

Outcome 2: Colon Cancer Screening 45+ past year

Internal variable name: outc2_colon_test

Definition: Respondents aged 45 or older who have had a sigmoidoscopy or colonoscopy

Predictive models

	Mixed, demos only	Logit, no area effects	Mixed with area covariates
	b/se	b/se	b/se
Outcome 2: Colon Cancer Screening 45+ past year			
NH White	0.0000 (.)	0.0000 (.)	0.0000 (.)
NH Black vs. NH White	0.4554*** (0.1289)	0.3514* (0.1427)	0.3514* (0.1402)
NH Asian vs. NH White	-0.3789 (0.2719)	-0.4514 (0.5081)	-0.4514 (0.2922)
NH Other vs. NH White	-0.0216 (0.2190)	-0.0549 (0.2394)	-0.0549 (0.2235)
Hispanic vs. NH White	-0.6408 (0.3365)	-0.5785 (0.3558)	-0.5785 (0.3433)
SEX OF RESPONDENT=1	0.0000 (.)	0.0000 (.)	0.0000 (.)
Female	-0.0519 (0.0798)	-0.0391 (0.1028)	-0.0391 (0.0791)
Age 18-34 vs. 65+	0.0000 (.)		0.0000 (.)
Age 35-44 vs. 65+	0.0000 (.)		0.0000 (.)
Age 45-54 vs. 65+	-0.5462*** (0.1179)	-0.5502*** (0.1478)	-0.5502*** (0.1179)
Age 55-64 vs. 65+	-0.1693 (0.0951)	-0.1674 (0.1155)	-0.1674 (0.0983)
65+	0.0000 (.)	0.0000 (.)	0.0000 (.)
Log(Non-Hodgkin Lymphoma All Rate + 1)		-0.1498 (0.1173)	-0.1498 (0.0997)
Percentage calculated by dividing Female_No_HB_CEN_2010 by Tot_Occp_Units_CEN_20		0.7797	0.7797

		(4.0115)	(3.3891)
Log(Thyroid Male Rate + 1)		0.1966	0.1966
		(0.2055)	(0.1745)
Percentage calculated by dividing Female_No_HB_CEN_2010 by Tot_Occp_Units_CEN_20 # Log(Thyroid Male Rate + 1)		0.1291	0.1291
		(1.6069)	(1.3727)
VA BRFSS 2014 SAE outc7_heart_attack		0.3462	0.3462
		(5.3175)	(4.1000)
Rural-urban continuum code category 2-4		-0.4710	-0.4710
		(0.4902)	(0.4916)
VA BRFSS 2014 SAE outc7_heart_attack # Rural-urban continuum code category 2-4		2.4576	2.4576
		(6.4959)	(5.9242)
VA BRFSS 2014 SAE outc35_colon_test		-13.5317	-13.5317
		(16.3771)	(13.8848)
Diabetes_Type_II hospitalization rate per 1K		0.5418	0.5418
		(1.4630)	(1.2192)
VA BRFSS 2014 SAE outc35_colon_test # Diabetes_Type_II hospitalization rate per 1K		-0.4130	-0.4130
		(1.9778)	(1.6645)
Hypertension hospitalization rate per 1K		-2.5588	-2.5588
		(3.5478)	(3.2265)
Road density per county population		3.0410	3.0410
		(3.4333)	(2.7485)
Hypertension hospitalization rate per 1K # Road density per county population		0.0384	0.0384
		(0.1219)	(0.1010)
Road density per county population		0.0000	
		(.)	
VA BRFSS 2014 SAE		0.0000	

outc35_colon_test			
		(.)	
Hypertension hospitalization rate per 1K		0.0000	
		(.)	
VA BRFSS 2014 SAE outc35_colon_test # Hypertension hospitalization rate per 1K		2.8325	2.8325
		(4.0182)	(3.5754)
VA BRFSS 2014 SAE outc7_heart_attack		0.0000	
		(.)	
Crude mortality rate of intentional self-harm (suicide) per 10K		0.2364	0.2364
		(0.2540)	(0.2227)
VA BRFSS 2014 SAE outc7_heart_attack # Crude mortality rate of intentional self-harm (suicide) per 10K		-3.0069	-3.0069
		(3.3317)	(2.7468)
Road density per county land area		3.6731	3.6731
		(3.4193)	(2.7425)
Road density per county land area # Road density per county population		-0.3009	-0.3009
		(0.2879)	(0.2260)
Road density per county population		0.0000	
		(.)	
VA BRFSS 2014 SAE outc35_colon_test		0.0000	
		(.)	
VA BRFSS 2014 SAE outc35_colon_test # Road density per county population		0.9974	0.9974
		(1.3137)	(1.0815)
_cons	-1.5789***	-38.2320	-38.2320
	(0.0756)	(40.6762)	(33.2212)
Area effect variance			
var(_cons[FIPS_county])	0.0000		0.0000
	(.)		(.)

Number of alternative models used to estimate model error = 5.

