



Indicator 7: Ever had a heart attack

Internal variable name: outc7_heart_attack

Section 1: Definition

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

Section 2: Predictive models

	Mixed, demos only	Logit, no area effects	Mixed with area covariates
	b/se	b/se	b/se
Outcome 7: Ever had a heart attack			
Non-Hispanic Black vs. Non-Hispanic White	0.1409 (0.1873)	0.1848 (0.1823)	0.1848 (0.1901)
Non-Hispanic Other vs. Non-Hispanic White	0.6231 (0.3166)	0.6183* (0.2601)	0.6183 (0.3232)
Hispanic vs. Non-Hispanic White	-0.8937 (0.5029)	-0.6747 (0.5394)	-0.6747 (0.5059)
Female	-0.7390*** (0.1099)	-0.7711*** (0.1228)	-0.7711*** (0.1118)
Age 25-34 vs. 65+	-3.3048*** (0.5229)	-3.2132*** (0.4730)	-3.2132*** (0.5219)
Age 35-44 vs. 65+	-2.2853*** (0.3070)	-2.2084*** (0.3302)	-2.2084*** (0.3107)
Age 45-54 vs. 65+	-1.2419*** (0.1981)	-1.1711*** (0.1815)	-1.1711*** (0.1909)
Age 55-64 vs. 65+	-0.4959*** (0.1312)	-0.4552*** (0.1378)	-0.4552*** (0.1288)
Average aggregate household income per occupied housing unit in the ACS		-0.0212** (0.0073)	-0.0212*** (0.0056)
% living in non-institutionalized group quarters, total population		-0.0471* (0.0216)	-0.0471* (0.0191)
Diabetes Type II hospitalization rate per 1,000		-0.2604* (0.1077)	-0.2604** (0.0925)
Crude mortality rate of diabetes mellitus per 10,000		0.1699* (0.0837)	0.1699** (0.0612)
Heart Disease hospitalization rate per 1,000		0.1421* (0.0662)	0.1421* (0.0573)

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Square of {Heart Disease hospitalization rate per 1K}		-0.0044* (0.0021)	-0.0044* (0.0019)
Compound % lacking kitchen or complete plumbing		-0.3736 (0.3991)	-0.3736 (0.3313)
{% lacking kitchen or complete plumbing}		0.0089 (0.0068)	0.0089 (0.0051)
Interacted with {Average aggregate household income per occupied housing unit}			
Intercept	-1.7477*** (0.1175)	-1.2940 (0.9055)	-1.2940 (0.7537)
Area effect variance	0.0554 (0.0690)		0.0000*** (0.0000)

Number of alternative models used to estimate model error = 15.



Section 3: Results

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE 95% CI
Augusta County	51015	9.9%	(5.7%, 16.8%)	10.1%	(8.7%, 11.7%)
Bath County	51017	7.7%	(1.8%, 43.2%)	13.0%	(8.0%, 20.6%)
Caroline County	51033	0.0%	(0.0%, 17.1%)	7.7%	(6.7%, 8.8%)
Clarke County	51043	12.2%	(3.9%, 32.5%)	3.2%	(2.4%, 4.2%)
Culpeper County	51047	8.2%	(2.9%, 21.0%)	5.4%	(4.7%, 6.2%)
Fauquier County	51061	3.8%	(1.2%, 11.1%)	4.9%	(3.8%, 6.4%)
Frederick County	51069	4.6%	(2.0%, 10.2%)	6.9%	(6.0%, 7.9%)
Highland County	51091	0.0%	(0.0%, 83.2%)	23.0%	(11.9%, 39.7%)
King George County	51099	0.0%	(-0.0%, 23.5%)	2.7%	(2.1%, 3.6%)
Madison County	51113	6.4%	(1.0%, 31.3%)	9.3%	(6.9%, 12.4%)
Orange County	51137	12.2%	(4.2%, 30.5%)	6.6%	(5.5%, 7.9%)
Page County	51139	0.7%	(0.5%, 30.2%)	7.9%	(6.6%, 9.5%)
Rappahannock County	51157	1.3%	(0.8%, 27.2%)	3.4%	(2.5%, 4.7%)
Rockbridge County	51163	5.8%	(1.5%, 19.8%)	8.3%	(6.4%, 10.7%)
Rockingham County	51165	8.6%	(3.5%, 19.5%)	7.8%	(6.6%, 9.3%)
Shenandoah County	51171	5.1%	(1.5%, 15.8%)	8.7%	(7.6%, 9.9%)
Spotsylvania County	51177	2.4%	(0.6%, 9.2%)	4.4%	(3.8%, 5.2%)
Stafford County	51179	3.6%	(1.4%, 9.0%)	3.2%	(2.6%, 3.9%)
Warren County	51187	4.3%	(2.3%, 18.9%)	4.9%	(4.2%, 5.8%)
Buena Vista City	51530	0.0%	(-0.0%, 89.6%)	18.0%	(9.7%, 31.1%)
Fredericksburg City	51630	1.5%	(0.9%, 21.0%)	5.0%	(3.8%, 6.6%)
Harrisonburg City	51660	0.0%	(0.0%, 32.5%)	4.2%	(2.5%, 6.9%)
Lexington City	51678	0.0%	(0.0%, 99.4%)	2.2%	(0.6%, 7.3%)
Staunton City	51790	10.8%	(2.0%, 52.6%)	12.6%	(8.5%, 18.3%)
Waynesboro City	51820	0.0%	(0.0%, 33.1%)	7.2%	(5.6%, 9.1%)
Winchester City	51840	6.3%	(2.7%, 30.4%)	5.7%	(4.7%, 6.8%)

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County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE 95% CI
Albemarle County	51003	0.5%	(0.3%, 4.9%)	3.2%	(2.5%, 4.2%)
Alleghany County	51005	0.0%	(-0.0%, 13.3%)	3.8%	(2.3%, 6.0%)
Amherst County	51009	6.4%	(2.8%, 24.4%)	7.1%	(5.9%, 8.4%)
Appomattox County	51011	14.0%	(5.0%, 33.2%)	6.9%	(5.5%, 8.6%)
Arlington City	51013	1.4%	(0.5%, 3.9%)	1.5%	(1.0%, 2.4%)
Bedford County	51019	4.6%	(1.6%, 12.3%)	6.0%	(4.8%, 7.4%)
Botetourt County	51023	1.5%	(0.5%, 10.3%)	5.6%	(4.6%, 6.8%)
Campbell County	51031	3.7%	(0.9%, 13.6%)	7.4%	(5.9%, 9.3%)
Craig County	51045	0.0%	(0.0%, 73.6%)	7.9%	(6.3%, 9.7%)
Fairfax County	51059	0.9%	(0.5%, 2.8%)	1.7%	(1.3%, 2.4%)
Fluvanna County	51065	14.7%	(4.7%, 37.5%)	5.5%	(4.7%, 6.4%)
Greene County	51079	2.3%	(1.1%, 24.2%)	5.3%	(4.1%, 7.0%)
Loudoun County	51107	0.8%	(0.6%, 3.2%)	1.7%	(1.2%, 2.2%)
Louisa County	51109	3.2%	(0.5%, 16.7%)	5.4%	(4.4%, 6.7%)
Nelson County	51125	5.4%	(2.1%, 23.1%)	9.6%	(8.0%, 11.5%)
Prince William County	51153	2.8%	(1.8%, 5.9%)	2.2%	(1.7%, 2.9%)
Roanoke County	51161	5.8%	(3.2%, 10.6%)	5.9%	(5.0%, 6.8%)
Alexandria City	51510	0.4%	(0.3%, 6.0%)	1.3%	(0.9%, 1.8%)
Charlottesville City	51540	0.0%	(0.0%, 23.6%)	4.2%	(3.2%, 5.7%)
Covington City	51580	0.0%	(0.0%, 99.4%)	1.9%	(0.7%, 4.9%)
Fairfax City	51600	1.5%	(0.4%, 6.0%)	3.3%	(2.7%, 4.2%)
Falls Church City	51610	0.0%	(0.0%, 62.3%)	1.1%	(0.7%, 1.7%)
Lynchburg City	51680	2.2%	(0.4%, 11.7%)	4.4%	(3.1%, 6.1%)
Manassas City	51683	8.3%	(1.3%, 39.0%)	3.5%	(2.6%, 4.8%)
Manassas Park City	51685	0.0%	(-0.0%, 96.8%)	2.4%	(1.6%, 3.5%)
Salem City	51775	8.4%	(1.2%, 41.2%)	6.7%	(5.6%, 8.0%)

