

Figure S1. Flowchart of study sample selection from National Health Insurance Research Database in Taiwan

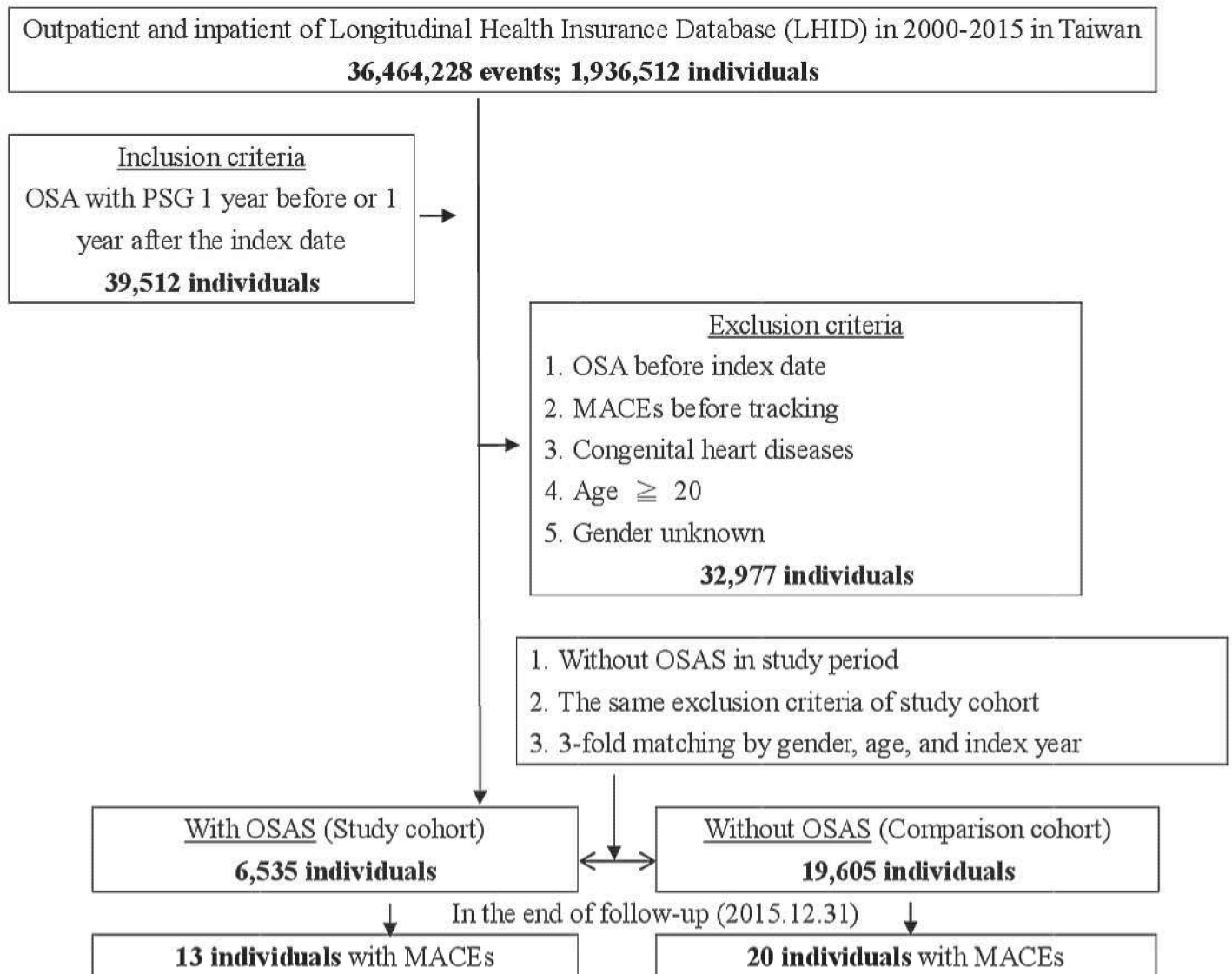


Table S1. Characteristics of study at the endpoint

OSA Variables	With		Without		<i>P</i>
	n	%	n	%	
Total	6,535	25.00	19,605	75.00	
MACEs					0.048
Without	6,522	99.80	19,585	99.90	
With	13	0.20	20	0.10	
AMI					0.005
Without	6,531	99.94	19,604	99.99	
With	4	0.06	1	0.01	
CAD					0.045
Without	6,529	99.91	19,599	99.97	
With	6	0.09	6	0.03	
PAD					0.739
Without	6,534	99.98	19,603	99.99	
With	1	0.02	2	0.01	
Acute stroke					0.414
Without	6,529	99.91	19,593	99.94	
With	6	0.09	12	0.06	
Gender					0.999
Male	4,442	67.97	13,326	67.97	
Female	2,093	32.03	6,279	32.03	
Age (years)	22.56±5.31		22.25±8.73		0.007
Age group (years)					<0.001
<12	4,321	66.12	12,198	62.22	
≥12	2,214	33.88	7,407	37.78	
Insured premium (NT\$)					<0.001
<18,000	6,528	99.89	19,441	99.16	
18,000-34,999	5	0.08	127	0.65	
≥35,000	2	0.03	37	0.19	
HTN					0.667
Without	6,520	99.77	19,552	99.73	
With	15	0.23	53	0.27	

DM					0.091
Without	6,517	99.72	19,520	99.57	
With	18	0.28	85	0.43	
Insomnia					0.004
Without	6,514	99.68	19,579	99.87	
With	21	0.32	26	0.13	
ADHD					<0.001
Without	6,454	98.76	19,601	99.98	
With	81	1.24	4	0.02	
Asthma					<0.001
Without	6,441	98.56	18,937	96.59	
With	94	1.44	668	3.41	
Obesity					<0.001
Without	6,477	99.11	19,588	99.91	
With	58	0.89	17	0.09	
CCI_R		0.04±0.34		0.10±0.56	<0.001
Season					<0.001
Spring	1,361	20.83	4,919	25.09	
Summer	2,407	36.83	5,441	27.75	
Autumn	1,135	17.37	4,498	22.94	
Winter	1,632	24.97	4,747	24.21	