Results by health districts

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Augusta County	51015	9.8%	(5.3%, 17.5%)	12.8%	(9.6%, 16.7%)
Bath County	51017	5.0%	(1.8%, 43.1%)	8.0%	(2.8%, 20.9%)
Caroline County	51033	17.2%	(5.9%, 50.4%)	13.6%	(6.4%, 26.5%)
Clarke County	51043	17.3%	(4.4%, 48.9%)	13.7%	(8.3%, 21.8%)
Culpeper County	51047	3.4%	(0.6%, 18.1%)	14.0%	(9.9%, 19.5%)
Fauquier County	51061	12.5%	(4.8%, 29.1%)	18.9%	(16.0%, 22.3%)
Frederick County	51069	15.4%	(7.4%, 29.3%)	15.4%	(12.9%, 18.2%)
Highland County	51091	0.0%	(0.0%, 59.6%)	0.2%	(0.0%, 47.4%)
King George County	51099	0.0%	(0.0%, 29.8%)	14.8%	(8.6%, 24.3%)
Madison County	51113	2.8%	(1.3%, 35.3%)	17.0%	(12.2%, 23.2%)
Orange County	51137	5.9%	(2.9%, 25.3%)	14.3%	(9.7%, 20.6%)
Page County	51139	9.3%	(3.3%, 37.1%)	13.2%	(6.5%, 25.1%)
Rappahannock County	51157	18.1%	(4.6%, 61.7%)	13.5%	(7.4%, 23.4%)
Rockbridge County	51163	19.1%	(7.7%, 39.9%)	18.2%	(12.9%, 25.0%)
Rockingham County	51165	21.6%	(11.4%, 37.2%)	21.0%	(17.1%, 25.5%)
Shenandoah County	51171	27.5%	(13.5%, 48.1%)	15.8%	(12.1%, 20.4%)
Spotsylvania County	51177	17.1%	(9.4%, 29.2%)	20.3%	(17.2%, 23.8%)
Stafford County	51179	7.1%	(4.2%, 16.6%)	12.6%	(9.8%, 16.1%)
Warren County	51187	3.5%	(1.8%, 20.0%)	13.7%	(8.9%, 20.6%)
Buena Vista City	51530	45.3%	(3.3%, 95.3%)	2.8%	(0.2%, 26.8%)
Fredericksburg City	51630	5.3%	(1.4%, 31.5%)	9.9%	(6.5%, 14.8%)
Harrisonburg City	51660	23.1%	(5.2%, 62.1%)	9.7%	(3.9%, 22.1%)
Lexington City	51678	0.0%	(0.0%, 99.4%)	3.0%	(0.6%, 13.6%)
Staunton City	51790	17.3%	(4.1%, 67.5%)	7.5%	(3.0%, 17.8%)
Waynesboro	51820	0.0%	(0.0%, 82.1%)	4.4%	(1.8%, 10.5%)

City					
Winchester City	51840	15.4%	(3.6%, 61.4%)	10.8%	(5.7%, 19.5%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Albemarle County	51003	23.2%	(12.6%, 38.9%)	17.6%	(14.2%, 21.5%)
Alleghany County	51005	16.3%	(6.2%, 36.5%)	14.3%	(8.1%, 24.2%)
Amherst County	51009	10.3%	(2.9%, 30.6%)	19.9%	(13.0%, 29.3%)
Appomattox County	51011	17.8%	(7.8%, 35.5%)	17.4%	(13.1%, 22.8%)
Arlington City	51013	6.2%	(2.8%, 13.1%)	9.3%	(6.3%, 13.3%)
Bedford County	51019	13.4%	(7.6%, 22.4%)	22.7%	(18.9%, 27.0%)
Botetourt County	51023	9.5%	(4.6%, 28.4%)	14.8%	(10.8%, 19.9%)
Campbell County	51031	27.2%	(14.9%, 44.4%)	17.3%	(13.0%, 22.7%)
Craig County	51045	14.6%	(2.0%, 58.9%)	16.9%	(9.3%, 28.7%)
Fairfax County	51059	14.0%	(10.2%, 18.9%)	14.5%	(13.1%, 16.0%)
Fluvanna County	51065	13.9%	(2.9%, 46.6%)	16.4%	(11.9%, 22.1%)
Greene County	51079	16.5%	(3.7%, 50.6%)	16.1%	(12.1%, 21.2%)
Loudoun County	51107	15.5%	(9.0%, 25.3%)	15.4%	(13.3%, 17.8%)
Louisa County	51109	34.9%	(16.5%, 59.4%)	21.1%	(14.7%, 29.3%)
Nelson County	51125	0.0%	(0.0%, 51.2%)	15.2%	(11.6%, 19.6%)
Prince William County	51153	14.3%	(9.7%, 20.7%)	14.0%	(11.8%, 16.6%)
Roanoke County	51161	15.5%	(9.0%, 25.3%)	17.3%	(14.0%, 21.2%)
Alexandria City	51510	13.4%	(6.4%, 25.8%)	10.1%	(7.3%, 13.6%)
Charlottesville City	51540	0.0%	(0.0%, 22.9%)	5.4%	(2.7%, 10.3%)
Covington City	51580	17.2%	(1.7%, 86.0%)	9.3%	(3.2%, 24.0%)
Fairfax City	51600	6.7%	(3.9%, 22.2%)	6.8%	(4.1%, 11.1%)
Falls Church City	51610	0.0%	(0.0%, 48.1%)	1.5%	(0.3%, 6.3%)
Lynchburg City	51680	11.3%	(5.4%, 22.1%)	15.8%	(11.5%, 21.3%)
Manassas City	51683	7.5%	(1.1%, 36.1%)	4.9%	(2.5%, 9.3%)
Manassas Park City	51685	0.0%	(0.0%, 92.0%)	1.8%	(0.3%, 9.0%)
Salem City	51775	8.9%	(1.8%, 77.4%)	10.6%	(5.9%, 18.3%)

