

## Indicator 28: Current Tobacco Users (includes smoking and other forms of tobacco)

Internal variable name: outc28\_tobacco\_user

Definition: Do you now smoke cigarettes every day, some days, or not at all? + Do you currently use chewing tobacco, snuff, or snus every day, some days, or not at all?

### Predictive models

	Mixed, demos only	Logit, no area effects	Mixed with area covariates
	b/se	b/se	b/se
Outcome 28: Current Tobacco Users (includes smoking and other forms of tobacco u			
NH Black vs. NH White	-0.0125 (0.1166)	0.0124 (0.1066)	0.0124 (0.1160)
NH Asian vs. NH White	-0.3693* (0.1450)	-0.2424 (0.2327)	-0.2424 (0.1382)
NH Other vs. NH White	0.0235 (0.1468)	0.0716 (0.1811)	0.0716 (0.1470)
Hispanic vs. NH White	-0.7203*** (0.2129)	-0.5945** (0.2116)	-0.5945** (0.2153)
Female	-0.5523*** (0.1079)	-0.5511*** (0.0772)	-0.5511*** (0.1078)
Age 18-34 vs. 65+	0.9196*** (0.1080)	0.9519*** (0.1139)	0.9519*** (0.1083)
Age 35-44 vs. 65+	1.0199*** (0.1520)	1.0505*** (0.1268)	1.0505*** (0.1505)
Age 45-54 vs. 65+	0.9844*** (0.1254)	1.0104*** (0.1169)	1.0104*** (0.1264)
Age 55-64 vs. 65+	0.7712*** (0.1093)	0.7791*** (0.1092)	0.7791*** (0.1103)
% education Bachelor+, population 25+ y/o		-0.0275*** (0.0055)	-0.0275*** (0.0043)
% speaking English less than very well		0.0726* (0.0288)	0.0726** (0.0247)
Food insecurity rate, County Rankings/Map the Meal Gap		0.3829** (0.1195)	0.3829*** (0.0842)
% ling isolated Hispanic HHs		-0.4751** (0.1787)	-0.4751** (0.1426)
Average daily PM2.5, County Rankings/EPA		0.2857** (0.0966)	0.2857** (0.0862)
Colorectal All Rate		-0.0105** (0.0038)	-0.0105*** (0.0029)
o.% ling isolated Hispanic HHs		0.0000 (.)	

c.ColorectalAllRate#c.PDB_pct_eng_vw_span_ACS126		0.0048 (0.0029)	0.0048* (0.0022)
VA BRFSS 2014 SAE outc27_hiv_test		-0.1529 (1.1840)	-0.1529 (1.1696)
VA BRFSS 2014 SAE outc7_heart_attack		10.2419* (4.8776)	10.2419 (5.9822)
c.VA14SAE_outc27_hiv_test#c.VA14SAE_outc7_heart_attack		-22.0732 (14.7520)	-22.0732 (15.3352)
Intercept	-1.6722*** (0.1076)	-3.6005*** (1.0900)	-3.6005*** (0.9957)
Area effect variance	0.2507*** (0.0623)		0.0000 (0.0000)

Number of alternative models used to estimate model error = 9.

Results

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Augusta County	51015	36.6%	(24.9%, 50.1%)	25.7%	(22.7%, 29.0%)
Bath County	51017	34.1%	(9.9%, 70.9%)	29.5%	(24.2%, 35.3%)
Caroline County	51033	29.5%	(11.5%, 57.3%)	21.3%	(18.7%, 24.1%)
Clarke County	51043	37.7%	(15.1%, 67.3%)	17.0%	(14.5%, 19.9%)
Culpeper County	51047	23.3%	(12.0%, 40.4%)	16.3%	(14.1%, 18.8%)
Fauquier County	51061	18.7%	(8.9%, 35.1%)	15.6%	(13.5%, 17.9%)
Frederick County	51069	16.2%	(7.8%, 30.7%)	19.8%	(17.1%, 22.7%)
Highland County	51091	9.8%	(2.2%, 60.1%)	42.3%	(14.1%, 76.6%)
King George County	51099	18.6%	(5.2%, 48.8%)	11.3%	(8.7%, 14.5%)
Madison County	51113	19.7%	(4.9%, 54.3%)	19.7%	(16.5%, 23.3%)
Orange County	51137	22.1%	(10.3%, 41.4%)	18.2%	(16.5%, 20.1%)
Page County	51139	18.5%	(8.3%, 41.9%)	32.2%	(28.2%, 36.4%)
Rappahannock County	51157	9.8%	(1.5%, 44.2%)	12.8%	(9.9%, 16.4%)
Rockbridge County	51163	24.3%	(10.6%, 46.5%)	23.2%	(21.0%, 25.4%)
Rockingham County	51165	21.9%	(13.1%, 34.3%)	20.8%	(17.9%, 24.1%)
Shenandoah County	51171	23.5%	(11.4%, 42.1%)	23.7%	(20.9%, 26.7%)
Spotsylvania County	51177	17.0%	(10.0%, 27.4%)	15.9%	(14.2%, 17.8%)
Stafford County	51179	18.6%	(11.9%, 27.8%)	12.8%	(10.8%, 15.0%)
Warren County	51187	26.9%	(13.7%, 46.0%)	21.0%	(18.1%, 24.1%)
Buena Vista City	51530	27.1%	(5.0%, 72.2%)	40.1%	(26.9%, 55.0%)
Fredericksburg City	51630	10.4%	(3.4%, 27.9%)	15.6%	(12.9%, 18.7%)
Harrisonburg City	51660	0.0%	(0.0%, 46.2%)	12.6%	(5.5%, 26.2%)
Lexington City	51678	0.0%	(0.0%, 96.3%)	5.7%	(2.4%, 12.8%)
Staunton City	51790	0.0%	(0.0%, 43.5%)	23.8%	(19.1%, 29.4%)
Waynesboro City	51820	17.5%	(3.6%, 54.6%)	18.2%	(16.0%, 20.6%)
Winchester City	51840	28.5%	(4.9%, 75.4%)	11.5%	(6.5%, 19.6%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Albemarle County	51003	15.9%	(8.5%, 27.8%)	11.9%	(10.0%, 14.2%)
Alleghany County	51005	17.0%	(6.0%, 39.6%)	26.4%	(21.3%, 32.3%)
Amherst County	51009	32.5%	(13.6%, 59.5%)	23.5%	(21.1%, 26.0%)
Appomattox County	51011	24.9%	(10.7%, 47.7%)	23.5%	(20.4%, 26.9%)
Arlington City	51013	11.0%	(6.2%, 18.8%)	9.4%	(7.6%, 11.7%)
Bedford County	51019	23.2%	(14.7%, 34.4%)	23.4%	(20.8%, 26.2%)
Botetourt County	51023	22.8%	(10.0%, 44.1%)	17.6%	(15.3%, 20.2%)
Campbell County	51031	26.5%	(16.6%, 39.5%)	28.4%	(25.9%, 31.1%)
Craig County	51045	16.8%	(1.9%, 67.9%)	33.9%	(27.9%, 40.5%)
Fairfax County	51059	10.3%	(8.1%, 13.0%)	9.3%	(8.5%, 10.2%)
Fluvanna County	51065	6.1%	(1.7%, 19.9%)	18.3%	(15.5%, 21.5%)
Greene County	51079	29.1%	(9.7%, 61.2%)	16.7%	(13.8%, 20.0%)
Loudoun County	51107	10.2%	(6.1%, 16.6%)	10.9%	(9.4%, 12.6%)
Louisa County	51109	15.5%	(5.8%, 35.3%)	19.0%	(17.0%, 21.3%)
Nelson County	51125	53.6%	(26.4%, 78.8%)	21.7%	(18.8%, 24.9%)
Prince William County	51153	15.9%	(11.6%, 21.5%)	12.9%	(10.7%, 15.5%)
Roanoke County	51161	26.0%	(16.5%, 38.6%)	20.8%	(18.5%, 23.3%)
Alexandria City	51510	14.6%	(6.9%, 28.1%)	11.4%	(8.6%, 14.9%)
Charlottesville City	51540	20.4%	(8.7%, 40.6%)	11.6%	(8.4%, 15.9%)
Covington City	51580	0.0%	(0.0%, 87.4%)	12.1%	(6.0%, 22.9%)
Fairfax City	51600	12.7%	(6.5%, 23.5%)	12.1%	(9.3%, 15.6%)
Falls Church City	51610	16.8%	(4.7%, 45.3%)	9.2%	(7.0%, 12.1%)
Lynchburg City	51680	24.6%	(14.5%, 38.6%)	20.7%	(18.6%, 22.9%)
Manassas City	51683	18.3%	(5.6%, 45.9%)	13.9%	(7.4%, 24.6%)
Manassas Park City	51685	0.0%	(0.0%, 76.5%)	7.1%	(3.3%, 14.6%)
Salem City	51775	26.7%	(5.9%, 67.8%)	21.2%	(19.5%, 23.1%)

