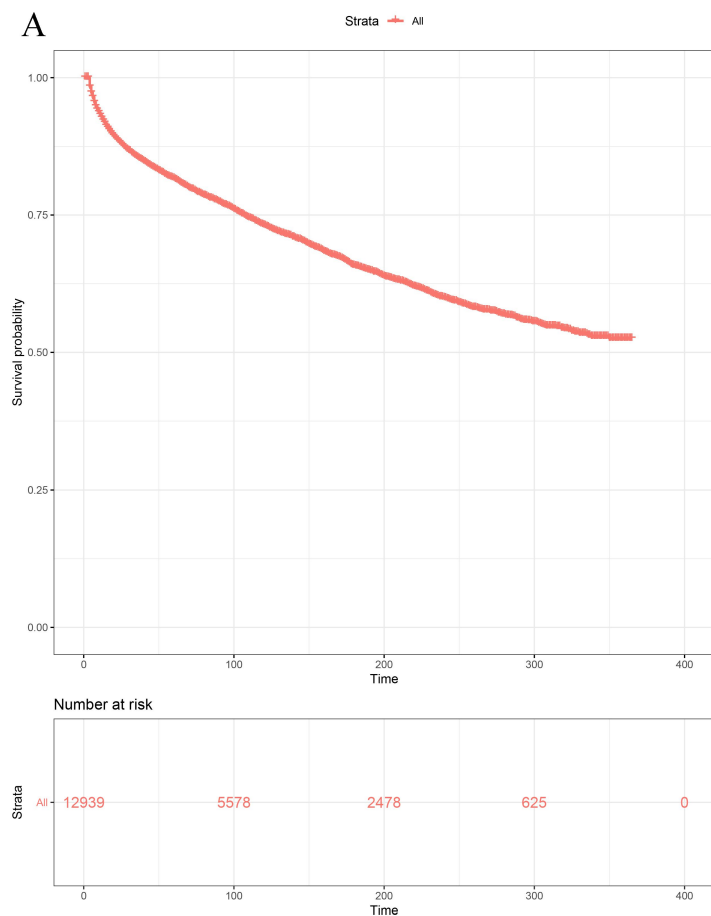
Supplementary Figure 5: Kaplan-Meier curves of the **(A)** overall diabetes, and stratified by **(B)** age, **(C)** gender, and **(D)** insurance types. The orange and green lines represent $65 \leq \text{age} \leq 75$ and $\text{age} \geq 75$, respectively, in **(B)**. The orange and green lines represent male and female in **(C)**, while they designate BMIUE and BMIURR in **(D)**. BMIUE: Basic medical insurance for urban employees; BMIURR: Basic medical insurance urban and rural residents.