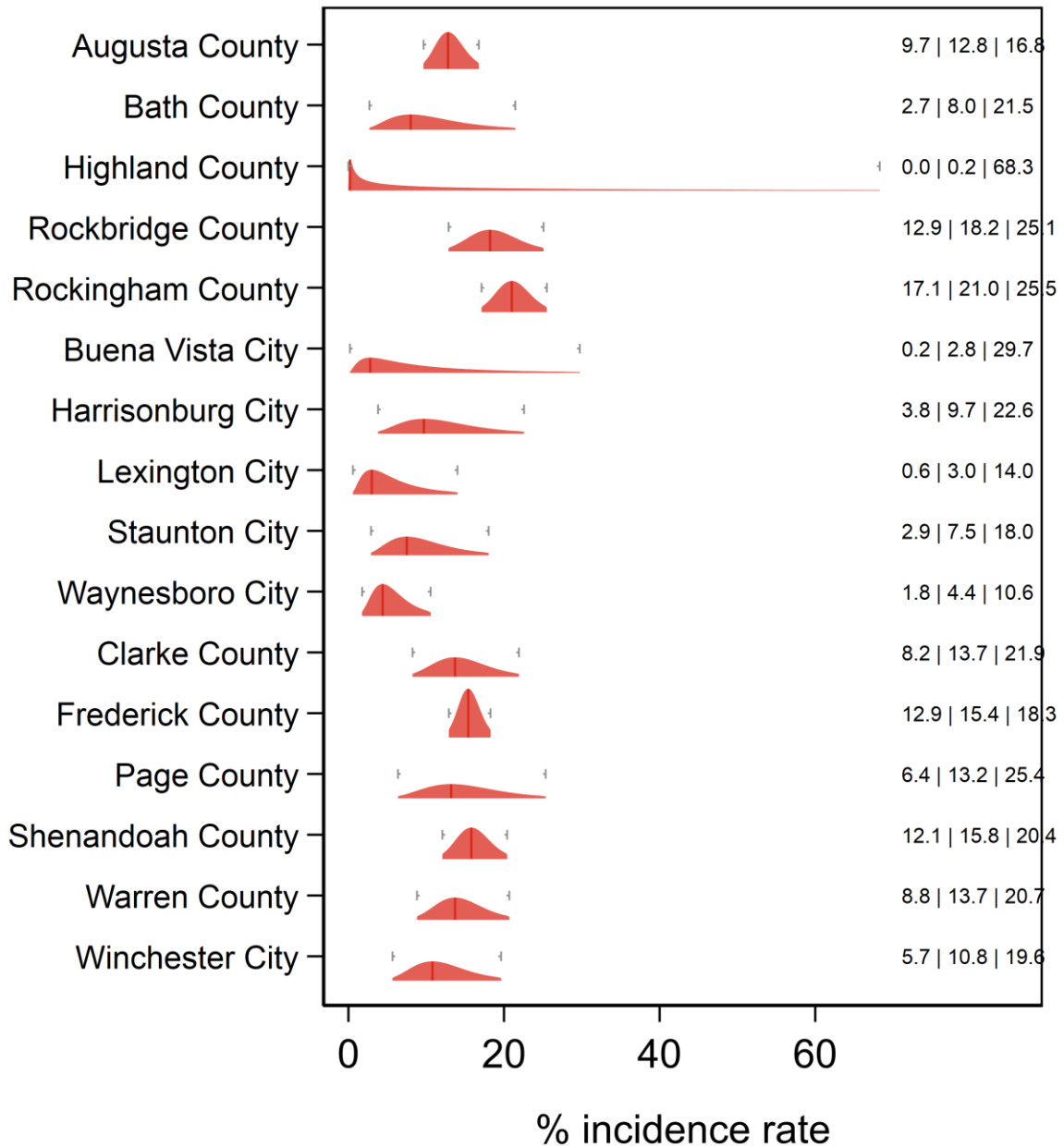
County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Bland County	51021	4.4%	(1.2%, 68.1%)	5.6%	(2.5%, 12.3%)
Buchanan County	51027	1.6%	(0.9%, 29.2%)	9.3%	(5.6%, 15.0%)
Carroll County	51035	2.6%	(1.3%, 34.6%)	9.5%	(6.2%, 14.3%)
Dickenson County	51051	13.7%	(4.0%, 47.1%)	6.7%	(2.9%, 14.6%)
Floyd County	51063	3.5%	(1.5%, 38.4%)	6.3%	(3.7%, 10.5%)
Franklin County	51067	14.9%	(4.0%, 42.7%)	18.3%	(15.1%, 22.1%)
Giles County	51071	20.4%	(6.1%, 50.2%)	21.7%	(16.2%, 28.5%)
Grayson County	51077	22.2%	(7.7%, 49.4%)	13.2%	(7.6%, 22.0%)
Henry County	51089	12.9%	(5.1%, 28.9%)	14.6%	(11.7%, 18.2%)
Lee County	51105	8.3%	(2.2%, 26.4%)	14.9%	(10.8%, 20.1%)
Montgomery County	51121	8.5%	(3.9%, 17.6%)	13.1%	(10.1%, 17.0%)
Patrick County	51141	5.0%	(2.2%, 24.1%)	10.6%	(7.4%, 15.0%)
Pittsylvania County	51143	18.8%	(9.9%, 32.7%)	20.1%	(16.6%, 24.2%)
Pulaski County	51155	15.2%	(5.8%, 34.5%)	17.4%	(13.7%, 21.9%)
Russell County	51167	9.3%	(3.1%, 24.5%)	11.7%	(8.4%, 16.2%)
Scott County	51169	11.8%	(5.8%, 22.6%)	13.7%	(9.3%, 19.7%)
Smyth County	51173	13.5%	(5.0%, 31.8%)	9.6%	(6.5%, 14.1%)
Tazewell County	51185	14.9%	(5.9%, 33.0%)	17.7%	(12.4%, 24.6%)
Washington County	51191	14.7%	(7.0%, 28.4%)	17.6%	(14.4%, 21.3%)
Wise County	51195	9.3%	(3.6%, 22.3%)	10.0%	(6.7%, 14.6%)
Wythe County	51197	20.0%	(8.8%, 39.5%)	17.1%	(11.3%, 25.2%)
Bristol City	51520	13.3%	(2.4%, 64.7%)	10.4%	(3.8%, 25.4%)
Danville City	51590	22.3%	(8.3%, 47.7%)	15.3%	(9.4%, 23.9%)
Galax City	51640	0.0%	(-0.0%, 92.2%)	5.1%	(1.9%, 12.8%)
Martinsville City	51690	6.0%	(1.9%, 56.3%)	7.9%	(3.6%, 16.1%)
Norton City	51720	0.0%	(0.0%, 95.5%)	9.5%	(2.4%, 30.7%)
Radford City	51750	4.4%	(1.6%, 34.3%)	5.6%	(1.2%, 23.1%)