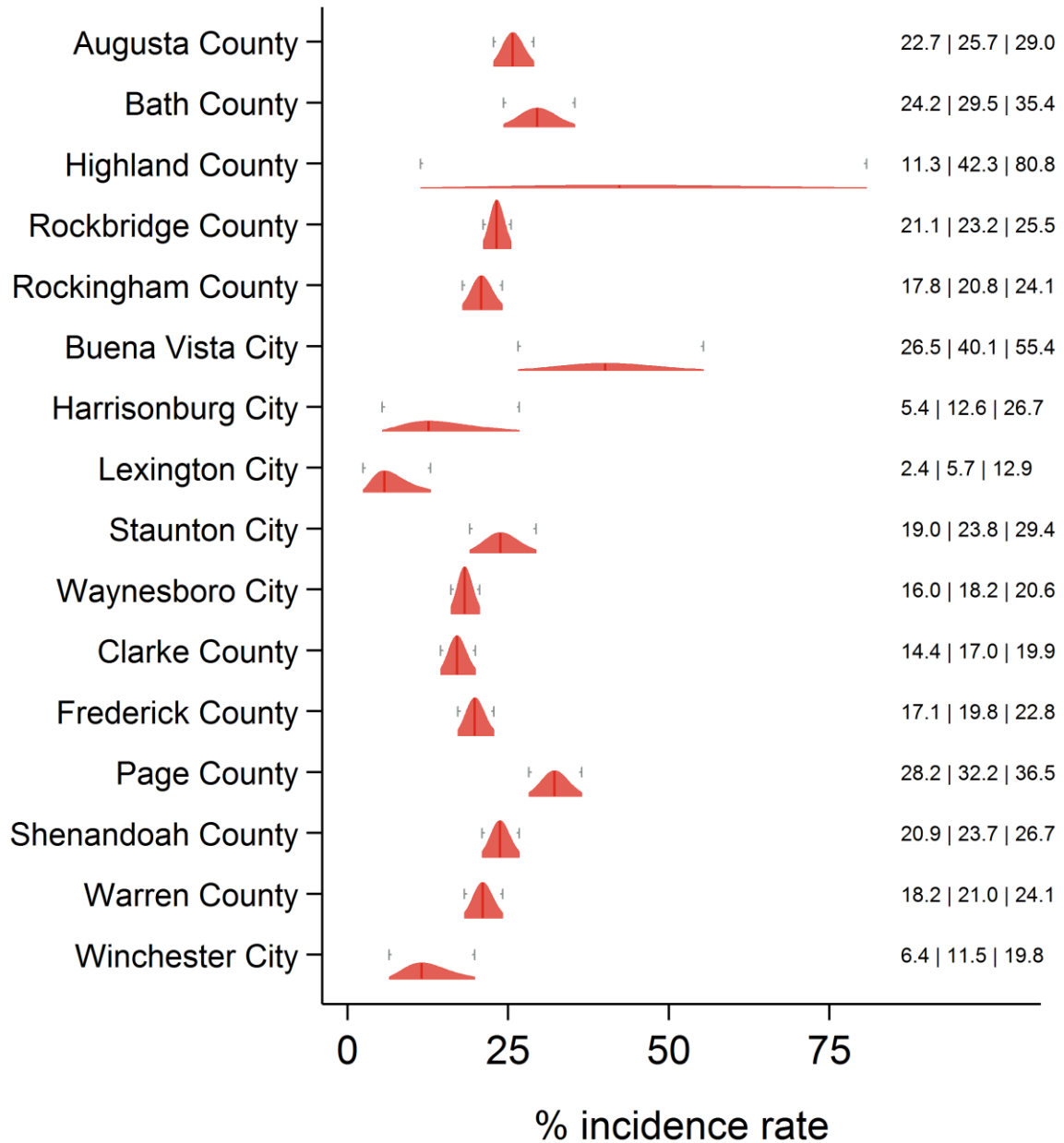
County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Bland County	51021	56.4%	(25.3%, 83.2%)	27.6%	(24.0%, 31.5%)
Buchanan County	51027	52.1%	(30.7%, 72.8%)	47.8%	(41.1%, 54.7%)
Carroll County	51035	46.3%	(26.9%, 66.8%)	33.5%	(29.2%, 38.1%)
Dickenson County	51051	39.0%	(18.8%, 63.7%)	46.4%	(40.3%, 52.5%)
Floyd County	51063	33.1%	(15.2%, 57.8%)	38.7%	(30.2%, 47.9%)
Franklin County	51067	27.0%	(13.8%, 46.0%)	28.1%	(25.7%, 30.5%)
Giles County	51071	23.1%	(10.1%, 44.4%)	24.2%	(20.8%, 27.9%)
Grayson County	51077	40.9%	(18.7%, 67.6%)	34.4%	(29.5%, 39.7%)
Henry County	51089	22.0%	(12.0%, 36.7%)	29.5%	(26.1%, 33.1%)
Lee County	51105	52.3%	(25.2%, 78.1%)	42.7%	(37.3%, 48.4%)
Montgomery County	51121	16.1%	(7.9%, 30.0%)	17.9%	(15.4%, 20.8%)
Patrick County	51141	17.2%	(5.7%, 41.5%)	30.1%	(27.4%, 33.0%)
Pittsylvania County	51143	33.5%	(23.3%, 45.5%)	32.8%	(29.6%, 36.2%)
Pulaski County	51155	14.0%	(5.2%, 32.8%)	28.8%	(26.0%, 31.6%)
Russell County	51167	50.0%	(32.2%, 67.8%)	36.5%	(32.4%, 40.8%)
Scott County	51169	59.9%	(40.3%, 76.8%)	43.8%	(36.8%, 51.0%)
Smyth County	51173	56.3%	(31.2%, 78.6%)	30.5%	(27.9%, 33.2%)
Tazewell County	51185	47.7%	(30.1%, 65.8%)	38.8%	(33.7%, 44.2%)
Washington County	51191	32.2%	(20.3%, 47.0%)	29.0%	(25.9%, 32.3%)
Wise County	51195	33.8%	(20.9%, 49.8%)	44.8%	(36.2%, 53.8%)
Wythe County	51197	32.7%	(16.2%, 54.9%)	26.6%	(22.3%, 31.4%)
Bristol City	51520	0.0%	(0.0%, 78.6%)	29.7%	(26.4%, 33.3%)
Danville City	51590	40.7%	(20.0%, 65.4%)	28.0%	(24.1%, 32.3%)
Galax City	51640	0.0%	(0.0%, 76.1%)	24.5%	(13.3%, 40.7%)
Martinsville City	51690	57.4%	(19.1%, 88.5%)	33.7%	(28.6%, 39.1%)
Norton City	51720	50.9%	(11.5%, 89.2%)	31.5%	(27.3%, 36.1%)
Radford City	51750	15.7%	(5.4%, 54.8%)	29.7%	(25.4%, 34.3%)
Roanoke City	51770	28.1%	(18.3%, 40.5%)	21.3%	(18.3%, 24.6%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Amelia County	51007	45.6%	(18.3%, 75.8%)	25.4%	(22.0%, 29.0%)
Brunswick County	51025	24.7%	(8.6%, 53.2%)	27.3%	(22.8%, 32.3%)
Buckingham County	51029	25.0%	(10.3%, 49.1%)	29.7%	(25.9%, 33.8%)
Charles City County	51036	0.0%	(0.0%, 58.8%)	27.3%	(24.2%, 30.6%)
Charlotte County	51037	22.8%	(10.8%, 41.8%)	22.6%	(17.1%, 29.1%)
Chesterfield County	51041	10.8%	(7.6%, 15.1%)	13.7%	(11.9%, 15.6%)
Cumberland County	51049	29.2%	(10.7%, 58.9%)	24.9%	(22.5%, 27.4%)
Dinwiddie County	51053	28.4%	(8.7%, 62.3%)	19.3%	(16.8%, 22.1%)
Goochland County	51075	4.3%	(0.7%, 22.6%)	11.5%	(9.2%, 14.3%)
Greensville County	51081	24.8%	(4.2%, 71.4%)	36.9%	(29.9%, 44.5%)
Halifax County	51083	32.4%	(18.4%, 50.4%)	30.0%	(26.4%, 33.8%)
Hanover County	51085	18.5%	(10.5%, 30.4%)	12.5%	(10.4%, 15.0%)
Henrico County	51087	18.8%	(12.7%, 27.0%)	15.3%	(13.9%, 16.8%)
Lunenburg County	51111	40.3%	(14.8%, 72.4%)	30.4%	(26.4%, 34.8%)
Mecklenburg County	51117	27.7%	(17.2%, 41.4%)	28.9%	(26.0%, 31.9%)
New Kent County	51127	14.6%	(4.6%, 37.6%)	12.5%	(9.8%, 15.8%)
Nottoway County	51135	40.1%	(11.8%, 77.0%)	24.4%	(21.8%, 27.2%)
Powhatan County	51145	15.3%	(4.7%, 39.7%)	15.1%	(12.0%, 18.8%)
Prince Edward County	51147	20.2%	(9.8%, 37.0%)	19.7%	(16.3%, 23.7%)
Prince George County	51149	18.8%	(9.5%, 33.8%)	18.4%	(15.4%, 21.7%)
Surry County	51181	9.5%	(1.4%, 43.6%)	16.6%	(13.5%, 20.3%)
Sussex County	51183	12.8%	(3.9%, 34.6%)	20.6%	(16.8%, 25.1%)
Colonial Heights City	51570	32.6%	(14.4%, 58.2%)	27.1%	(23.1%, 31.5%)
Emporia City	51595	62.9%	(3.5%, 98.6%)	25.7%	(17.8%, 35.4%)
Hopewell City	51670	24.8%	(10.9%, 47.0%)	30.6%	(27.0%, 34.4%)
Petersburg City	51730	36.0%	(20.5%, 55.0%)	33.4%	(27.4%, 39.9%)
Richmond City	51760	24.3%	(15.2%, 36.5%)	20.1%	(17.2%, 23.3%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Accomack County	51001	28.9%	(16.9%, 45.0%)	20.6%	(16.4%, 25.6%)
Essex County	51057	18.5%	(6.0%, 44.5%)	17.8%	(14.8%, 21.2%)
Gloucester County	51073	23.8%	(13.6%, 38.2%)	17.9%	(15.1%, 20.9%)
Isle of Wight County	51093	16.8%	(6.9%, 35.4%)	18.6%	(16.2%, 21.2%)
James City County	51095	7.6%	(3.3%, 16.5%)	10.7%	(8.2%, 13.9%)
King and Queen County	51097	15.6%	(4.4%, 51.7%)	22.8%	(20.3%, 25.4%)
King William County	51101	45.6%	(19.8%, 73.9%)	26.5%	(22.0%, 31.5%)
Lancaster County	51103	16.3%	(4.1%, 47.0%)	18.2%	(14.7%, 22.2%)
Mathews County	51115	27.7%	(10.2%, 56.5%)	21.1%	(17.2%, 25.7%)
Middlesex County	51119	16.4%	(5.4%, 40.4%)	20.5%	(16.7%, 25.0%)
Northampton County	51131	27.6%	(12.6%, 50.2%)	18.7%	(15.2%, 22.8%)
Northumberland County	51133	20.0%	(8.1%, 41.7%)	19.0%	(16.2%, 22.2%)
Richmond County	51159	25.0%	(7.6%, 57.4%)	20.5%	(17.1%, 24.2%)
Southampton County	51175	31.1%	(9.7%, 65.5%)	23.7%	(19.8%, 28.1%)
Westmoreland County	51193	63.9%	(36.6%, 84.4%)	38.5%	(23.5%, 56.0%)
York County	51199	21.1%	(11.2%, 36.2%)	15.9%	(13.8%, 18.2%)
Chesapeake City	51550	16.1%	(9.0%, 27.1%)	17.9%	(16.0%, 19.9%)
Franklin City	51620	36.9%	(15.6%, 64.9%)	27.1%	(22.2%, 32.6%)
Hampton City	51650	31.5%	(23.0%, 41.4%)	24.2%	(21.5%, 27.0%)
Newport News City	51700	20.6%	(13.4%, 30.3%)	19.3%	(17.2%, 21.6%)
Norfolk City	51710	18.8%	(13.3%, 25.8%)	20.7%	(18.2%, 23.4%)
Poquoson City	51735	21.1%	(3.9%, 75.2%)	13.1%	(10.6%, 16.2%)
Portsmouth City	51740	23.7%	(14.6%, 36.1%)	25.7%	(23.0%, 28.6%)
Suffolk City	51800	17.4%	(9.0%, 31.1%)	18.3%	(16.4%, 20.4%)
Virginia Beach City	51810	13.9%	(10.3%, 18.5%)	15.7%	(13.9%, 17.8%)
Williamsburg City	51830	4.9%	(1.3%, 66.6%)	5.6%	(3.2%, 9.7%)