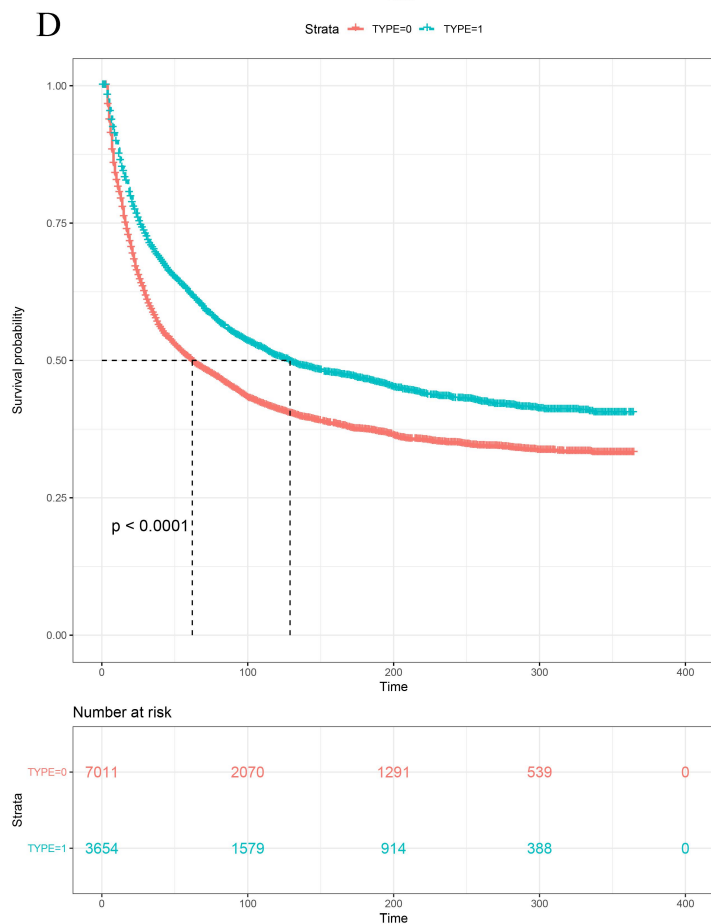
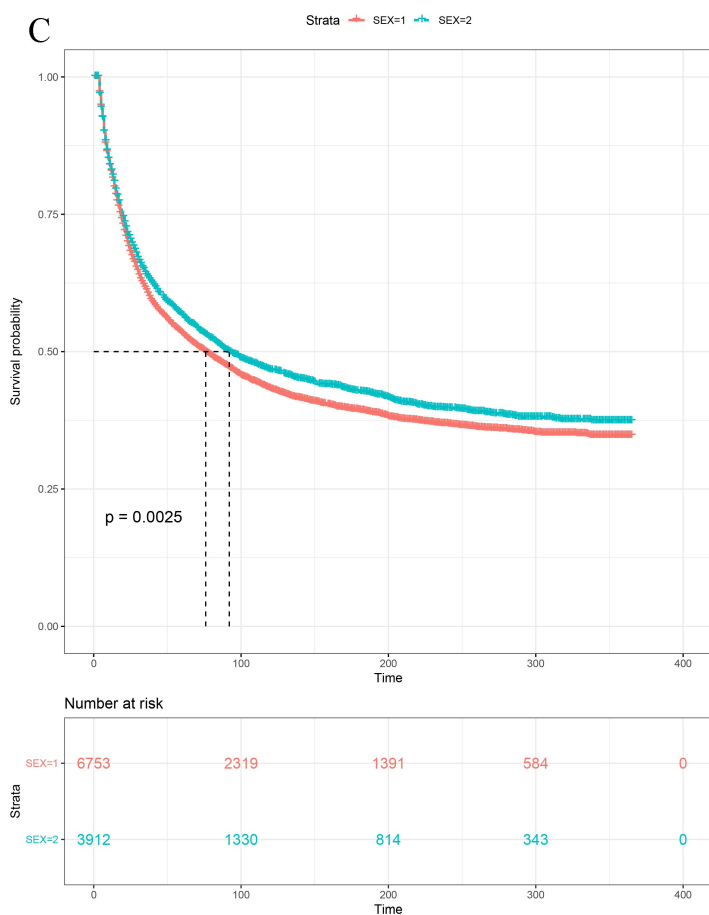
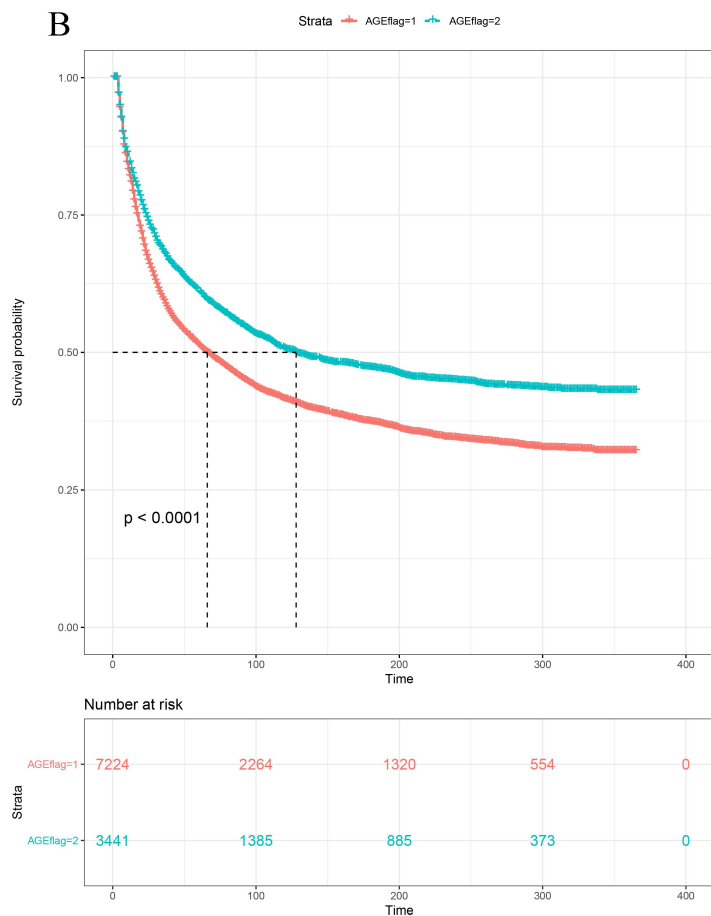
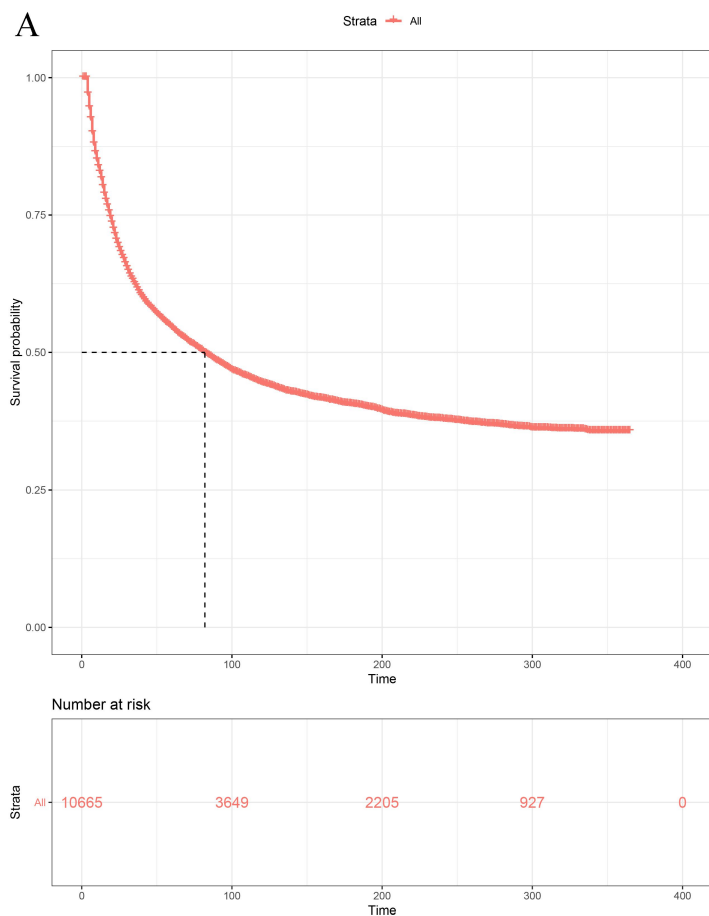
Supplementary Figure 6: Kaplan-Meier curves of the (A) overall IHD, and stratified by (B) age, (C) gender, and (D) insurance types. The orange and green lines represent $65 \leq \text{age} \leq 75$ and $\text{age} \geq 75$, respectively in (B). The orange and green lines represent male and female in (C), while they designate BMIUE and BMIURR in (D). BMIUE: Basic medical insurance for urban employees; BMIURR: Basic medical insurance urban and rural residents; IHD: Ischemic heart disease;