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County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE 95% CI
Bland County	51021	10.9%	(3.7%, 51.2%)	11.3%	(9.5%, 13.5%)
Buchanan County	51027	15.7%	(7.1%, 31.1%)	12.2%	(9.8%, 15.2%)
Carroll County	51035	8.7%	(3.7%, 22.6%)	10.4%	(7.7%, 13.9%)
Dickenson County	51051	9.0%	(3.0%, 23.8%)	11.7%	(9.3%, 14.5%)
Floyd County	51063	7.0%	(1.9%, 22.1%)	13.7%	(10.9%, 17.1%)
Franklin County	51067	12.0%	(5.2%, 25.2%)	8.8%	(7.3%, 10.5%)
Giles County	51071	2.5%	(1.5%, 23.9%)	7.3%	(5.0%, 10.6%)
Grayson County	51077	8.6%	(1.6%, 34.9%)	7.9%	(5.6%, 11.0%)
Henry County	51089	10.1%	(4.6%, 20.7%)	10.1%	(8.4%, 12.2%)
Lee County	51105	3.0%	(1.8%, 17.7%)	9.3%	(4.5%, 18.3%)
Montgomery County	51121	5.7%	(3.5%, 12.9%)	5.5%	(3.7%, 8.1%)
Patrick County	51141	2.2%	(0.9%, 17.8%)	9.3%	(7.0%, 12.2%)
Pittsylvania County	51143	2.6%	(1.8%, 7.4%)	9.9%	(7.8%, 12.5%)
Pulaski County	51155	4.2%	(2.6%, 14.9%)	8.6%	(5.7%, 12.7%)
Russell County	51167	6.9%	(2.5%, 17.3%)	9.1%	(7.5%, 11.0%)
Scott County	51169	7.2%	(2.9%, 16.5%)	11.1%	(6.9%, 17.2%)
Smyth County	51173	2.9%	(1.9%, 15.4%)	9.4%	(7.6%, 11.6%)
Tazewell County	51185	14.5%	(7.3%, 26.5%)	11.9%	(9.9%, 14.3%)
Washington County	51191	9.1%	(4.0%, 19.6%)	7.4%	(6.0%, 9.1%)
Wise County	51195	9.7%	(4.6%, 19.4%)	14.3%	(10.6%, 19.0%)
Wythe County	51197	5.2%	(3.0%, 15.6%)	10.6%	(8.8%, 12.7%)
Bristol City	51520	21.5%	(4.2%, 63.3%)	6.5%	(2.7%, 15.1%)
Danville City	51590	12.3%	(4.2%, 31.1%)	6.8%	(4.9%, 9.4%)
Galax City	51640	17.8%	(2.3%, 78.9%)	6.5%	(5.1%, 8.2%)
Martinsville City	51690	0.0%	(0.0%, 47.8%)	4.2%	(2.4%, 7.4%)
Norton City	51720	0.0%	(0.0%, 69.6%)	9.6%	(5.1%, 17.4%)
Radford City	51750	0.0%	(0.0%, 56.8%)	8.5%	(4.6%, 15.2%)
Roanoke City	51770	5.9%	(3.1%, 11.0%)	5.5%	(4.4%, 6.9%)

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County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE 95% CI
Amelia County	51007	0.0%	(0.0%, 23.3%)	7.3%	(6.2%, 8.5%)
Brunswick County	51025	0.0%	(-0.0%, 21.3%)	3.5%	(2.1%, 5.7%)
Buckingham County	51029	17.2%	(6.2%, 39.5%)	8.7%	(6.0%, 12.5%)
Charles City County	51036	12.6%	(1.8%, 53.3%)	5.9%	(4.5%, 7.7%)
Charlotte County	51037	18.1%	(2.8%, 63.2%)	8.1%	(5.6%, 11.5%)
Chesterfield County	51041	3.4%	(2.2%, 6.3%)	4.9%	(4.2%, 5.8%)
Cumberland County	51049	5.0%	(2.2%, 31.7%)	7.1%	(4.7%, 10.6%)
Dinwiddie County	51053	5.5%	(3.1%, 22.0%)	4.7%	(3.5%, 6.3%)
Goochland County	51075	0.0%	(0.0%, 19.3%)	2.3%	(1.4%, 3.9%)
Greensville County	51081	17.5%	(3.8%, 53.2%)	5.2%	(2.8%, 9.2%)
Halifax County	51083	7.9%	(2.9%, 19.7%)	9.4%	(7.0%, 12.5%)
Hanover County	51085	3.3%	(1.9%, 8.5%)	4.3%	(3.6%, 5.1%)
Henrico County	51087	5.3%	(3.2%, 8.8%)	5.4%	(4.7%, 6.2%)
Lunenburg County	51111	0.0%	(-0.0%, 29.3%)	7.4%	(5.9%, 9.2%)
Mecklenburg County	51117	3.0%	(2.0%, 13.2%)	5.9%	(3.8%, 9.0%)
New Kent County	51127	4.0%	(2.1%, 26.2%)	4.0%	(3.0%, 5.3%)
Nottoway County	51135	3.5%	(1.6%, 25.6%)	8.1%	(6.3%, 10.4%)
Powhatan County	51145	0.0%	(-0.0%, 32.8%)	3.0%	(1.9%, 4.6%)
Prince Edward County	51147	4.2%	(0.8%, 19.2%)	6.5%	(4.2%, 10.0%)
Prince George County	51149	5.1%	(1.7%, 14.6%)	8.3%	(6.5%, 10.5%)
Surry County	51181	17.9%	(2.3%, 66.6%)	9.1%	(7.6%, 10.9%)
Sussex County	51183	0.7%	(0.5%, 26.4%)	6.2%	(4.2%, 9.0%)
Colonial Heights City	51570	6.0%	(1.9%, 44.8%)	6.0%	(4.1%, 8.6%)
Emporia City	51595	0.0%	(0.0%, 68.6%)	0.7%	(0.1%, 8.4%)
Hopewell City	51670	0.0%	(0.0%, 25.6%)	5.6%	(3.4%, 9.3%)
Petersburg City	51730	1.1%	(0.6%, 12.9%)	2.6%	(1.2%, 5.5%)
Richmond City	51760	4.2%	(2.1%, 8.5%)	5.7%	(4.4%, 7.3%)

