

Supplemental Material

Figure S1. Flowchart of Sample Selection for Analytic Sample, Self-Reported Hypertension Outcome

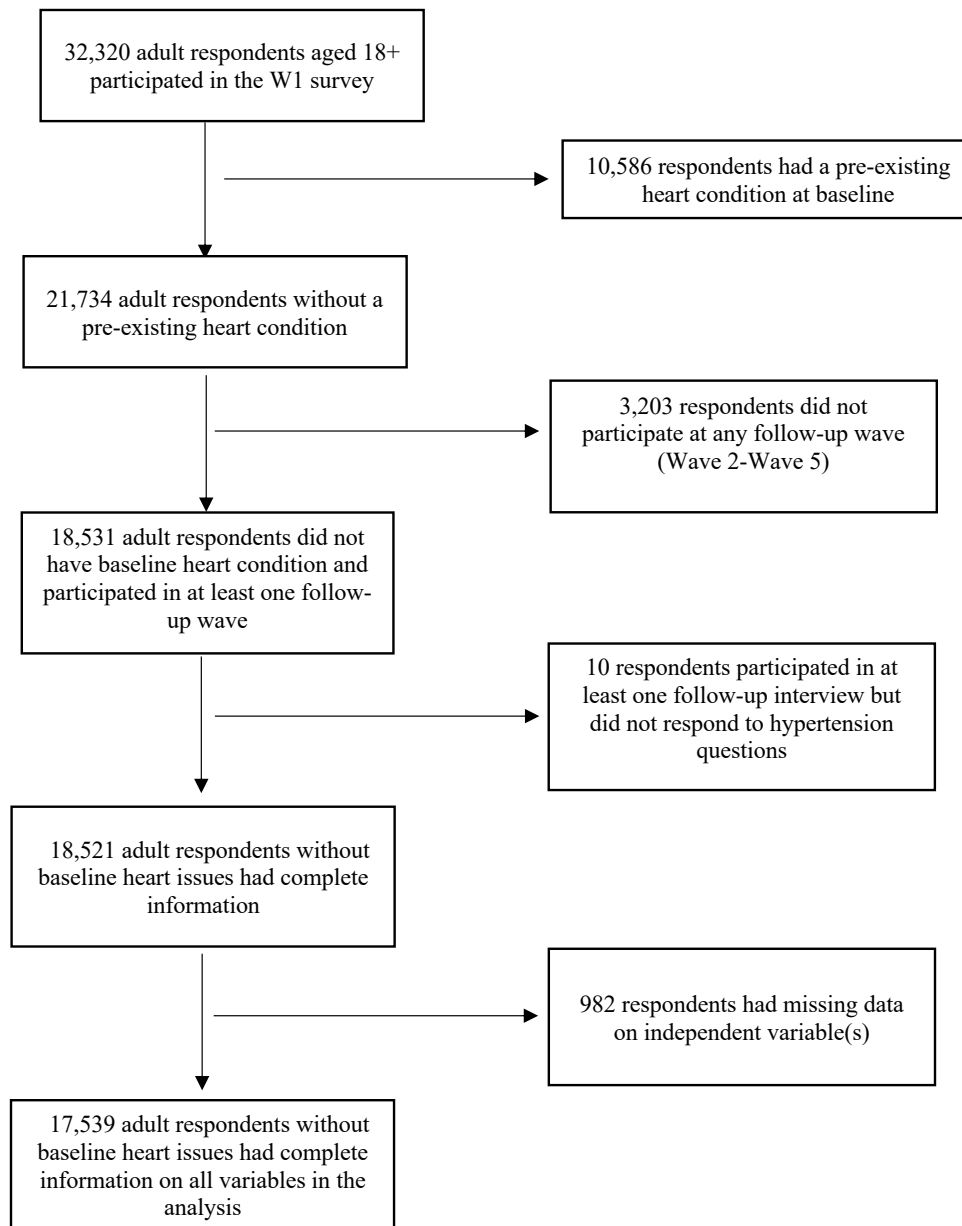


Table S1. Descriptive Statistics for Time-Varying Cigarette/ENDS Use, Established Adult Cigarette Smokers, Population Assessment of Tobacco & Health Study

