

## Outcome 24: Diagnosed with coronary heart disease or angina

Internal variable name: outc24\_heart\_disease

Definition: (Ever told) you had angina or coronary heart disease?

### Predictive models

	Mixed, demos only	Logit, no area effects	Mixed with area covariates
	b/se	b/se	b/se
Outcome 24: Diagnosed with coronary heart disease or angina			
NH White	0.0000 (.)	0.0000 (.)	0.0000 (.)
NH Black vs. NH White	-0.0537 (0.1477)	-0.0578 (0.1773)	-0.0578 (0.1371)
NH Asian vs. NH White	-0.4898 (0.4318)	-0.3132 (0.4904)	-0.3132 (0.3771)
NH Other vs. NH White	-0.5391 (0.3348)	-0.5160 (0.3614)	-0.5160 (0.3381)
Hispanic vs. NH White	-0.5121 (0.4395)	-0.3648 (0.4422)	-0.3648 (0.4085)
SEX OF RESPONDENT=1	0.0000 (.)	0.0000 (.)	0.0000 (.)
Female	-0.6866*** (0.1263)	-0.6916*** (0.1329)	-0.6916*** (0.1272)
Age 18-34 vs. 65+	-3.3031*** (0.5712)	-3.2786*** (0.5949)	-3.2786*** (0.5798)
Age 35-44 vs. 65+	-2.0609*** (0.2768)	-2.0366*** (0.2988)	-2.0366*** (0.2756)
Age 45-54 vs. 65+	-1.5711*** (0.2524)	-1.5391*** (0.2565)	-1.5391*** (0.2516)
Age 55-64 vs. 65+	-0.7580*** (0.1490)	-0.7431*** (0.1551)	-0.7431*** (0.1509)
65+	0.0000 (.)	0.0000 (.)	0.0000 (.)
Crude mortality rate of disease of the heart per 10K		0.0162 (0.0083)	0.0162* (0.0070)
VA BRFSS 2014 SAE outc14_diabetes_test		1.8602 (1.3153)	1.8602 (1.2812)

_cons	-1.8029***	-3.1980***	-3.1980***
	(0.0976)	(0.7587)	(0.7119)
Area effect variance			
var(_cons[FIPS_county])	0.0000		0.0000
	(0.1167)		(0.0000)

Number of alternative models used to estimate model error = 6.

## Results by health districts

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Augusta County	51015	5.9%	(2.5%, 13.6%)	6.4%	(5.7%, 7.1%)
Bath County	51017	21.1%	(4.8%, 58.8%)	11.0%	(7.8%, 15.1%)
Caroline County	51033	7.2%	(1.7%, 26.0%)	6.5%	(5.4%, 7.7%)
Clarke County	51043	22.2%	(6.9%, 52.5%)	6.6%	(5.7%, 7.6%)
Culpeper County	51047	5.9%	(2.9%, 20.4%)	6.2%	(5.4%, 7.2%)
Fauquier County	51061	1.1%	(0.6%, 8.8%)	6.0%	(5.2%, 6.9%)
Frederick County	51069	4.6%	(1.2%, 16.4%)	5.8%	(5.1%, 6.6%)
Highland County	51091	0.0%	(-0.0%, 49.0%)	8.4%	(5.8%, 12.0%)
King George County	51099	0.0%	(0.0%, 17.2%)	5.2%	(4.2%, 6.5%)
Madison County	51113	0.0%	(0.0%, 23.0%)	6.0%	(5.1%, 7.0%)
Orange County	51137	0.4%	(0.3%, 14.7%)	6.2%	(5.4%, 7.0%)
Page County	51139	7.6%	(1.2%, 35.6%)	6.8%	(5.5%, 8.4%)
Rappahannock County	51157	14.1%	(4.2%, 54.1%)	5.3%	(3.9%, 7.1%)
Rockbridge County	51163	3.7%	(2.1%, 18.3%)	7.3%	(5.9%, 8.9%)
Rockingham County	51165	2.5%	(1.9%, 11.1%)	4.9%	(4.4%, 5.5%)
Shenandoah County	51171	8.0%	(3.9%, 20.1%)	6.7%	(5.9%, 7.7%)
Spotsylvania County	51177	2.5%	(0.6%, 10.4%)	4.7%	(4.1%, 5.4%)
Stafford County	51179	5.0%	(3.1%, 10.5%)	4.3%	(3.6%, 5.1%)
Warren County	51187	0.0%	(0.0%, 12.2%)	6.1%	(5.4%, 6.8%)
Buena Vista City	51530	26.5%	(2.9%, 81.3%)	6.0%	(5.1%, 7.2%)
Fredericksburg City	51630	11.0%	(3.4%, 30.4%)	4.0%	(3.2%, 5.0%)
Harrisonburg City	51660	3.6%	(1.9%, 31.3%)	3.5%	(2.7%, 4.5%)
Lexington City	51678	0.0%	(0.0%, 99.4%)	9.7%	(6.2%, 14.9%)
Staunton City	51790	4.4%	(1.7%, 39.7%)	8.0%	(6.8%, 9.4%)
Waynesboro	51820	0.0%	(0.0%, 68.9%)	8.3%	(7.0%, 9.9%)

City					
Winchester City	51840	0.0%	(0.0%, 33.9%)	5.0%	(3.6%, 6.9%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Albemarle County	51003	3.6%	(1.4%, 9.2%)	5.0%	(4.3%, 5.7%)
Alleghany County	51005	7.9%	(2.5%, 22.2%)	7.8%	(6.3%, 9.5%)
Amherst County	51009	3.1%	(1.8%, 14.4%)	6.6%	(5.6%, 7.9%)
Appomattox County	51011	7.7%	(1.8%, 28.1%)	8.8%	(7.3%, 10.7%)
Arlington City	51013	2.4%	(1.4%, 6.9%)	3.3%	(2.8%, 3.9%)
Bedford County	51019	1.4%	(0.9%, 6.3%)	6.9%	(6.0%, 7.9%)
Botetourt County	51023	7.7%	(4.2%, 24.2%)	8.3%	(7.1%, 9.8%)
Campbell County	51031	3.8%	(2.2%, 11.2%)	4.8%	(4.0%, 5.8%)
Craig County	51045	0.0%	(-0.0%, 50.9%)	6.5%	(4.9%, 8.6%)
Fairfax County	51059	2.6%	(1.5%, 4.2%)	3.9%	(3.2%, 4.7%)
Fluvanna County	51065	1.8%	(1.0%, 22.5%)	6.0%	(5.4%, 6.7%)
Greene County	51079	0.0%	(0.0%, 38.9%)	4.7%	(3.7%, 5.8%)
Loudoun County	51107	2.6%	(1.3%, 5.4%)	3.5%	(2.9%, 4.3%)
Louisa County	51109	11.0%	(4.6%, 29.6%)	6.7%	(5.8%, 7.7%)
Nelson County	51125	0.0%	(0.0%, 46.0%)	8.0%	(6.6%, 9.7%)
Prince William County	51153	2.6%	(1.4%, 4.8%)	3.6%	(3.0%, 4.3%)
Roanoke County	51161	6.6%	(3.3%, 12.5%)	7.5%	(6.6%, 8.5%)
Alexandria City	51510	1.5%	(0.9%, 6.4%)	3.4%	(2.8%, 4.2%)
Charlottesville City	51540	0.0%	(0.0%, 14.0%)	4.4%	(3.9%, 4.9%)
Covington City	51580	0.0%	(0.0%, 81.2%)	10.1%	(8.0%, 12.7%)
Fairfax City	51600	1.4%	(0.9%, 11.0%)	4.2%	(3.1%, 5.5%)
Falls Church City	51610	0.0%	(0.0%, 30.8%)	5.1%	(4.3%, 6.0%)
Lynchburg City	51680	1.0%	(0.7%, 8.0%)	4.3%	(3.0%, 6.1%)
Manassas City	51683	5.1%	(0.9%, 23.5%)	3.0%	(2.3%, 4.0%)
Manassas Park City	51685	0.0%	(0.0%, 51.7%)	2.9%	(2.2%, 3.9%)
Salem City	51775	0.0%	(0.0%, 50.5%)	4.6%	(3.2%, 6.5%)