Roanoke City	51770	15.9%	(6.6%, 33.3%)	17.6%	(12.6%, 24.1%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Amelia County	51007	52.0%	(22.6%, 80.1%)	22.5%	(8.4%, 47.9%)
Brunswick County	51025	29.3%	(13.5%, 52.4%)	31.2%	(21.5%, 42.8%)
Buckingham County	51029	3.3%	(1.4%, 31.7%)	22.6%	(16.9%, 29.4%)
Charles City County	51036	10.9%	(1.7%, 81.6%)	19.7%	(13.1%, 28.7%)
Charlotte County	51037	17.5%	(6.9%, 43.9%)	12.8%	(9.2%, 17.7%)
Chesterfield County	51041	17.3%	(10.7%, 26.8%)	17.1%	(14.9%, 19.5%)
Cumberland County	51049	0.0%	(0.0%, 48.9%)	14.9%	(9.6%, 22.5%)
Dinwiddie County	51053	7.9%	(4.2%, 26.3%)	19.8%	(14.9%, 25.7%)
Goochland County	51075	17.0%	(5.0%, 44.4%)	12.5%	(7.9%, 19.4%)
Greensville County	51081	36.4%	(12.0%, 70.7%)	22.2%	(14.7%, 32.3%)
Halifax County	51083	19.1%	(9.8%, 33.8%)	18.0%	(13.3%, 23.8%)
Hanover County	51085	19.8%	(10.4%, 34.6%)	18.2%	(15.7%, 21.0%)
Henrico County	51087	10.6%	(6.6%, 16.7%)	15.9%	(13.8%, 18.2%)
Lunenburg County	51111	17.7%	(8.1%, 40.2%)	18.9%	(12.5%, 27.6%)
Mecklenburg County	51117	20.7%	(10.1%, 37.6%)	22.2%	(17.8%, 27.4%)
New Kent County	51127	15.9%	(3.9%, 46.8%)	17.1%	(11.6%, 24.4%)
Nottoway County	51135	8.3%	(2.3%, 35.2%)	15.1%	(11.5%, 19.6%)
Powhatan County	51145	6.5%	(1.1%, 29.9%)	10.9%	(7.7%, 15.3%)
Prince Edward County	51147	18.8%	(6.8%, 42.2%)	18.3%	(13.6%, 24.2%)
Prince George County	51149	6.5%	(3.4%, 32.4%)	19.7%	(14.7%, 26.1%)
Surry County	51181	13.5%	(1.8%, 57.1%)	17.1%	(9.8%, 28.3%)
Sussex County	51183	6.3%	(2.9%, 39.1%)	24.7%	(14.2%, 39.4%)
Colonial Heights City	51570	3.9%	(2.0%, 36.7%)	8.3%	(4.9%, 13.7%)
Emporia City	51595	0.0%	(0.0%, 97.0%)	5.5%	(0.9%, 26.2%)
Hopewell City	51670	5.4%	(2.7%, 40.3%)	13.9%	(7.4%, 24.4%)
Petersburg	51730	34.7%	(17.4%, 57.2%)	36.8%	(27.8%, 46.9%)

