



Indicator 20: Heavy Drinking

Internal variable name: outc20_heavy_drink

Section 1: Definition

Definition: Heavy drinkers (adult men having more than two drinks per day and adult women having more than one drink per day) (Calculated)

Section 2: Predictive models

	Mixed, demos only	Logit, no area effects	Mixed with area covariates
	b/se	b/se	b/se
Outcome 20: Heavy Drinking			
Non-Hispanic Black vs. Non-Hispanic White	-0.7303** (0.2724)	-0.8876*** (0.2120)	-0.8876** (0.2640)
Non-Hispanic Asian vs. Non-Hispanic White	-1.8721* (0.8493)	-1.9376 (1.0135)	-1.9376* (0.8506)
Non-Hispanic Other vs. Non-Hispanic White	-0.5932 (0.3194)	-0.5936 (0.3617)	-0.5936 (0.3223)
Hispanic vs. Non-Hispanic White	-1.1094** (0.3914)	-1.1974** (0.3954)	-1.1974** (0.3923)
Female	-0.0925 (0.1235)	-0.0725 (0.1251)	-0.0725 (0.1220)
Age 18-24 vs. 65+	0.3416 (0.2725)	0.2915 (0.2864)	0.2915 (0.2713)
Age 25-34 vs. 65+	0.9753*** (0.1867)	0.9335*** (0.1977)	0.9335*** (0.1817)
Age 35-44 vs. 65+	0.7243*** (0.2042)	0.7298*** (0.1965)	0.7298*** (0.2071)
Age 45-54 vs. 65+	0.6980*** (0.1952)	0.6760*** (0.1799)	0.6760*** (0.1958)
Age 55-64 vs. 65+	0.4799** (0.1645)	0.4607** (0.1748)	0.4607** (0.1657)
% education below HS, population 25+ years old		-0.0616** (0.0213)	-0.0616*** (0.0159)
Rural-urban continuum code category 2-4		0.7359*** (0.2225)	0.7359*** (0.1930)
% households without phone service		0.0790** (0.0302)	0.0790*** (0.0219)
Esophagus Cancer Male Rate		0.0578**	0.0578**

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% vacant housing units		(0.0205) 0.0523**	(0.0180) 0.0523***
{Esophagus Cancer Male Rate } interacted with {% vacant housing units}		(0.0199) -0.0027*	(0.0127) -0.0027**
% Non-Hispanic minority among adults 18 to 64		(0.0012) 0.0204	(0.0010) 0.0204
Crude mortality rate of diseases of the heart per 10,000		(0.0156) -0.0308	(0.0104) -0.0308
{% Non-Hispanic minority among adults 18 to 64}		(0.0222) -0.0001	(0.0161) -0.0001
interacted with { Crude mortality rate of diseases of the heart per 10,000}		(0.0007)	(0.0005)
Intercept	-3.1813*** (0.1585)	-3.4220*** (0.5117)	-3.4220*** (0.3873)
Area effect variance	0.0000** (0.0000)		0.0000*** (0.0000)

Number of alternative models used to estimate model error = 8.



Section 3: Results

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE 95% CI
Augusta County	51015	7.5%	(3.7%, 14.6%)	5.7%	(4.2%, 7.7%)
Bath County	51017	0.0%	(0.0%, 40.5%)	7.6%	(3.8%, 14.8%)
Caroline County	51033	0.0%	(0.0%, 17.9%)	5.7%	(3.5%, 9.0%)
Clarke County	51043	7.6%	(2.5%, 31.9%)	5.9%	(3.9%, 8.7%)
Culpeper County	51047	7.1%	(2.6%, 18.4%)	8.3%	(6.1%, 11.2%)
Fauquier County	51061	5.4%	(1.9%, 14.3%)	6.2%	(4.7%, 8.1%)
Frederick County	51069	3.8%	(2.1%, 10.1%)	3.9%	(2.9%, 5.3%)
Highland County	51091	0.0%	(0.0%, 83.2%)	18.9%	(9.4%, 34.4%)
King George County	51099	2.6%	(1.2%, 26.0%)	19.0%	(12.1%, 28.5%)
Madison County	51113	2.9%	(1.2%, 23.5%)	6.5%	(4.8%, 8.6%)
Orange County	51137	5.7%	(1.8%, 16.8%)	8.5%	(6.4%, 11.1%)
Page County	51139	0.0%	(0.0%, 32.1%)	3.3%	(2.4%, 4.5%)
Rappahannock County	51157	6.8%	(1.1%, 33.2%)	5.6%	(3.8%, 8.3%)
Rockbridge County	51163	9.2%	(2.4%, 29.4%)	6.6%	(4.9%, 8.9%)
Rockingham County	51165	2.7%	(1.5%, 9.1%)	2.4%	(1.6%, 3.4%)
Shenandoah County	51171	3.0%	(0.5%, 15.7%)	5.7%	(4.5%, 7.2%)
Spotsylvania County	51177	3.8%	(2.1%, 11.3%)	4.9%	(4.2%, 5.6%)
Stafford County	51179	5.4%	(2.4%, 12.0%)	7.1%	(5.9%, 8.5%)
Warren County	51187	0.0%	(0.0%, 15.1%)	3.0%	(2.3%, 4.0%)
Buena Vista City	51530	0.0%	(-0.0%, 89.6%)	9.9%	(5.7%, 16.8%)
Fredericksburg City	51630	4.3%	(0.7%, 22.3%)	5.3%	(4.3%, 6.5%)
Harrisonburg City	51660	0.0%	(0.0%, 35.0%)	5.1%	(3.4%, 7.6%)
Lexington City	51678	0.0%	(0.0%, 99.4%)	4.3%	(3.1%, 5.9%)
Staunton City	51790	0.0%	(0.0%, 42.2%)	6.7%	(4.9%, 9.1%)
Waynesboro City	51820	9.0%	(1.7%, 36.6%)	11.2%	(6.7%, 18.1%)
Winchester City	51840	0.0%	(0.0%, 24.1%)	3.5%	(2.7%, 4.5%)

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County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE 95% CI
Albemarle County	51003	5.5%	(2.7%, 10.9%)	6.0%	(5.1%, 7.0%)
Alleghany County	51005	7.4%	(1.9%, 24.9%)	4.8%	(3.4%, 6.9%)
Amherst County	51009	7.9%	(1.9%, 27.4%)	3.0%	(2.2%, 4.0%)
Appomattox County	51011	0.0%	(0.0%, 18.8%)	2.1%	(1.4%, 3.1%)
Arlington City	51013	7.0%	(3.6%, 13.1%)	8.5%	(6.9%, 10.3%)
Bedford County	51019	3.3%	(0.9%, 10.8%)	3.7%	(3.0%, 4.6%)
Botetourt County	51023	6.4%	(1.9%, 19.2%)	2.6%	(1.7%, 4.0%)
Campbell County	51031	0.0%	(0.0%, 10.3%)	2.3%	(1.7%, 3.1%)
Craig County	51045	0.0%	(0.0%, 73.6%)	7.2%	(4.9%, 10.5%)
Fairfax County	51059	5.6%	(3.5%, 8.7%)	4.7%	(3.9%, 5.6%)
Fluvanna County	51065	7.6%	(1.7%, 28.4%)	2.8%	(2.1%, 3.7%)
Greene County	51079	3.3%	(1.4%, 28.0%)	2.8%	(1.8%, 4.2%)
Loudoun County	51107	7.8%	(4.3%, 13.7%)	6.0%	(5.1%, 7.2%)
Louisa County	51109	3.8%	(0.6%, 19.9%)	4.6%	(3.5%, 6.1%)
Nelson County	51125	3.5%	(0.9%, 21.0%)	5.2%	(3.3%, 8.2%)
Prince William County	51153	4.0%	(2.1%, 7.3%)	4.9%	(4.1%, 5.7%)
Roanoke County	51161	3.6%	(1.5%, 8.6%)	3.1%	(2.3%, 4.3%)
Alexandria City	51510	4.9%	(2.2%, 10.5%)	7.1%	(6.1%, 8.3%)
Charlottesville City	51540	37.6%	(15.2%, 66.9%)	9.3%	(6.9%, 12.4%)
Covington City	51580	0.0%	(0.0%, 99.4%)	5.3%	(3.5%, 7.9%)
Fairfax City	51600	2.5%	(1.6%, 8.0%)	2.8%	(2.0%, 3.8%)
Falls Church City	51610	0.0%	(-0.0%, 72.7%)	4.5%	(3.3%, 6.1%)
Lynchburg City	51680	7.5%	(2.8%, 18.7%)	5.1%	(4.2%, 6.1%)
Manassas City	51683	0.0%	(0.0%, 33.5%)	3.4%	(2.4%, 4.6%)
Manassas Park City	51685	0.0%	(-0.0%, 96.8%)	3.0%	(2.0%, 4.4%)
Salem City	51775	0.0%	(0.0%, 49.0%)	3.3%	(2.6%, 4.2%)

