

Indicator 17: Ever had a heart attack

Internal variable name: outc17_heart_attack

Definition: (Ever told) you had a heart attack, also called a myocardial infarction?

Predictive models

	Mixed, demos only	Logit, no area effects	Mixed with area covariates
	b/se	b/se	b/se
Outcome 17: Ever had a heart attack			
NH Black vs. NH White	0.1159 (0.1600)	0.1022 (0.1788)	0.1022 (0.1600)
NH Asian vs. NH White	-0.8363 (0.5944)	-0.6425 (0.5875)	-0.6425 (0.5925)
NH Other vs. NH White	0.1514 (0.3210)	0.1728 (0.2830)	0.1728 (0.3353)
Hispanic vs. NH White	-0.6545 (0.5449)	-0.5012 (0.4528)	-0.5012 (0.5457)
Female	-0.6225*** (0.1108)	-0.6283*** (0.1267)	-0.6283*** (0.1117)
Age 18-34 vs. 65+	-3.7092*** (0.4767)	-3.6968*** (0.4726)	-3.6968*** (0.4700)
Age 35-44 vs. 65+	-1.4529*** (0.3679)	-1.4079*** (0.3374)	-1.4079*** (0.3696)
Age 45-54 vs. 65+	-1.0276*** (0.1781)	-1.0198*** (0.1830)	-1.0198*** (0.1703)
Age 55-64 vs. 65+	-0.5378** (0.1636)	-0.5400*** (0.1445)	-0.5400** (0.1621)
Average aggregate household income per occupied housing unit in the ACS		-0.0281** (0.0087)	-0.0281*** (0.0071)
% below 1.5x poverty line		-0.0520** (0.0174)	-0.0520*** (0.0139)
Length of life z-score, County Rankings		1.3097*** (0.3836)	1.3097*** (0.3144)
Road density per county population		0.2780 (0.1964)	0.2780 (0.1922)
% rent >30% of income		0.0469*** (0.0113)	0.0469*** (0.0102)
% education Bachelor+, population 25+ y/o		0.0255 (0.0537)	0.0255 (0.0481)
o.Length of life z-score, County Rankings		0.0000 (.)	
c.ACS_pct_educ_college#c.CHR_LengthOfLife_Z		-0.0374* (0.0148)	-0.0374** (0.0121)
o.% education Bachelor+, population 25+ y/o		0.0000	

		(.)	
o.Road density per county population		0.0000	
		(.)	
c.ACS_pct_educ_college#c.lnRoads_per_pop		-0.0013	-0.0013
		(0.0042)	(0.0038)
Intercept	-1.7913***	-4.6017	-4.6017
	(0.1027)	(2.7792)	(2.6930)
Area effect variance			
	0.0370		0.0000
	(0.0427)		(0.0000)

Number of alternative models used to estimate model error = 2.

Results

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Augusta County	51015	7.1%	(4.3%, 14.6%)	6.6%	(5.4%, 8.1%)
Bath County	51017	0.0%	(0.0%, 37.3%)	1.0%	(0.4%, 2.5%)
Caroline County	51033	9.3%	(2.0%, 34.4%)	5.9%	(4.8%, 7.3%)
Clarke County	51043	3.6%	(1.4%, 29.3%)	4.4%	(3.3%, 5.7%)
Culpeper County	51047	7.3%	(2.7%, 18.6%)	8.2%	(6.7%, 10.0%)
Fauquier County	51061	0.0%	(0.0%, 10.1%)	3.5%	(2.2%, 5.4%)
Frederick County	51069	7.9%	(3.5%, 17.1%)	6.0%	(5.0%, 7.1%)
Highland County	51091	11.0%	(2.2%, 56.9%)	3.1%	(1.9%, 4.9%)
King George County	51099	4.5%	(2.4%, 39.5%)	2.6%	(1.6%, 4.1%)
Madison County	51113	8.6%	(1.3%, 39.5%)	5.6%	(4.5%, 6.9%)
Orange County	51137	4.6%	(2.3%, 19.4%)	9.3%	(7.8%, 11.1%)
Page County	51139	1.7%	(1.0%, 21.6%)	6.3%	(4.8%, 8.3%)
Rappahannock County	51157	7.7%	(1.2%, 36.9%)	8.1%	(6.5%, 10.2%)
Rockbridge County	51163	0.0%	(0.0%, 13.0%)	8.4%	(6.9%, 10.1%)
Rockingham County	51165	2.4%	(1.5%, 8.7%)	5.4%	(4.4%, 6.8%)
Shenandoah County	51171	4.1%	(1.1%, 14.5%)	8.7%	(7.3%, 10.3%)
Spotsylvania County	51177	8.4%	(2.8%, 22.7%)	6.1%	(4.9%, 7.5%)
Stafford County	51179	1.6%	(1.1%, 6.3%)	4.5%	(3.4%, 5.9%)
Warren County	51187	4.0%	(0.9%, 15.6%)	6.0%	(4.8%, 7.4%)
Buena Vista City	51530	14.7%	(2.0%, 59.4%)	4.0%	(1.4%, 11.2%)
Fredericksburg City	51630	0.8%	(0.5%, 21.6%)	3.5%	(2.5%, 5.0%)
Harrisonburg City	51660	0.0%	(0.0%, 44.6%)	2.5%	(1.1%, 5.5%)
Lexington City	51678	0.0%	(0.0%, 96.3%)	9.2%	(4.7%, 17.3%)
Staunton City	51790	0.0%	(0.0%, 43.5%)	5.3%	(3.7%, 7.5%)
Waynesboro City	51820	3.6%	(1.5%, 44.8%)	6.0%	(3.7%, 9.6%)
Winchester City	51840	0.0%	(0.0%, 60.4%)	4.5%	(2.9%, 6.8%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Albemarle County	51003	9.8%	(4.9%, 18.6%)	9.5%	(6.4%, 13.7%)
Alleghany County	51005	8.7%	(2.0%, 30.8%)	7.6%	(6.4%, 9.1%)
Amherst County	51009	4.2%	(0.9%, 17.5%)	9.1%	(7.7%, 10.7%)
Appomattox County	51011	5.5%	(2.4%, 25.1%)	9.8%	(8.3%, 11.4%)
Arlington City	51013	3.6%	(1.6%, 8.0%)	3.5%	(2.3%, 5.4%)
Bedford County	51019	7.2%	(3.6%, 14.1%)	9.5%	(7.8%, 11.6%)
Botetourt County	51023	16.1%	(6.7%, 34.0%)	6.5%	(5.0%, 8.3%)
Campbell County	51031	6.0%	(2.4%, 13.9%)	5.3%	(4.4%, 6.4%)
Craig County	51045	0.0%	(0.0%, 68.2%)	3.1%	(1.8%, 5.4%)
Fairfax County	51059	2.0%	(1.3%, 3.0%)	3.4%	(2.7%, 4.4%)
Fluvanna County	51065	3.9%	(0.8%, 17.7%)	6.1%	(4.8%, 7.7%)
Greene County	51079	0.0%	(0.0%, 34.9%)	2.6%	(1.9%, 3.7%)
Loudoun County	51107	3.6%	(1.7%, 7.4%)	4.3%	(3.4%, 5.4%)
Louisa County	51109	3.3%	(1.6%, 17.1%)	6.2%	(5.1%, 7.5%)
Nelson County	51125	0.0%	(0.0%, 28.6%)	4.6%	(3.2%, 6.6%)
Prince William County	51153	3.1%	(1.7%, 5.7%)	3.8%	(2.9%, 4.8%)
Roanoke County	51161	3.6%	(1.5%, 8.5%)	5.7%	(4.4%, 7.3%)
Alexandria City	51510	2.0%	(1.2%, 7.5%)	2.5%	(1.8%, 3.7%)
Charlottesville City	51540	3.2%	(1.9%, 21.7%)	3.7%	(2.4%, 5.7%)
Covington City	51580	60.8%	(7.5%, 96.8%)	8.7%	(3.8%, 18.3%)
Fairfax City	51600	3.9%	(2.1%, 12.1%)	2.7%	(1.5%, 4.6%)
Falls Church City	51610	0.0%	(0.0%, 25.6%)	3.4%	(1.2%, 8.7%)
Lynchburg City	51680	0.5%	(0.3%, 7.7%)	6.0%	(4.3%, 8.2%)
Manassas City	51683	1.4%	(0.8%, 34.2%)	2.5%	(1.4%, 4.4%)
Manassas Park City	51685	0.0%	(0.0%, 76.5%)	1.1%	(0.4%, 2.8%)
Salem City	51775	1.6%	(0.8%, 43.3%)	4.5%	(3.0%, 6.7%)