Indicator 7: Ever had a Heart Attack

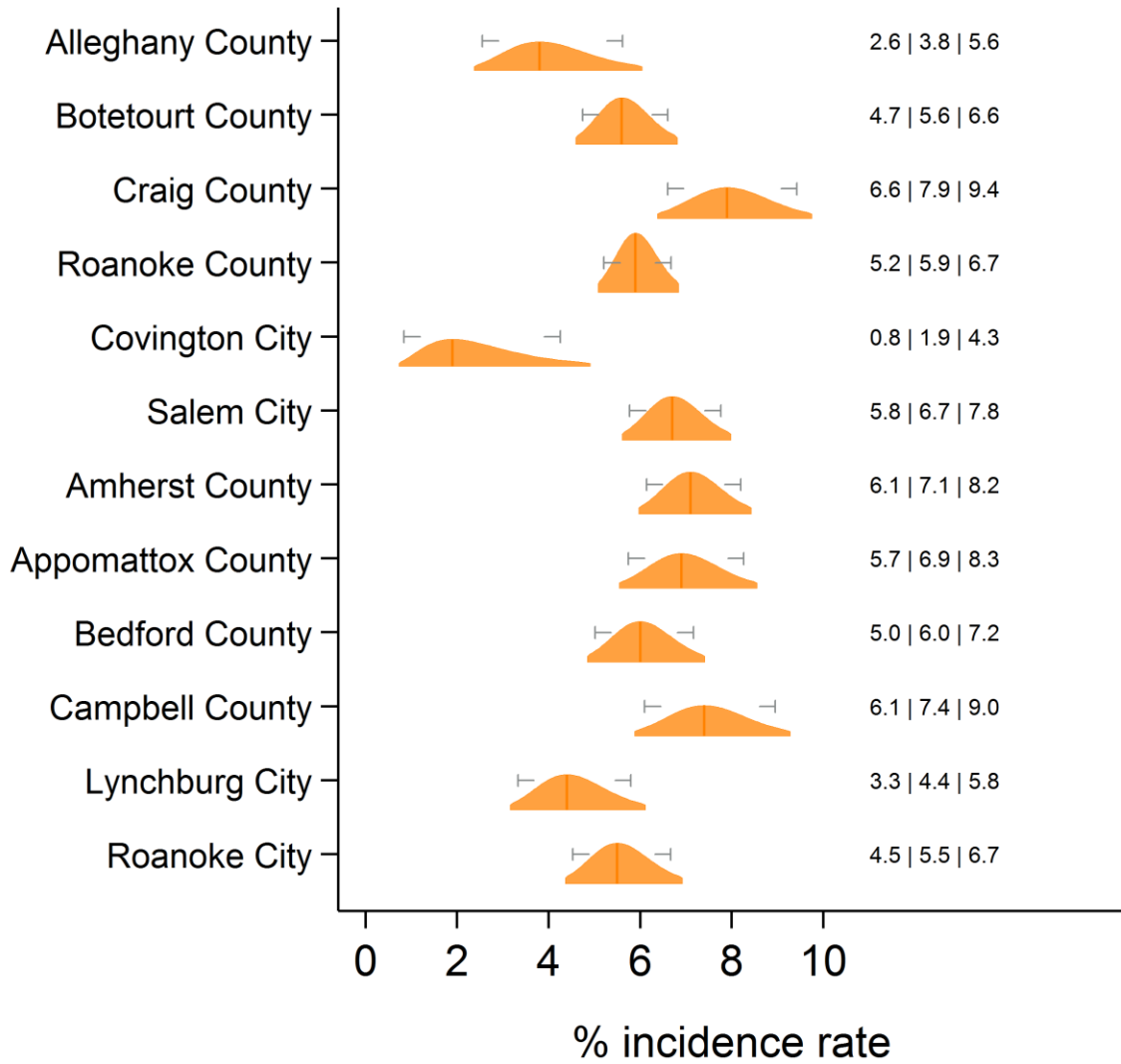


County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE 95% CI
Accomack County	51001	4.8%	(3.6%, 18.5%)	9.2%	(7.4%, 11.4%)
Essex County	51057	0.0%	(0.0%, 28.1%)	5.1%	(3.7%, 6.9%)
Gloucester County	51073	6.5%	(3.3%, 20.0%)	9.0%	(7.5%, 10.8%)
Isle of Wight County	51093	3.8%	(2.0%, 14.5%)	7.4%	(6.1%, 9.0%)
James City County	51095	2.6%	(1.4%, 10.1%)	6.4%	(5.4%, 7.7%)
King and Queen County	51097	21.8%	(2.6%, 74.8%)	7.4%	(5.2%, 10.4%)
King William County	51101	7.6%	(1.5%, 31.2%)	5.0%	(4.0%, 6.2%)
Lancaster County	51103	13.0%	(2.8%, 43.7%)	11.8%	(9.4%, 14.6%)
Mathews County	51115	17.9%	(7.7%, 39.5%)	10.3%	(6.8%, 15.3%)
Middlesex County	51119	0.0%	(-0.0%, 48.1%)	5.7%	(4.3%, 7.4%)
Northampton County	51131	5.8%	(3.4%, 22.5%)	5.5%	(3.7%, 7.9%)
Northumberland County	51133	4.7%	(2.2%, 26.9%)	8.7%	(7.5%, 10.2%)
Richmond County	51159	7.1%	(2.1%, 21.2%)	7.6%	(6.1%, 9.4%)
Southampton County	51175	1.2%	(0.7%, 29.6%)	7.6%	(5.7%, 10.0%)
Westmoreland County	51193	31.6%	(7.8%, 71.6%)	18.0%	(10.9%, 28.2%)
York County	51199	3.4%	(1.5%, 12.1%)	5.0%	(4.0%, 6.1%)
Chesapeake City	51550	5.0%	(2.8%, 8.6%)	4.8%	(4.1%, 5.6%)
Franklin City	51620	9.5%	(1.8%, 37.7%)	10.7%	(6.1%, 18.3%)
Hampton City	51650	5.2%	(2.8%, 9.5%)	6.9%	(5.7%, 8.2%)
Newport News City	51700	4.0%	(2.1%, 9.6%)	6.4%	(5.4%, 7.7%)
Norfolk City	51710	1.9%	(1.2%, 5.5%)	4.0%	(2.8%, 5.7%)
Poquoson City	51735	0.0%	(0.0%, 54.0%)	6.2%	(4.7%, 8.1%)
Portsmouth City	51740	4.9%	(2.5%, 9.5%)	7.6%	(5.8%, 9.9%)
Suffolk City	51800	4.4%	(1.6%, 11.3%)	6.6%	(5.6%, 7.7%)
Virginia Beach City	51810	3.0%	(1.5%, 5.7%)	4.5%	(3.9%, 5.1%)
Williamsburg City	51830	0.0%	(0.0%, 55.7%)	1.6%	(0.6%, 4.4%)