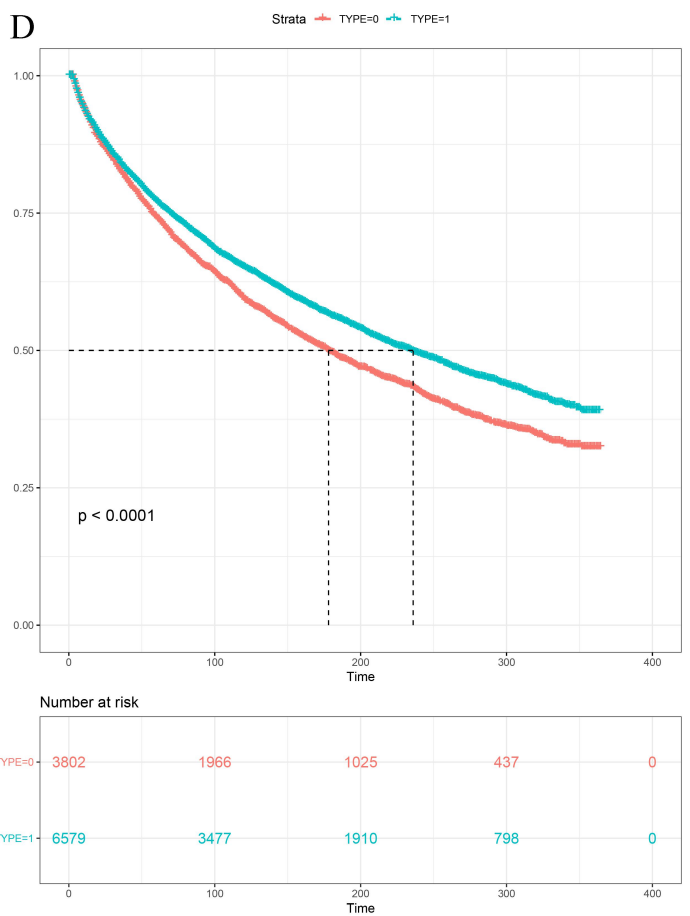
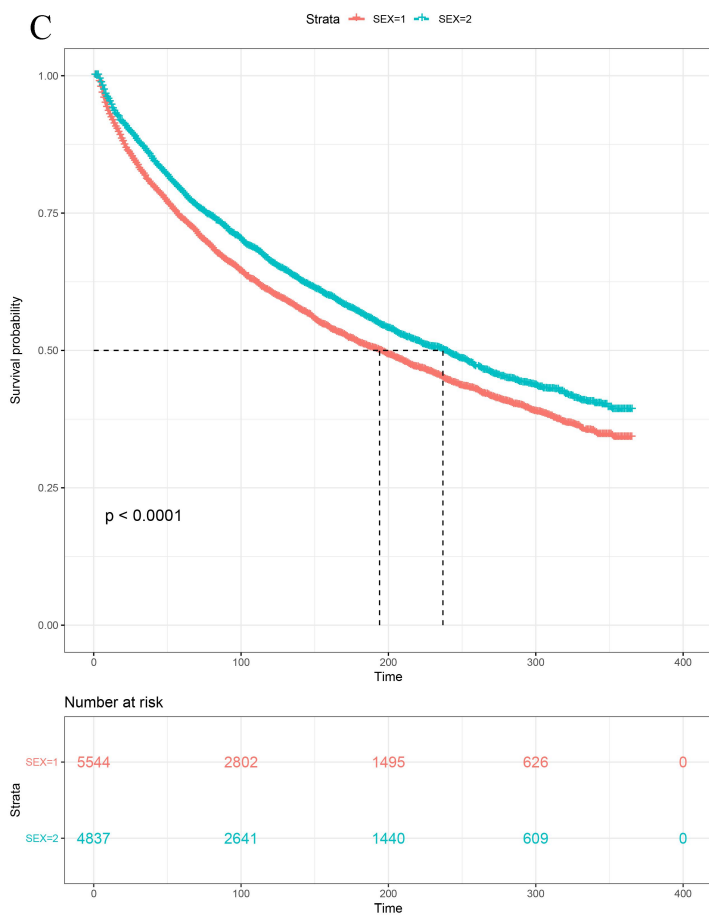
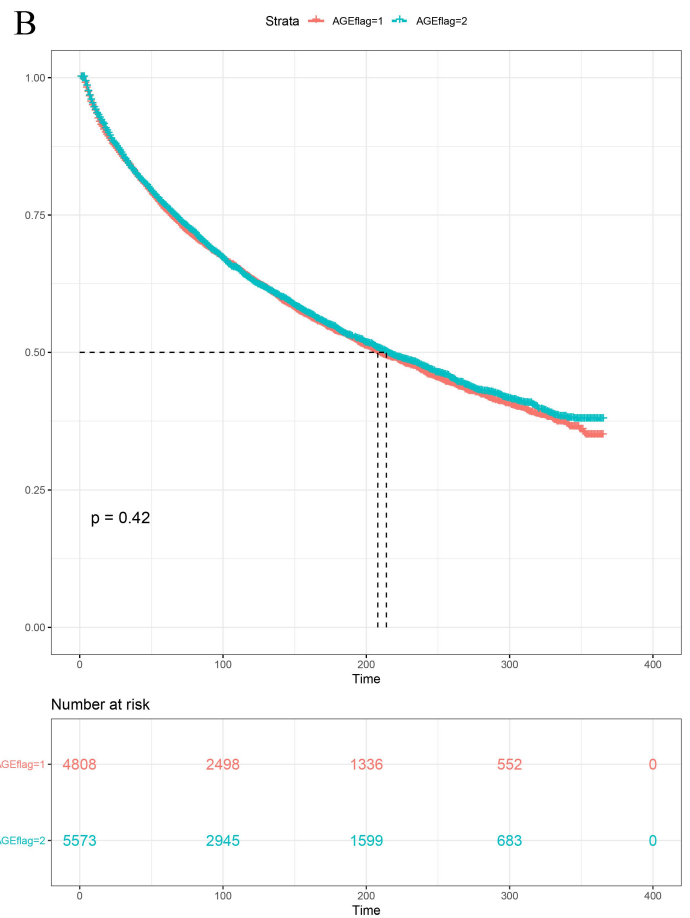
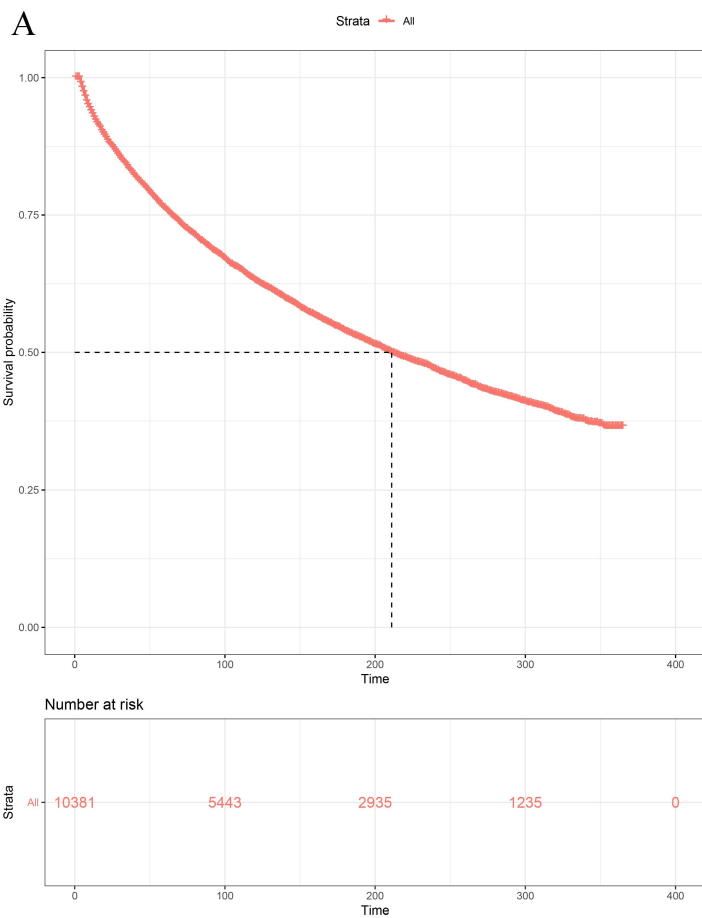
Supplementary Figure 7: Kaplan-Meier curves of the **(A)** overall combination of hypertension and diabetes, and stratified by **(B)** age, **(C)** gender, and **(D)** insurance types. The orange and green lines represent $65 \leq \text{age} \leq 75$ and $\text{age} \geq 75$, respectively in **(B)**. The orange and green lines represent male and female in **(C)**, while they designate BMIUE and BMIURR in **(D)**. BMIUE: Basic medical insurance for urban employees; BMIURR: Basic medical insurance urban and rural residents.