City					
Richmond City	51760	16.3%	(8.1%, 30.0%)	21.7%	(17.9%, 26.0%)

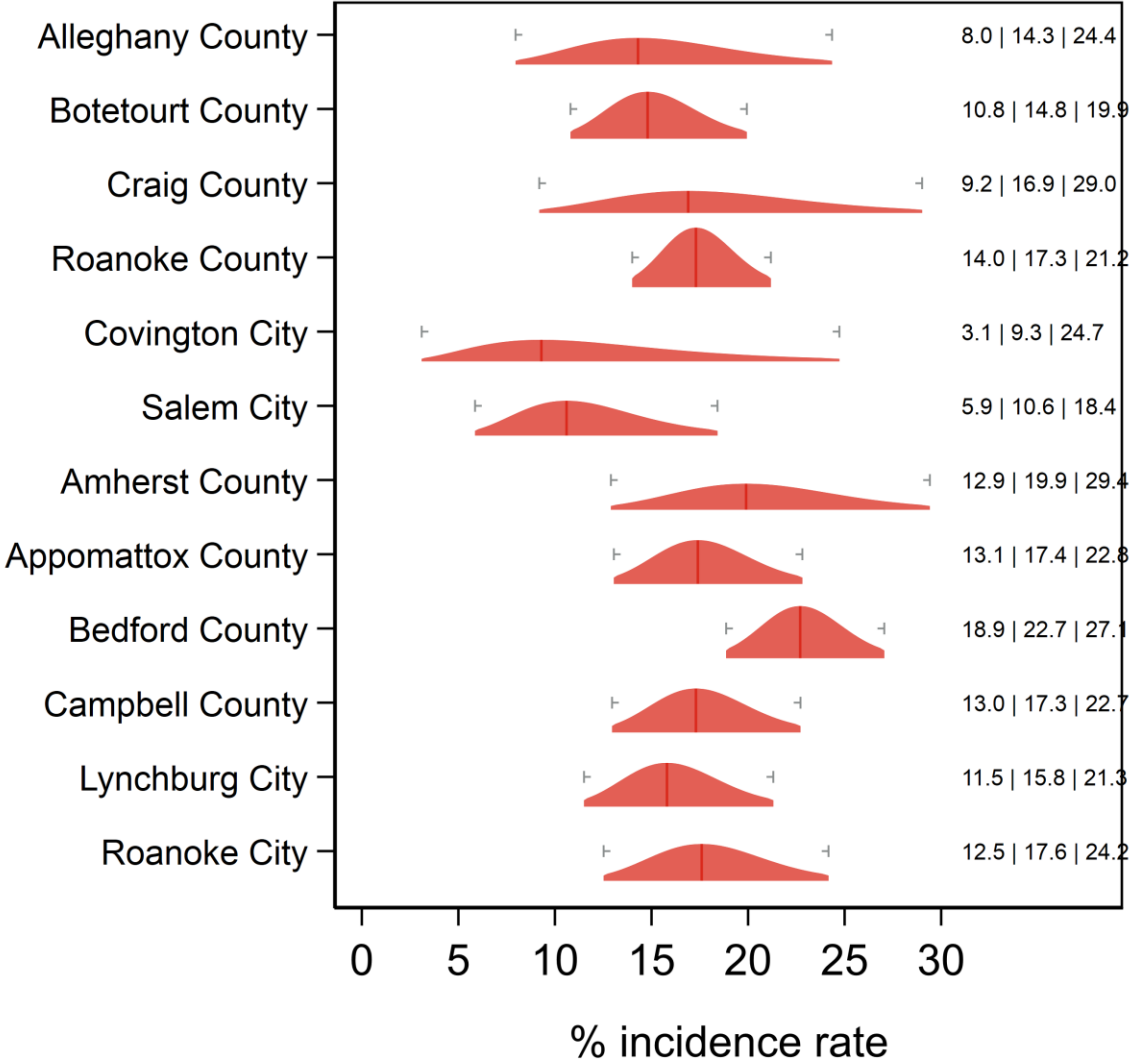
County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Accomack County	51001	11.8%	(5.9%, 22.5%)	14.5%	(11.0%, 18.8%)
Essex County	51057	25.8%	(9.1%, 54.8%)	15.4%	(9.2%, 24.7%)
Gloucester County	51073	10.7%	(4.9%, 21.7%)	13.0%	(9.7%, 17.1%)
Isle of Wight County	51093	2.0%	(1.1%, 25.1%)	12.8%	(9.6%, 16.8%)
James City County	51095	14.3%	(7.7%, 25.2%)	10.9%	(9.2%, 12.9%)
King and Queen County	51097	0.0%	(0.0%, 51.5%)	9.9%	(5.5%, 17.1%)
King William County	51101	1.4%	(0.5%, 66.1%)	15.4%	(12.1%, 19.5%)
Lancaster County	51103	1.9%	(1.1%, 28.0%)	10.3%	(6.2%, 16.6%)
Mathews County	51115	14.3%	(4.9%, 35.0%)	10.4%	(4.8%, 21.1%)
Middlesex County	51119	24.9%	(7.7%, 56.7%)	13.1%	(6.6%, 24.5%)
Northampton County	51131	17.2%	(6.2%, 39.6%)	16.9%	(11.3%, 24.3%)
Northumberland County	51133	18.6%	(6.6%, 42.5%)	10.6%	(5.9%, 18.3%)
Richmond County	51159	19.2%	(7.4%, 41.6%)	7.3%	(3.2%, 16.2%)
Southampton County	51175	15.3%	(4.0%, 43.9%)	12.7%	(6.4%, 23.5%)
Westmoreland County	51193	6.0%	(2.8%, 25.3%)	15.8%	(8.5%, 27.4%)
York County	51199	6.3%	(2.0%, 17.9%)	8.0%	(5.6%, 11.2%)
Chesapeake City	51550	14.6%	(9.4%, 22.0%)	19.3%	(15.8%, 23.3%)
Franklin City	51620	0.0%	(0.0%, 62.3%)	3.2%	(0.6%, 15.9%)
Hampton City	51650	19.6%	(11.1%, 32.5%)	19.5%	(15.4%, 24.3%)
Newport News City	51700	22.9%	(14.2%, 34.9%)	17.4%	(14.4%, 21.0%)
Norfolk City	51710	17.9%	(11.6%, 26.6%)	22.6%	(18.2%, 27.6%)
Poquoson City	51735	0.0%	(0.0%, 45.0%)	1.2%	(0.1%, 8.9%)
Portsmouth City	51740	21.7%	(13.7%, 32.7%)	19.4%	(14.9%, 24.9%)
Suffolk City	51800	31.7%	(18.2%, 49.2%)	23.0%	(15.0%, 33.5%)
Virginia Beach City	51810	15.6%	(10.7%, 22.3%)	15.4%	(13.2%, 17.8%)
Williamsburg City	51830	0.0%	(0.0%, 70.1%)	7.2%	(3.1%, 16.0%)