Section 4: Graphical representation

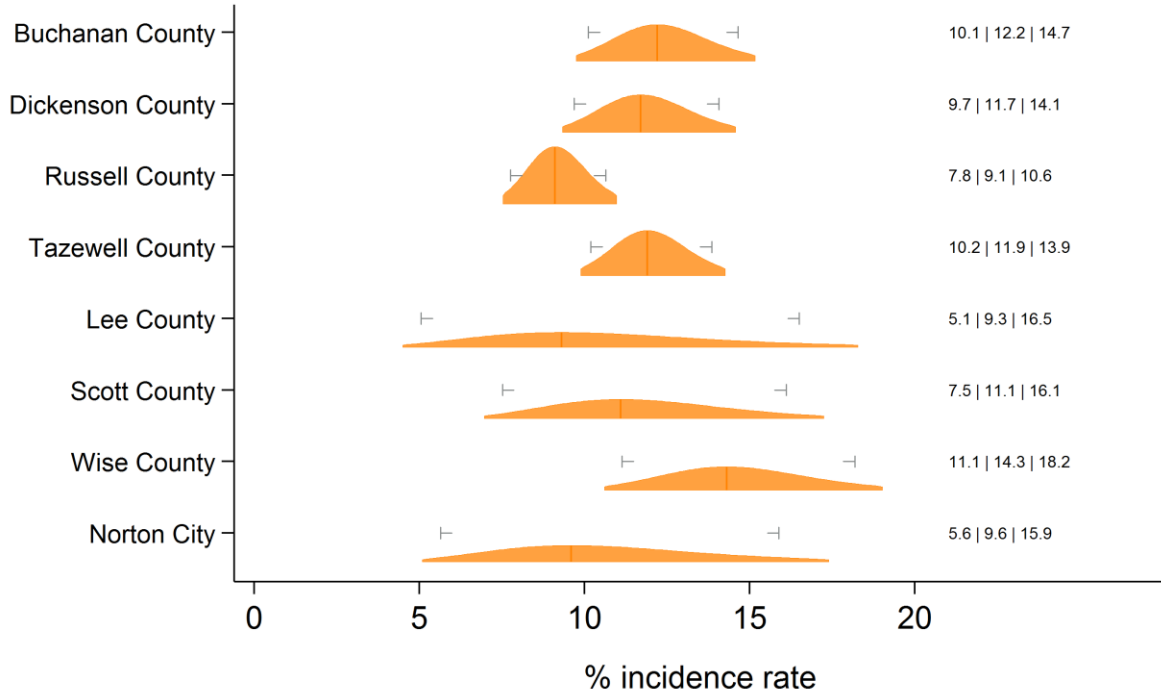
Lifetime heart attack Alleghany, Roanoke and Central Virginia HDs



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



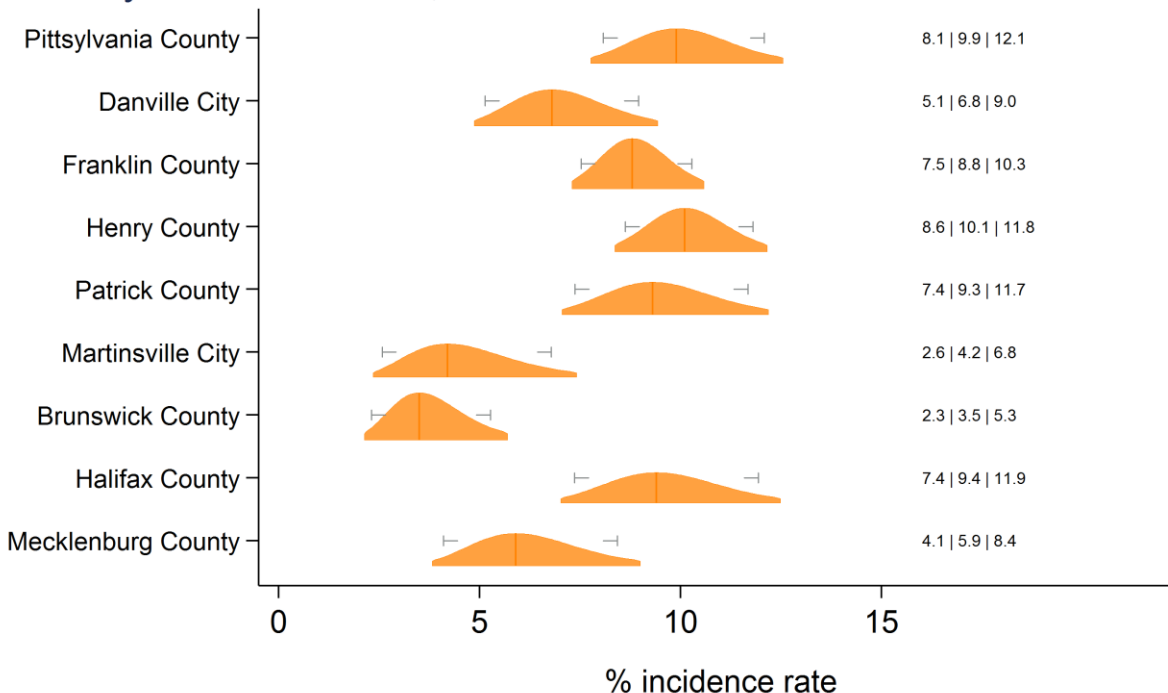
Lifetime heart attack Cumberland Plateau and Lenowisco HDs



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



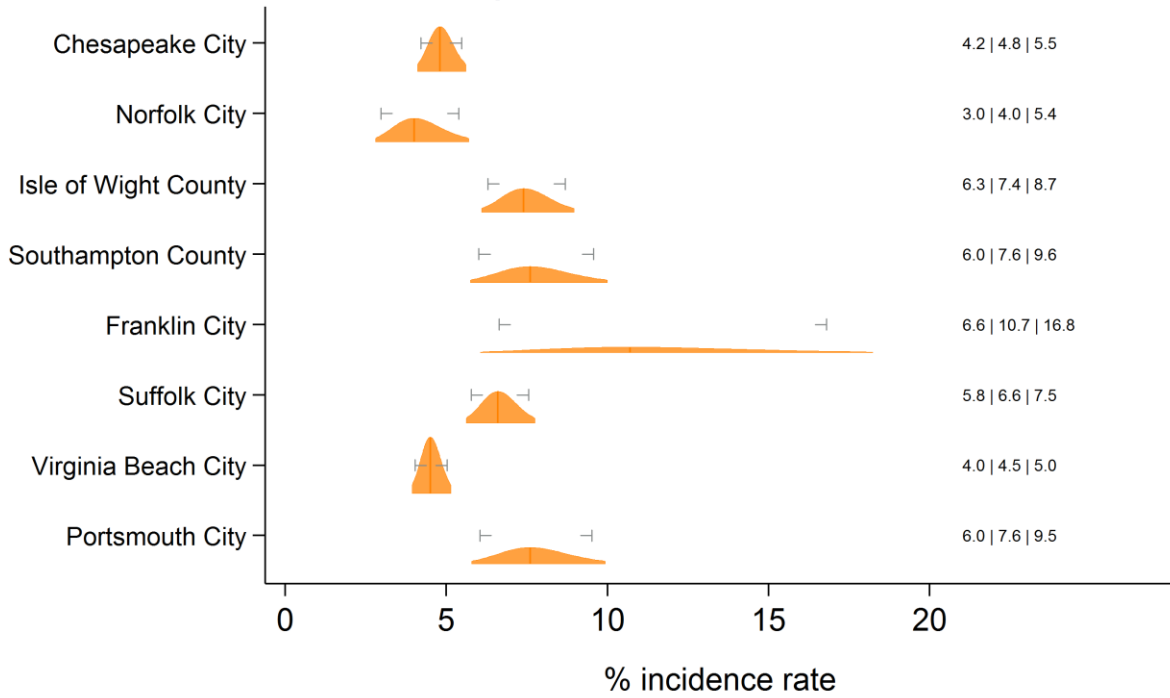
Lifetime heart attack Pittsylvania/Danville, Southside and West Piedmont HDs