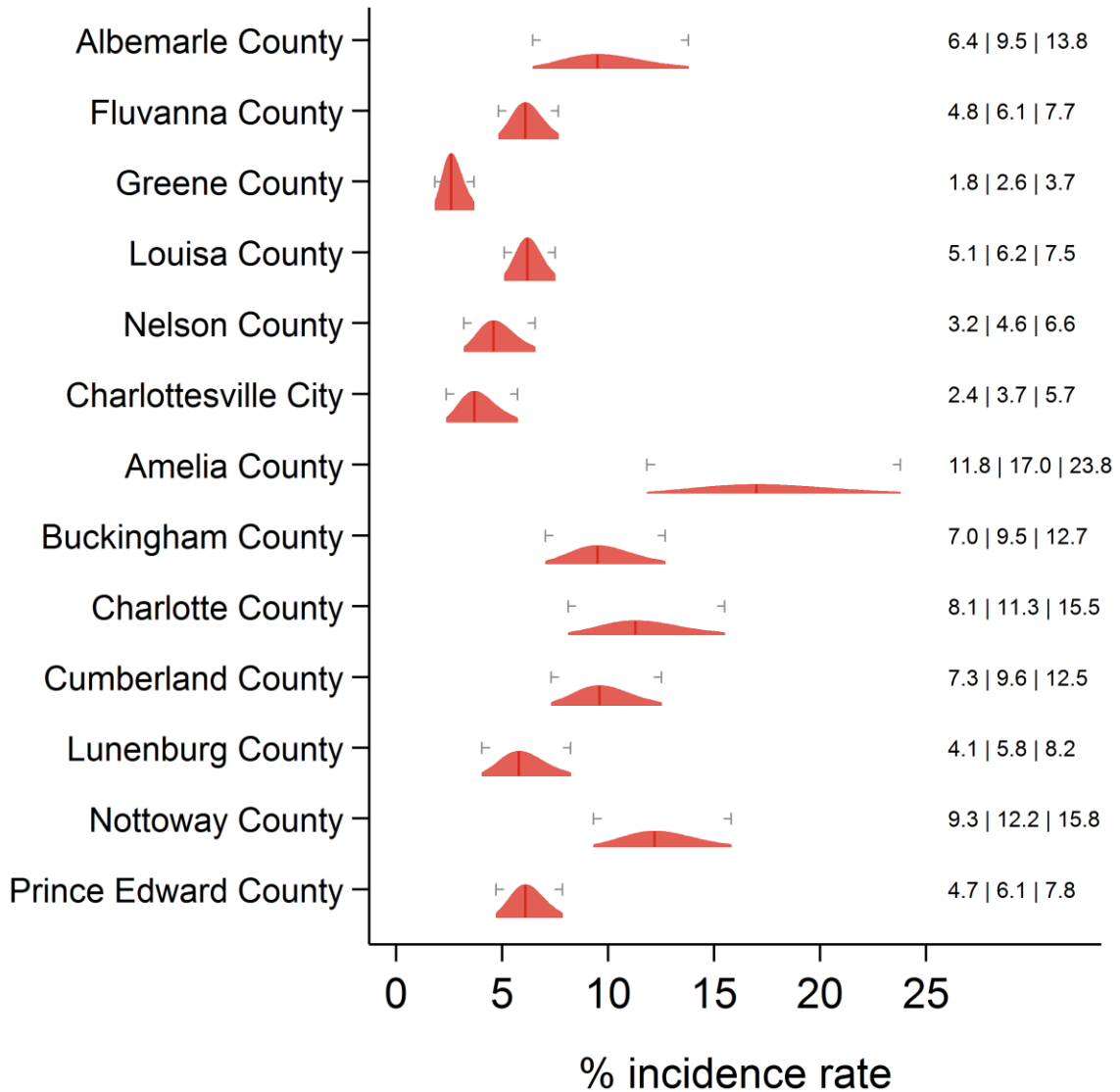
County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Bland County	51021	5.3%	(1.8%, 42.7%)	10.7%	(6.8%, 16.4%)
Buchanan County	51027	8.6%	(2.7%, 24.7%)	21.0%	(15.1%, 28.5%)
Carroll County	51035	0.9%	(0.6%, 15.7%)	8.7%	(7.0%, 10.9%)
Dickenson County	51051	18.8%	(5.1%, 49.8%)	25.1%	(17.0%, 35.4%)
Floyd County	51063	0.9%	(0.7%, 18.1%)	3.6%	(2.6%, 5.0%)
Franklin County	51067	5.4%	(1.3%, 19.2%)	7.1%	(5.8%, 8.7%)
Giles County	51071	12.8%	(4.7%, 30.5%)	6.3%	(4.6%, 8.5%)
Grayson County	51077	0.0%	(0.0%, 22.0%)	5.6%	(3.8%, 8.3%)
Henry County	51089	6.4%	(3.2%, 18.1%)	8.7%	(6.8%, 11.0%)
Lee County	51105	8.3%	(1.7%, 32.4%)	11.3%	(8.7%, 14.5%)
Montgomery County	51121	3.4%	(2.3%, 10.9%)	7.3%	(4.9%, 10.6%)
Patrick County	51141	19.8%	(6.1%, 48.7%)	13.0%	(10.5%, 16.0%)
Pittsylvania County	51143	5.2%	(2.4%, 11.0%)	9.3%	(7.4%, 11.8%)
Pulaski County	51155	14.6%	(4.6%, 38.0%)	4.9%	(3.6%, 6.5%)
Russell County	51167	7.1%	(2.1%, 21.5%)	12.0%	(9.7%, 14.7%)
Scott County	51169	13.8%	(4.2%, 36.6%)	9.5%	(7.4%, 12.2%)
Smyth County	51173	6.8%	(3.8%, 32.6%)	8.8%	(7.3%, 10.6%)
Tazewell County	51185	4.7%	(2.6%, 17.8%)	8.2%	(6.3%, 10.7%)
Washington County	51191	8.8%	(4.2%, 17.5%)	7.0%	(5.8%, 8.6%)
Wise County	51195	15.8%	(7.5%, 30.1%)	16.2%	(12.5%, 20.7%)
Wythe County	51197	7.0%	(3.0%, 23.1%)	8.0%	(6.7%, 9.5%)
Bristol City	51520	22.0%	(2.3%, 76.7%)	8.9%	(4.9%, 15.9%)
Danville City	51590	0.0%	(0.0%, 18.8%)	6.6%	(4.5%, 9.5%)
Galax City	51640	0.0%	(0.0%, 76.1%)	7.2%	(3.2%, 15.2%)
Martinsville City	51690	3.7%	(1.4%, 53.6%)	8.2%	(4.5%, 14.6%)
Norton City	51720	0.0%	(0.0%, 60.5%)	4.6%	(2.0%, 10.1%)
Radford City	51750	0.0%	(0.0%, 41.9%)	3.2%	(1.4%, 7.3%)
Roanoke City	51770	6.7%	(2.1%, 19.5%)	5.8%	(4.3%, 7.7%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Amelia County	51007	7.0%	(3.9%, 36.1%)	17.0%	(11.9%, 23.7%)
Brunswick County	51025	30.5%	(12.0%, 58.6%)	15.5%	(11.6%, 20.3%)
Buckingham County	51029	8.5%	(2.4%, 26.0%)	9.5%	(7.1%, 12.7%)
Charles City County	51036	0.0%	(0.0%, 51.5%)	2.8%	(1.8%, 4.5%)
Charlotte County	51037	6.8%	(3.0%, 22.8%)	11.3%	(8.1%, 15.4%)
Chesterfield County	51041	5.2%	(3.0%, 8.9%)	7.4%	(6.2%, 8.8%)
Cumberland County	51049	1.5%	(0.9%, 21.8%)	9.6%	(7.3%, 12.5%)
Dinwiddie County	51053	17.9%	(2.7%, 63.2%)	8.6%	(7.2%, 10.2%)
Goochland County	51075	1.9%	(1.0%, 25.4%)	2.5%	(1.6%, 4.0%)
Greensville County	51081	0.0%	(0.0%, 37.1%)	9.4%	(6.9%, 12.6%)
Halifax County	51083	12.6%	(4.8%, 29.3%)	10.5%	(8.2%, 13.3%)
Hanover County	51085	2.1%	(0.5%, 8.4%)	6.4%	(5.0%, 8.2%)