Location					<0.001
Northern Taiwan	2,902	44.41	8,318	42.43	
Middle Taiwan	2,150	32.90	5,485	27.98	
Southern Taiwan	1,199	18.35	4,522	23.07	
Eastern Taiwan	269	4.12	1,111	5.67	
Outlets islands	15	0.23	169	0.86	
Urbanization level					<0.001
1 (The highest)	2,974	45.51	7,260	37.03	
2	2,541	38.88	8,350	42.59	
3	315	4.82	1,503	7.67	
4 (The lowest)	705	10.79	2,492	12.71	

Level of care				<0.001
Medical center	3,514	53.77	6,740	34.38
Regional hospital	2,673	40.90	7,561	38.57
Local hospital	348	5.33	5,304	27.05

***P*: Chi-square / Fisher exact test on category variables and t-test on continue variables; OSA = obstructive sleep apnea; NT\$ = New Taiwan Dollars; ADHD = Attention Deficit Hyperactivity Disorder; CCI_R = Charlson Comorbidity Index, dementia removed**

Table S2. Years between identification of sleep apnea and MACE occurrence

	Min	Middle	Max	Mean \pm SD
With OSA	0.04	1.09	9.62	2.57 \pm 3.01
Without OSA	0.02	3.78	14.25	6.49 \pm 5.37
Total	0.02	3.54	14.87	4.94 \pm 4.93

MACE: major adverse cardiovascular events; OSA: obstructive sleep apnea; SD: standard deviation

Table S3. Factors of MACEs subgroup stratified treatment surgery by using Cox regression

Treatment surgery stratified	OSA (With vs. Without)		With		Without		Adjusted HR	95% CI	95% CI	P
	MACEs subgroup	Event	Rate (per 10 ⁵ PYs)	Event	Rate (per 10 ⁵ PYs)					
All patients	MACEs	13	15.67	20	8.20	2.050	1.312	3.107	0.010	
	AMI	4	4.82	1	0.41	7.945	5.345	12.911	0.003	
	CAD	6	7.23	6	2.46	2.108	1.365	3.233	0.015	
	PAD	1	1.21	2	0.82	1.509	0.874	2.288	0.371	
	Acute stroke	6	7.23	12	4.92	1.577	1.006	2.394	0.047	