County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Bland County	51021	12.0%	(3.6%, 64.9%)	7.0%	(5.2%, 9.3%)
Buchanan County	51027	0.0%	(0.0%, 18.6%)	7.4%	(5.3%, 10.1%)
Carroll County	51035	0.6%	(0.4%, 22.0%)	7.5%	(6.4%, 8.7%)
Dickenson County	51051	11.4%	(4.1%, 34.6%)	7.0%	(5.7%, 8.7%)
Floyd County	51063	0.0%	(-0.0%, 21.7%)	4.7%	(3.8%, 5.9%)
Franklin County	51067	5.0%	(2.5%, 15.3%)	7.2%	(6.3%, 8.2%)
Giles County	51071	6.1%	(0.9%, 31.6%)	5.8%	(4.4%, 7.6%)
Grayson County	51077	5.3%	(2.3%, 28.2%)	6.6%	(4.8%, 8.9%)
Henry County	51089	7.6%	(4.1%, 17.2%)	7.8%	(6.8%, 9.1%)
Lee County	51105	20.6%	(7.1%, 46.7%)	7.5%	(6.2%, 8.9%)
Montgomery County	51121	2.0%	(1.1%, 8.1%)	3.9%	(3.2%, 4.8%)
Patrick County	51141	11.0%	(3.6%, 28.9%)	8.6%	(7.1%, 10.3%)
Pittsylvania County	51143	2.3%	(1.7%, 8.3%)	7.1%	(6.1%, 8.2%)
Pulaski County	51155	6.6%	(1.9%, 20.3%)	5.4%	(4.4%, 6.6%)
Russell County	51167	3.0%	(1.7%, 20.7%)	7.5%	(6.1%, 9.2%)
Scott County	51169	6.1%	(2.5%, 14.1%)	7.8%	(6.3%, 9.8%)
Smyth County	51173	5.5%	(1.1%, 23.8%)	7.3%	(5.8%, 9.2%)
Tazewell County	51185	2.8%	(1.7%, 10.9%)	7.6%	(6.5%, 9.0%)
Washington County	51191	6.3%	(2.6%, 14.6%)	7.6%	(6.4%, 9.0%)
Wise County	51195	4.2%	(2.7%, 12.3%)	7.8%	(6.6%, 9.3%)
Wythe County	51197	10.3%	(4.0%, 24.0%)	7.6%	(6.4%, 9.0%)
Bristol City	51520	0.0%	(0.0%, 57.9%)	7.0%	(4.4%, 10.9%)
Danville City	51590	8.0%	(1.8%, 29.3%)	8.0%	(6.9%, 9.4%)
Galax City	51640	35.3%	(1.3%, 96.4%)	7.5%	(4.7%, 11.9%)
Martinsville City	51690	0.0%	(0.0%, 41.2%)	8.2%	(5.9%, 11.4%)
Norton City	51720	12.0%	(0.5%, 94.9%)	6.1%	(3.9%, 9.6%)
Radford City	51750	0.0%	(0.0%, 20.0%)	3.9%	(2.8%, 5.3%)
Roanoke City	51770	2.1%	(1.5%, 8.7%)	5.7%	(4.5%, 7.1%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Amelia County	51007	6.0%	(3.0%, 38.4%)	7.0%	(5.3%, 9.3%)
Brunswick County	51025	8.5%	(3.9%, 33.0%)	7.9%	(6.7%, 9.3%)
Buckingham County	51029	1.9%	(1.0%, 27.2%)	6.6%	(5.6%, 7.9%)
Charles City County	51036	0.0%	(0.0%, 78.6%)	8.1%	(6.6%, 10.0%)
Charlotte County	51037	2.3%	(1.4%, 24.4%)	6.5%	(5.6%, 7.5%)
Chesterfield County	51041	4.6%	(2.6%, 8.0%)	5.1%	(4.5%, 5.8%)
Cumberland County	51049	3.2%	(1.8%, 33.2%)	7.3%	(6.1%, 8.6%)
Dinwiddie County	51053	4.9%	(2.9%, 17.9%)	6.4%	(5.5%, 7.4%)
Goochland County	51075	24.8%	(5.1%, 66.9%)	7.0%	(5.8%, 8.4%)
Greensville County	51081	3.3%	(1.8%, 33.4%)	7.7%	(6.2%, 9.5%)
Halifax County	51083	3.6%	(1.0%, 11.8%)	8.4%	(6.9%, 10.2%)
Hanover County	51085	5.1%	(2.1%, 11.9%)	6.9%	(5.8%, 8.3%)
Henrico County	51087	2.0%	(0.8%, 4.7%)	5.3%	(4.7%, 5.9%)
Lunenburg County	51111	0.0%	(0.0%, 28.0%)	6.9%	(5.9%, 8.0%)
Mecklenburg County	51117	11.2%	(5.2%, 22.6%)	9.6%	(7.5%, 12.1%)
New Kent County	51127	1.0%	(0.6%, 20.1%)	6.8%	(5.3%, 8.6%)
Nottoway County	51135	16.2%	(6.3%, 35.7%)	7.1%	(5.9%, 8.5%)
Powhatan County	51145	1.7%	(1.1%, 27.8%)	7.1%	(5.2%, 9.7%)
Prince Edward County	51147	2.7%	(1.6%, 19.3%)	7.0%	(6.0%, 8.2%)
Prince George County	51149	8.2%	(2.6%, 23.1%)	5.8%	(4.5%, 7.6%)
Surry County	51181	14.9%	(2.0%, 60.3%)	7.0%	(5.6%, 8.6%)
Sussex County	51183	0.9%	(0.6%, 24.9%)	6.8%	(5.8%, 8.0%)
Colonial Heights City	51570	6.9%	(1.5%, 26.7%)	6.3%	(5.4%, 7.4%)
Emporia City	51595	0.0%	(0.0%, 74.9%)	6.6%	(5.4%, 8.0%)
Hopewell City	51670	1.5%	(0.9%, 28.5%)	6.3%	(5.0%, 8.0%)
Petersburg	51730	6.0%	(2.0%, 16.3%)	8.2%	(6.6%, 10.3%)