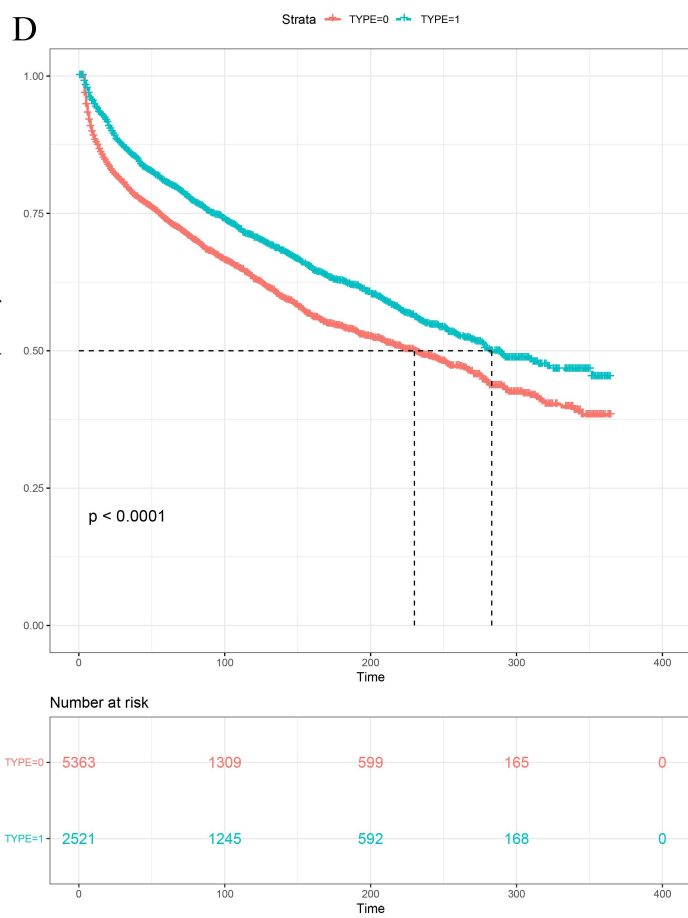
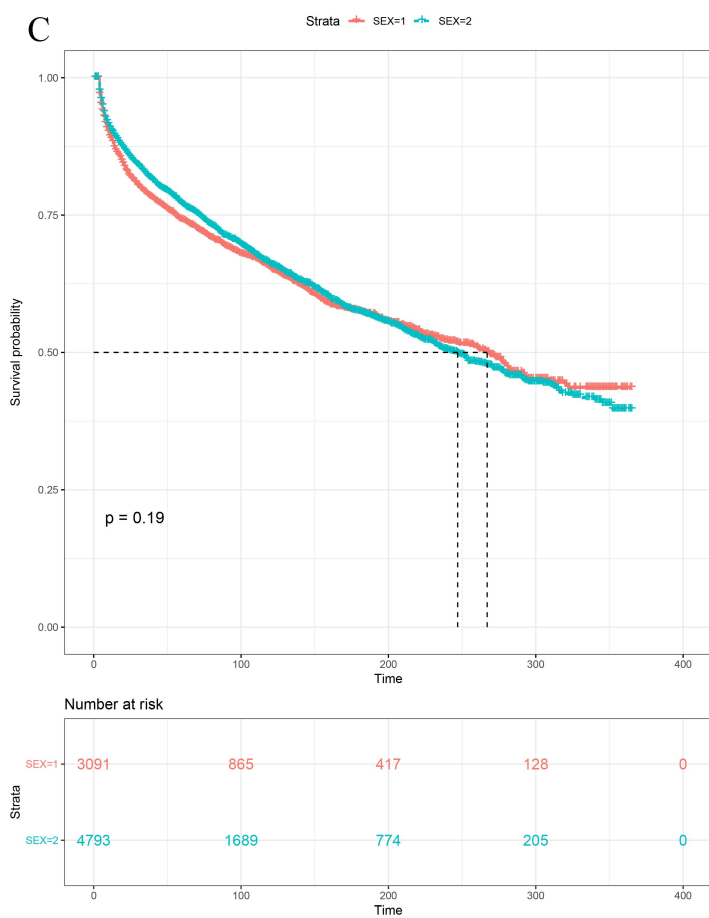
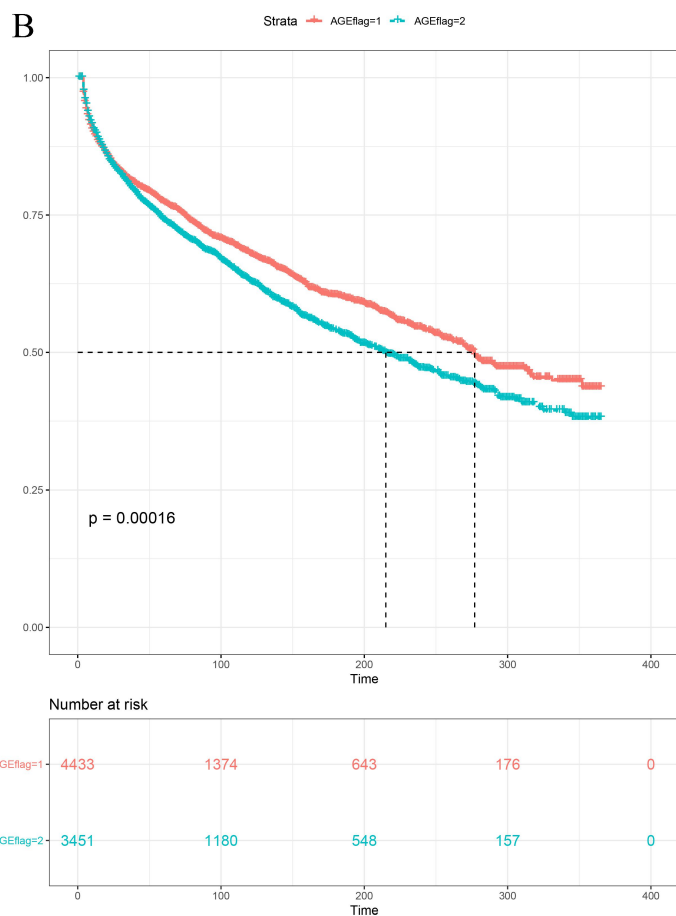
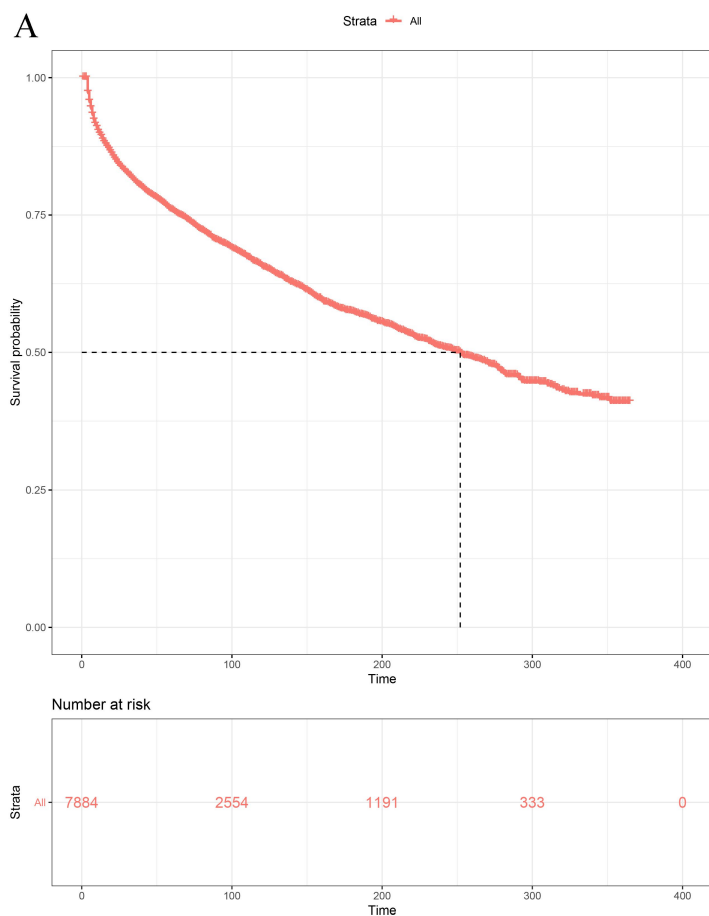
Supplementary Figure 8: Kaplan-Meier curves of the **(A)** overall combination of hypertension and stroke, and stratified by **(B)** age, **(C)** gender, and **(D)** insurance types. The orange and green lines represent $65 \leq \text{age} \leq 75$ and $\text{age} \geq 75$, respectively in **(B)**. The orange and green lines represent male and female in **(C)**, while they designate BMIUE and BMIURR in **(D)**. BMIUE: Basic medical insurance for urban employees; BMIURR: Basic medical insurance urban and rural residents.