Graphical representation

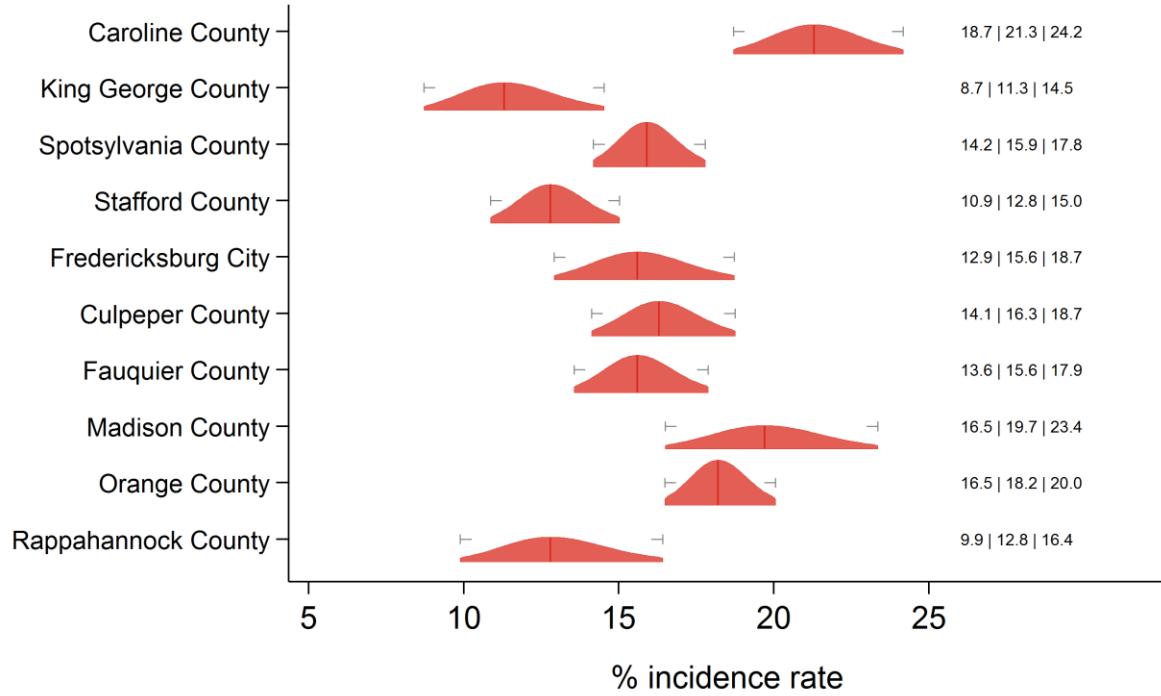
## Current tobacco use Central Shenandoah and Lord Fairfax HDs



Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB  
 Gray markers: 95% confidence interval