Colon Cancer Screening 45+ past year Central Shenandoah and Lord Fairfax HDs



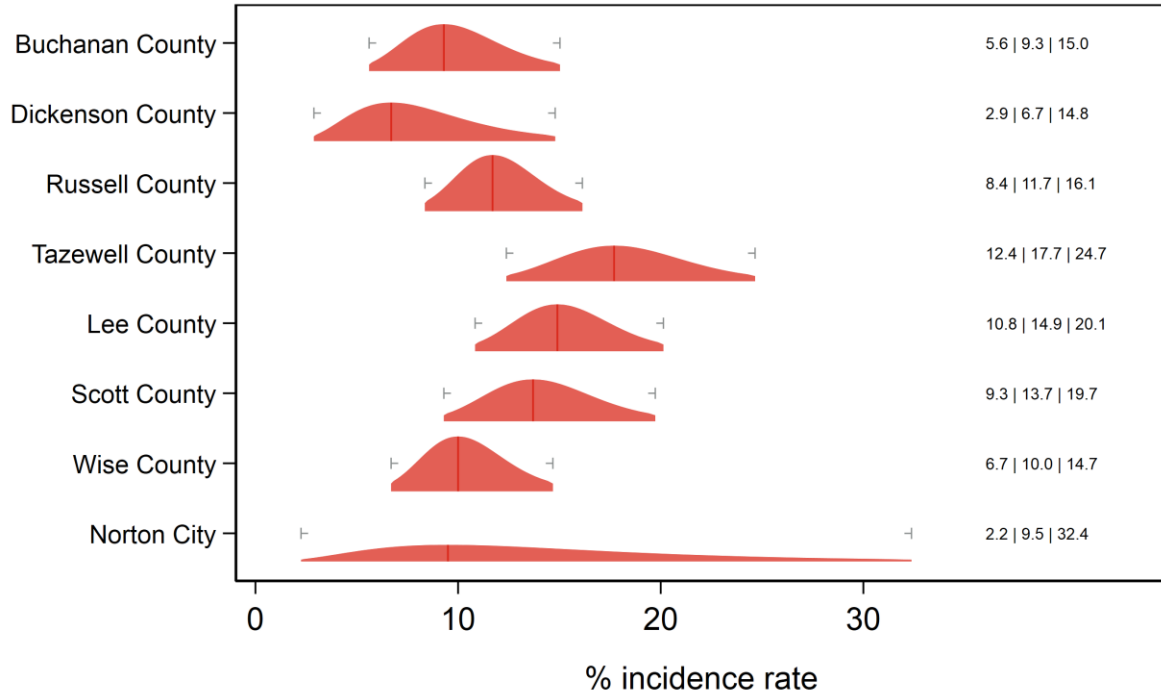
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Colon Cancer Screening 45+ past year Alleghany, Roanoke and Central Virginia HDs



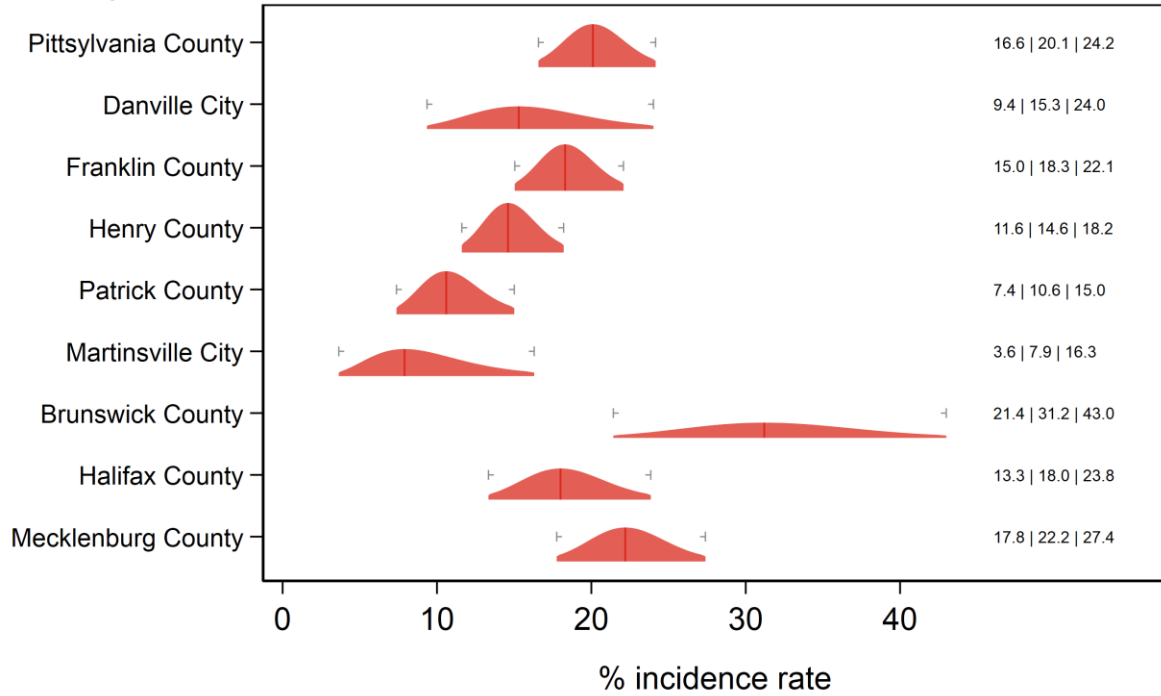
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Colon Cancer Screening 45+ past year Cumberland Plateau and Lenowisco HDs