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County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE 95% CI
Bland County	51021	0.0%	(0.0%, 42.3%)	8.3%	(5.9%, 11.7%)
Buchanan County	51027	0.0%	(0.0%, 9.7%)	2.5%	(1.5%, 3.9%)
Carroll County	51035	2.4%	(0.7%, 14.6%)	4.8%	(3.4%, 6.6%)
Dickenson County	51051	3.2%	(0.5%, 17.0%)	3.1%	(2.1%, 4.7%)
Floyd County	51063	4.2%	(0.7%, 21.9%)	6.3%	(4.8%, 8.1%)
Franklin County	51067	4.7%	(1.0%, 19.8%)	3.4%	(2.4%, 4.7%)
Giles County	51071	0.0%	(0.0%, 23.5%)	1.6%	(1.0%, 2.6%)
Grayson County	51077	0.0%	(0.0%, 22.6%)	5.4%	(3.7%, 8.0%)
Henry County	51089	6.5%	(1.3%, 26.6%)	3.9%	(2.9%, 5.3%)
Lee County	51105	0.0%	(0.0%, 14.8%)	3.6%	(2.5%, 5.1%)
Montgomery County	51121	9.0%	(4.4%, 17.5%)	6.0%	(4.8%, 7.6%)
Patrick County	51141	10.2%	(3.0%, 29.3%)	3.5%	(2.4%, 4.9%)
Pittsylvania County	51143	4.9%	(2.2%, 11.0%)	2.9%	(2.0%, 4.1%)
Pulaski County	51155	2.4%	(1.2%, 13.0%)	2.4%	(1.7%, 3.4%)
Russell County	51167	0.9%	(0.6%, 13.4%)	3.3%	(2.3%, 4.7%)
Scott County	51169	0.0%	(-0.0%, 8.8%)	1.5%	(0.8%, 2.6%)
Smyth County	51173	6.6%	(1.7%, 22.6%)	3.8%	(2.9%, 5.0%)
Tazewell County	51185	6.4%	(1.7%, 21.5%)	3.3%	(2.4%, 4.5%)
Washington County	51191	3.1%	(0.7%, 12.9%)	2.1%	(1.5%, 2.9%)
Wise County	51195	1.4%	(0.8%, 8.7%)	3.0%	(2.0%, 4.4%)
Wythe County	51197	4.4%	(1.1%, 15.8%)	5.1%	(4.0%, 6.5%)
Bristol City	51520	0.0%	(0.0%, 40.4%)	2.6%	(1.4%, 4.9%)
Danville City	51590	1.7%	(0.9%, 20.8%)	4.2%	(2.8%, 6.4%)
Galax City	51640	0.0%	(0.0%, 70.9%)	1.8%	(1.1%, 2.9%)
Martinsville City	51690	0.0%	(0.0%, 57.4%)	4.4%	(2.2%, 8.6%)
Norton City	51720	19.8%	(2.4%, 79.2%)	19.0%	(6.5%, 44.0%)
Radford City	51750	0.0%	(0.0%, 56.8%)	4.8%	(3.7%, 6.2%)
Roanoke City	51770	1.8%	(1.3%, 6.9%)	4.3%	(3.2%, 5.7%)

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County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE 95% CI
Amelia County	51007	4.9%	(0.8%, 25.1%)	2.3%	(1.6%, 3.3%)
Brunswick County	51025	2.2%	(1.4%, 25.2%)	10.7%	(6.1%, 18.1%)
Buckingham County	51029	4.4%	(0.8%, 20.2%)	5.7%	(3.7%, 8.8%)
Charles City County	51036	0.0%	(0.0%, 37.4%)	3.5%	(2.1%, 5.9%)
Charlotte County	51037	6.2%	(1.0%, 30.8%)	6.8%	(5.1%, 9.0%)
Chesterfield County	51041	3.8%	(1.9%, 7.3%)	6.0%	(5.2%, 6.9%)
Cumberland County	51049	0.0%	(0.0%, 26.6%)	2.0%	(1.3%, 3.0%)
Dinwiddie County	51053	3.7%	(2.1%, 20.5%)	5.1%	(3.5%, 7.3%)
Goochland County	51075	7.0%	(3.1%, 28.4%)	3.6%	(2.8%, 4.5%)
Greensville County	51081	0.0%	(0.0%, 36.7%)	4.0%	(1.8%, 8.7%)
Halifax County	51083	3.2%	(0.7%, 12.5%)	4.4%	(2.7%, 6.9%)
Hanover County	51085	4.5%	(2.7%, 10.0%)	4.8%	(3.8%, 5.9%)
Henrico County	51087	3.1%	(2.0%, 5.8%)	5.5%	(4.5%, 6.5%)
Lunenburg County	51111	13.1%	(1.9%, 53.8%)	4.3%	(2.6%, 7.1%)
Mecklenburg County	51117	0.8%	(0.5%, 11.1%)	4.3%	(2.6%, 7.1%)
New Kent County	51127	0.0%	(0.0%, 22.0%)	2.9%	(2.2%, 3.9%)
Nottoway County	51135	3.1%	(1.8%, 25.9%)	6.7%	(4.5%, 9.7%)
Powhatan County	51145	4.8%	(1.8%, 39.7%)	4.7%	(3.6%, 6.1%)
Prince Edward County	51147	7.6%	(1.8%, 27.6%)	8.1%	(5.3%, 12.2%)
Prince George County	51149	13.8%	(4.8%, 33.7%)	11.0%	(7.2%, 16.5%)
Surry County	51181	14.0%	(1.9%, 58.0%)	5.9%	(4.0%, 8.7%)
Sussex County	51183	0.0%	(-0.0%, 27.2%)	4.5%	(2.6%, 7.7%)
Colonial Heights City	51570	13.2%	(1.9%, 55.1%)	6.8%	(4.1%, 11.1%)
Emporia City	51595	0.0%	(0.0%, 68.6%)	3.3%	(1.6%, 7.0%)
Hopewell City	51670	8.4%	(2.1%, 28.2%)	7.9%	(4.8%, 12.8%)
Petersburg City	51730	15.3%	(5.2%, 37.5%)	15.8%	(11.1%, 21.9%)
Richmond City	51760	9.0%	(5.2%, 15.0%)	5.5%	(4.2%, 7.3%)