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



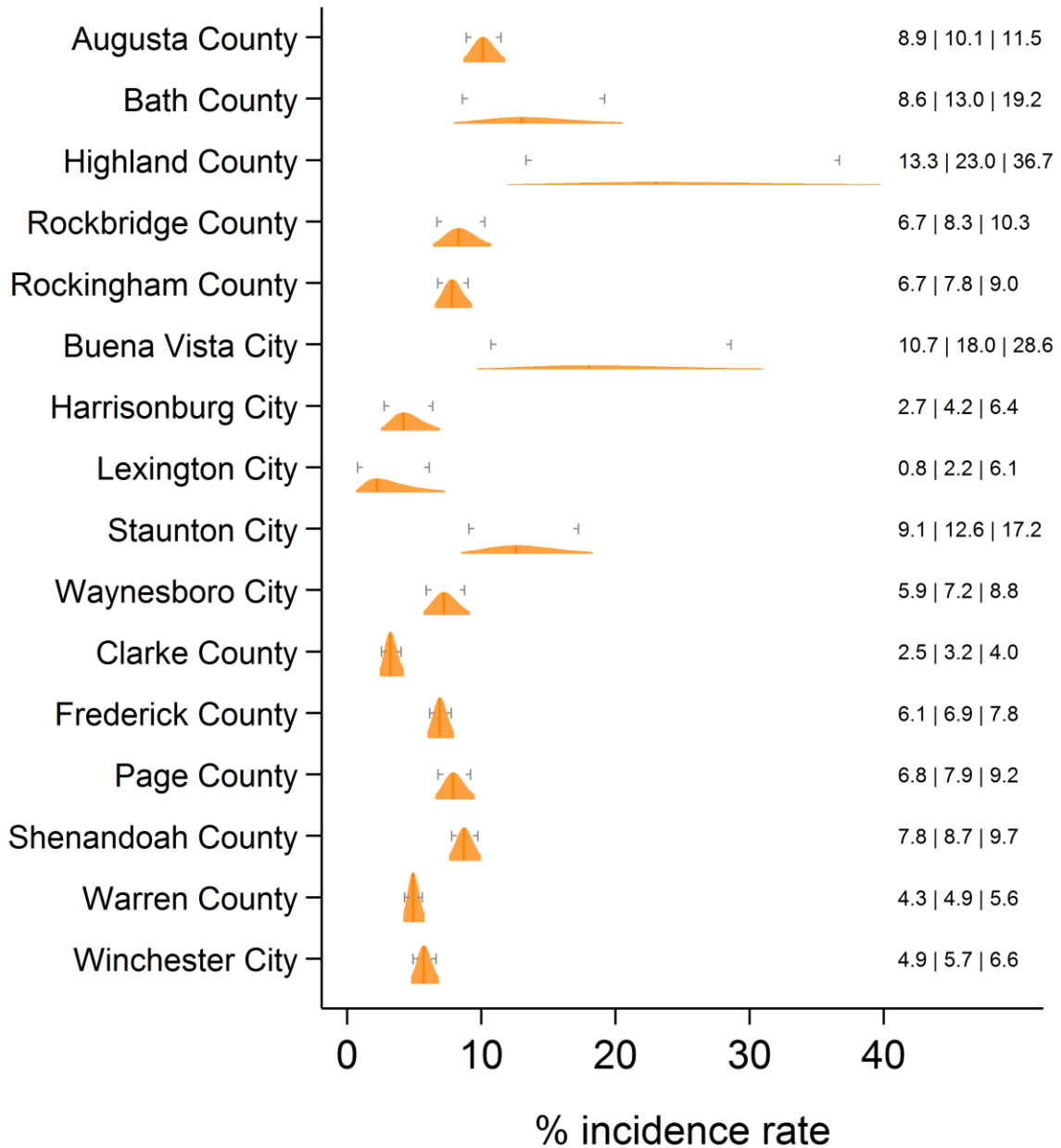
Lifetime heart attack Norfolk, Portsmouth, Chesapeake, VA Beach, W. Tidewater HDs



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



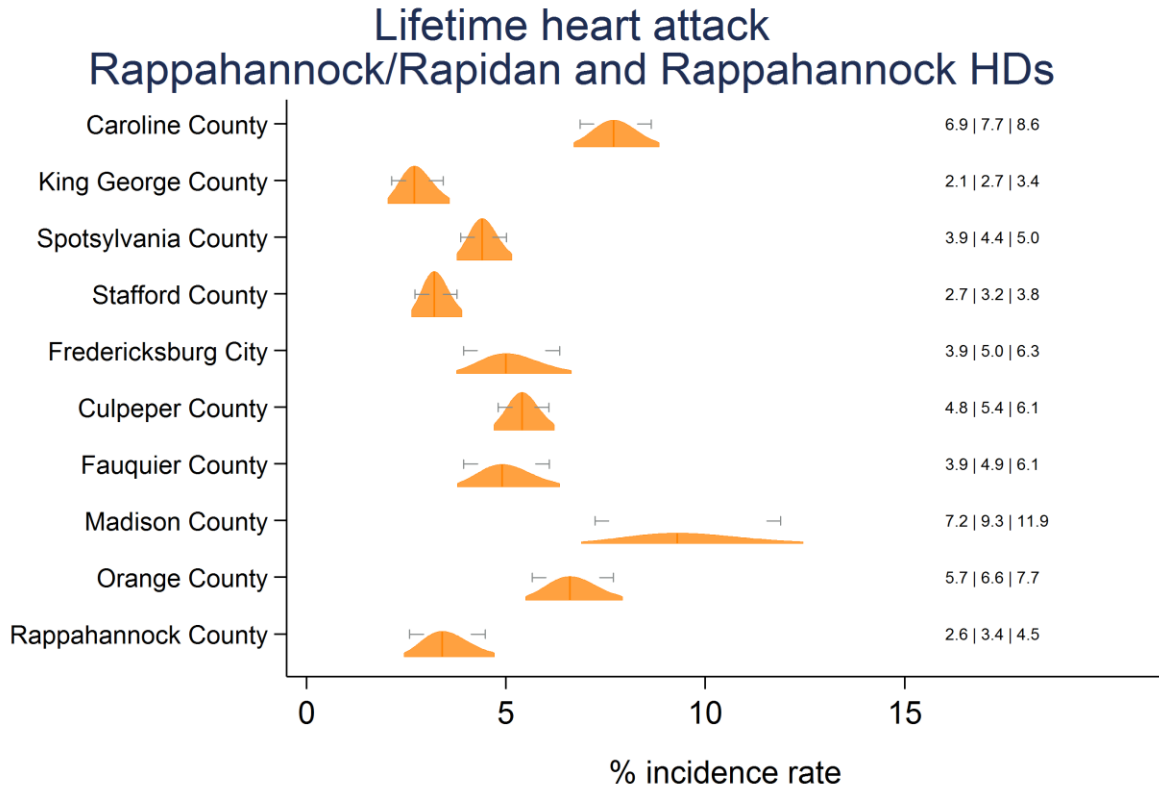
Lifetime heart attack Central Shenandoah and Lord Fairfax HDs