Henrico County	51087	5.4%	(2.9%, 9.7%)	6.0%	(5.0%, 7.2%)
Lunenburg County	51111	2.4%	(1.4%, 29.6%)	5.8%	(4.1%, 8.3%)
Mecklenburg County	51117	10.8%	(5.3%, 21.0%)	9.4%	(7.5%, 11.7%)
New Kent County	51127	0.0%	(0.0%, 22.2%)	4.0%	(2.7%, 5.8%)
Nottoway County	51135	29.9%	(6.0%, 74.0%)	12.2%	(9.3%, 15.8%)
Powhatan County	51145	0.0%	(0.0%, 21.1%)	3.7%	(2.7%, 5.2%)
Prince Edward County	51147	6.1%	(1.0%, 29.5%)	6.1%	(4.7%, 7.8%)
Prince George County	51149	7.4%	(3.1%, 16.8%)	7.7%	(6.0%, 9.7%)
Surry County	51181	6.3%	(1.8%, 40.0%)	8.2%	(7.1%, 9.5%)
Sussex County	51183	1.4%	(1.0%, 16.3%)	8.8%	(6.7%, 11.4%)
Colonial Heights City	51570	14.5%	(5.0%, 35.1%)	6.2%	(3.6%, 10.4%)
Emporia City	51595	0.0%	(0.0%, 91.8%)	6.3%	(3.0%, 12.6%)
Hopewell City	51670	2.9%	(1.7%, 23.0%)	8.0%	(4.3%, 14.4%)
Petersburg City	51730	4.3%	(2.3%, 18.4%)	12.3%	(7.9%, 18.8%)
Richmond City	51760	2.2%	(0.8%, 6.2%)	4.0%	(2.6%, 6.1%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Accomack County	51001	4.0%	(2.3%, 13.9%)	9.8%	(8.3%, 11.6%)
Essex County	51057	4.0%	(0.6%, 21.3%)	6.6%	(5.2%, 8.4%)
Gloucester County	51073	3.8%	(2.3%, 13.4%)	6.5%	(4.9%, 8.5%)
Isle of Wight County	51093	0.0%	(-0.0%, 15.5%)	6.0%	(5.1%, 7.0%)
James City County	51095	3.3%	(1.9%, 10.5%)	8.2%	(6.4%, 10.5%)
King and Queen County	51097	0.0%	(-0.0%, 31.6%)	2.5%	(1.4%, 4.5%)
King William County	51101	6.5%	(2.7%, 34.3%)	7.3%	(6.0%, 8.9%)
Lancaster County	51103	5.8%	(2.8%, 43.4%)	6.4%	(4.5%, 8.9%)
Mathews County	51115	0.9%	(0.6%, 24.4%)	7.7%	(5.8%, 10.1%)
Middlesex County	51119	1.0%	(0.6%, 20.2%)	4.9%	(3.4%, 6.9%)
Northampton County	51131	9.0%	(2.3%, 29.1%)	12.5%	(9.6%, 16.0%)
Northumberland County	51133	1.7%	(0.9%, 20.1%)	10.6%	(8.9%, 12.5%)
Richmond County	51159	9.9%	(2.5%, 32.1%)	7.1%	(5.2%, 9.6%)
Southampton County	51175	2.5%	(1.2%, 33.3%)	9.1%	(7.2%, 11.6%)
Westmoreland County	51193	3.6%	(1.9%, 34.3%)	9.4%	(7.7%, 11.3%)
York County	51199	7.3%	(2.4%, 20.3%)	6.5%	(5.2%, 8.1%)
Chesapeake City	51550	6.6%	(2.2%, 18.5%)	6.4%	(5.5%, 7.6%)
Franklin City	51620	0.5%	(0.4%, 23.1%)	6.4%	(3.7%, 10.8%)
Hampton City	51650	6.4%	(3.2%, 12.2%)	8.1%	(6.3%, 10.2%)
Newport News City	51700	2.9%	(1.8%, 8.1%)	5.9%	(4.7%, 7.5%)
Norfolk City	51710	5.7%	(3.2%, 10.0%)	5.1%	(4.0%, 6.5%)
Poquoson City	51735	5.9%	(1.5%, 66.6%)	3.8%	(2.2%, 6.5%)
Portsmouth City	51740	2.6%	(1.6%, 8.8%)	9.3%	(6.8%, 12.4%)
Suffolk City	51800	6.2%	(2.8%, 13.3%)	7.9%	(6.6%, 9.4%)
Virginia Beach City	51810	4.2%	(2.6%, 6.8%)	6.4%	(5.4%, 7.5%)
Williamsburg City	51830	2.6%	(0.8%, 65.5%)	7.1%	(4.3%, 11.6%)