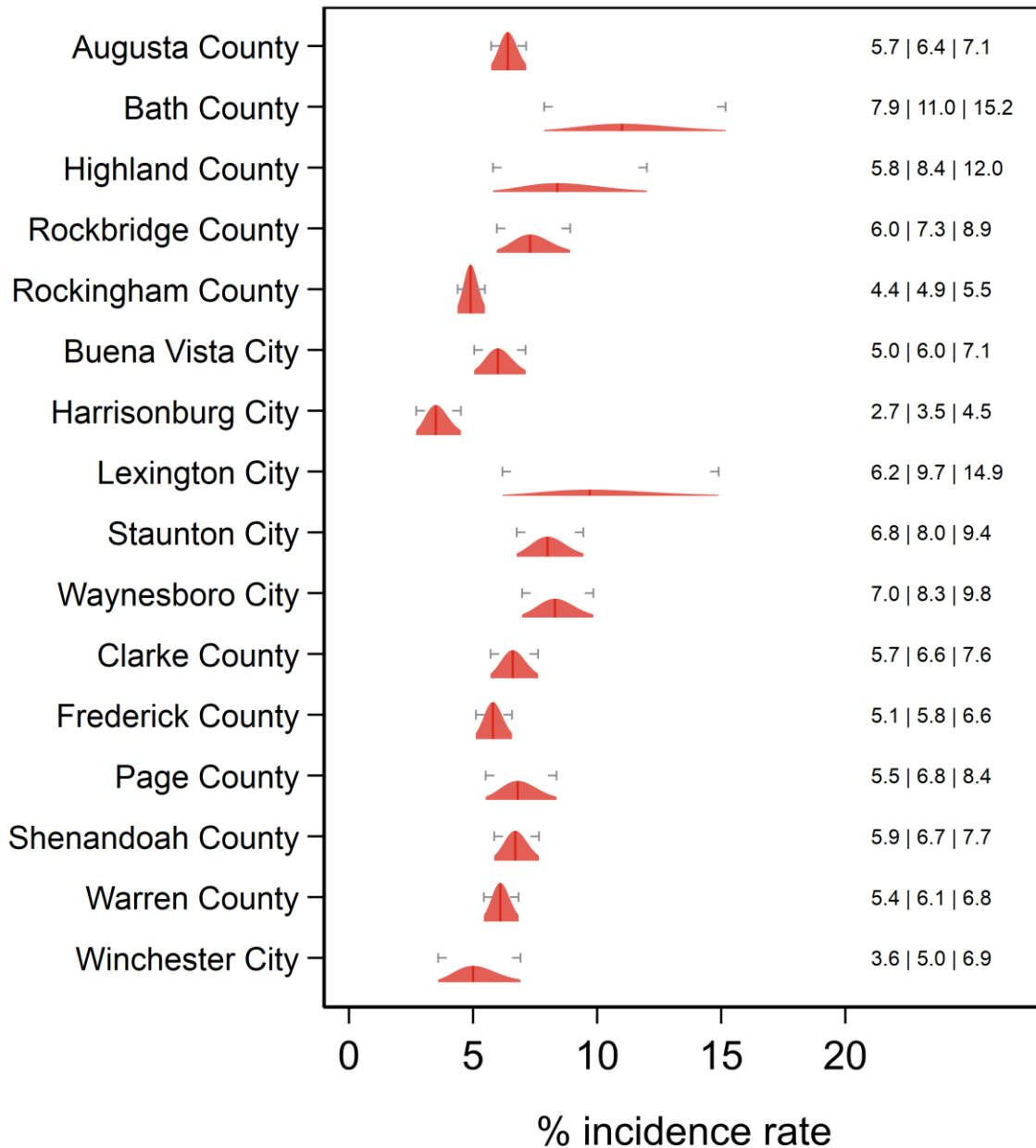
City					
Richmond City	51760	2.7%	(0.9%, 7.4%)	4.0%	(3.1%, 5.0%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Accomack County	51001	6.1%	(2.7%, 13.2%)	8.8%	(7.4%, 10.4%)
Essex County	51057	1.0%	(0.7%, 23.6%)	8.4%	(6.2%, 11.3%)
Gloucester County	51073	2.5%	(1.5%, 13.2%)	7.6%	(6.3%, 9.1%)
Isle of Wight County	51093	9.7%	(2.7%, 29.0%)	7.1%	(5.3%, 9.4%)
James City County	51095	3.3%	(1.6%, 10.4%)	6.3%	(5.4%, 7.4%)
King and Queen County	51097	0.0%	(0.0%, 47.4%)	7.8%	(6.4%, 9.3%)
King William County	51101	1.1%	(0.6%, 36.8%)	6.8%	(5.9%, 7.9%)
Lancaster County	51103	7.7%	(1.2%, 36.1%)	9.4%	(7.7%, 11.4%)
Mathews County	51115	3.7%	(0.6%, 19.4%)	6.0%	(5.1%, 7.0%)
Middlesex County	51119	3.5%	(1.8%, 30.1%)	9.6%	(7.9%, 11.7%)
Northampton County	51131	12.2%	(4.3%, 30.2%)	10.3%	(7.8%, 13.5%)
Northumberland County	51133	5.9%	(1.3%, 23.3%)	8.2%	(6.2%, 10.6%)
Richmond County	51159	0.6%	(0.5%, 12.3%)	7.9%	(6.9%, 9.1%)
Southampton County	51175	3.6%	(1.6%, 24.0%)	7.3%	(5.7%, 9.4%)
Westmoreland County	51193	1.8%	(1.3%, 17.0%)	7.1%	(5.5%, 9.2%)
York County	51199	3.3%	(1.7%, 12.8%)	5.8%	(4.7%, 7.1%)
Chesapeake City	51550	4.6%	(2.7%, 7.9%)	5.2%	(4.5%, 5.9%)
Franklin City	51620	5.1%	(1.8%, 46.0%)	7.4%	(5.9%, 9.2%)
Hampton City	51650	3.6%	(2.0%, 8.6%)	5.2%	(4.5%, 6.0%)
Newport News City	51700	3.8%	(1.6%, 8.9%)	4.1%	(3.5%, 4.7%)
Norfolk City	51710	3.3%	(1.6%, 6.7%)	3.7%	(3.0%, 4.4%)
Poquoson City	51735	0.0%	(0.0%, 40.5%)	6.2%	(4.7%, 8.1%)
Portsmouth City	51740	5.0%	(2.4%, 10.3%)	5.3%	(4.6%, 6.0%)
Suffolk City	51800	0.3%	(0.2%, 6.9%)	5.9%	(5.0%, 6.9%)
Virginia Beach City	51810	3.6%	(2.2%, 6.0%)	4.3%	(3.8%, 4.9%)
Williamsburg City	51830	23.7%	(4.7%, 65.9%)	4.7%	(2.7%, 8.0%)