	Follow-Up Interview*							
	Wave 1		Wave 2		Wave 3		Wave 4	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
<i>Time varying cigarettes/ENDS use</i>								
Non use	79.2	78.5-79.9	78.6	77.9-79.4	79	78.2-79.7	79.9	79.0-80.6
Exclusive cigarette use	18	17.3-18.7	17.8	17.1-18.5	17.5	16.9-18.3	16.9	16.2-17.7
Exclusive ENDS use	1.1	0.92-1.96	1.3	1.2-1.5	1.4	1.3-1.6	1.5	1.3-1.7
Dual use	1.7	1.6-2.0	2.2	2.0-2.5	2.1	1.8-2.3	1.8	1.6-2.0

*time-varying covariates were lagged by one wave to limit issues with reverse causation

Table S2. Analysis of Censored Cases, Self-reported hypertension

	Non-censored	Censored	P
Age (mean)	39.2	38	**
Sex			***
Female	55.5%	47.9%	
Male	44.5%	52.1%	
<i>Baseline cigarettes/ENDS exposure</i>			***
Non use	80.1%	75.7%	
Exclusive cigarette use	17.2%	20.9%	
Exclusive ENDS use	1.1%	1.1%	
Dual use	1.6%	2.3%	
Race/Ethnicity			**
NH White	62.7%	63.9%	
Hispanic	17.8%	16.9%	
NH Black	1150.0%	9.2%	
NH Asian	530.0%	7.4%	
NH Other	260.0%	2.6%	
Household Income			***
<\$50,000	56.5%	54.1%	
>\$50,000	42.3%	39.9%	
missing	1.2%	6.0%	
Family history of heart attack			NS
No	71.7%	74.2%	
Yes	28.3%	25.8%	
Obesity (BMI >30)			**
No	74.5%	78.7%	
Yes	25.5%	21.3%	
Diabetes diagnosis at baseline			NS
No	95.2%	95.6%	
Yes	4.8%	4.4%	
Binge drinking			***
No	95.6%	94.9%	
Yes	4.4%	5.1%	
Former established smoker at baseline			NS
No	86.4%	87.7%	
Yes	13.6%	12.3%	
Pack-years at baseline (10 PY intervals)	0.453	0.458	NS

*p<0.05, **p<0.01, ***p<0.001

Table S3. Discrete time survival analysis predicting incidence of hypertension among adults using longitudinal cohort 'all waves weights', Population Assessment of Tobacco and Health Study (Waves 1-5, 2013-2019)

	Unadjusted		Adjusted	
	Hazard	95% CI	Hazard	95% CI
<i>Time varying cigarettes/ENDS use</i>				
Non use	REF	REF	REF	REF
Exclusive cigarette use	1.35***	1.18-1.55	1.26**	1.07-1.49
Exclusive ENDS use	0.95	.63-1.41	1.07	.70-1.63
Dual use	1.11	.81-1.51	1.25	.89-1.75
<i>Sociodemographic Risk factors</i>				
Age (mean)^	1.03***	1.03-1.03	1.03***	1.02-1.03
Sex (Male=1)	1.36***	1.16-1.59	1.45***	1.23-1.70
<i>Race/Ethnicity</i>				
NH White	REF	REF	REF	REF
Hispanic	.78*	.65-.94	0.92	.76-1.10
NH Black	1.53***	1.31-1.79	1.65***	1.39-1.96
NH Asian	.34***	.21-.53	.49**	.30-.81
NH Other	1	.69-1.47	1.07	.72-1.59
<i>Household Income</i>				
<\$50,000	REF	REF	REF	REF
>\$50,000	.82*	.70-.97	0.85	.72-1.01
missing	1	.36-2.82	0.79	.26-2.38
<i>Baseline Risk Factors</i>				
Family History of heart attack	1.45***	1.22-1.71	1.29**	1.07-1.56
Obesity (BMI>30)	2.05***	1.77-2.36	1.81***	1.54-2.13
Diabetes diagnosis	2.61***	2.05-3.32	1.98***	1.54-2.55
Binge Drinking	1.19	.93-1.54	1.19	.91-1.55
<i>Smoking History Variables</i>				
Former Established smoker	1.48**	1.19-1.83	1.09	.86-1.38
Pack years (intervals of 10)^	1.17***	1.12-1.21	1.04	.99-1.09

Person N=11,437 ; Risk Period N =45,250

*p<0.05, **p<0.01, ***p<0.001

^cigarette pack-years were rescaled to intervals of 10 packyears

Table S4. Discrete time survival analysis predicting incidence of medicated hypertension among adults, Population Assessment of Tobacco and Health Study (Waves 1-5, 2013-2019)