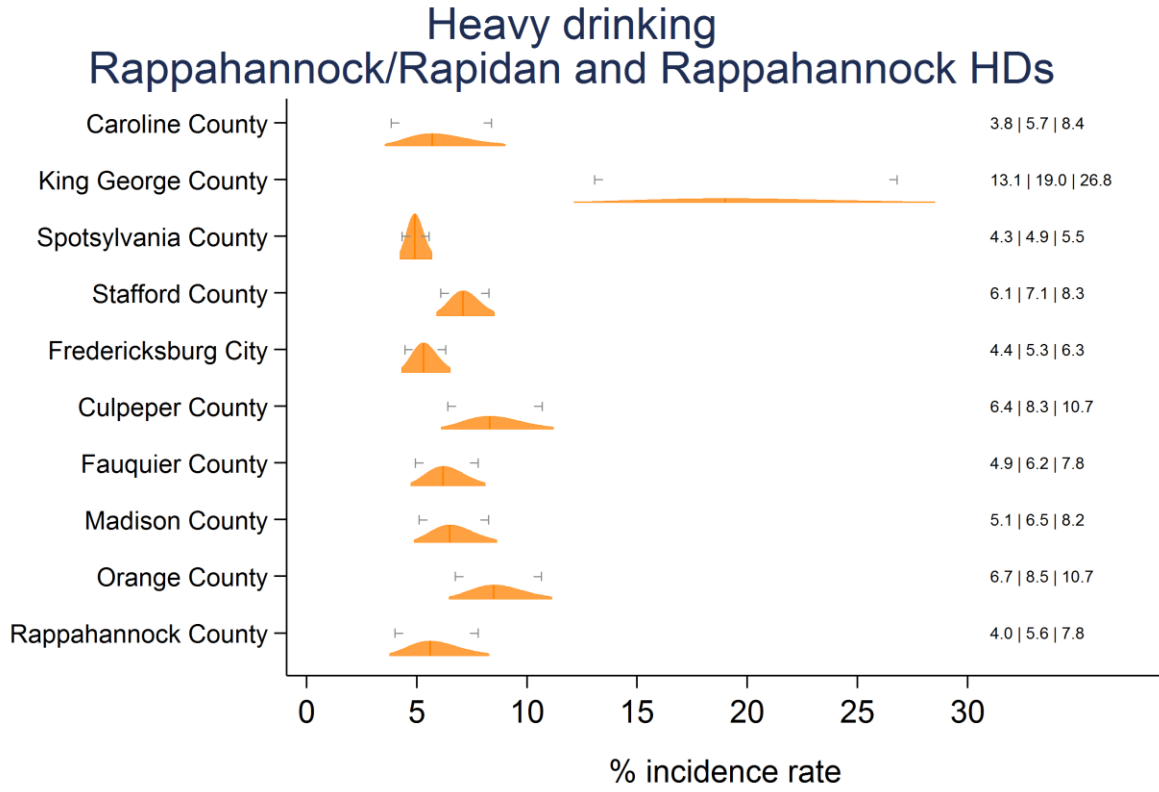
Indicator 20: Heavy Drinking



County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE 95% CI
Accomack County	51001	7.2%	(2.4%, 19.9%)	5.6%	(3.9%, 7.9%)
Essex County	51057	17.8%	(3.8%, 54.3%)	9.4%	(6.6%, 13.2%)
Gloucester County	51073	2.2%	(1.4%, 15.3%)	4.1%	(3.4%, 5.0%)
Isle of Wight County	51093	1.0%	(0.6%, 11.0%)	2.9%	(2.3%, 3.7%)
James City County	51095	6.9%	(2.5%, 18.0%)	6.0%	(4.9%, 7.4%)
King and Queen County	51097	0.0%	(0.0%, 58.6%)	3.0%	(2.1%, 4.2%)
King William County	51101	0.0%	(0.0%, 22.5%)	3.4%	(2.5%, 4.5%)
Lancaster County	51103	9.1%	(2.2%, 30.6%)	9.4%	(5.9%, 14.6%)
Mathews County	51115	10.9%	(2.7%, 35.3%)	9.3%	(5.7%, 14.6%)
Middlesex County	51119	24.7%	(3.0%, 77.8%)	16.3%	(9.0%, 27.8%)
Northampton County	51131	4.6%	(2.7%, 21.8%)	6.0%	(4.1%, 8.6%)
Northumberland County	51133	2.8%	(1.2%, 24.9%)	6.4%	(1.9%, 19.2%)
Richmond County	51159	11.5%	(4.2%, 27.7%)	6.2%	(3.8%, 9.9%)
Southampton County	51175	19.9%	(2.9%, 67.6%)	4.1%	(2.7%, 6.3%)
Westmoreland County	51193	3.1%	(0.5%, 16.9%)	6.1%	(4.1%, 8.9%)
York County	51199	11.5%	(5.2%, 23.5%)	8.6%	(6.8%, 10.8%)
Chesapeake City	51550	5.3%	(2.8%, 9.7%)	5.5%	(4.8%, 6.5%)
Franklin City	51620	5.9%	(3.2%, 21.8%)	6.5%	(4.0%, 10.5%)
Hampton City	51650	4.9%	(2.3%, 9.9%)	6.7%	(5.2%, 8.5%)
Newport News City	51700	5.2%	(2.5%, 10.6%)	6.2%	(5.1%, 7.7%)
Norfolk City	51710	7.1%	(3.5%, 14.0%)	6.2%	(4.9%, 7.8%)
Poquoson City	51735	17.1%	(2.0%, 67.2%)	4.0%	(2.9%, 5.5%)
Portsmouth City	51740	2.5%	(1.6%, 8.6%)	3.8%	(2.7%, 5.4%)
Suffolk City	51800	8.3%	(2.6%, 23.6%)	5.3%	(4.3%, 6.5%)
Virginia Beach City	51810	7.3%	(4.6%, 11.4%)	6.9%	(6.0%, 7.9%)
Williamsburg City	51830	31.5%	(3.9%, 84.1%)	12.8%	(5.6%, 26.8%)