Graphical representation

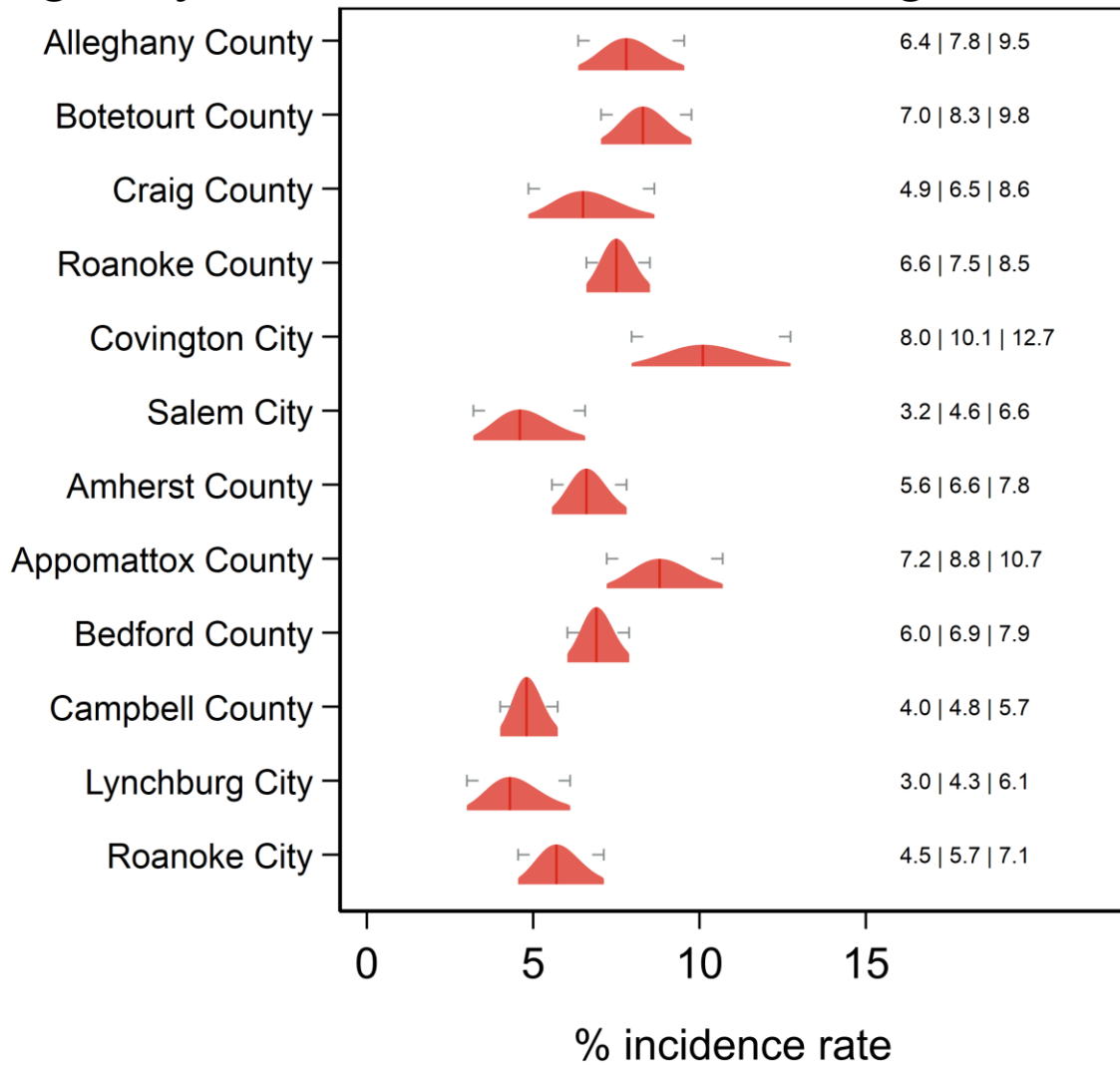
# Diagnosed with coronary heart disease or angina Central Shenandoah and Lord Fairfax HDs



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

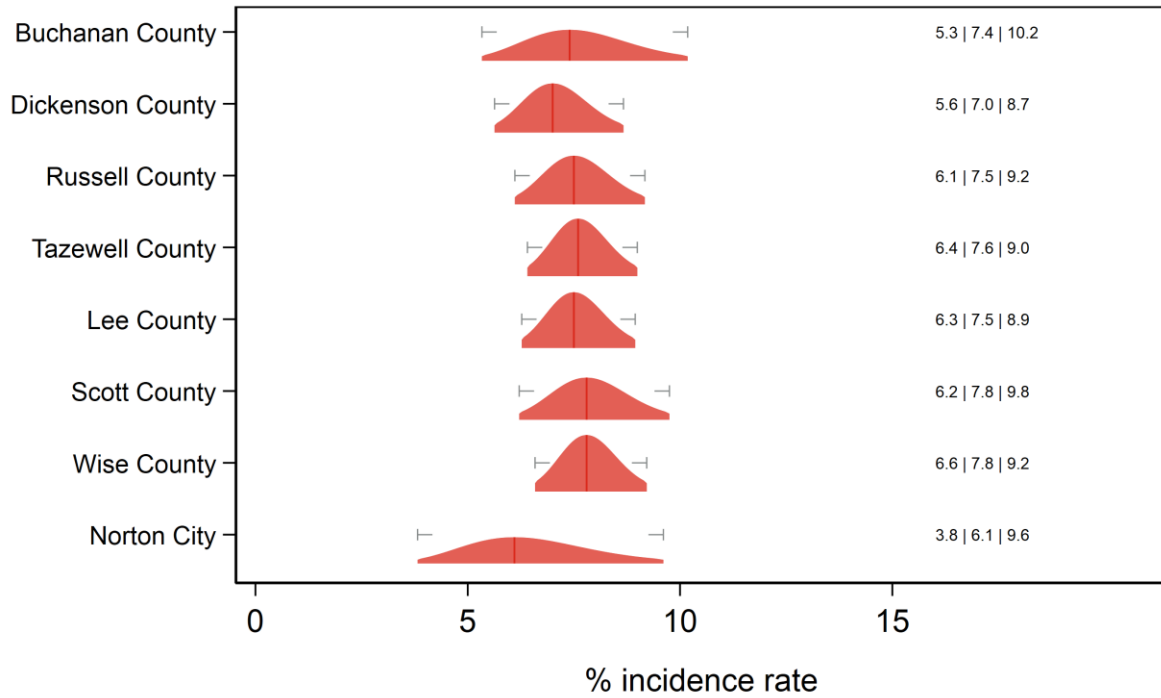


# Diagnosed with coronary heart disease or angina Alleghany, Roanoke and Central Virginia HDs



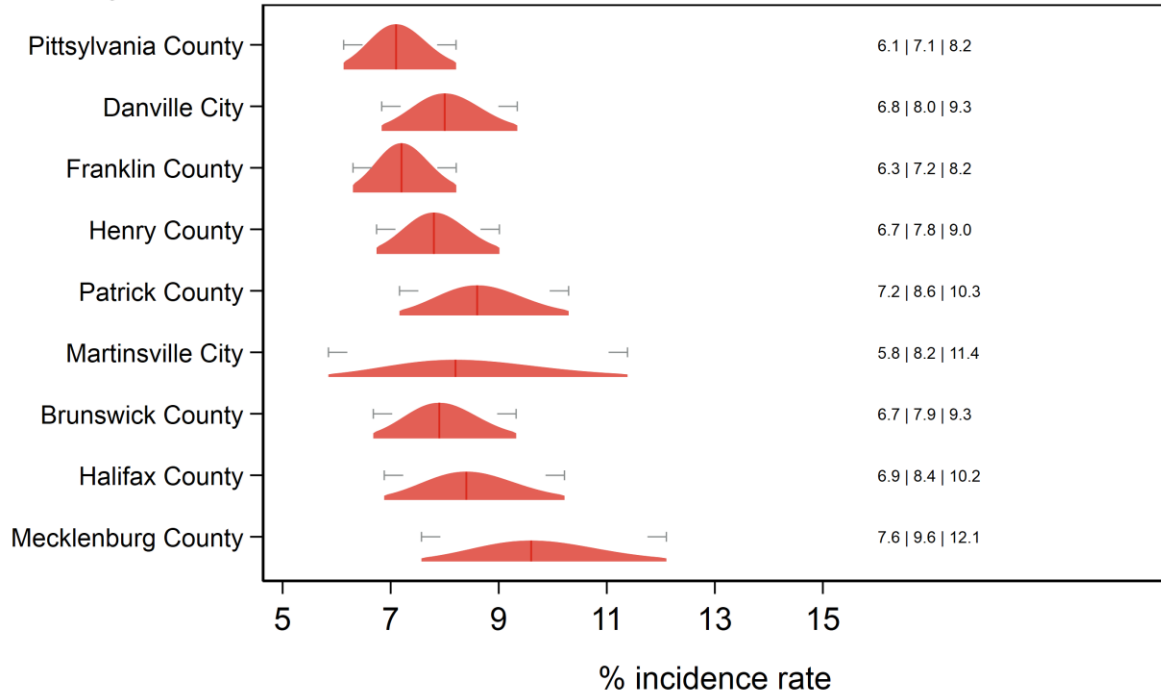
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB  
 Gray markers: 95% confidence interval