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

Indicator 7: Ever had a Heart Attack

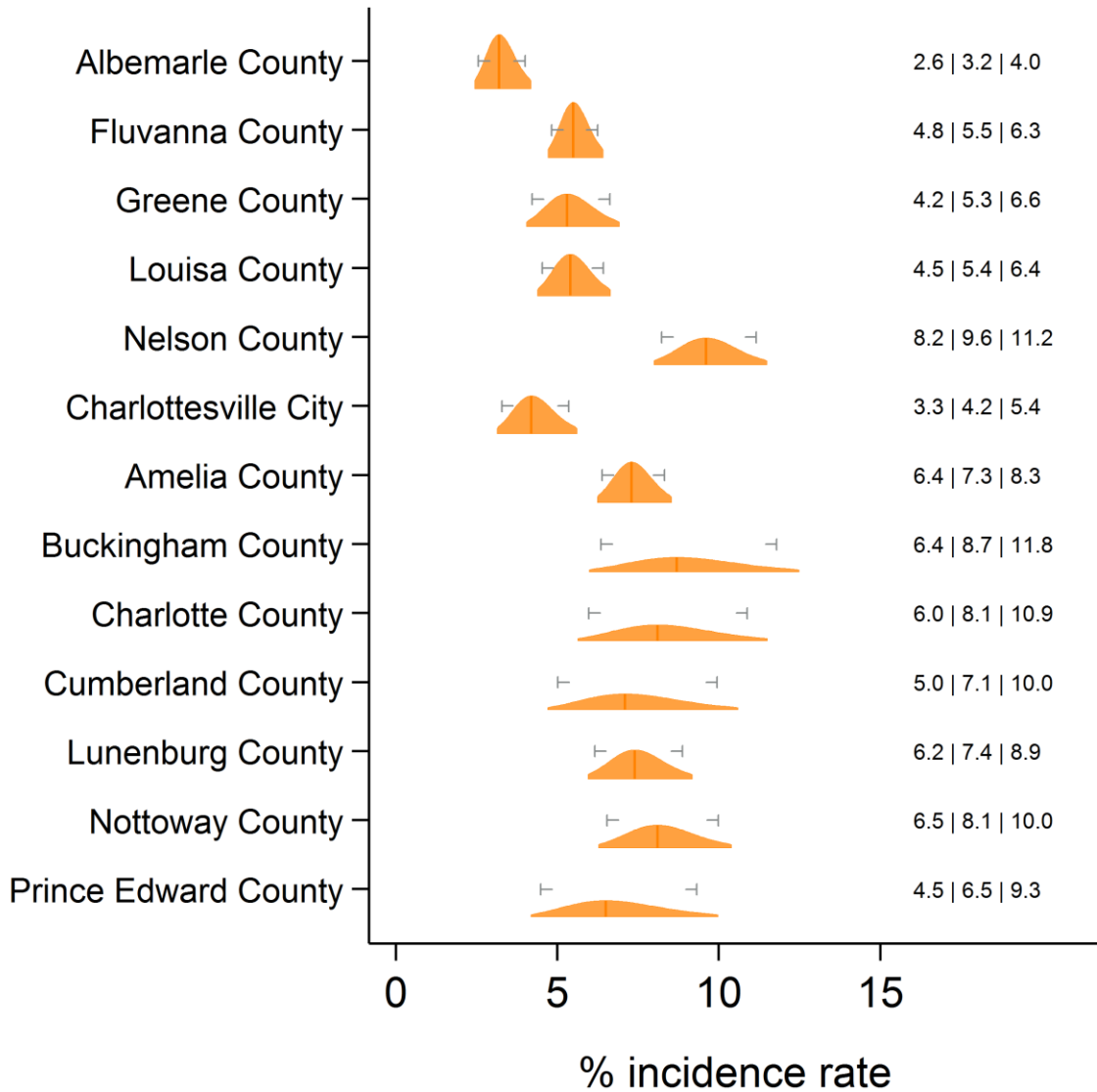




Text at right: 1-sided 95% LCB | Point Estimate | 1-sided 95% UCB
 Gray markers: 90% confidence interval



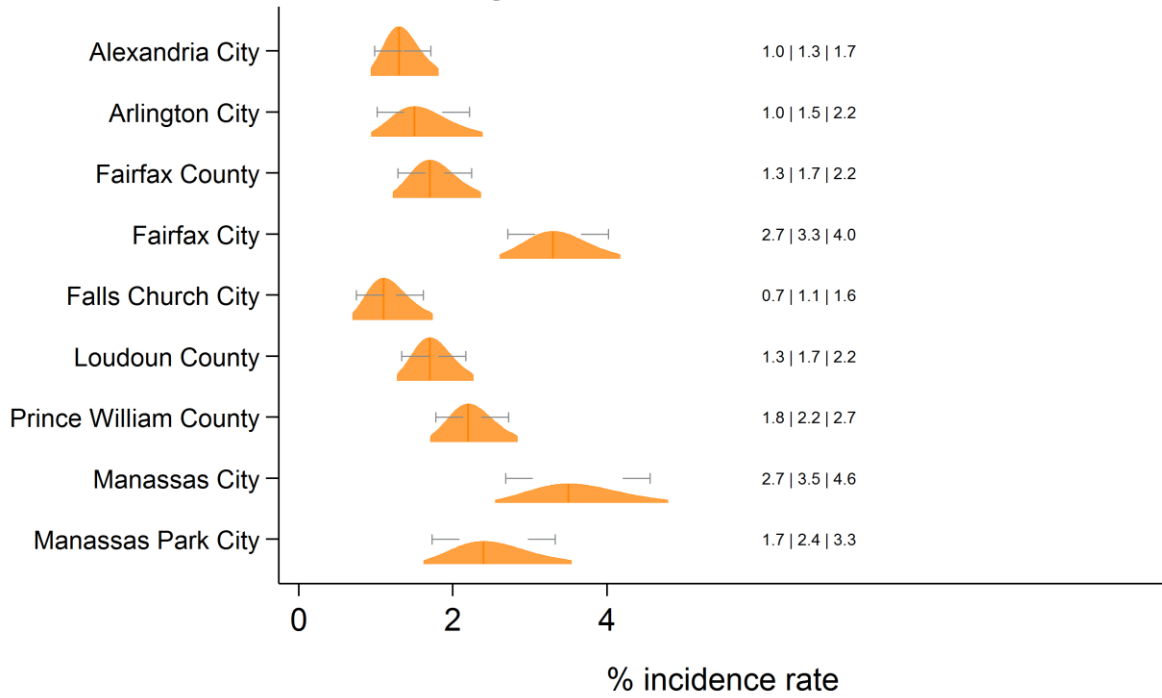
Lifetime heart attack Thomas Jefferson and Piedmont HDs