	Medicated Hypertension			
	Unadjusted		Adjusted	
	Hazard	95% CI	Hazard	95% CI
<i>Time varying cigarettes/ENDS use</i>				
Non use	REF	REF	REF	REF
Exclusive cigarette use	1.29**	1.10-1.51	1.25*	1.02-1.53
Exclusive ENDS use	0.62	.36-1.08	0.88	.51-1.50
Dual use	0.85	.61-1.18	1.07	.73-1.57
<i>Sociodemographic Risk factors</i>				
Age (mean)^	1.04***	1.04-1.05	1.04***	1.04-1.05
Sex (Male=1)	1.23*	1.04-1.47	1.23*	1.04-1.46
<i>Race/Ethnicity</i>				
NH White	REF	REF	REF	REF
Hispanic	.81*	.66-.99	1.03	.83-1.28
NH Black	1.41***	1.17-1.70	1.71***	1.39-2.10
NH Asian	.32*	.13-.77	0.52	.21-2.10
NH Other	0.71	.44-1.15	0.81	.52-1.26
<i>Household Income</i>				
<\$50,000	REF	REF	REF	REF
>\$50,000	.78**	.66-.92	0.85	.72-1.03
missing	0.78	.29-2.08	0.57	.21-1.54
<i>Baseline Risk Factors</i>				
Family History of heart attack	1.34**	1.10-1.62	1.12	.91-1.38
Obesity (BMI>30)	1.86***	1.59-2.18	1.68***	1.41-2.00
Diabetes diagnosis	3.21***	2.51-4.11	2.12***	1.62-2.78
Binge Drinking	1.11	.84-1.47	1.27	.95-1.68
<i>Smoking History Variables</i>				
Former Established smoker	1.42**	1.14-1.77	0.88	.68-1.13
Pack years (intervals of 10)^	1.20***	1.15-1.24	1.06*	1.00-1.12

Person N=14,868 ; Risk Period N =52,818

*p<0.05, **p<0.01, ***p<0.001

^tested for nonlinearity but the quadratic term was not significant

Table S5. Discrete time survival analysis predicting incidence of self-reported hypertension among adults with 'regular' cigarette/ENDS use (10+ days), Population Assessment of Tobacco and Health Study (Waves 1-5, 2013-2019)

	Unadjusted		Adjusted	
	Hazard	95% CI	Hazard	95% CI
<i>Time varying cigarettes/ENDS use</i>				
Non use	REF	REF	REF	REF
Exclusive cigarette use	1.28***	1.15-1.42	1.18**	1.05, 1.33
Exclusive ENDS use	0.84	.58-1.21	0.95	0.67, 1.35
Dual use	1	.77-1.30	1.14	0.80, 1.64
<i>Sociodemographic Risk factors</i>				
Age (mean)^	1.03***	1.03-1.04	1.03***	1.03, 1.04
Sex (Male=1)	1.28**	1.11-1.48	1.33***	1.16, 1.54
<i>Race/Ethnicity</i>				
NH White	REF	REF	REF	REF
Hispanic	.83*	.71-.98	0.99	0.84, 1.17
NH Black	1.44***	1.24-1.68	1.62***	1.39, 1.90
NH Asian	.38***	.23-.64	0.55*	0.33, 0.93
NH Other	1.03	.73-1.44	1.06	0.76, 1.49
<i>Household Income</i>				
<\$50,000	REF	REF	REF	REF
>\$50,000	.80**	.70-.92	0.83*	0.72, 0.96
missing	0.67	.32-1.39	0.58	0.27, 1.23
<i>Baseline Risk Factors</i>				
Family History of heart attack	1.43***	1.24-1.66	1.27**	1.08, 1.49
Obesity (BMI>30)	1.89***	1.66-2.15	1.71***	1.50, 1.96
Diabetes diagnosis	2.48***	2.0-3.06	1.74***	1.37, 2.20
Binge Drinking	1.22	.99-1.50	1.26*	1.02, 1.57
<i>Smoking History Variables</i>				
Former Established smoker	1.42***	1.18-1.72	1.02	0.83, 1.27
Pack years (intervals of 10)^	1.17***	1.13-1.21	1.04	0.99, 1.09