## Diagnosed with coronary heart disease or angina Cumberland Plateau and Lenowisco HDs



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

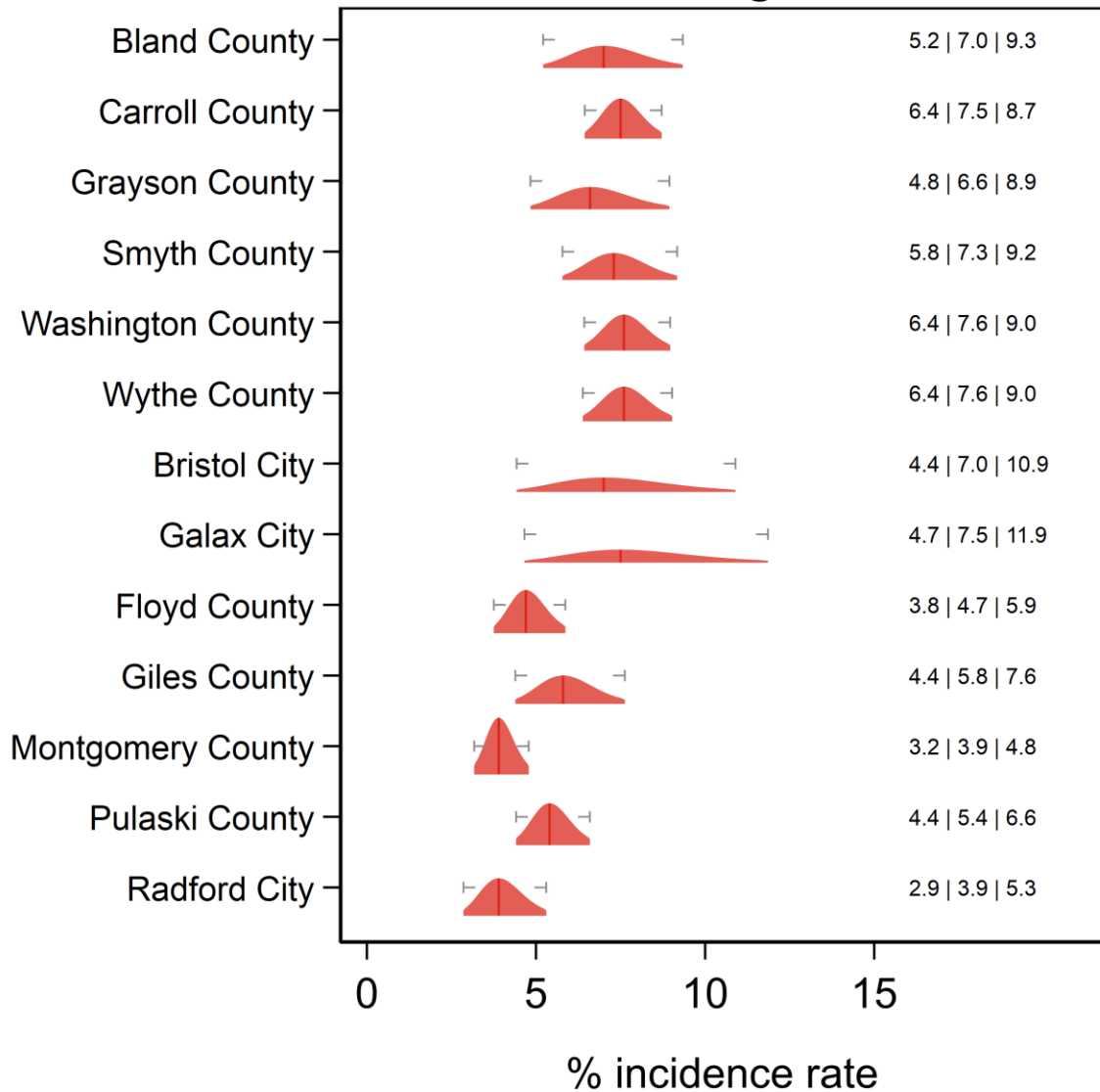
## Diagnosed with coronary heart disease or angina Pittsylvania/Danville, Southside and West Piedmont HDs