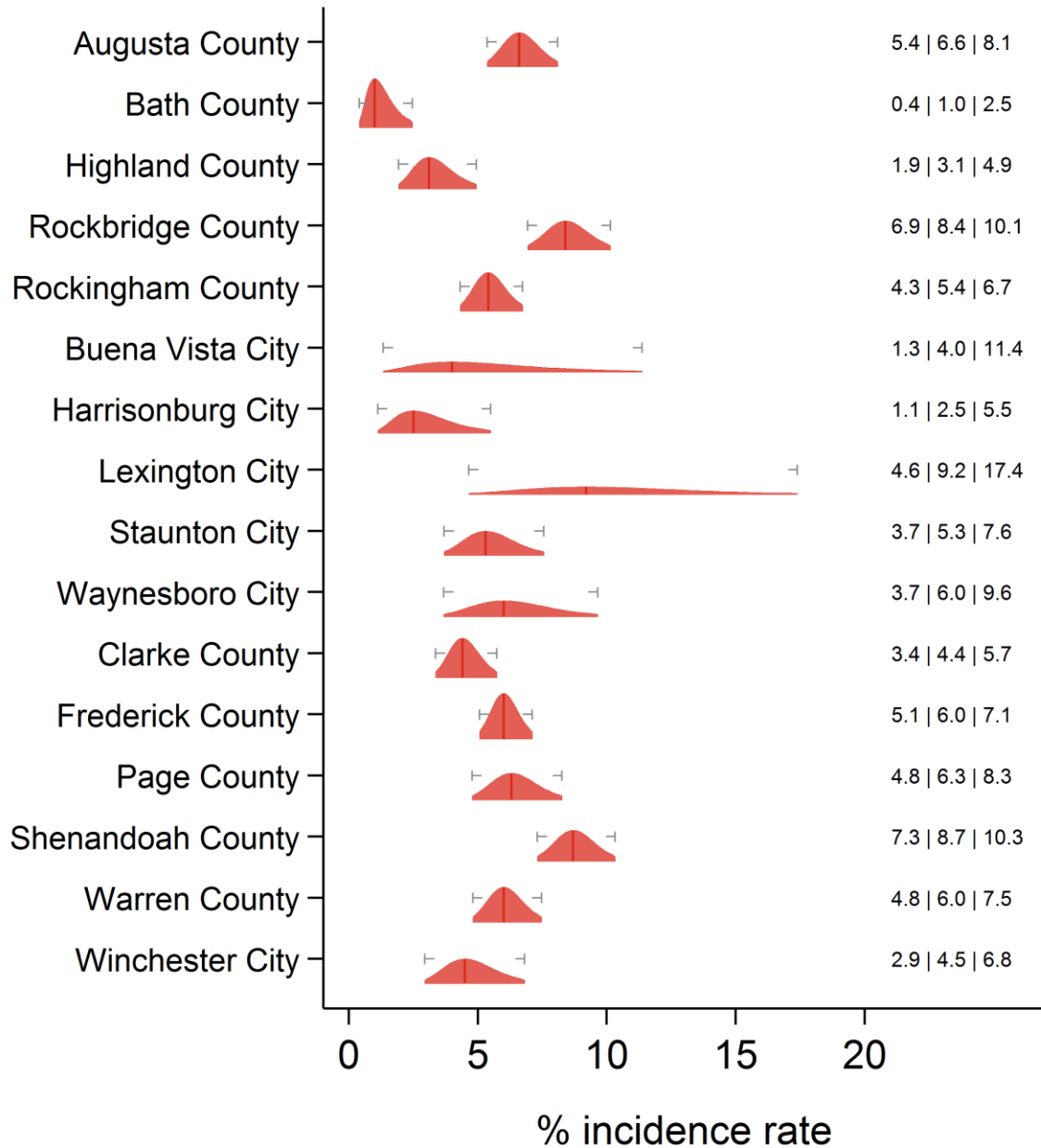
Graphical representation

Ever had a heart attack Thomas Jefferson and Piedmont HDs



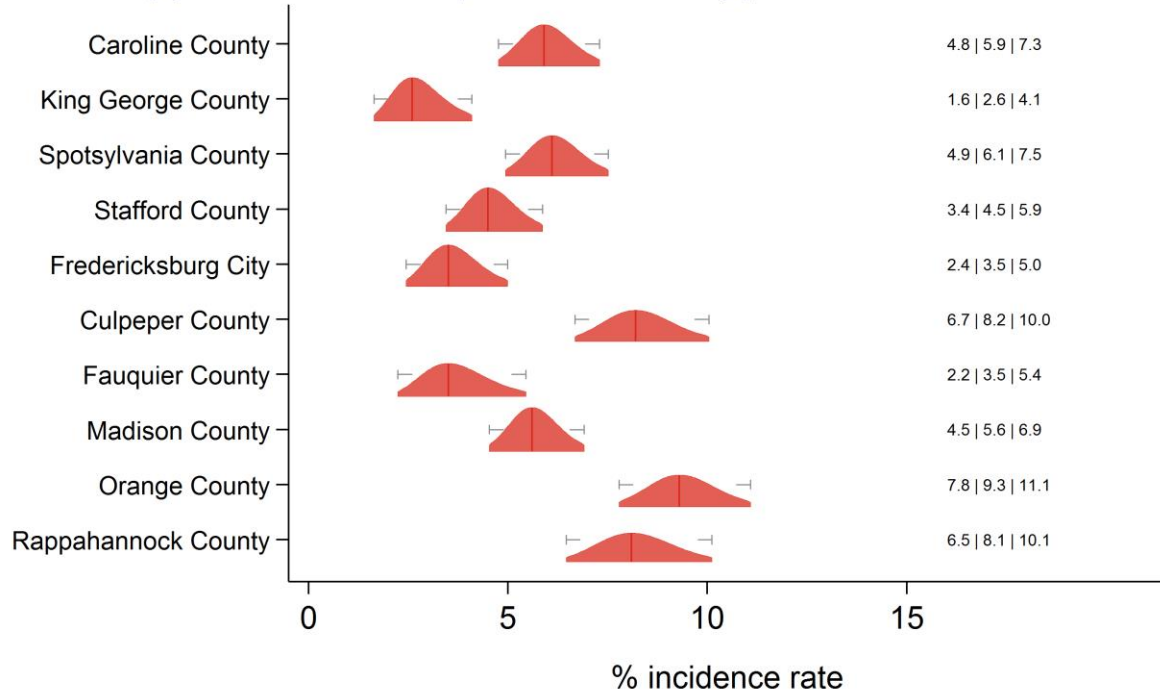
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Ever had a heart attack Central Shenandoah and Lord Fairfax HDs