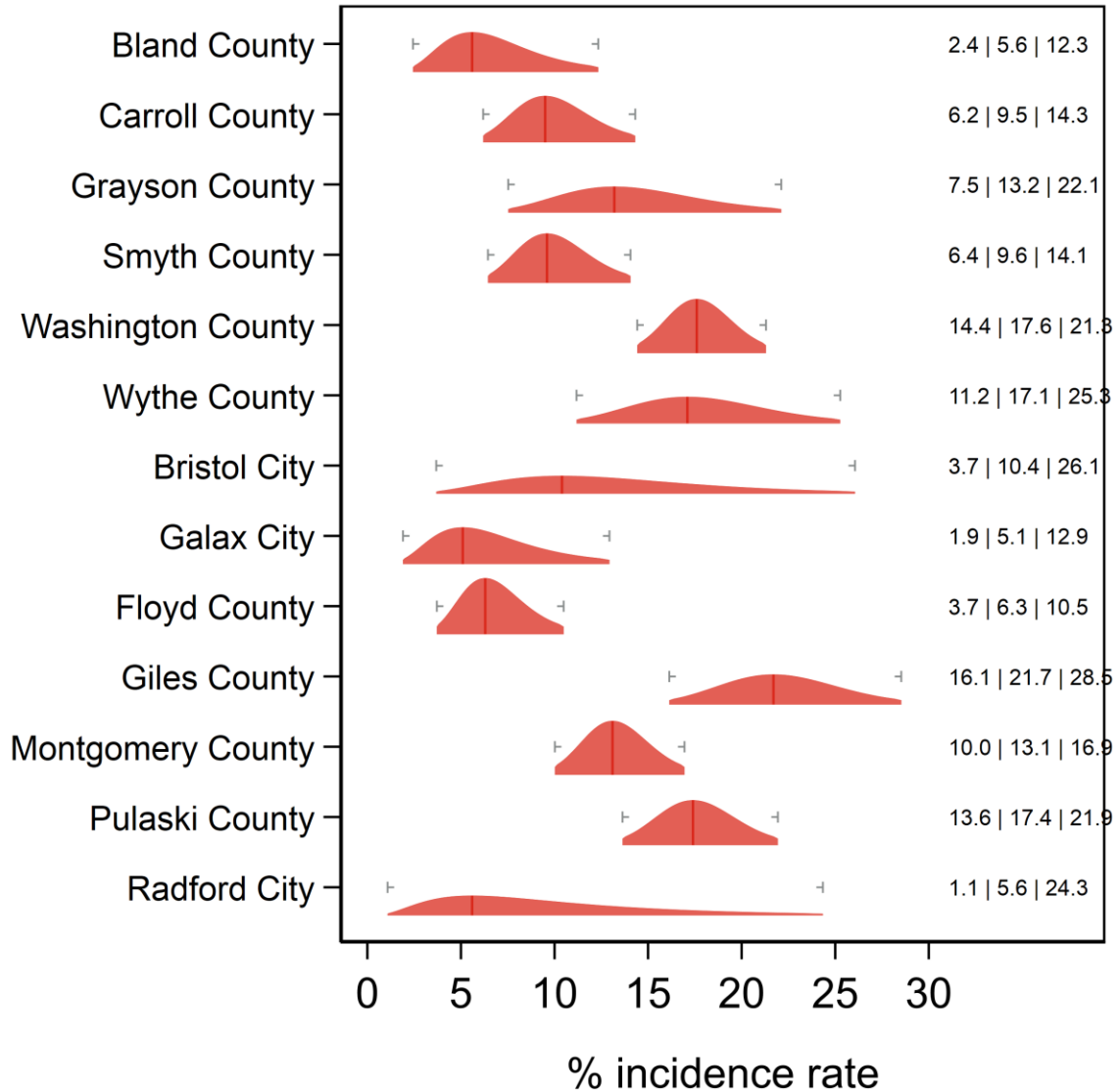
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Colon Cancer Screening 45+ past year Pittsylvania/Danville, Southside and West Piedmont HDs