Supplementary Figure 9: Kaplan-Meier curves of the **(A)** overall cancer, and stratified by **(B)** age, **(C)** gender, and **(D)** insurance types. The orange and green lines represent $65 \leq \text{age} \leq 75$ and $\text{age} \geq 75$, respectively in **(B)**. The orange and green lines represent male and female in **(C)**, while they designate BMIUE and BMIURR in **(D)**. BMIUE: Basic medical insurance for urban employees; BMIURR: Basic medical insurance urban and rural residents.



Supplementary Figure 10: Kaplan-Meier curves of the **(A)** overall combination of COPD and PHD, and stratified by **(B)** age, **(C)** gender, and **(D)** insurance types. The orange and green lines represent $65 \leq \text{age} \leq 75$ and $\text{age} \geq 75$, respectively in **(B)**. The orange and green lines represent male and female in **(C)**, while they designate BMIUE and BMIURR in **(D)**. BMIUE: Basic medical insurance for urban employees; BMIURR: Basic medical insurance urban and rural residents; COPD: Chronic obstructive pulmonary disease; PHD: Pulmonary heart disease.



Supplementary Figure 11: Kaplan-Meier curves of the (A) overall combination of hypertension and IHD, and stratified by (B) age, (C) gender, and (D) insurance types. The orange and green lines represent $65 \leq \text{age} \leq 75$ and $\text{age} \geq 75$, respectively in (B). The orange and green lines represent male and female in (C), while they designate BMIUE and BMIURR in (D). BMIUE: Basic medical insurance for urban employees; BMIURR: Basic medical insurance urban and rural residents; IHD: Ischemic heart disease.