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



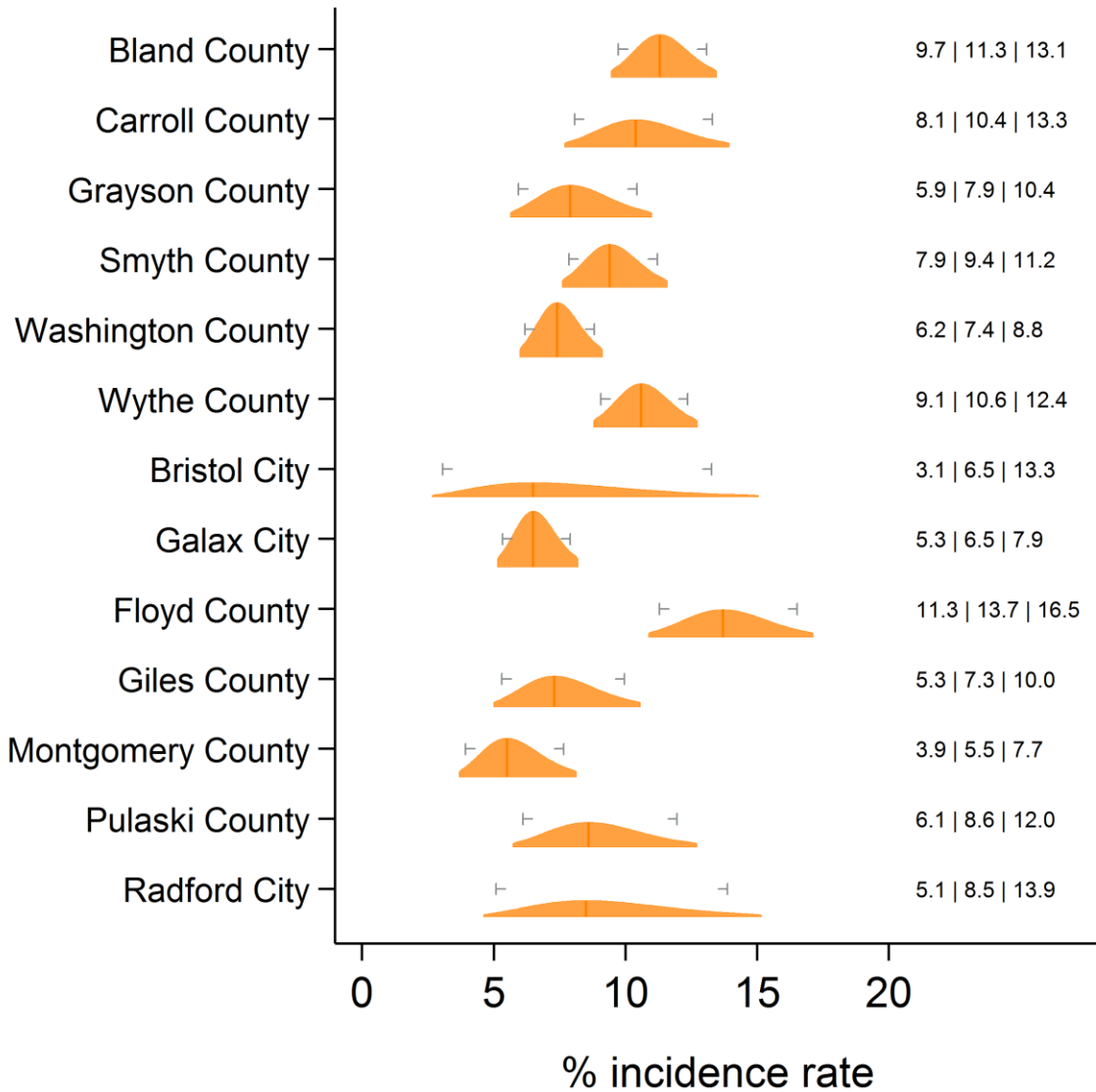
Lifetime heart attack Alexandria, Fairfax, Arlington, Loudon, Prince William HDs



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



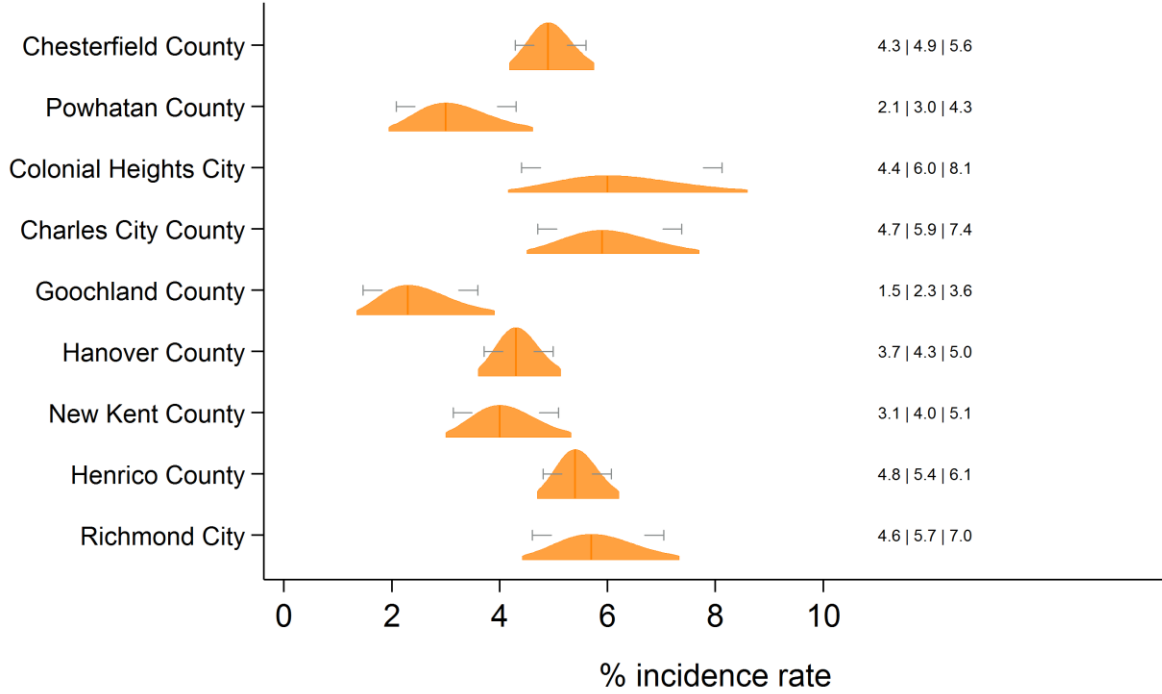
Lifetime heart attack New River and Mount Rogers HDs