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

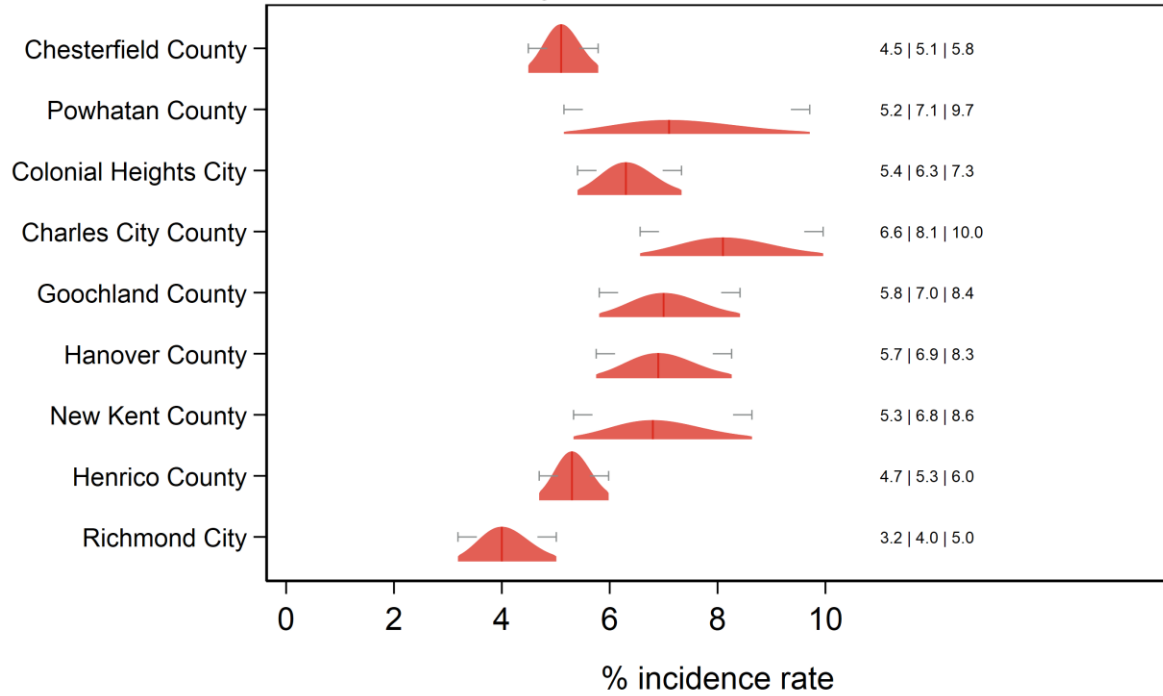


# Diagnosed with coronary heart disease or angina New River and Mount Rogers HDs



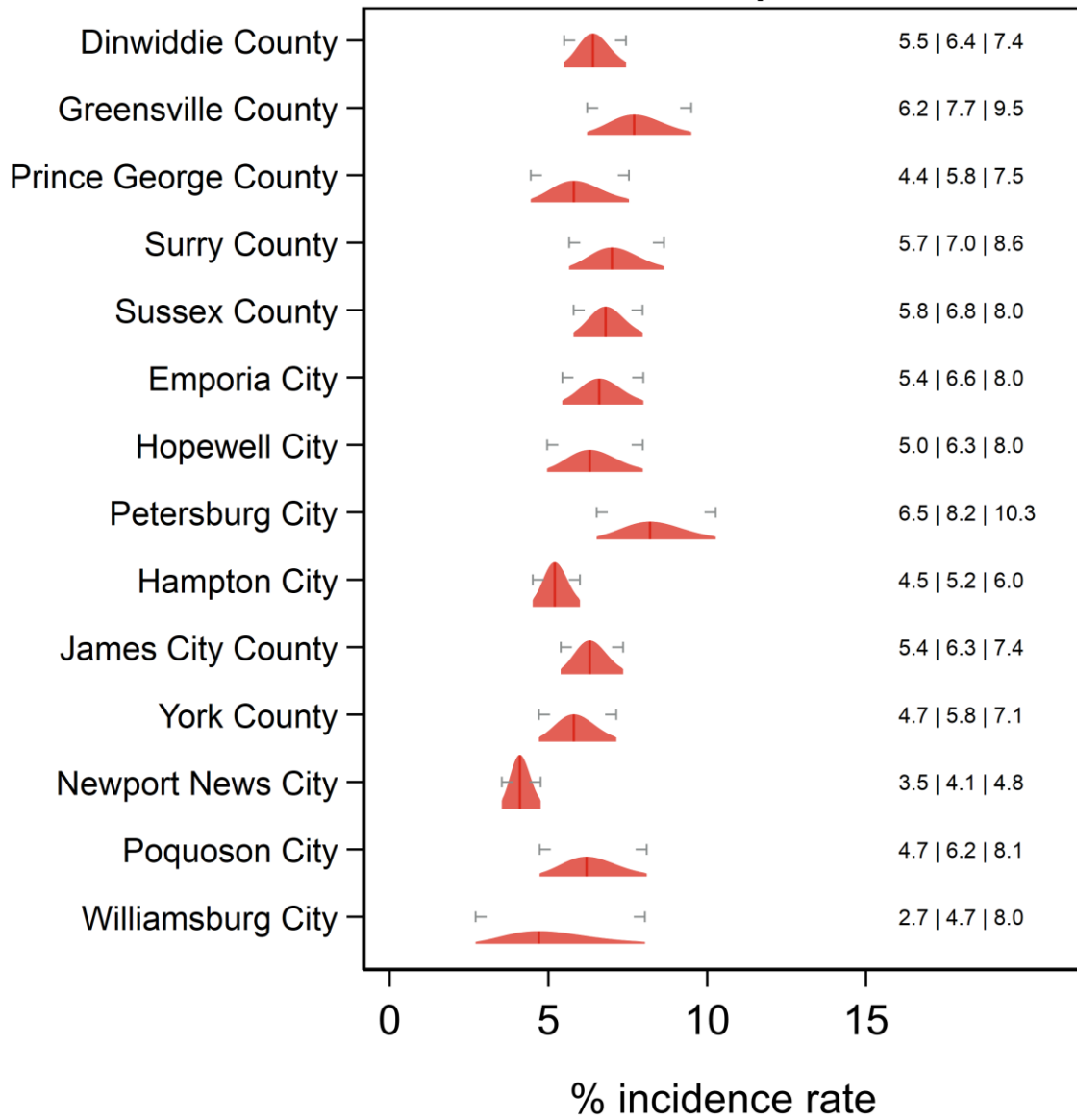
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB  
 Gray markers: 95% confidence interval

## Diagnosed with coronary heart disease or angina Chesterfield, Chickahominy, Henrico and Richmond HDs



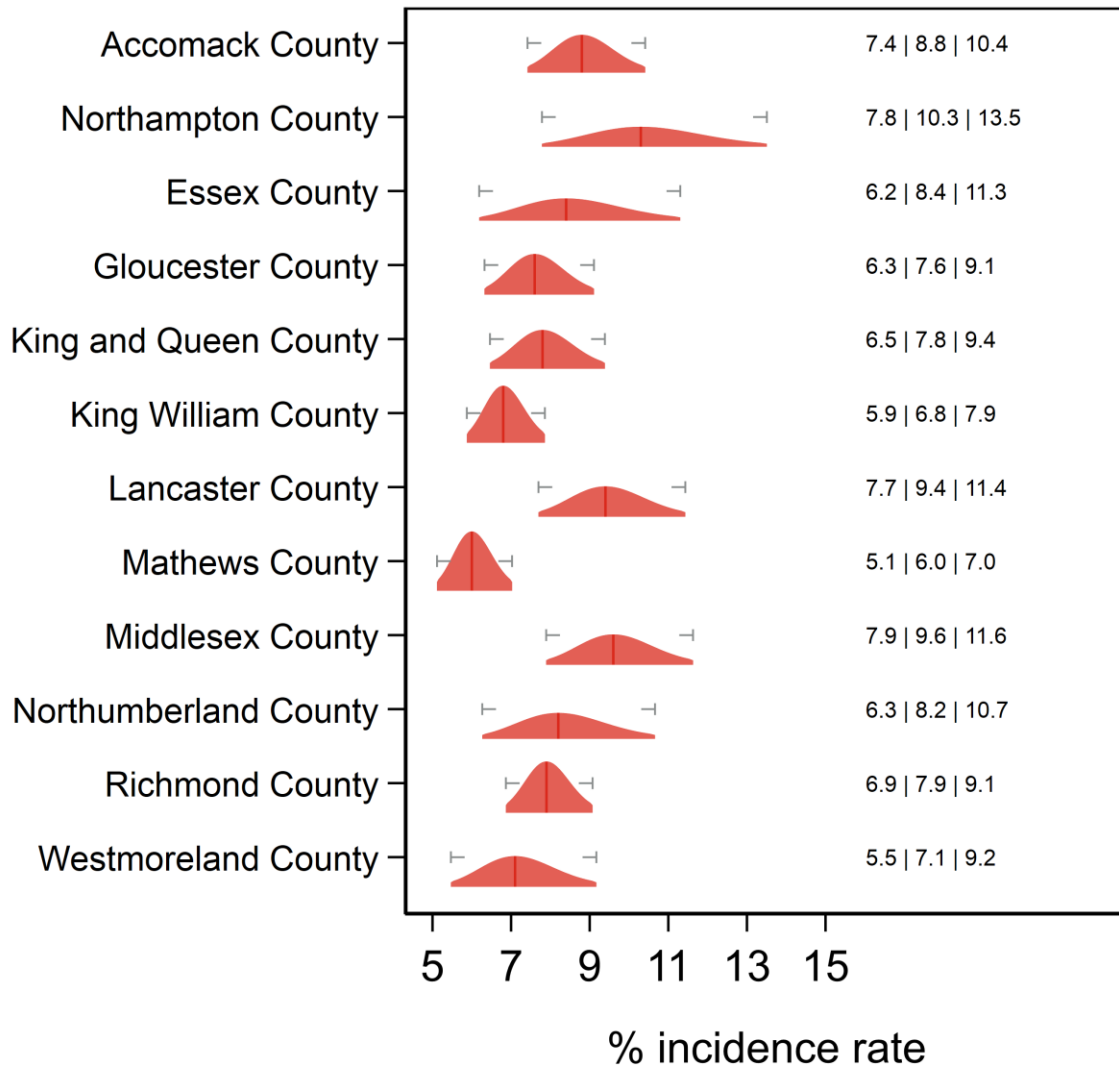
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB  
 Gray markers: 95% confidence interval