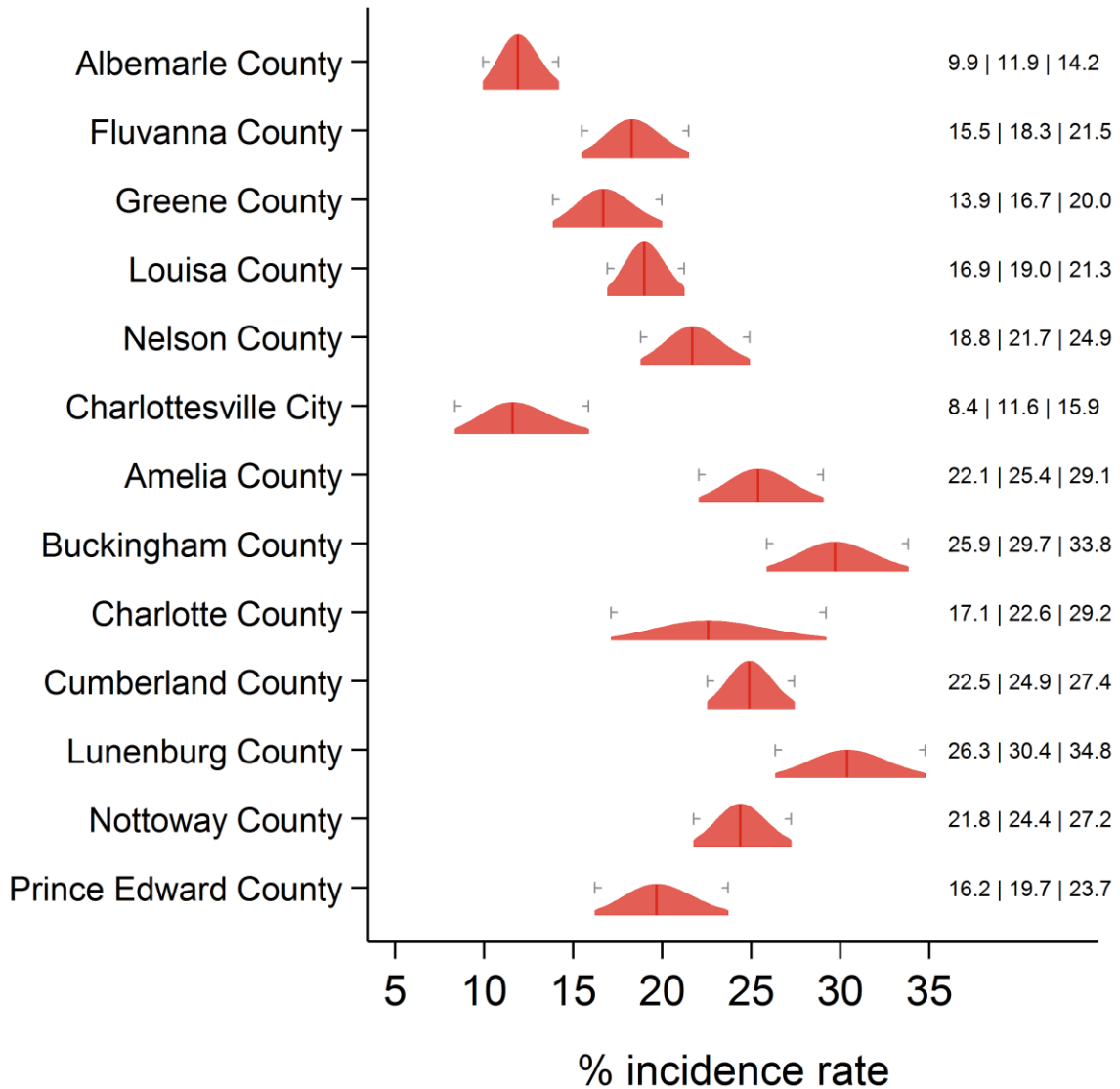


## Current tobacco use Rappahannock/Rapidan and Rappahannock HDs



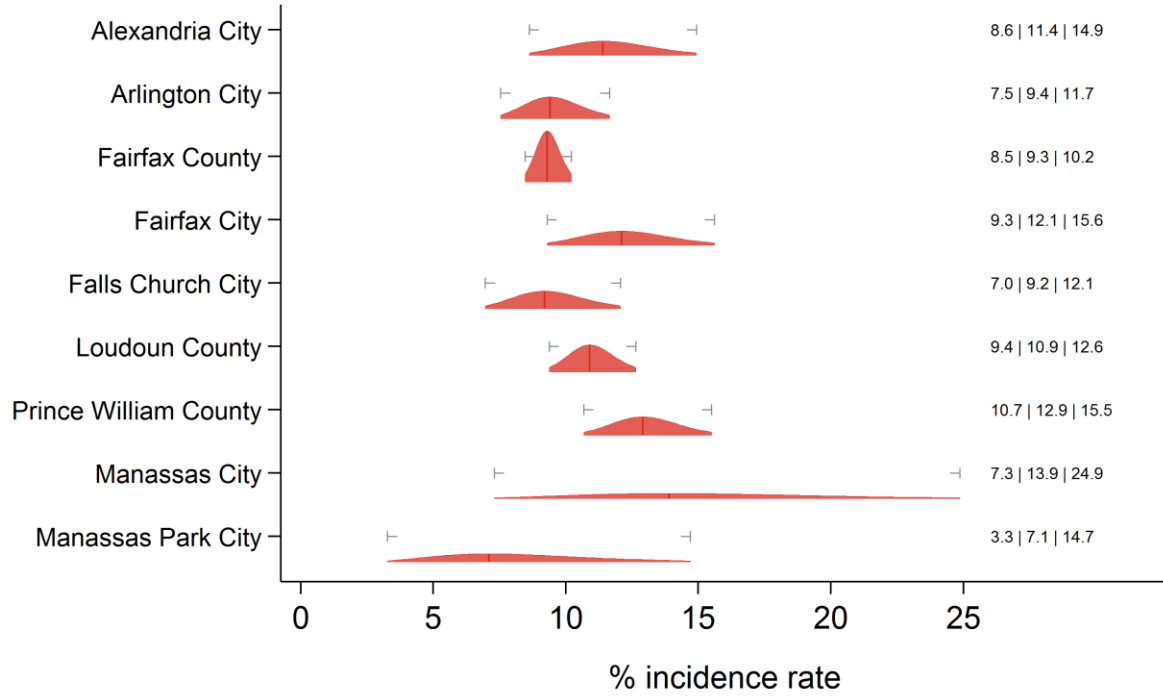
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB  
 Gray markers: 95% confidence interval

## Current tobacco use Thomas Jefferson and Piedmont HDs



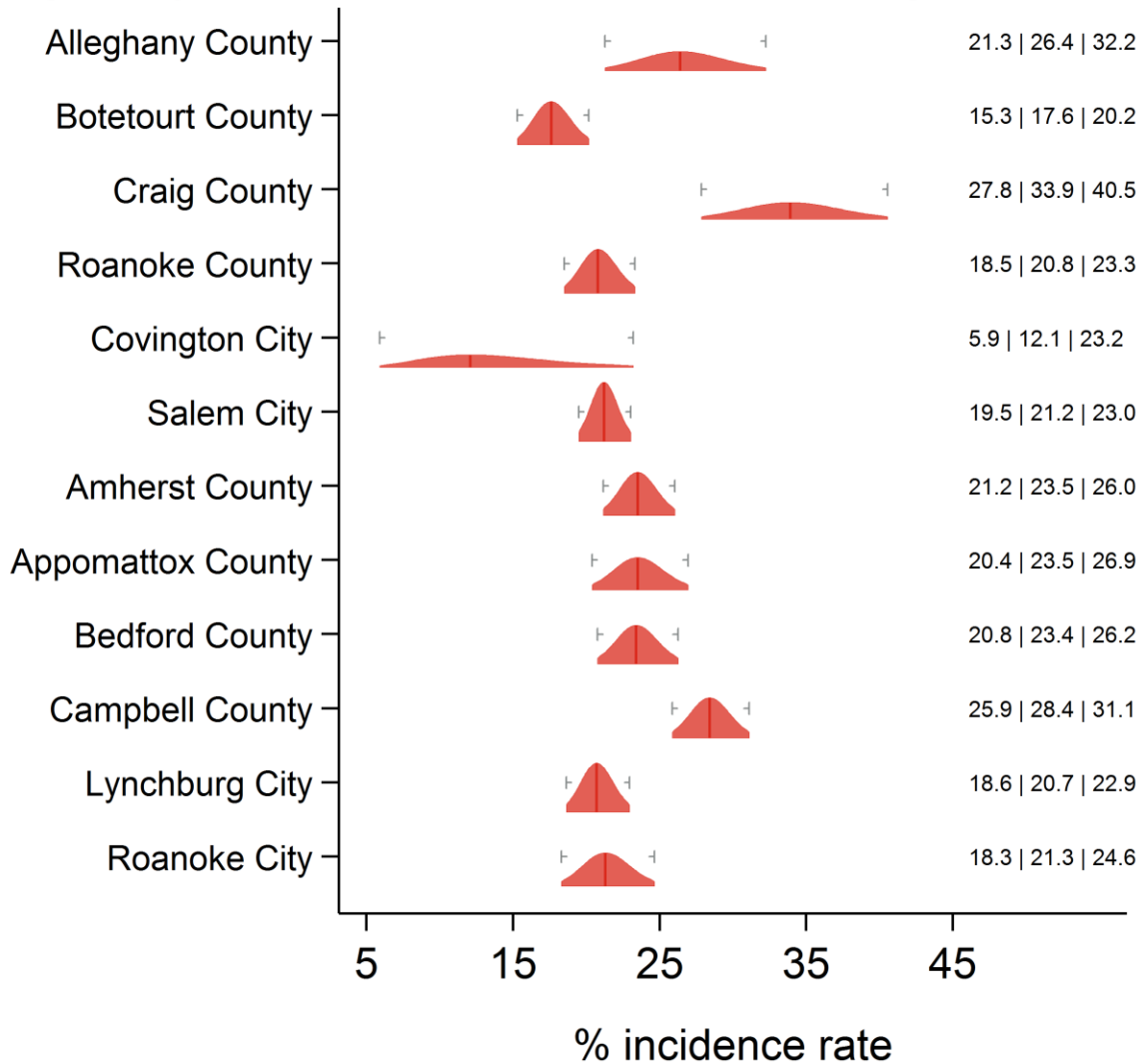