OSA: Obstructive sleep apnea; HR: hazard ratio; CI: confidence Interval; MACE: major adverse cardiovascular events; PY: person-years

Table S4. Factors of MACEs stratified by variables listed in the table by using Cox regression

OSAS (With vs. Without)		With			Without			Adjusted HR	95% CI	95% CI	P
Stratified	Event	PYs	Rate (per 10 ⁵ PYs)	Event	PYs	Rate (per 10 ⁵ PYs)					
Total	13	82,964.08	15.67	20	243,890.20	8.20	2.050	1.312	3.107	0.010	
Gender											
Male	8	54,453.64	14.69	14	156,629.80	8.94	1.541	1.001	2.371	0.049	
Female	5	28,510.44	17.54	6	87,260.40	6.88	3.522	2.228	5.419	<0.001	
Age group (years)											
<12	7	25,691.44	27.25	11	84,608.92	13.00	2.831	1.839	4.356	0.013	
≥12	6	57,272.64	10.48	9	159,281.28	5.65	1.595	1.036	2.454	0.028	
Insured premium (NT\$)											
<18,000	13	82,901.50	15.68	20	241,347.67	8.29	2.050	1.312	3.107	0.010	
18,000-34,999	0	62.56	0.00	0	2,003.05	0.00	-	-	-	-	
≥35,000	0	0.02	0.00	0	539.48	0.00	-	-	-	-	
HTN											
Without	11	82,569.89	13.32	20	242,244.24	8.26	2.050	1.312	3.107	0.010	
With	2	394.19	507.37	0	1,645.96	0.00	-	-	-	-	
DM											
Without	13	81,740.37	15.90	19	241,448.33	7.87	2.138	1.389	3.290	0.011	
With	0	1,223.71	0.00	1	2,441.87	40.95	0.000	-	-	0.896	
Insomnia											
Without	13	82,447.29	15.77	20	243,292.06	8.22	2.050	1.312	3.107	0.010	
With	0	516.79	0.00	0	598.14	0.00	-	-	-	-	

ADHD

Without	12	82,626.63	14.52	20	243,734.04	8.21	2.050	1.312	3.107	0.010
With	1	337.45	296.34	0	156.16	0.00	-	-	-	-

Asthma

Without	11	80,661.93	13.64	20	237,014.25	8.44	2.050	1.312	3.107	0.010
With	2	2,302.15	86.88	0	6,875.95	0.00	-	-	-	-

Obesity

Without	13	81,878.50	15.88	20	243,390.22	8.22	2.050	1.312	3.107	0.010
With	0	1,085.58	0.00	0	499.98	0.00	-	-	-	-

Season

Spring	3	18,441.60	16.27	7	55,430.27	12.63	1.224	0.795	1.883	0.252
Summer	3	20,255.46	14.81	4	69,097.01	5.79	2.645	1.719	4.071	<0.001
Autumn	3	24,499.25	12.25	5	59,546.47	8.40	1.783	1.158	2.746	0.024
Winter	4	19,767.77	20.23	4	59,816.45	6.69	3.883	2.523	5.975	0.005

Urbanization level

1 (The highest)	3	28,041.93	10.70	5	75,808.66	6.60	1.397	1.492	2.524	0.003
2	4	26,056.22	15.35	6	58,683.39	10.22	1.064	0.691	1.637	0.285
3	3	17,884.19	16.77	6	73,097.67	8.21	2.169	1.358	3.975	0.007
4 (The lowest)	3	10,981.74	27.32	3	36,300.48	8.26	2.246	1.410	3.077	0.001

Level of care

Hospital center	7	32,228.23	21.72	7	78,501.32	8.92	2.292	1.489	3.527	0.017
Regional hospital	5	35,528.93	14.07	9	102,996.27	8.74	2.015	1.309	3.101	0.003
Local hospital	1	15,206.92	6.58	4	62,392.61	6.41	1.357	0.882	2.089	0.247

OSA = obstructive sleep apnea; HR= hazard ratio, CI = confidence interval, Adjusted HR: Adjusted variables listed in the table; NT\$ = New Taiwan Dollars; ADHD = Attention Deficit Hyperactivity Disorder; CCI_R = Charlson Comorbidity Index, dementia removed, PYs = Person-years;