Supplementary Table 1: ICD-10 (version 10 of the International Classification of Diseases) codes for the 32 chronic diseases covered by the NSHIS in the outpatient department.

Disease	ICD-10 Code
Asthma	J45, J46
COPD	J44
Alzheimer's disease	G30
Parkinson disease	G20
Epilepsy	G40, G41
Schizophrenia	F20
Depression	F32, F33
Affective disorder	F31
Hypertension	I10-I15
Diabetes	E10-E14
Rheumatic heart disease	I05-I09
Hypertensive heart disease	I11
IHD	I20-I25
PHD	I27
Stroke	I60-I69
Hepatitis	B15-B19, K73
Hepatic sclerosis	K70.2, K70.3, K74
Scleroderma	M34
Thalassemia	D56
Sicca syndrome	M35.0
Myasthenia gravis	G70.0
Hyperthyroidism	E05
Hypothyroidism	E02, E03
Rheumatoid Arthritis	M05, M06

Disease	ICD-10 Code
Tuberculosis	A15, A16
Cancer	C00–C97, D00–D09, D37–D48, Z51.0, Z51.1, Z51.2
Organ transplantation	T86, Z94
Haemophilia	D66, D67, D68.1
Aplastic anemia	D60, D61
Systemic lupus erythematosus	M32
Nephrotic syndrome	N04, N05
Chronic kidney disease	N18, N19

COPD: Chronic obstructive pulmonary disease; IHD: Ischemic heart disease; NSHIS: National Social Health Insurance system; PHD: Pulmonary heart disease.

Supplementary Table 2: Characteristics of the study samples.

Variables	Total	Readmission, %	No readmission, %
	(<i>N</i> = 515,123)	(<i>N</i> = 201,372)	(<i>N</i> = 313,751)
Age			
65–74	290,285	37.39	62.61
≥75	224,838	41.29	58.71
Gender			
Men	238,683	39.75	60.25
Women	276,440	38.52	61.48
Insurance types			
BMIUE	302,719	40.53	59.47
BMIURR	212,404	37.04	62.96
Conditions			
Hypertension	129,327	31.91	68.09
COPD	103,807	45.10	54.90
Stroke	67,302	31.88	68.12
Diabetes	58,257	33.98	66.02
IHD	54,445	37.40	62.60
PHD	22,147	43.77	56.23

Variables	Total	Readmission, %	No readmission, %
	(<i>N</i> = 515,123)	(<i>N</i> = 201,372)	(<i>N</i> = 313,751)
Cancer	15,764	52.10	47.90
Hypertensive heart disease	15,052	26.79	73.21
Asthma	2298	36.77	63.23
Rheumatoid arthritis	2075	40.82	59.18
Hepatic sclerosis	2031	44.81	55.19
Parkinson disease	2003	35.15	64.85
Rheumatic heart disease	1871	39.82	60.18
Alzheimer's disease	1360	21.03	78.97
Hepatitis	1232	36.12	63.88
Schizophrenia	1203	20.03	79.97
Depression	1102	42.38	57.62
Epilepsy	795	31.45	68.55
Tuberculosis	786	40.59	59.41
Hypothyroidism	722	27.84	72.16
Thalassemia	703	29.45	70.55
Hyperthyroidism	501	27.74	72.26
Aplastic anemia	338	48.52	51.48
Sicca syndrome	126	50.00	50.00
Affective disorder	87	43.68	56.32
Systemic lupus erythematosus	41	51.22	48.78
Myasthenia gravis	38	26.32	73.68
Organ transplantation	32	21.88	78.13
Scleroderma	27	62.96	37.04
Hemophilia	4	25.00	75.00
Nephrotic syndrome	433	46.65	53.35
Chronic kidney disease	5020	37.29	62.71

BMIUE: Basic medical insurance for urban employees; BMIURR: Basic medical insurance urban and rural residents; COPD: chronic obstructive pulmonary disease; IHD: Ischemic heart disease; PHD: Pulmonary heart disease.

Supplementary Table 3: Kaplan-Meier results for readmission of the top ten comorbid conditions.

Top patterns	Variables	10 th percentile	25 th percentile	50 th percentile
COPD	Overall	21 (21–22)	72 (71–74)	234 (230–238)
	Male	19 (18–20)	65 (63–67)	217 (211–222)
	Female	24 (23–25)	82 (79–84)	254 (248–261)
	65 ≤Age ≤74 ,years	23 (22–25)	79 (76–82)	248 (242–254)
	Age ≥75 ,years	19 (19–20)	66 (64–68)	219 (213–224)
	BMIUE	20 (19–21)	66 (64–68)	211 (206–216)
	BMIURR	23 (22–24)	78 (76–81)	256 (250–263)
Hypertension	Overall	12 (12–13)	79 (76–82)	304 (295–312)
	Male	11 (10–12)	76 (72–80)	308 (295–321)
	Female	13 (12–13)	82 (78–86)	300 (289–314)
	65 ≤Age ≤74 ,years	12 (12–13)	88 (84–93)	326 (312–340)
	Age ≥75,years	12 (11–13)	68 (64–72)	265 (249–278)
	BMIUE	9 (9–9)	65 (62–69)	285 (273–297)
	BMIURR	24 (22–26)	107 (102–111)	336 (318–NA)
Stroke	Overall	22 (21–23)	106 (101–110)	NA
	Male	18 (17–20)	94 (87–100)	NA
	Female	27 (24–29)	115 (109–121)	NA
	65 ≤Age ≤74 ,years	25 (22–26)	119 (113–125)	NA
	Age ≥75,years	20 (18–21)	93 (88–99)	NA
	BMIUE	18 (17–19)	88 (83–94)	329 (306–NA)