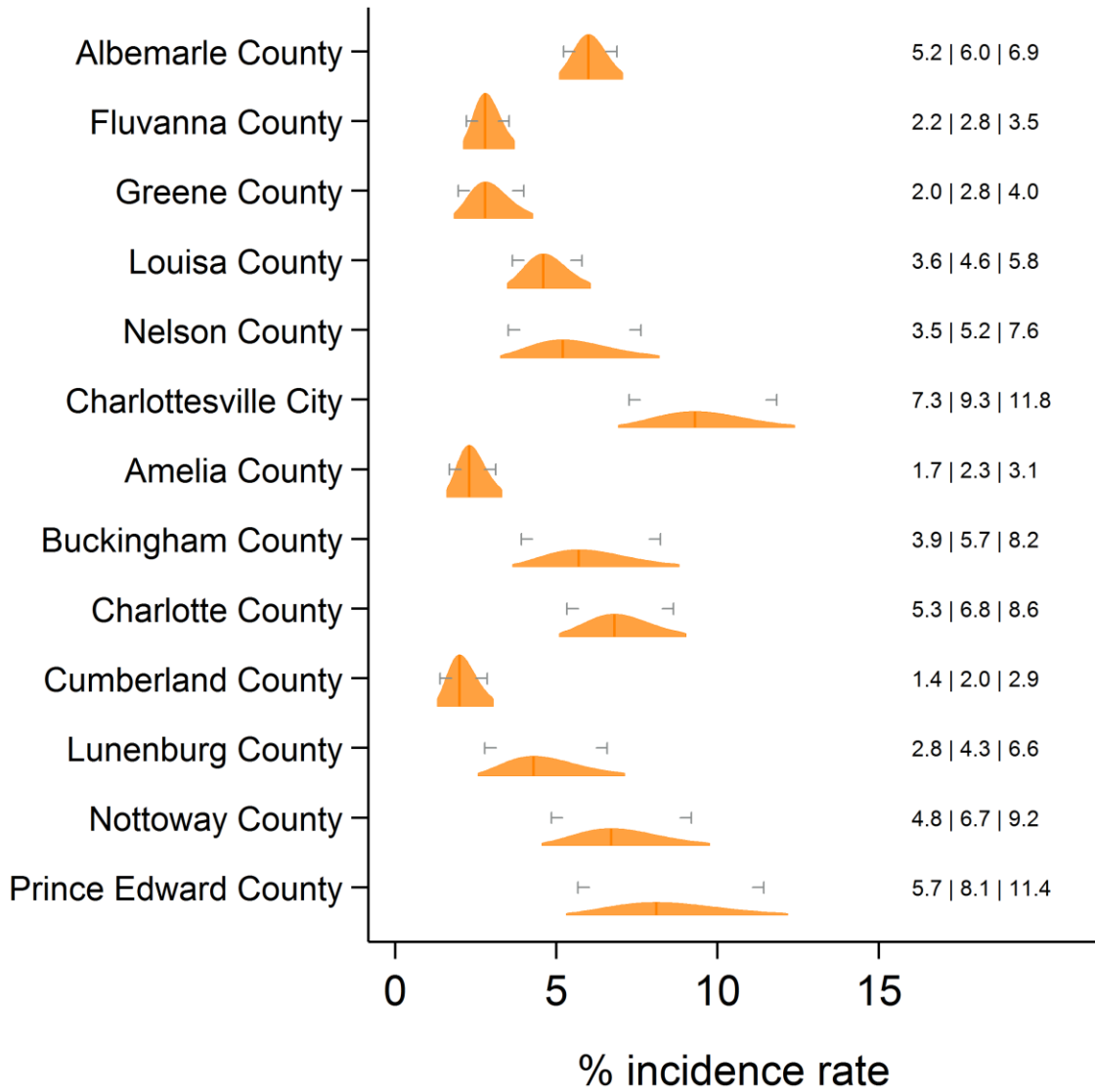
Section 4: Graphical representation



Text at right: 1-sided 95% LCB | Point Estimate | 1-sided 95% UCB
 Gray markers: 90% confidence interval



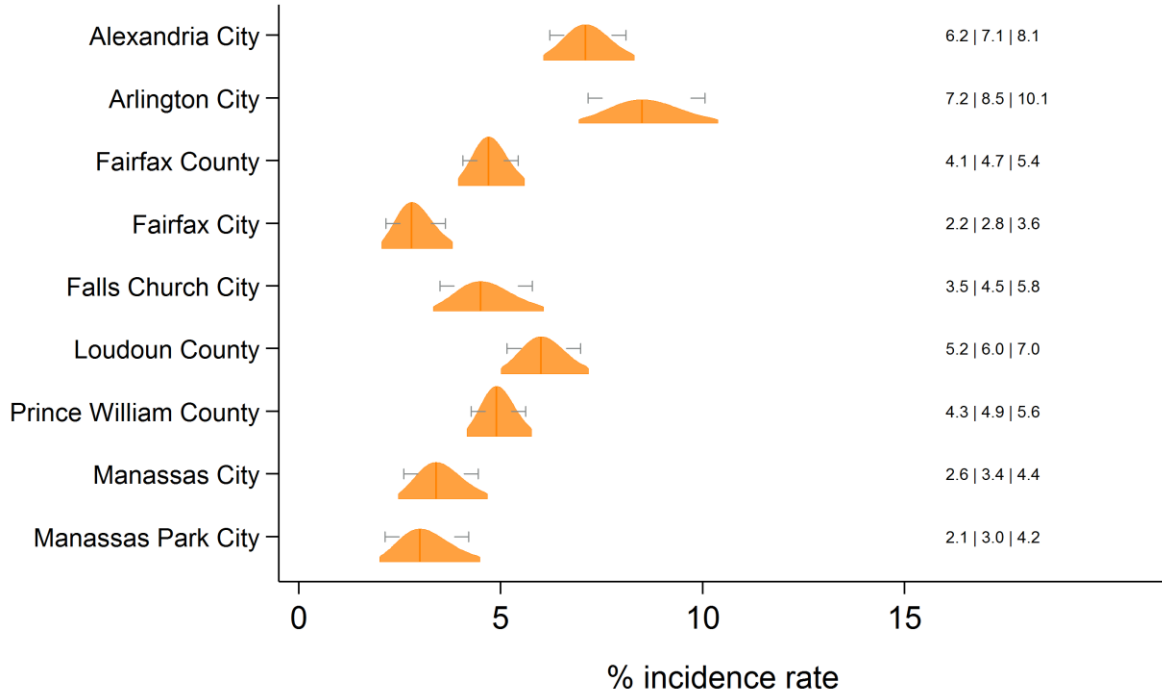
Heavy drinking Thomas Jefferson and Piedmont HDs



Text at right: 1-sided 95% LCB | Point Estimate | 1-sided 95% UCB
 Gray markers: 90% confidence interval



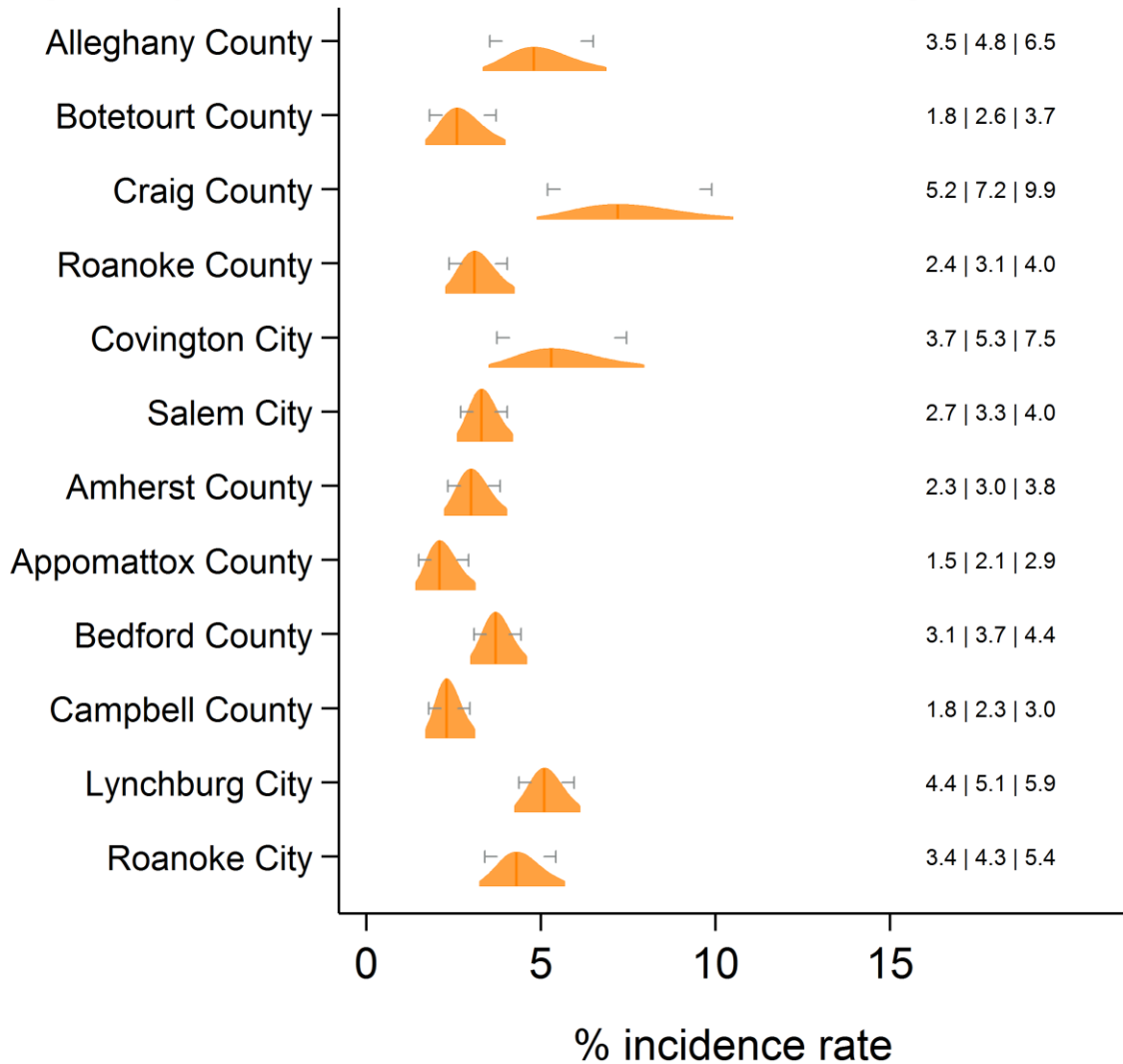
Heavy drinking Alexandria, Fairfax, Arlington, Loudon, Prince William HDs