Notes: Person N=17,539 ; Risk Period N=59,367

*p<0.05, **p<0.01, ***p<0.001

^cigarette pack-years were rescaled to intervals of 10 packyears

Table S6. Discrete time survival analysis predicting incidence of self-reported hypertension with revised cigarette/ENDS exposure, Population Assessment of Tobacco and Health Study (Waves 1-5, 2013-2019)

	Unadjusted		Adjusted	
	Hazard	95% CI	Hazard	95% CI
<i>Time varying cigarettes/ENDS use</i>				
Never established use	REF	REF	REF	REF
Former cigarettes, no ENDS	1.43**	1.17, 1.75	0.97	0.78, 1.21
Current cigarettes, no ENDS	1.38***	1.22, 1.56	1.20*	1.04, 1.38
Former cigarettes, current ENDS	1	0.64, 1.55	1.01	0.64, 1.60
Current cigarettes and ENDS	1.07	0.80, 1.41	1.13	0.84, 1.52
Exclusive ENDS	0.64	0.31, 1.32	0.86	0.41, 1.82
<i>Sociodemographic Risk factors</i>				
Age (mean)^	1.03***	1.03-1.04	1.03***	1.03, 1.04
Sex (Male=1)	1.28**	1.11-1.48	1.33***	1.15, 1.53
<i>Race/Ethnicity</i>				
NH White	REF	REF	REF	REF
Hispanic	.83*	.71-.98	1	0.85, 1.17
NH Black	1.44***	1.24-1.68	1.61***	1.37, 1.89
NH Asian	.38***	.23-.64	0.56*	0.33, 0.94
NH Other	1.03	.73-1.44	1.05	0.75, 1.47
<i>Household Income</i>				
<\$50,000	REF	REF	REF	REF
>\$50,000	.80**	.70-.92	0.83*	0.72, 0.96
missing	0.67	.32-1.39	0.58	0.27, 1.24
<i>Baseline Risk Factors</i>				
Family History of heart attack	1.43***	1.24-1.66	1.28**	1.09, 1.49
Obesity (BMI>30)	1.89***	1.66-2.15	1.72***	1.50, 1.98
Diabetes diagnosis	2.48***	2.0-3.06	1.76***	1.39, 2.22
Binge Drinking	1.22	.99-1.50	1.26*	1.01, 1.57
<i>Smoking History Variables</i>				
Pack years (intervals of 10)^	1.17***	1.13-1.21	1.04	0.99, 1.09

Notes: Person N=17,539 ; Risk Period N=59,367

*p<0.05, **p<0.01, ***p<0.001

^cigarette pack-years were rescaled to intervals of 10 packyears

Table S7. Discrete time survival analysis predicting incidence of self-reported hypertension among never established cigarette smokers, Population Assessment of Tobacco and Health Study (Waves 1-5, 2013-2019)

	Unadjusted		Adjusted	
	Hazard	95% CI	Hazard	95% CI
<i>Time varying ENDS use</i>	0.56	0.28, 1.13	0.75	0.37, 1.52
<i>Sociodemographic Risk factors</i>				
Age (mean)^	1.04***	1.03, 1.04	1.04***	1.03, 1.04
Sex (Male=1)	1.25*	1.03, 1.52	1.31**	1.07, 1.60
Race/Ethnicity				
NH White	REF	REF	REF	REF
Hispanic	0.84	0.67, 1.05	0.89	0.69, 1.14
NH Black	1.42**	1.17, 1.72	1.56***	1.25, 1.93
NH Asian	0.40**	0.21, 0.77	0.54	0.28, 1.05
NH Other	1.25	0.80, 1.97	1.34	0.81, 2.19
Household Income				
<\$50,000	REF	REF	REF	REF
>\$50,000	0.75**	0.62, 0.90	0.74**	0.60, 0.90
missing	0.71	0.27, 1.87	0.53	0.19, 1.43
<i>Baseline Risk Factors</i>				
Family History of heart attack	1.41**	1.16, 1.71	1.23	0.99, 1.52
Obesity (BMI>30)	2.09***	1.72, 2.53	1.80***	1.47, 2.20
Diabetes diagnosis	2.59***	1.95, 3.45	1.71**	1.23, 2.36
Binge Drinking	1.09	0.71, 1.68	1.4	0.89, 2.18

Notes: Person N=9478 ; Risk Period N=32,579

*p<0.05, **p<0.01, ***p<0.001