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB  
 Gray markers: 95% confidence interval

## Current tobacco use Alexandria, Fairfax, Arlington, Loudon, Prince William HDs



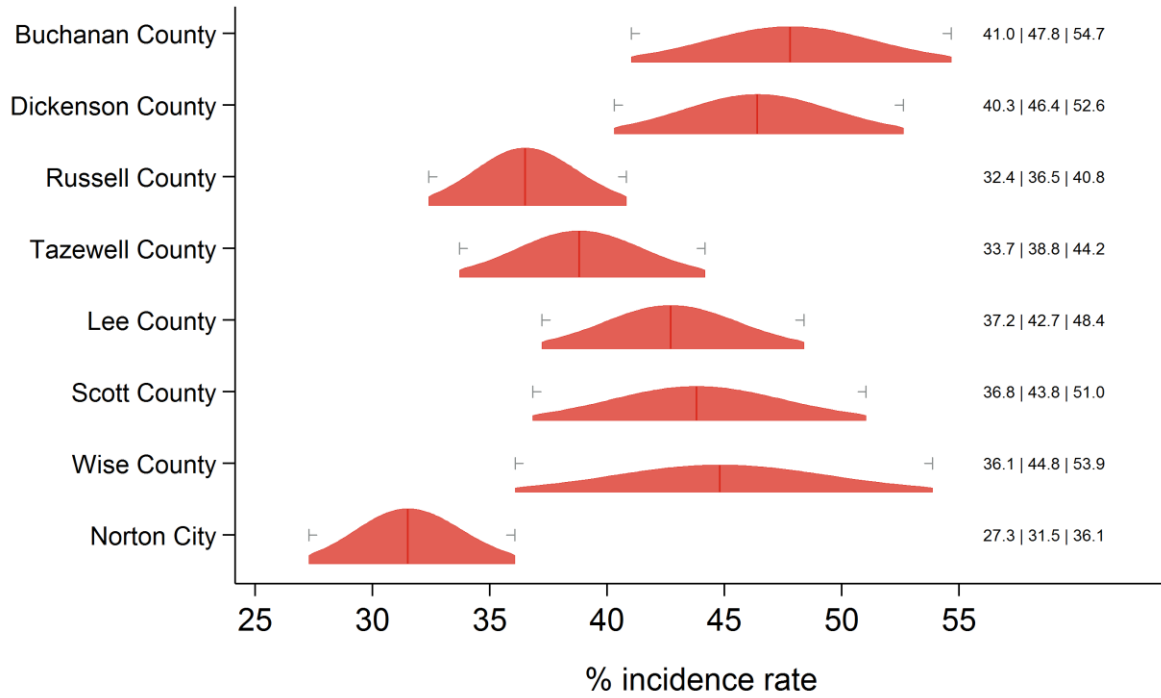
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB  
 Gray markers: 95% confidence interval