Text at right: 1-sided 95% LCB | Point Estimate | 1-sided 95% UCB
 Gray markers: 90% confidence interval



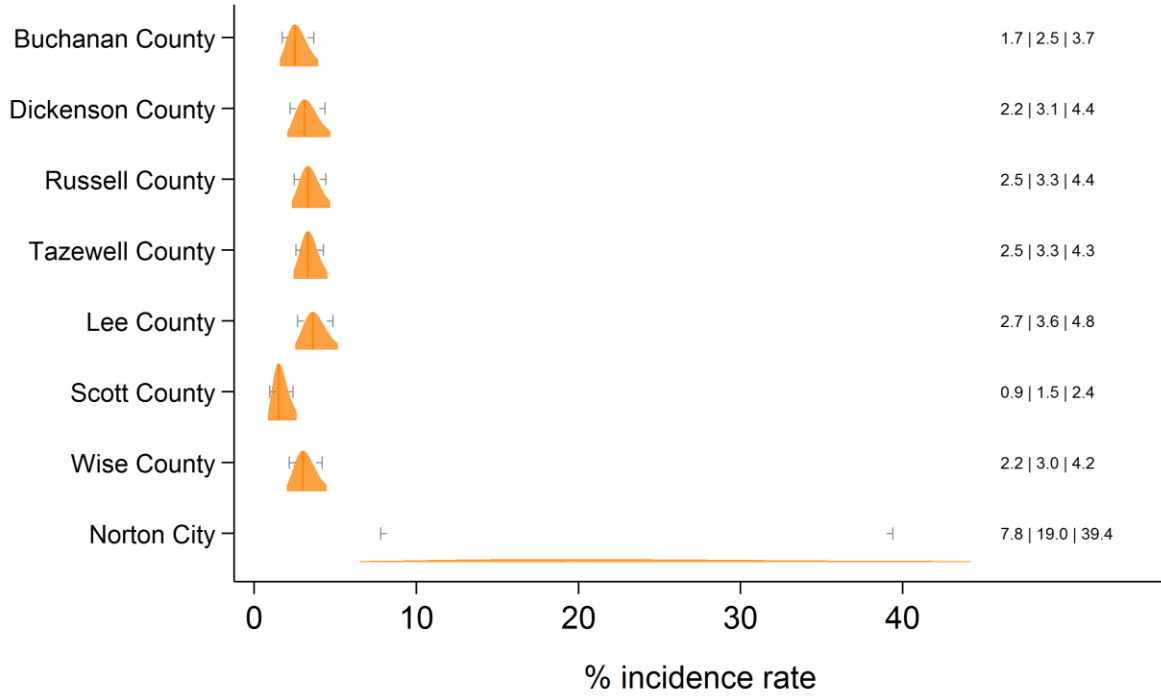
Heavy drinking Alleghany, Roanoke and Central Virginia HDs



Text at right: 1-sided 95% LCB | Point Estimate | 1-sided 95% UCB
 Gray markers: 90% confidence interval



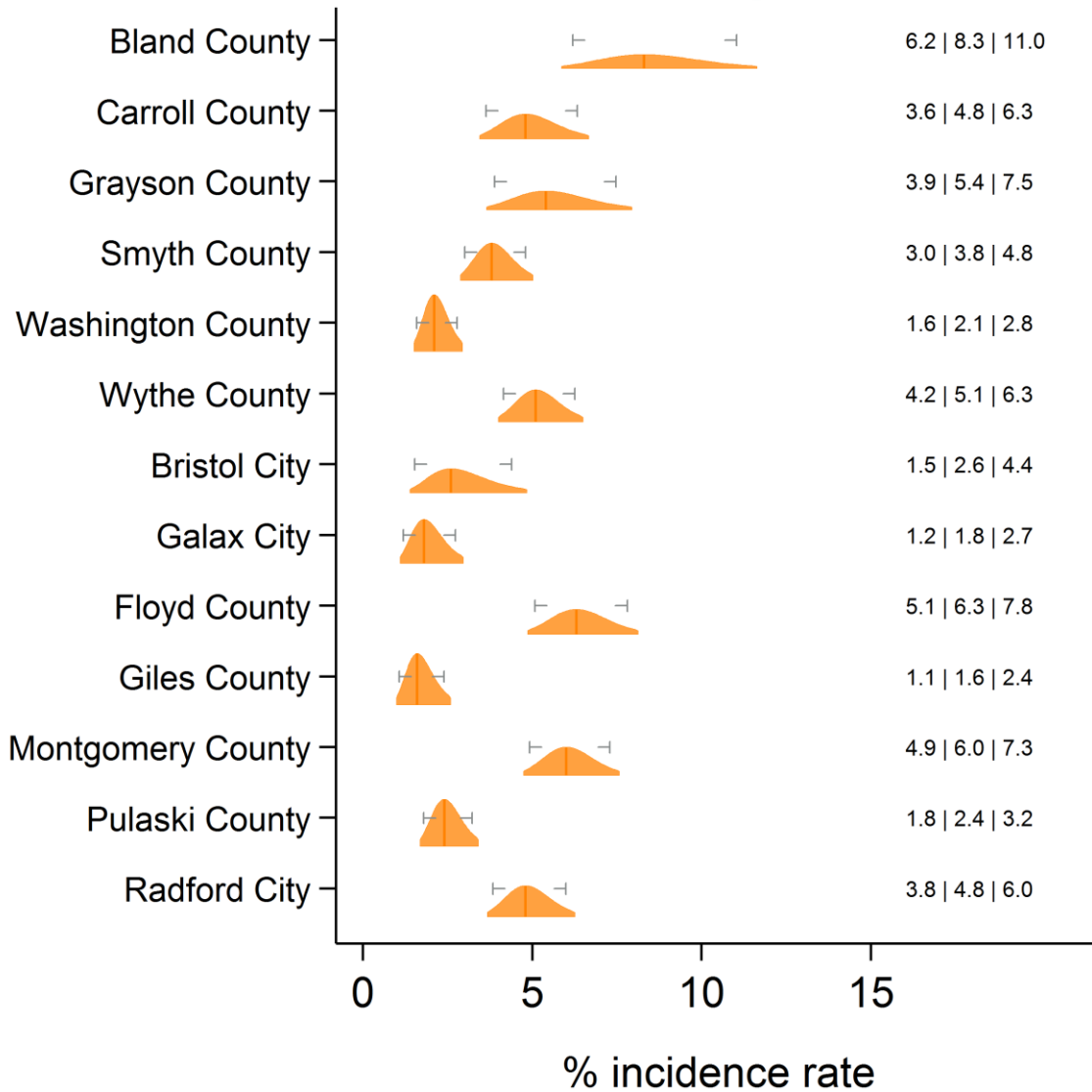
Heavy drinking Cumberland Plateau and Lenowisco HDs