Top patterns	Variables	10 th percentile	25 th percentile	50 th percentile
	BMIURR	32 (29–36)	137 (129–147)	NA
Diabetes	Overall	7 (6–7)	25 (23–28)	218 (206–228)
	Male	6 (6–7)	21 (19–24)	209 (189–232)
	Female	7 (7–7)	29 (26–32)	221 (209–235)
	65 ≤Age ≤74 ,years	7 (7–7)	27 (24–30)	232 (219–251)
	Age ≥75,years	6 (6–7)	22 (20–25)	172 (157–194)
	BMIUE	6 (6–6)	21 (19–22)	205 (192–219)
	BMIURR	9 (8–10)	46 (40–52)	261 (234–290)
IHD	Overall	14 (14–15)	58 (55–62)	230 (221–240)
	Male	11 (10–12)	45 (41–48)	215 (201–229)
	Female	17 (16–19)	70 (65–75)	241 (228–253)
	65 ≤Age ≤74 ,years	14 (13–15)	67 (62–73)	250 (240–260)
	Age ≥75,years	14 (13–15)	51 (47–55)	207 (197–219)
	BMIUE	11 (10–12)	41 (38–44)	191 (181–201)
	BMIURR	24 (22–26)	89 (83–97)	285 (264–306)
Hypertension, diabetes	Overall	8 (7–8)	63 (58–68)	275 (256–298)
	Male	8 (7–8)	62 (52–71)	317 (285–NA)
	Female	8 (7–9)	63 (58–70)	259 (237–284)
	65 ≤Age ≤74 ,years	8 (7–8)	65 (59–73)	284 (261–317)
	Age ≥75,years	8 (7–9)	58 (49–66)	259 (219–299)
	BMIUE	8 (7–8)	63 (58–71)	289 (257–322)
	BMIURR	9 (8–10)	60 (49–70)	262 (231–297)
Hypertension,	Overall	19 (17–20)	107 (102–113)	NA (NA–NA)

Top patterns	Variables	10 th percentile	25 th percentile	50 th percentile
stroke				
	Male	17 (15–18)	103 (96–113)	NA (NA–NA)
	Female	21 (19–24)	109 (102–117)	NA (323–NA)
	65 ≤Age ≤74	18 (16–20)	105 (99–116)	
	,years			NA (NA–NA)
	Age≥75,year	19 (18–22)	108 (101–115)	
	s			NA (336–NA)
	BMIUE	16 (15–18)	95 (87–102)	NA (315–NA)
	BMIURR	27 (24–32)	137 (124–150)	NA (NA–NA)
Cancer				
	Overall	8 (7–8)	19 (18–20)	82 (77–87)
	Male	8 (7–8)	19 (18–20)	76 (70–82)
	Female	8 (7–8)	20 (19–21)	92 (84–105)
	65 ≤Age ≤74	8 (7–8)	18 (17–19)	
	,years			66 (61–72)
	Age	7 (7–8)	24 (22–26)	
	≥75,years			128 (113–154)
	BMIUE	7 (7–7)	16 (16–17)	62 (56–68)
	BMIURR	10 (10–11)	27 (25–29)	129 (114–148)
COPD, PHD				
	Overall	19 (18–21)	65 (62–69)	211 (204–222)
	Male	17 (15–18)	57 (53–61)	194 (179–206)
	Female	24 (22–27)	76 (70–83)	237 (219–252)
	65 ≤Age ≤74	18 (17–21)	63 (59–69)	
	,years			208 (196–224)
	Age	20 (18–22)	66 (62–71)	
	≥75,years			214 (202–230)
	BMIUE	18 (16–20)	58 (54–63)	178 (166–192)
	BMIURR	20 (19–22)	70 (65–75)	236 (221–251)
Hypertension, IHD				
	Overall	12 (11–14)	66 (60–72)	252 (234–270)
	Male	11 (9–13)	56 (48–66)	267 (235–283)
	Female	14 (12–16)	72 (64–78)	247 (229–267)

Top patterns	Variables	10 th percentile	25 th percentile	50 th percentile
	65 ≤ Age ≤ 74 years	12 (10–14)	75 (67–82)	277 (261–312)
	Age ≥ 75, years	13 (11–15)	57 (51–64)	215 (194–237)
	BMIUE	9 (8–10)	55 (49–60)	230 (207–253)
	BMIURR	23 (21–26)	91 (81–105)	283 (261–352)

The numbers in parentheses are 95% confidence intervals. NA indicates that until the end of the study, the numbers could not be detected, which means that >50% of the patients were not readmitted to the hospital. COPD: Chronic obstructive pulmonary disease; BMIUE: Basic Medical Insurance for Urban Employees; BMIURR: Basic medical insurance urban and rural residents; IHD: Ischemic heart disease; PHD: Pulmonary heart disease.