## Current tobacco use Alleghany, Roanoke and Central Virginia HDs



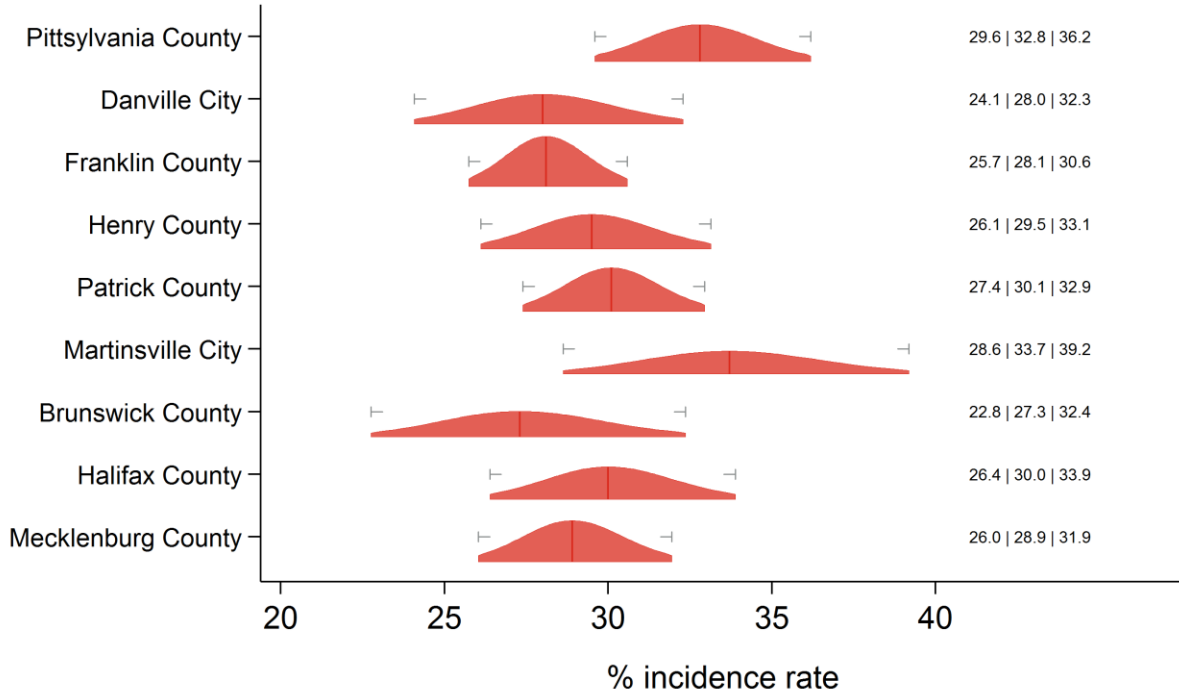
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB  
 Gray markers: 95% confidence interval

## Current tobacco use Cumberland Plateau and Lenowisco HDs



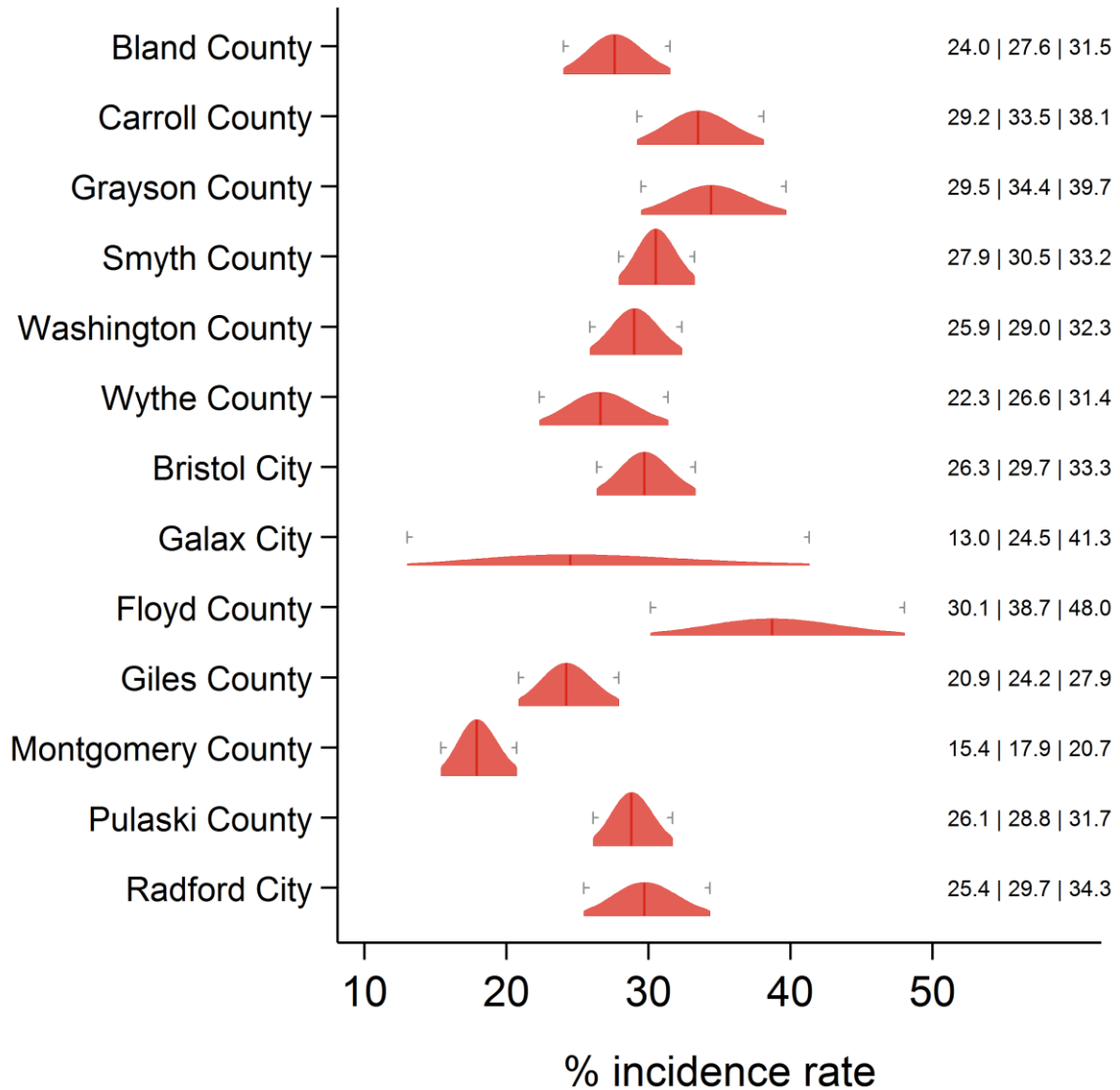
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB  
 Gray markers: 95% confidence interval