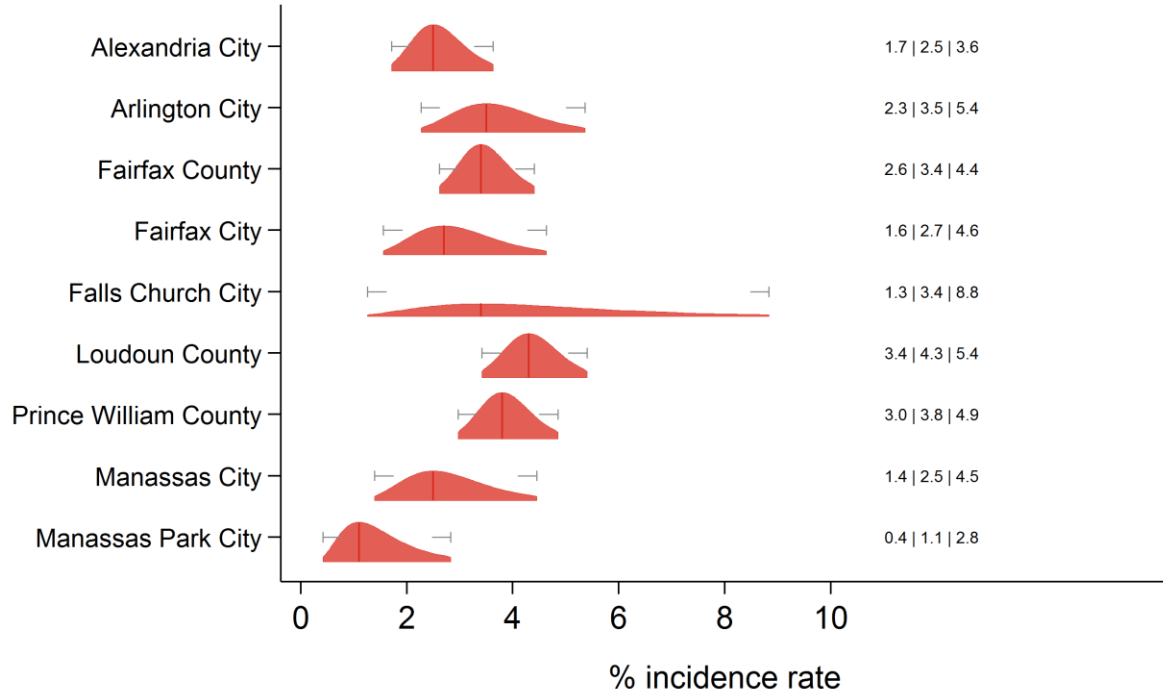
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Ever had a heart attack Rappahannock/Rapidan and Rappahannock HDs



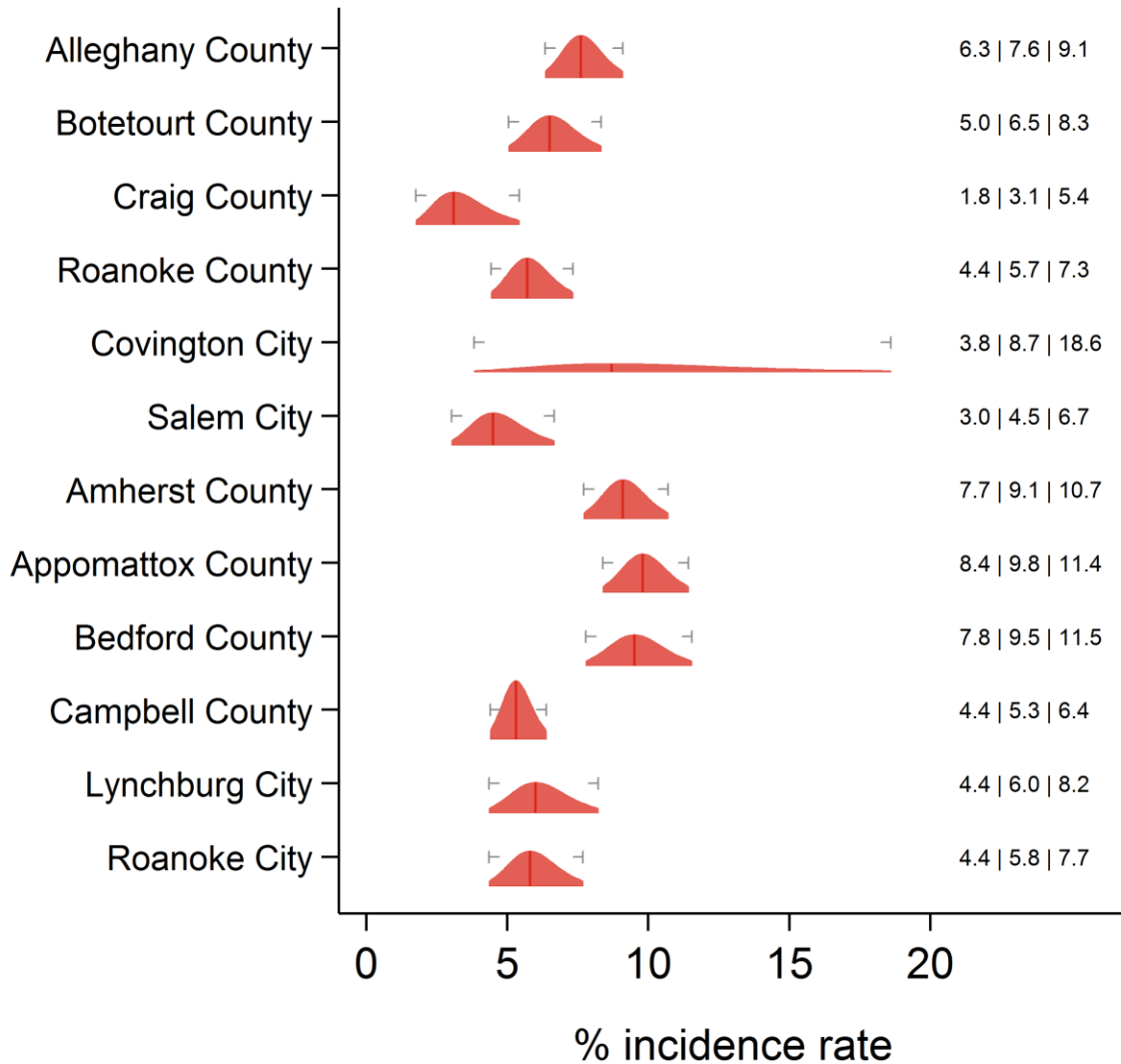
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Ever had a heart attack Alexandria, Fairfax, Arlington, Loudon, Prince William HDs



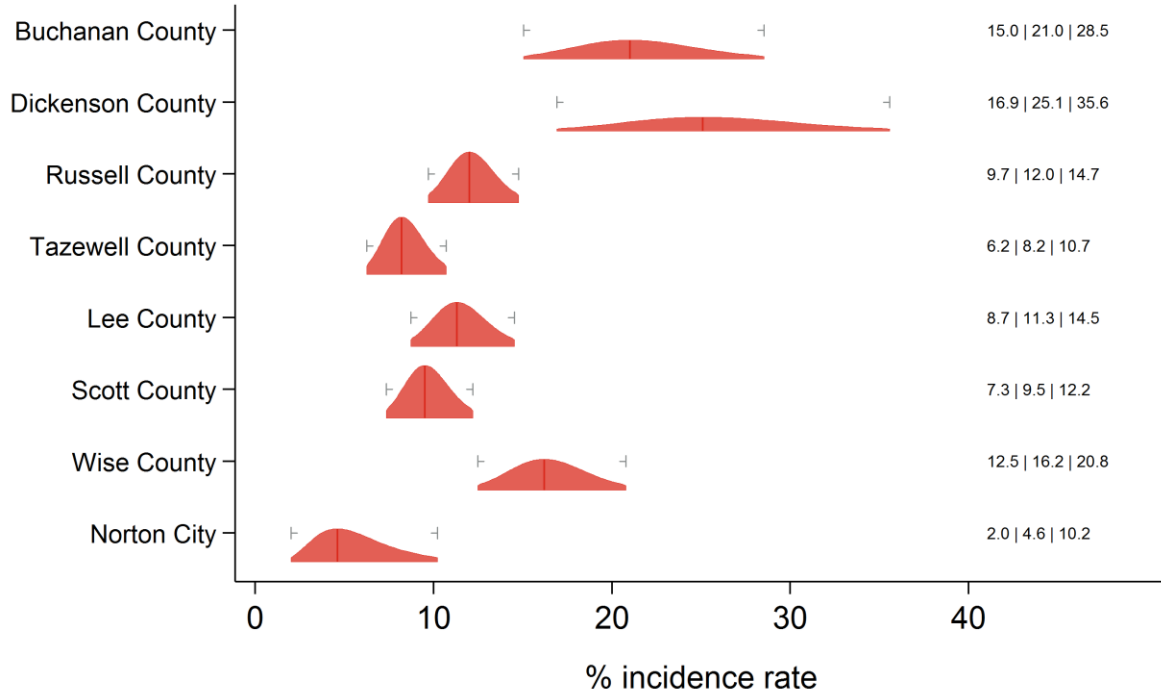
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Ever had a heart attack Alleghany, Roanoke and Central Virginia HDs