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



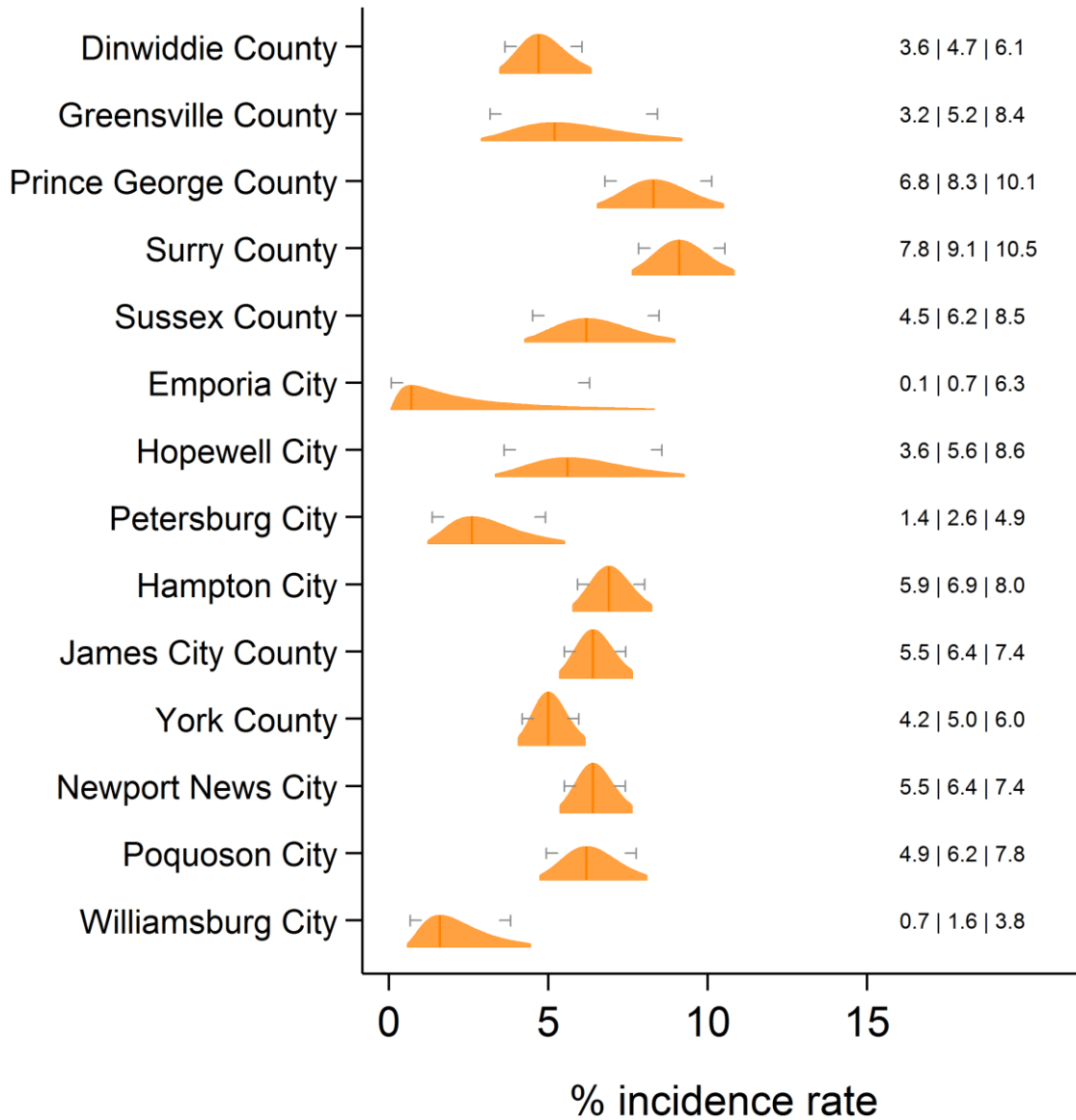
Lifetime heart attack Chesterfield, Chickahominy, Henrico and Richmond HDs



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



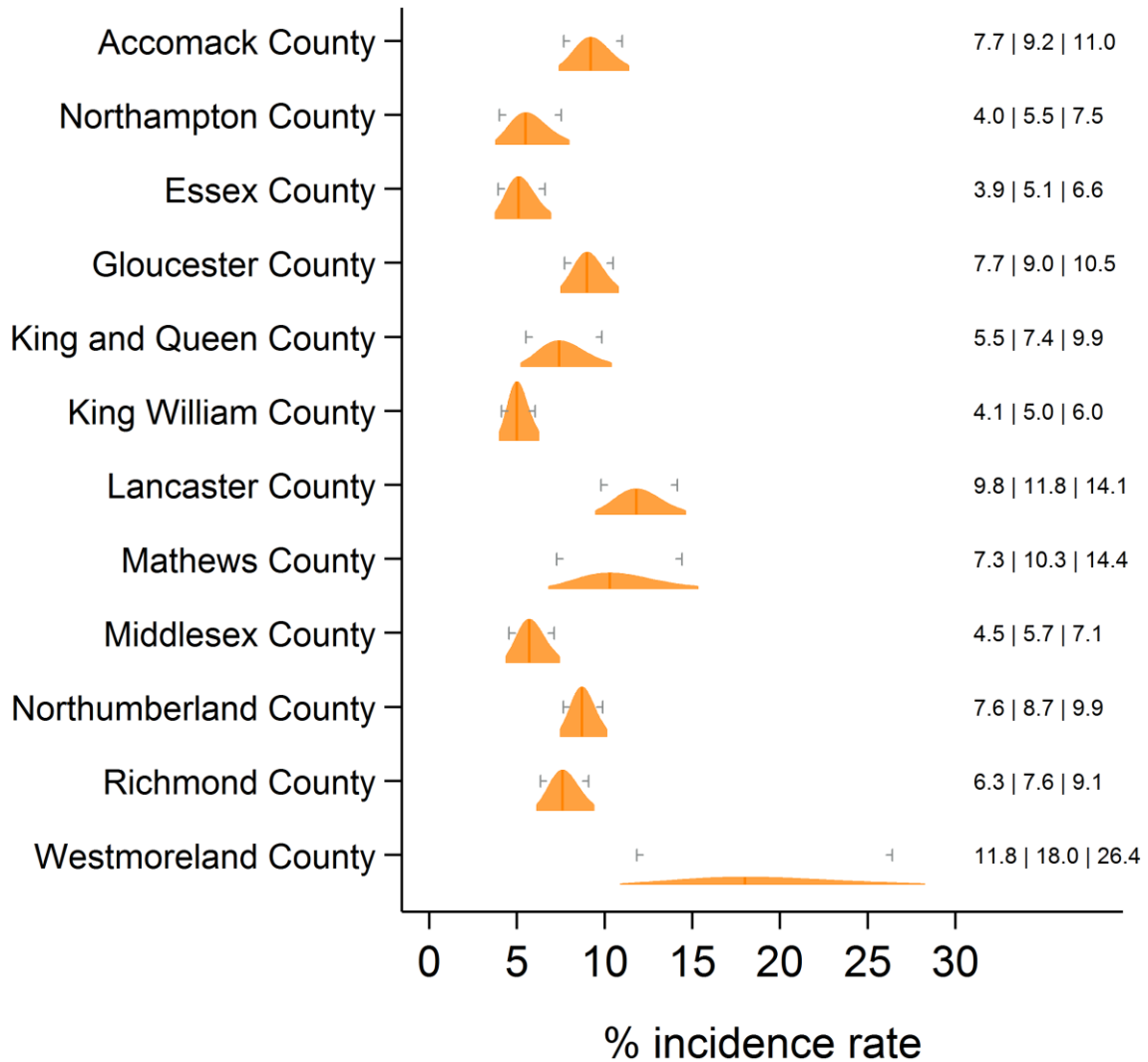
Lifetime heart attack Crater, Peninsula and Hampton HDs



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



Lifetime heart attack 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: 28 areas.

Direct estimate is outside the 95% SAE Wilson CI: 105 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: 122 areas.

SAE Wilson 95% CI partially overlaps with the 95% direct Wilson CI: 11 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: 103 areas.

SAE standard error is greater than the (nonzero) direct standard error: 3 areas.

Direct standard error is zero: 27 areas.

Proportion of SAE variance due to ACS sampling error: min = 0.02%; med = 2.12%; max = 10.62%.

Proportion of SAE variance to sampling error in regression coefficient estimates: min = 73.29%; med = 95.91%; max = 99.64%.

Proportion of SAE variance due to model selection: min = 0.02%; med = 1.26%; max = 26.69%.