## Current tobacco use Pittsylvania/Danville, Southside and West Piedmont HDs



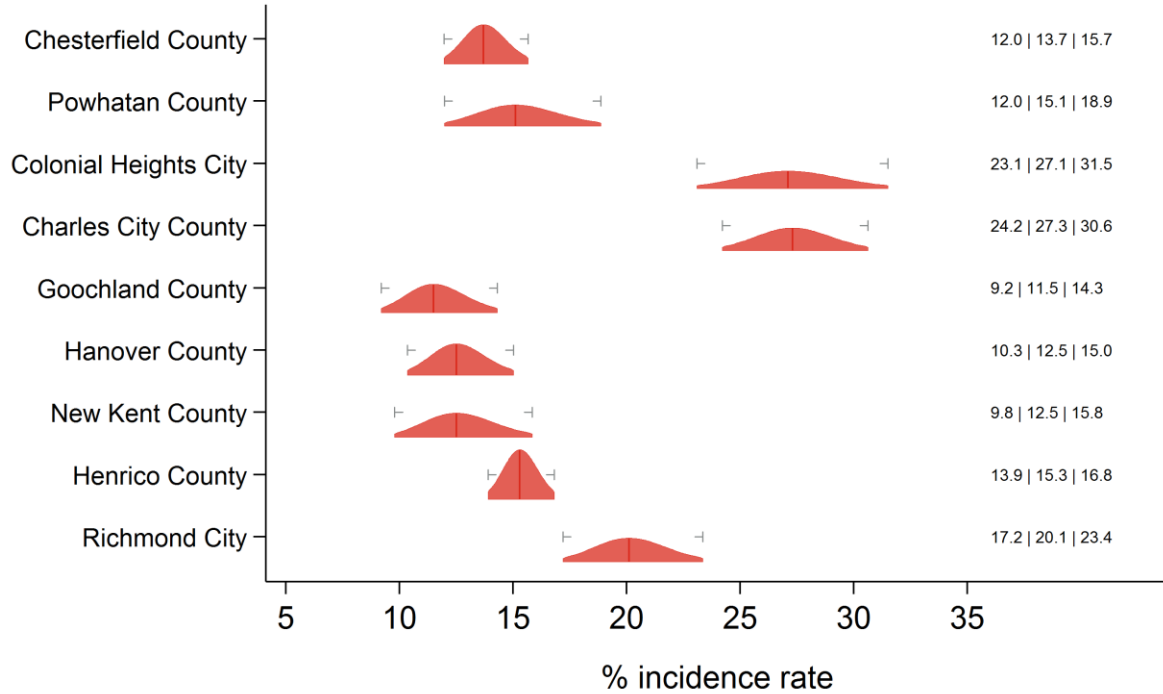
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB  
 Gray markers: 95% confidence interval

## Current tobacco use New River and Mount Rogers HDs



Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB  
 Gray markers: 95% confidence interval

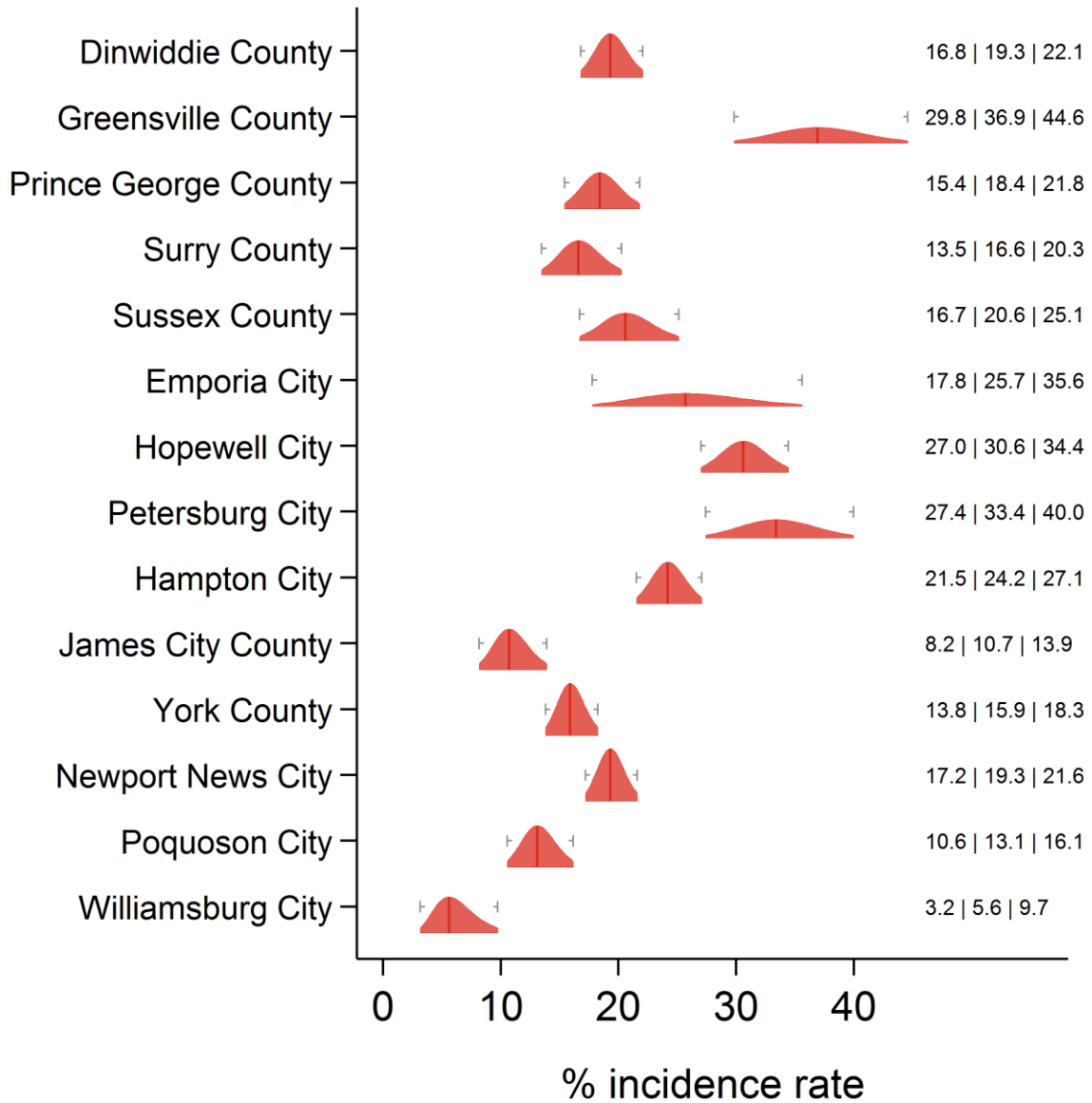
### Current tobacco use Chesterfield, Chickahominy, Henrico and Richmond HDs



Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB  
 Gray markers: 95% confidence interval