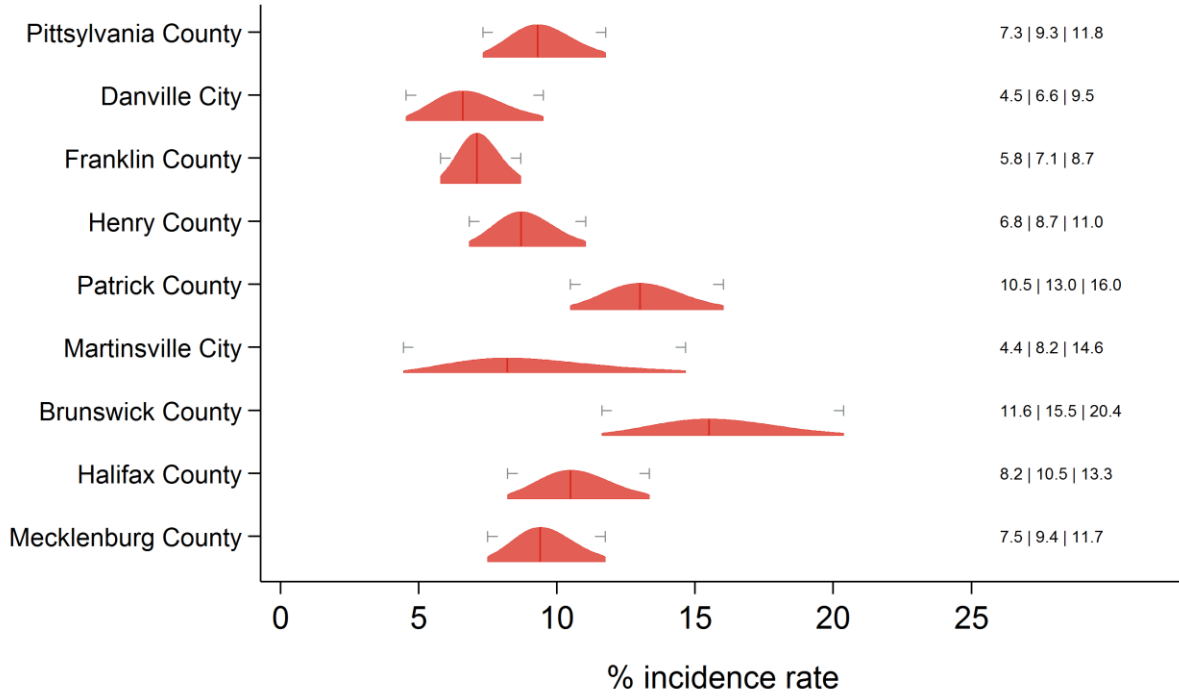
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Ever had a heart attack Cumberland Plateau and Lenowisco HDs



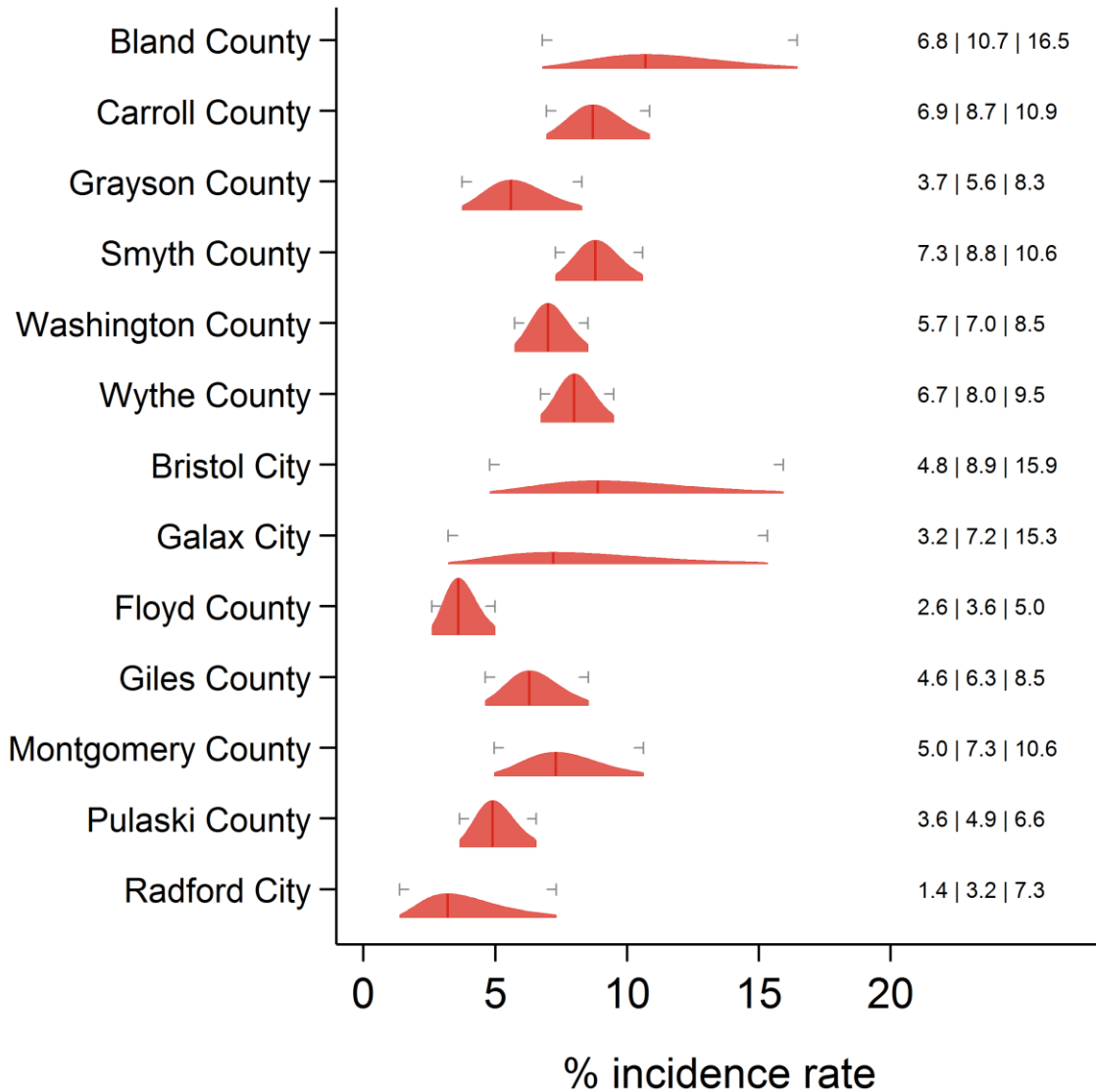
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Ever had a heart attack Pittsylvania/Danville, Southside and West Piedmont HDs