Text at right: 1-sided 95% LCB | Point Estimate | 1-sided 95% UCB
 Gray markers: 90% confidence interval



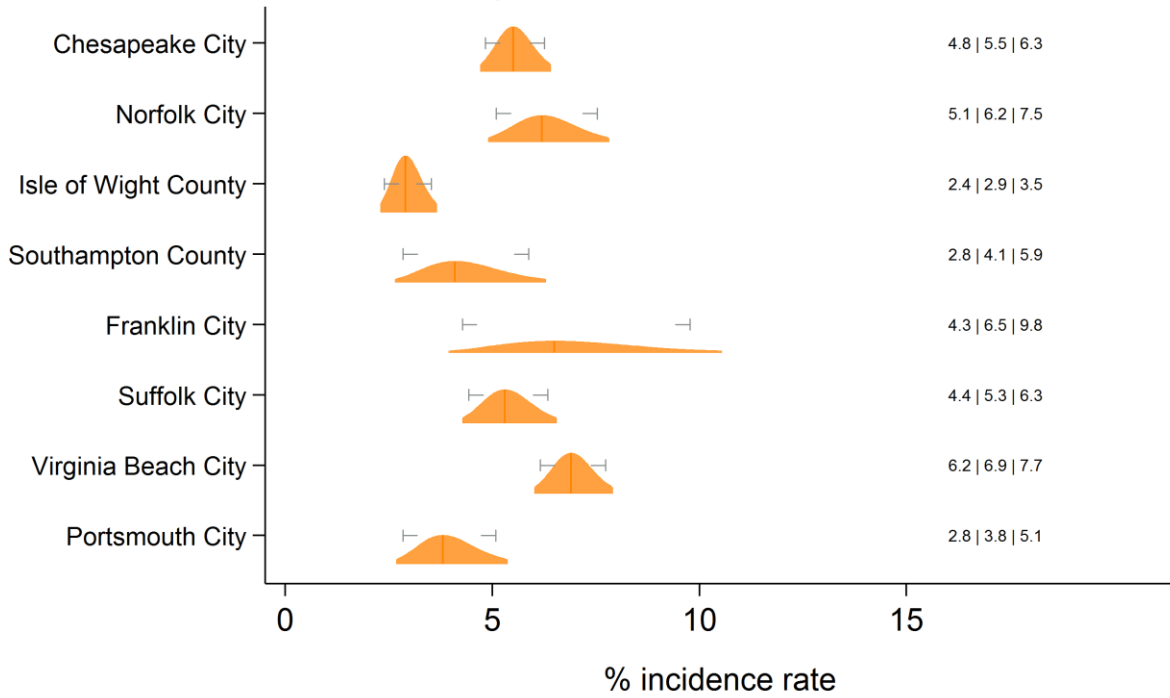
Heavy drinking New River and Mount Rogers HDs



Text at right: 1-sided 95% LCB | Point Estimate | 1-sided 95% UCB
 Gray markers: 90% confidence interval



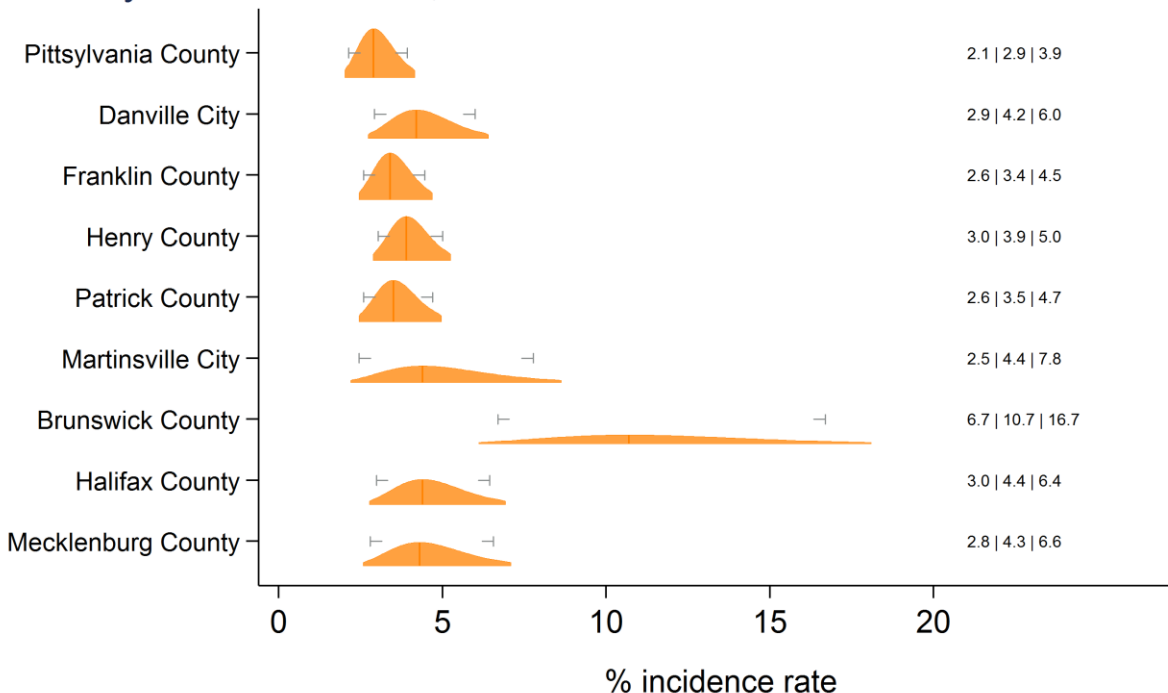
Heavy drinking Norfolk, Portsmouth, Chesapeake, VA Beach, W. Tidewater HDs



Text at right: 1-sided 95% LCB | Point Estimate | 1-sided 95% UCB
 Gray markers: 90% confidence interval