# Diagnosed with coronary heart disease or angina Crater, Peninsula and Hampton HDs



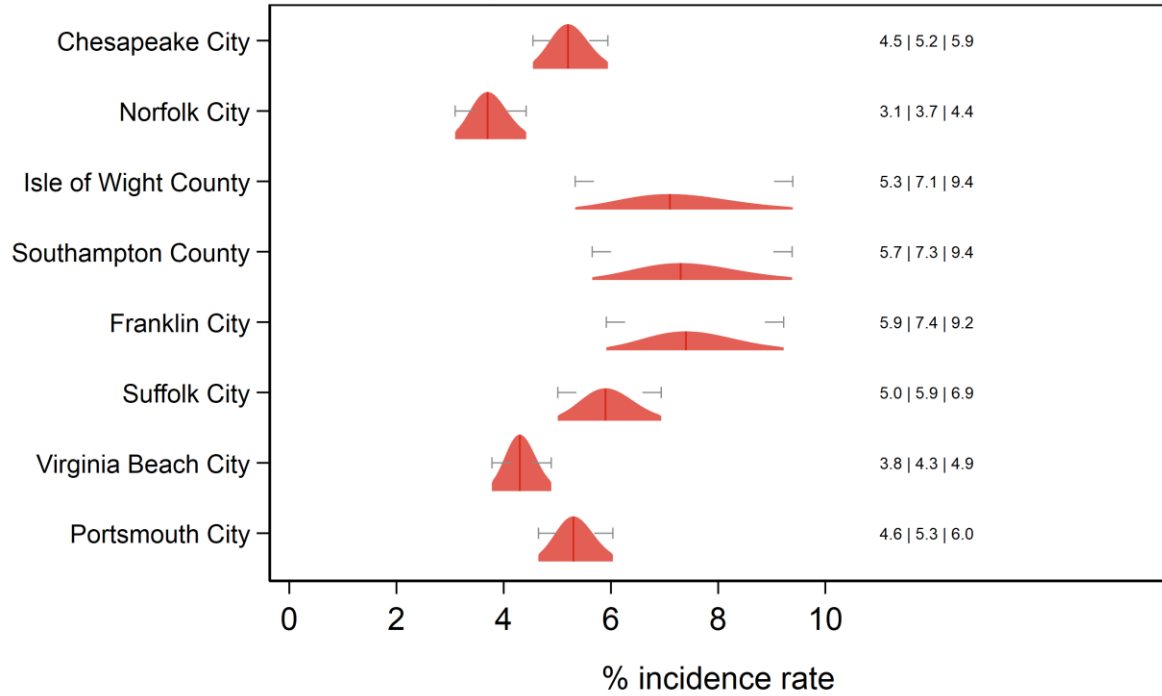
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB  
 Gray markers: 95% confidence interval

# Diagnosed with coronary heart disease or angina Eastern Shore and Three Rivers HDs



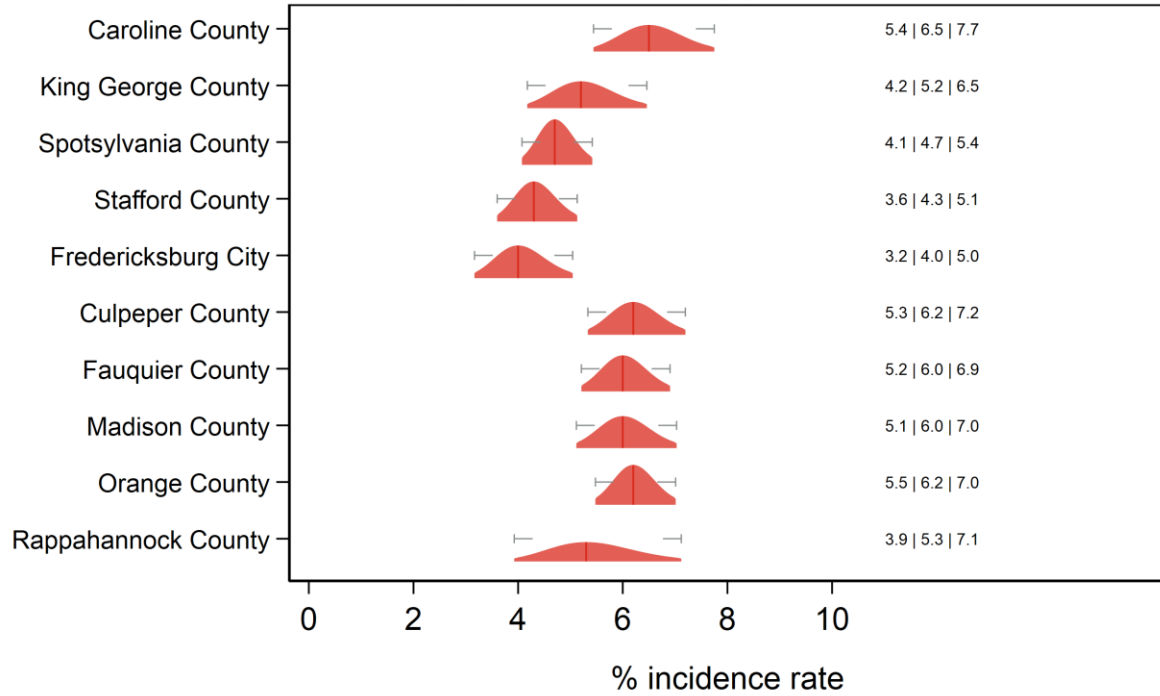
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB  
 Gray markers: 95% confidence interval