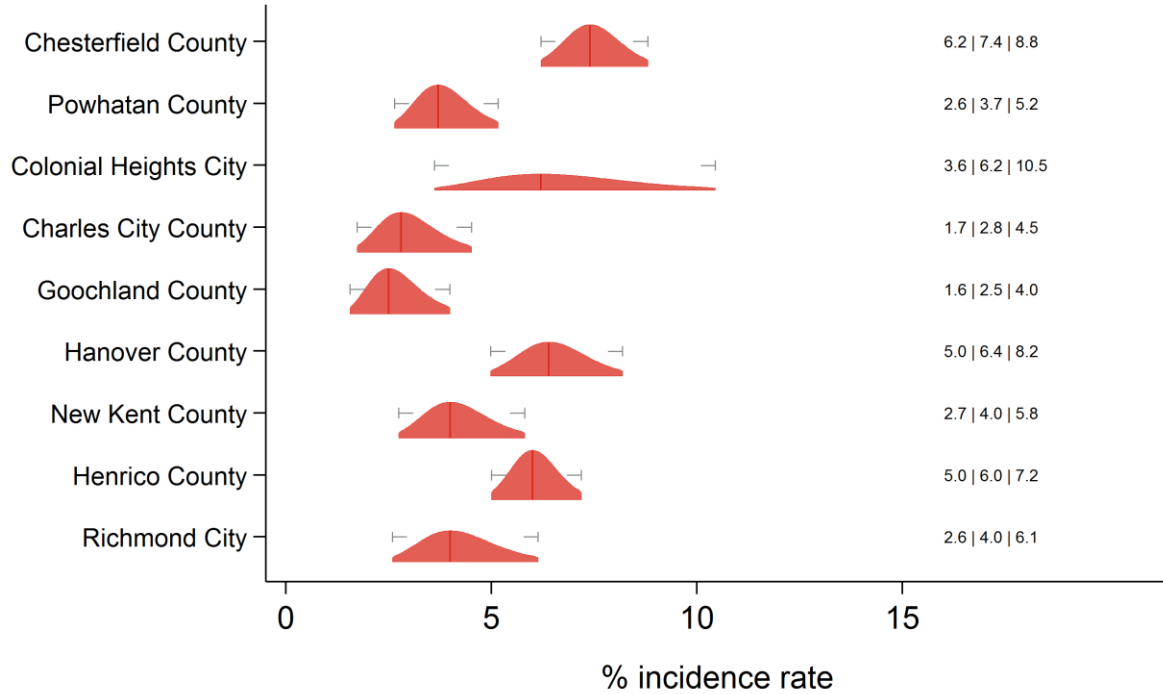
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Ever had a heart attack New River and Mount Rogers HDs



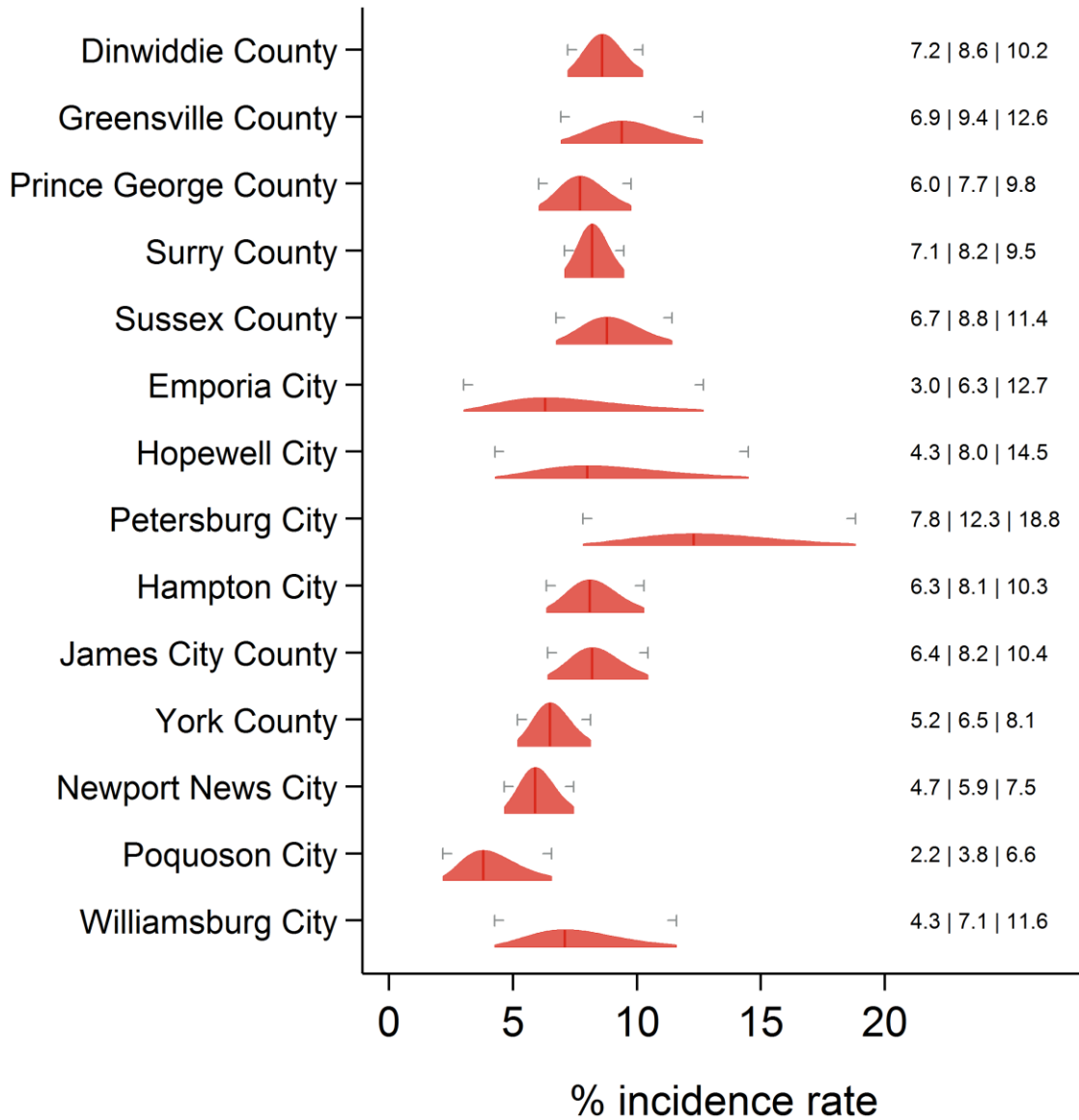
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Ever had a heart attack Chesterfield, Chickahominy, Henrico and Richmond HDs