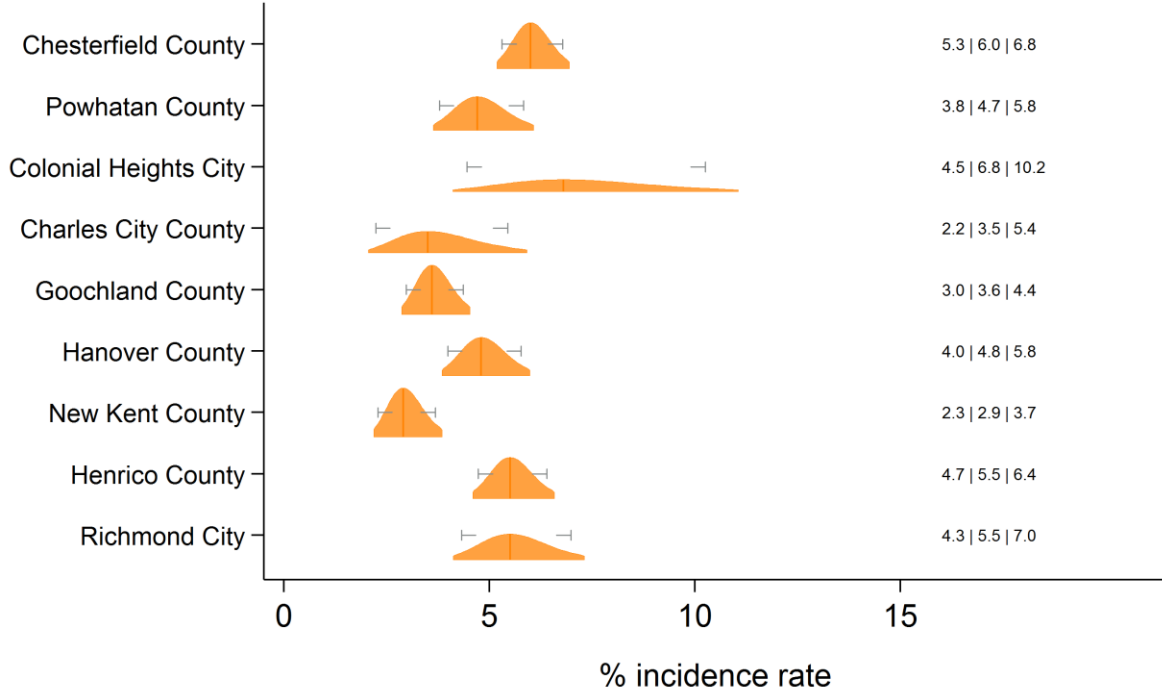
Heavy drinking Pittsylvania/Danville, Southside and West Piedmont HDs



Text at right: 1-sided 95% LCB | Point Estimate | 1-sided 95% UCB
 Gray markers: 90% confidence interval



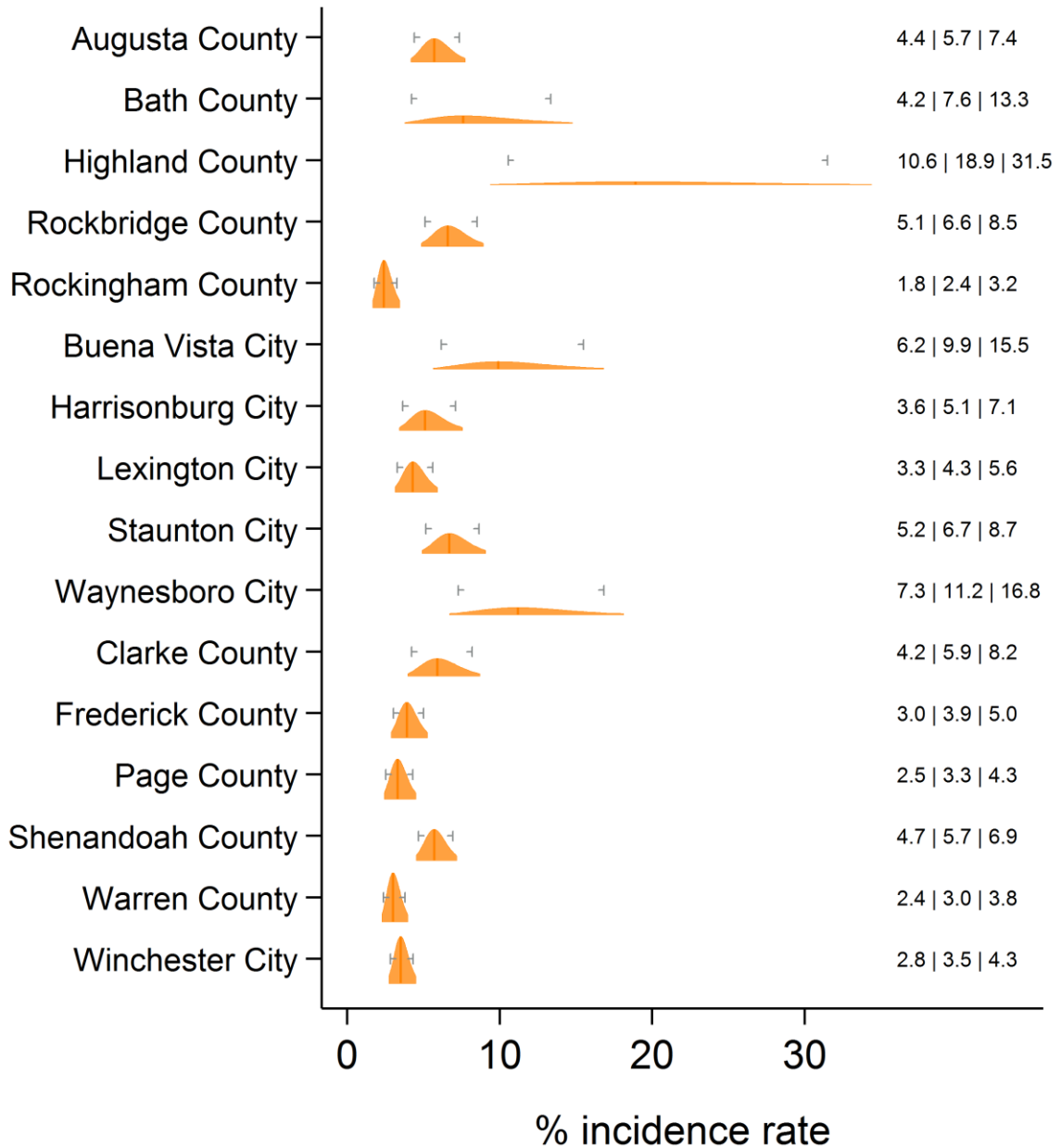
Heavy drinking Chesterfield, Chickahominy, Henrico and Richmond HDs



Text at right: 1-sided 95% LCB | Point Estimate | 1-sided 95% UCB
 Gray markers: 90% confidence interval