## Diagnosed with coronary heart disease or angina Norfolk, Portsmouth, Chesapeake, VA Beach, W. Tidewater HDs



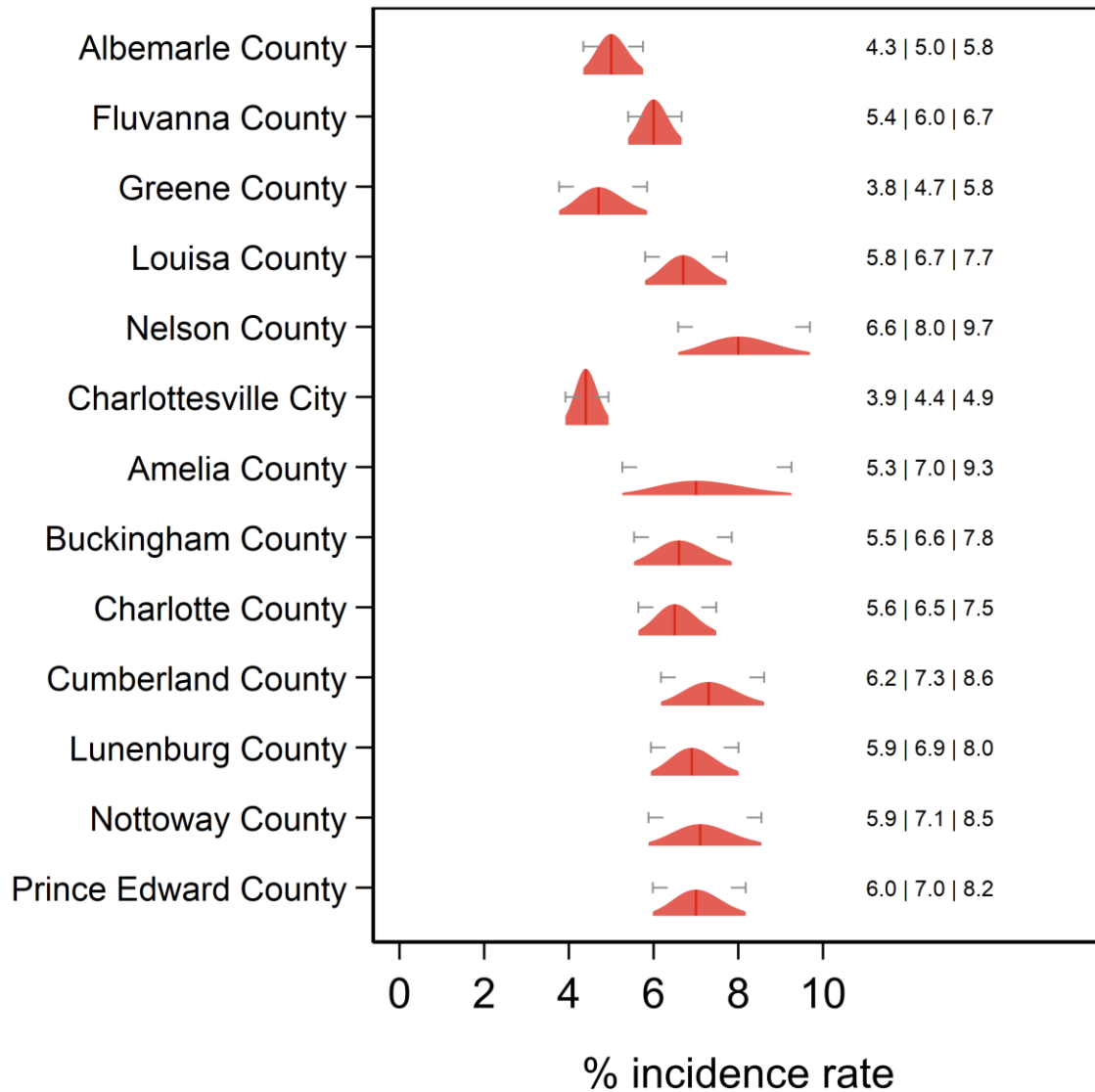
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB  
 Gray markers: 95% confidence interval

## Diagnosed with coronary heart disease or angina Rappahannock/Rapidan and Rappahannock HDs



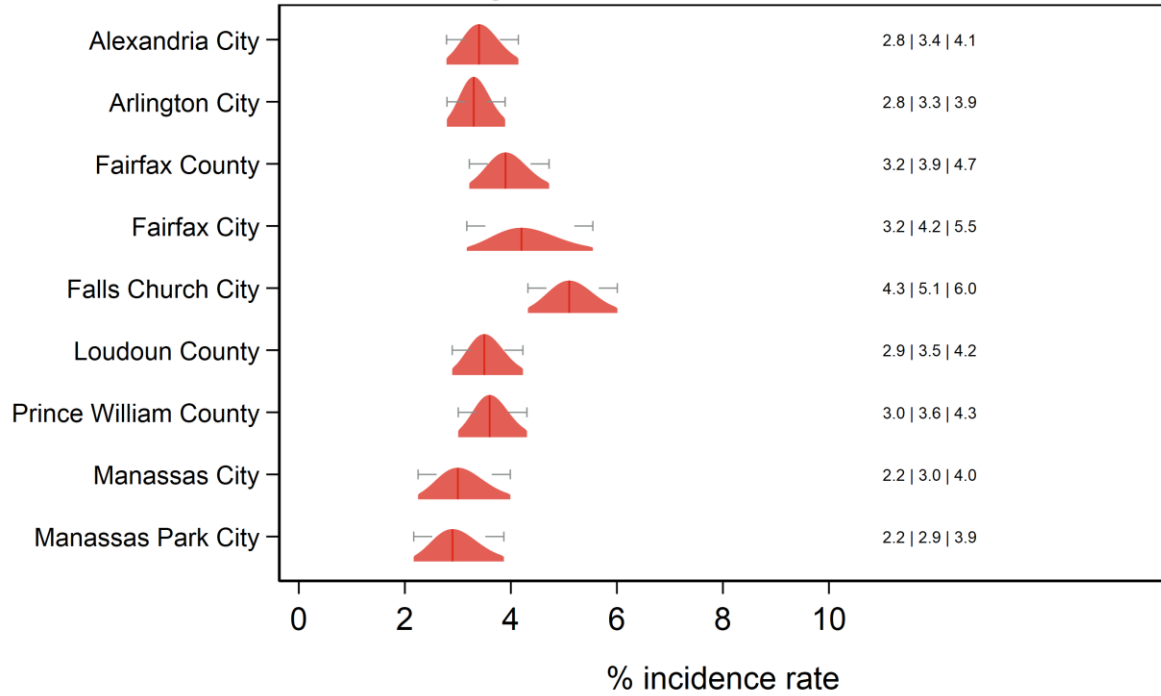
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB  
 Gray markers: 95% confidence interval

# Diagnosed with coronary heart disease or angina Thomas Jefferson and Piedmont HDs



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

## Diagnosed with coronary heart disease or angina 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





## Additional diagnostics

Direct estimate is inside the 95% SAE Wilson CI: 24 areas.

Direct estimate is outside the 95% SAE Wilson CI: 109 areas.

SAE estimate is inside the 95% direct Wilson CI: 129 areas.

SAE estimate is outside the 95% direct Wilson CI: 4 areas.

SAE Wilson 95% CI is fully inside the 95% direct Wilson CI: 124 areas.

SAE Wilson 95% CI partially overlaps with the 95% direct Wilson CI: 9 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: 102 areas.

SAE standard error is greater than the (nonzero) direct standard error: 6 areas.

Direct standard error is zero: 25 areas.

Proportion of SAE variance due to ACS sampling error: min = 0.37%; med = 3.14%; max = 16.32%.

Proportion of SAE variance due to sampling error in regression coefficient estimates: min = 17.71%; med = 82.84%; max = 99.16%.

Proportion of SAE variance due to model selection: min = 0.42%; med = 13.62%; max = 81.90%.

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