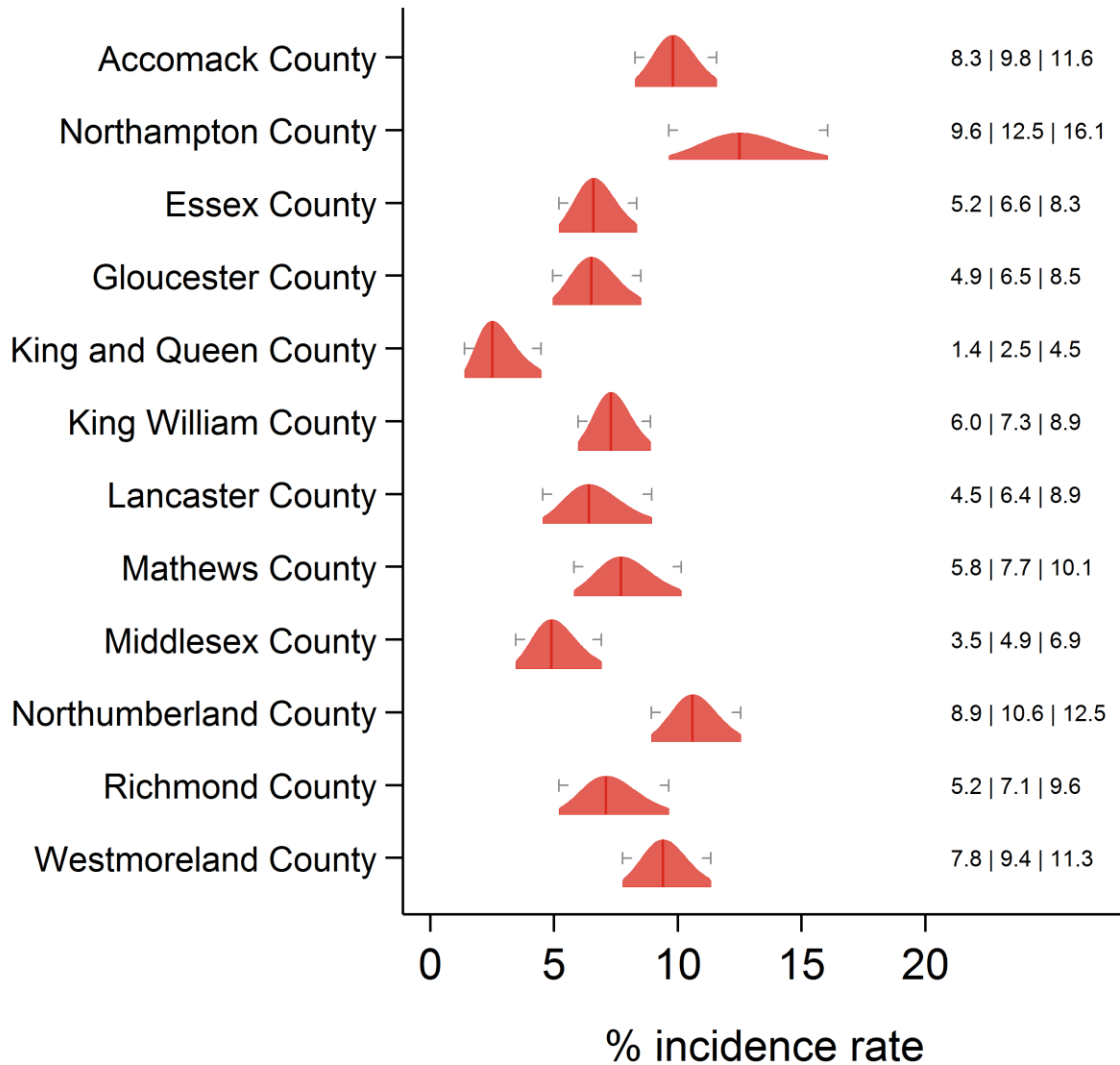
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Ever had a heart attack Crater, Peninsula and Hampton HDs



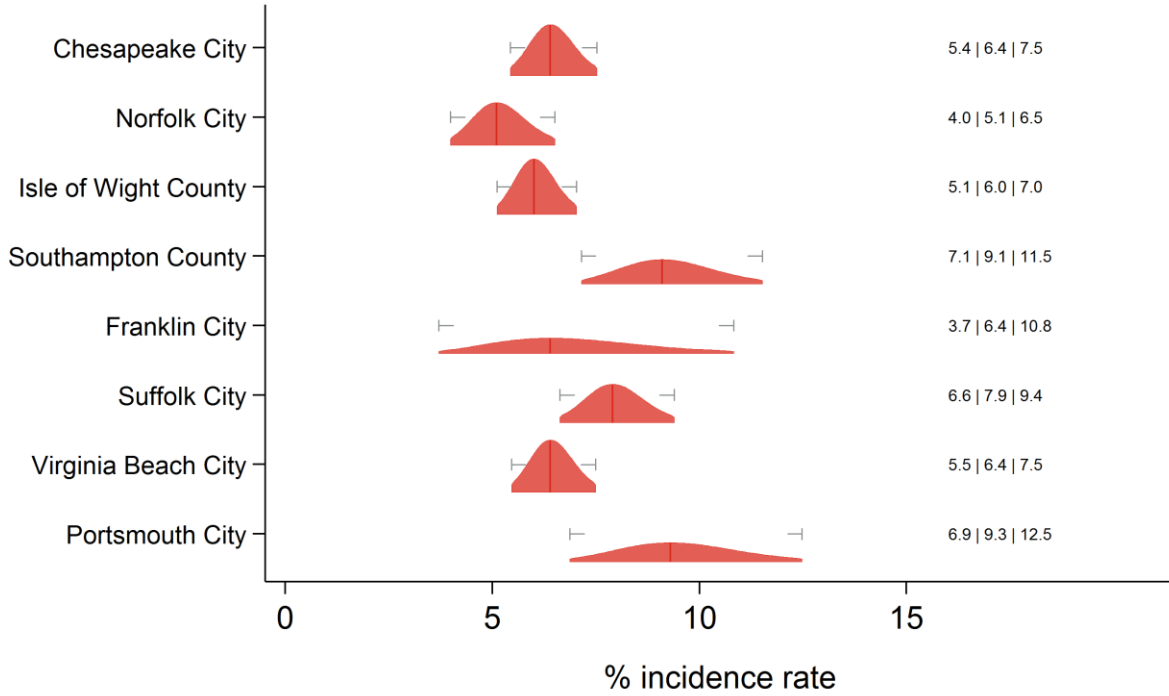
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Ever had a heart attack Eastern Shore and Three Rivers HDs



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

Ever had a heart attack 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: 32 areas.

Direct estimate is outside the 95% SAE Wilson CI: 101 areas.

SAE estimate is inside the 95% direct Wilson CI: 130 areas.

SAE estimate is outside the 95% direct Wilson CI: 3 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: 99 areas.

SAE standard error is greater than the (nonzero) direct standard error: 10 areas.

Direct standard error is zero: 24 areas.

Proportion of SAE variance due to ACS sampling error: min = 0.09%; med = 1.27%; max = 5.14%.

Proportion of SAE variance due to sampling error in regression coefficient estimates: min = 92.97%; med = 98.55%; max = 99.89%.

Proportion of SAE variance due to model selection: min = 0.00%; med = 0.20%; max = 4.00%.

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