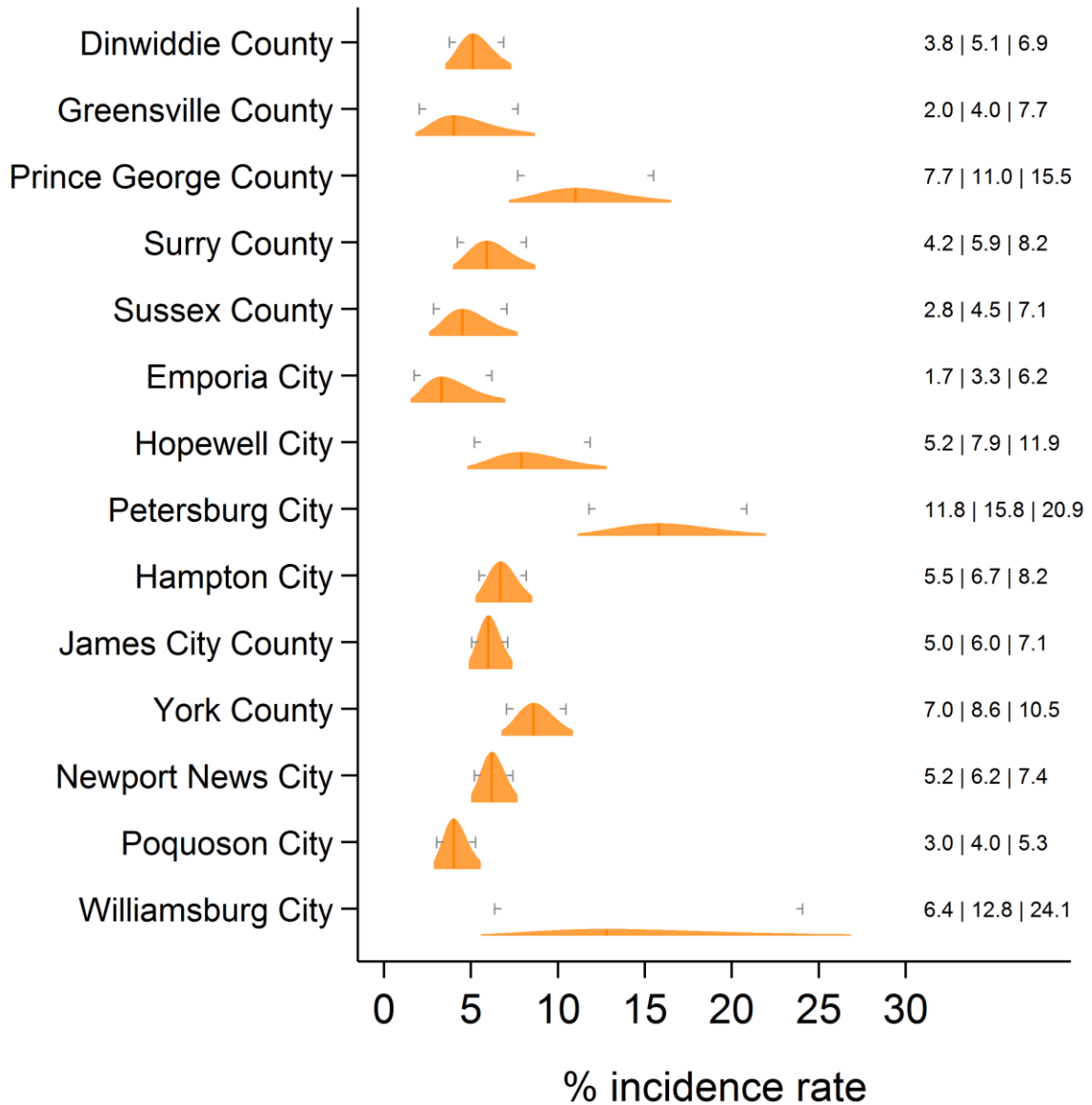
Heavy drinking Central Shenandoah and Lord Fairfax HDs



Text at right: 1-sided 95% LCB | Point Estimate | 1-sided 95% UCB
 Gray markers: 90% confidence interval



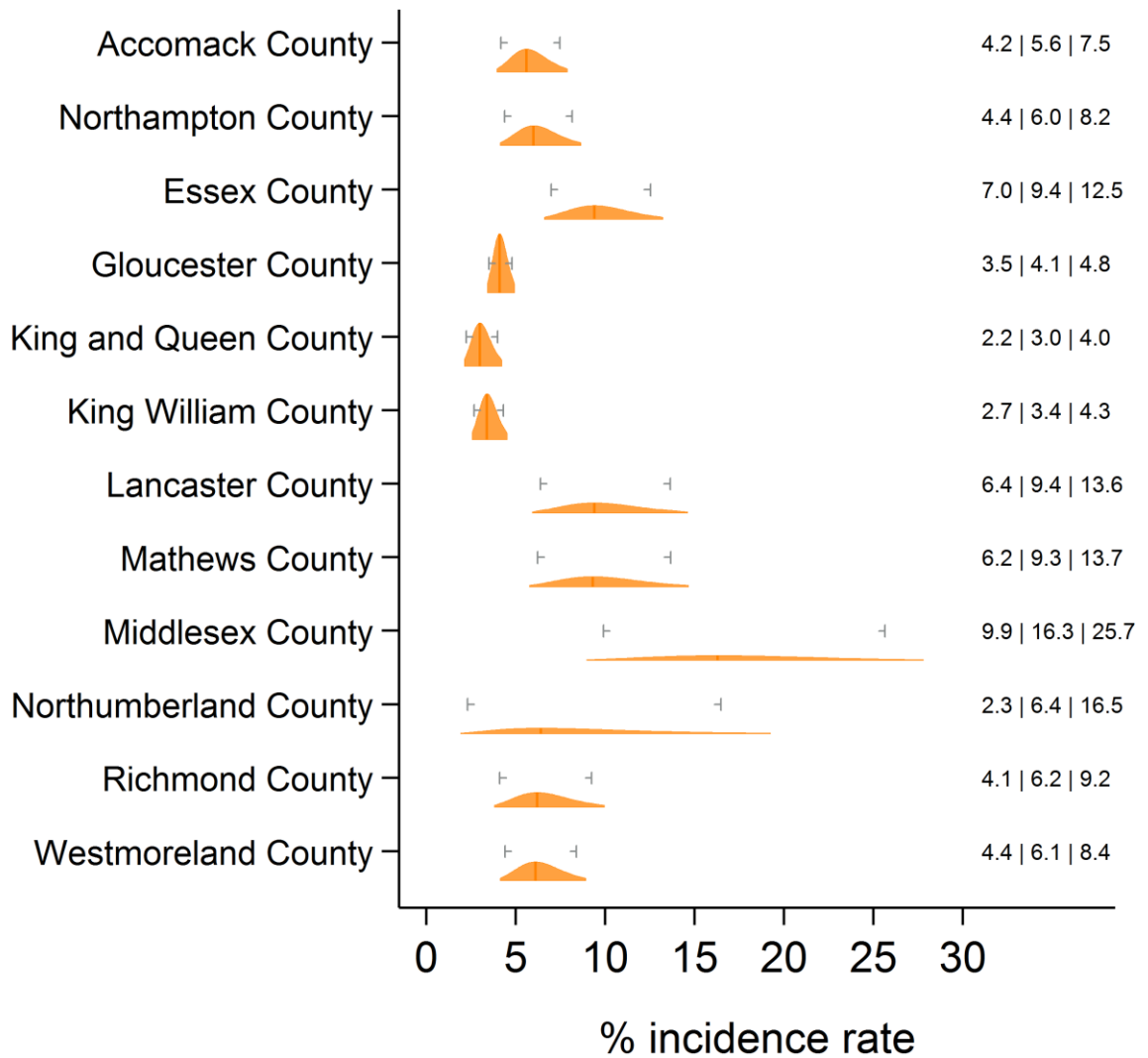
Heavy drinking Crater, Peninsula and Hampton HDs



Text at right: 1-sided 95% LCB | Point Estimate | 1-sided 95% UCB
 Gray markers: 90% confidence interval



Heavy drinking Eastern Shore and Three Rivers HDs



Text at right: 1-sided 95% LCB | Point Estimate | 1-sided 95% UCB
 Gray markers: 90% confidence interval



Section 5: Additional diagnostics

Direct estimate is inside the 95% SAE Wilson CI: 44 areas.

Direct estimate is outside the 95% SAE Wilson CI: 89 areas.

SAE estimate is inside the 95% direct Wilson CI: 132 areas.

SAE estimate is outside the 95% direct Wilson CI: 1 areas.

SAE Wilson 95% CI is fully inside the 95% direct Wilson CI: 123 areas.

SAE Wilson 95% CI partially overlaps with the 95% direct Wilson CI: 10 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: 93 areas.

SAE standard error is greater than the (nonzero) direct standard error: 4 areas.

Direct standard error is zero: 36 areas.

Proportion of SAE variance due to ACS sampling error: min = 0.08%; med = 0.97%; max = 5.27%.

Proportion of SAE variance to sampling error in regression coefficient estimates: min = 64.63%; med = 91.95%; max = 98.39%.

Proportion of SAE variance due to model selection: min = 1.06%; med = 7.07%; max = 33.68%.