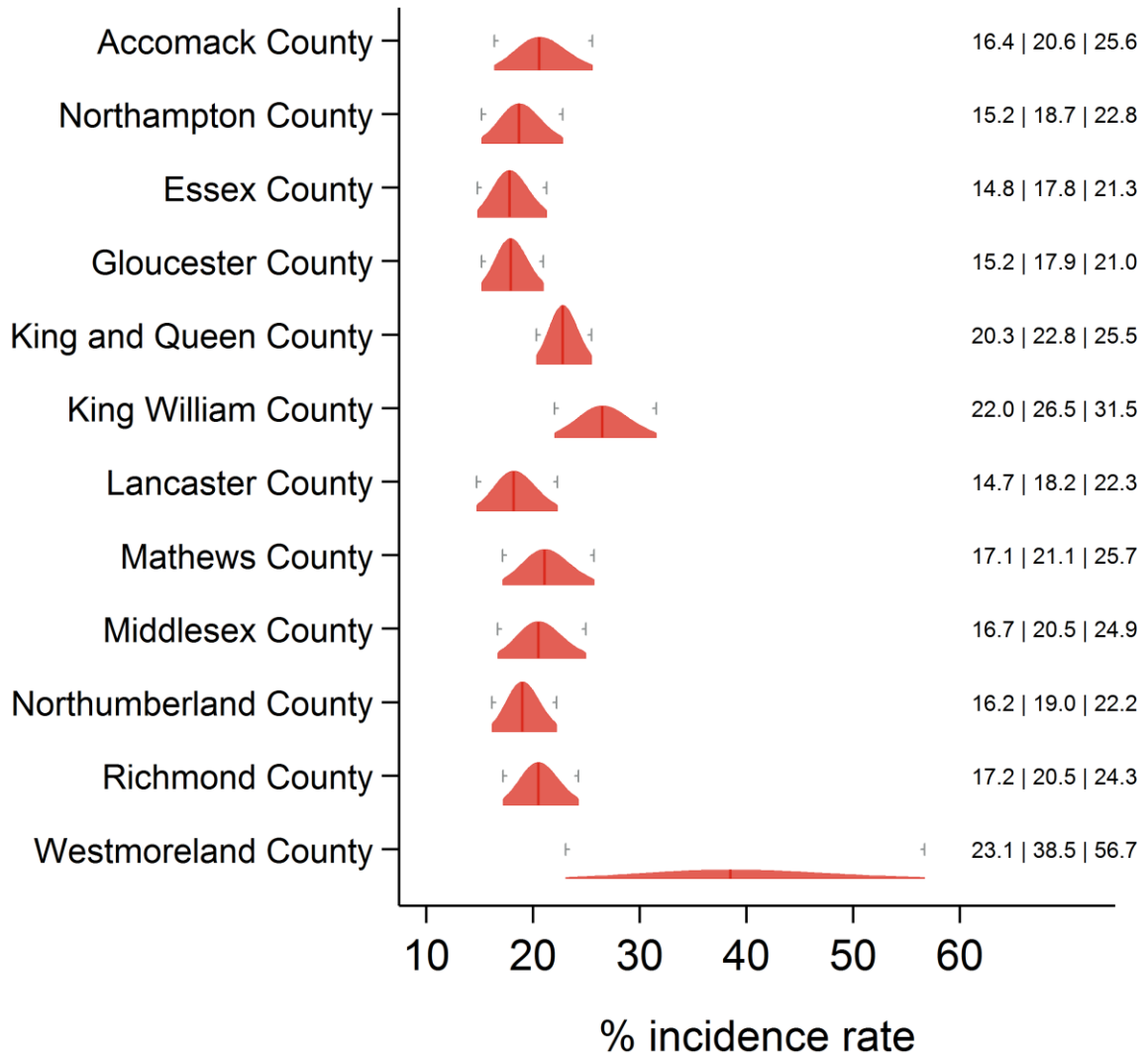


## Current tobacco use Crater, Peninsula and Hampton HDs



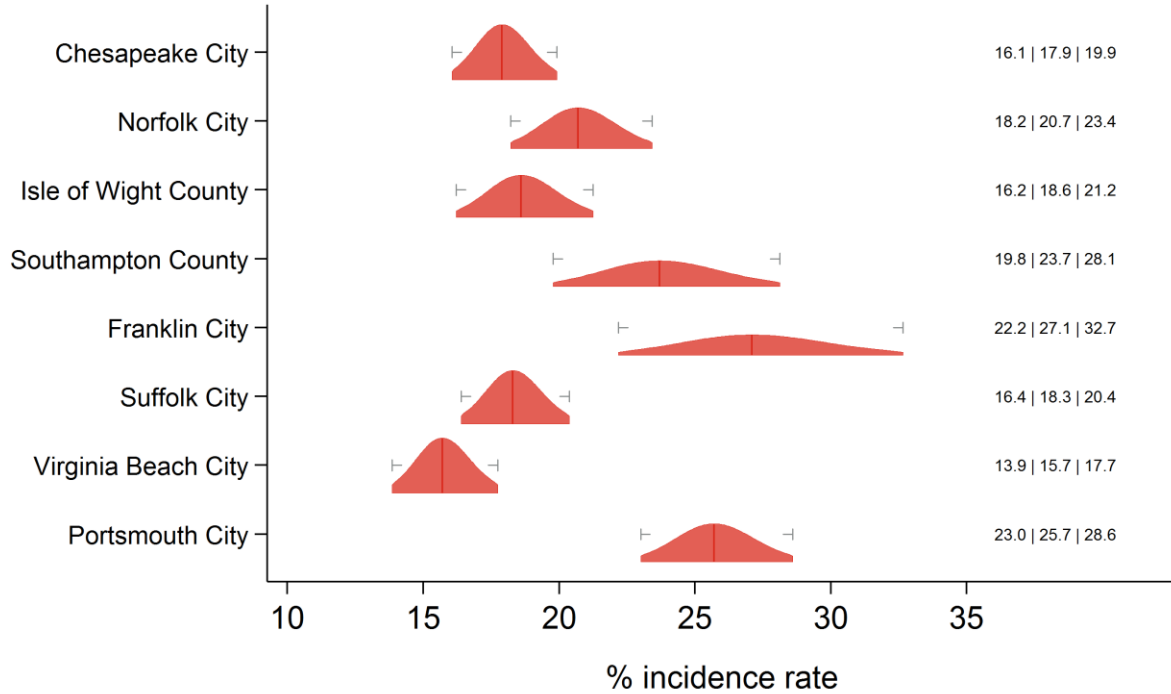
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB  
 Gray markers: 95% confidence interval

## Current tobacco use Eastern Shore and Three Rivers HDs



Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB  
 Gray markers: 95% confidence interval

## Current tobacco use Norfolk, Portsmouth, Chesapeake, VA Beach, W. Tidewater HDs



Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB  
 Gray markers: 95% confidence interval

## Additional diagnostics

Direct estimate is inside the 95% SAE Wilson CI: 43 areas.

Direct estimate is outside the 95% SAE Wilson CI: 90 areas.

SAE estimate is inside the 95% direct Wilson CI: 131 areas.

SAE estimate is outside the 95% direct Wilson CI: 2 areas.

SAE Wilson 95% CI is fully inside the 95% direct Wilson CI: 116 areas.

SAE Wilson 95% CI partially overlaps with the 95% direct Wilson CI: 17 areas.

SAE Wilson 95% CI and the 95% direct Wilson CI do not overlap: 0 areas.

SAE standard error is less than the direct standard error: 124 areas.

SAE standard error is greater than the (nonzero) direct standard error: 1 areas.

Direct standard error is zero: 8 areas.

Proportion of SAE variance due to ACS sampling error: min = 0.18%; med = 5.26%; max = 25.37%.

Proportion of SAE variance due to sampling error in regression coefficient estimates: min = 36.83%; med = 88.09%; max = 98.88%.

Proportion of SAE variance due to model selection: min = 0.18%; med = 5.04%; max = 62.97%.

Proportion of SAE variance due to area random effects: <identically zero>