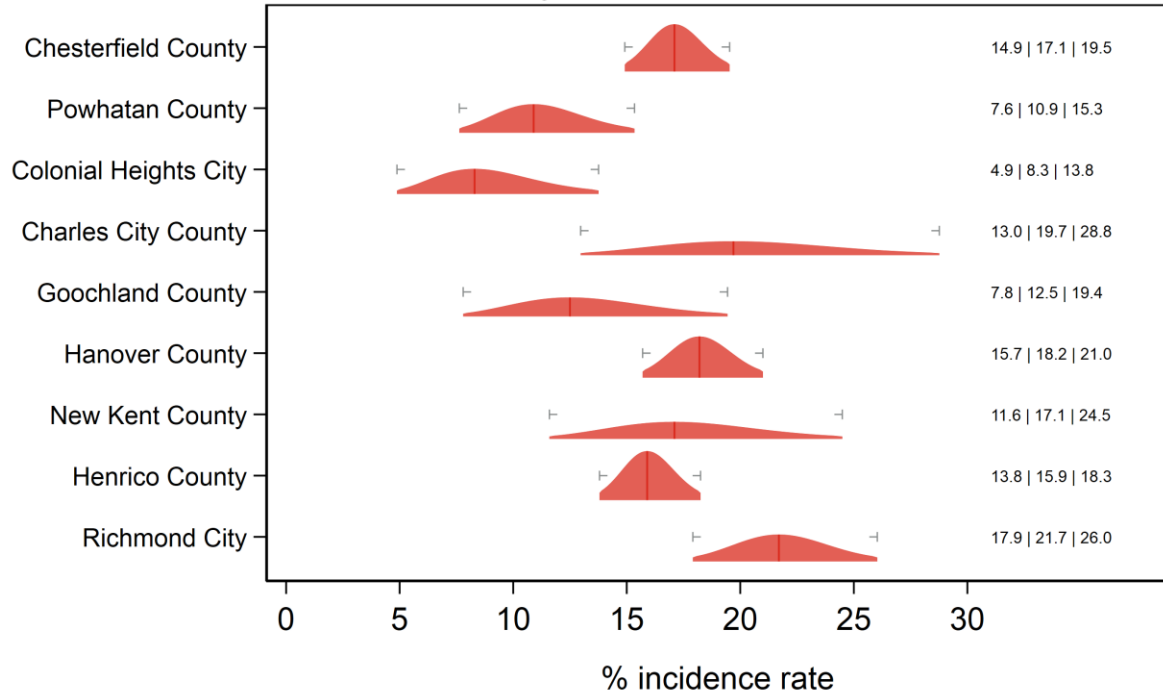
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Colon Cancer Screening 45+ past year New River and Mount Rogers HDs



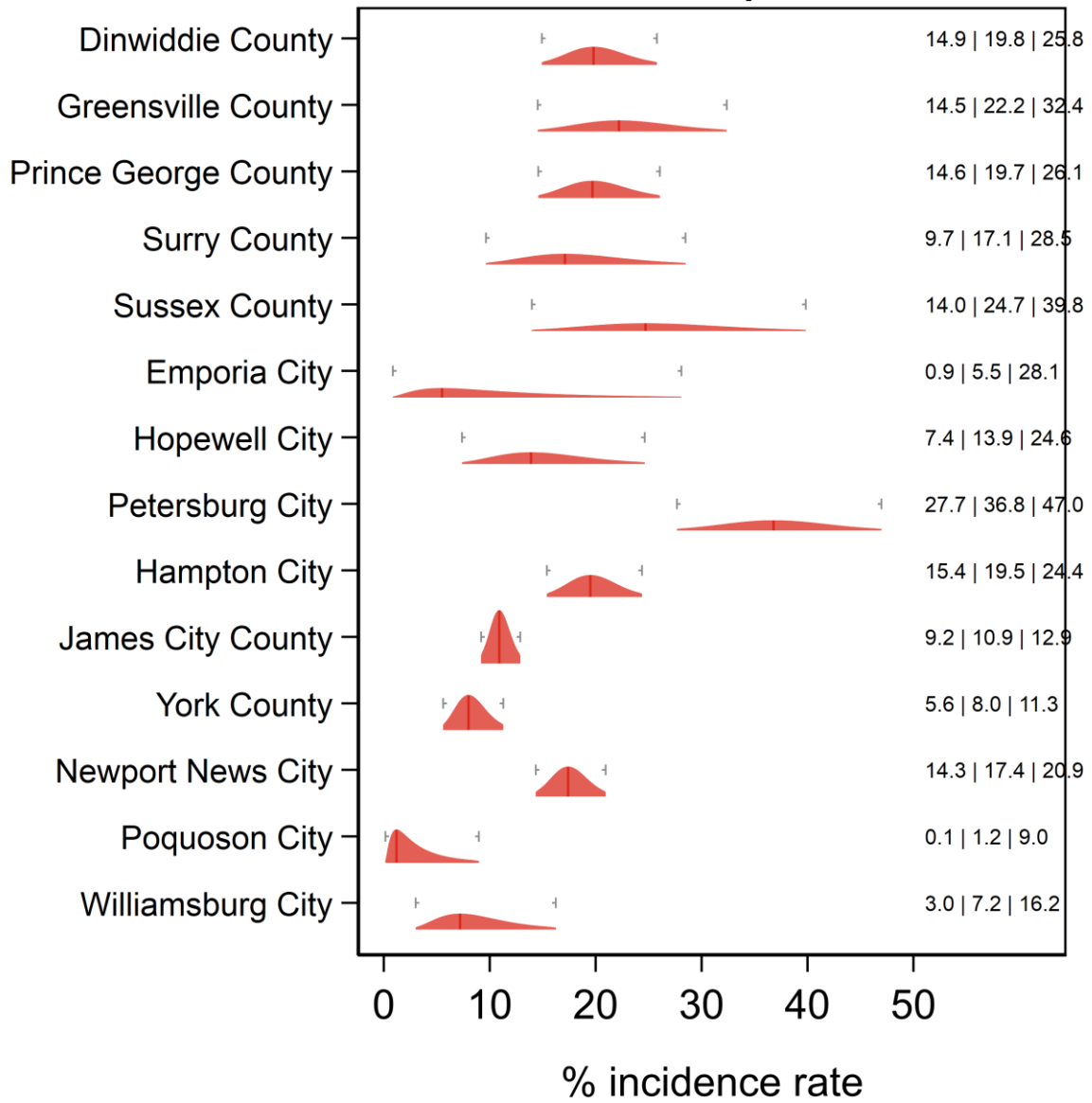
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Colon Cancer Screening 45+ past year Chesterfield, Chickahominy, Henrico and Richmond HDs



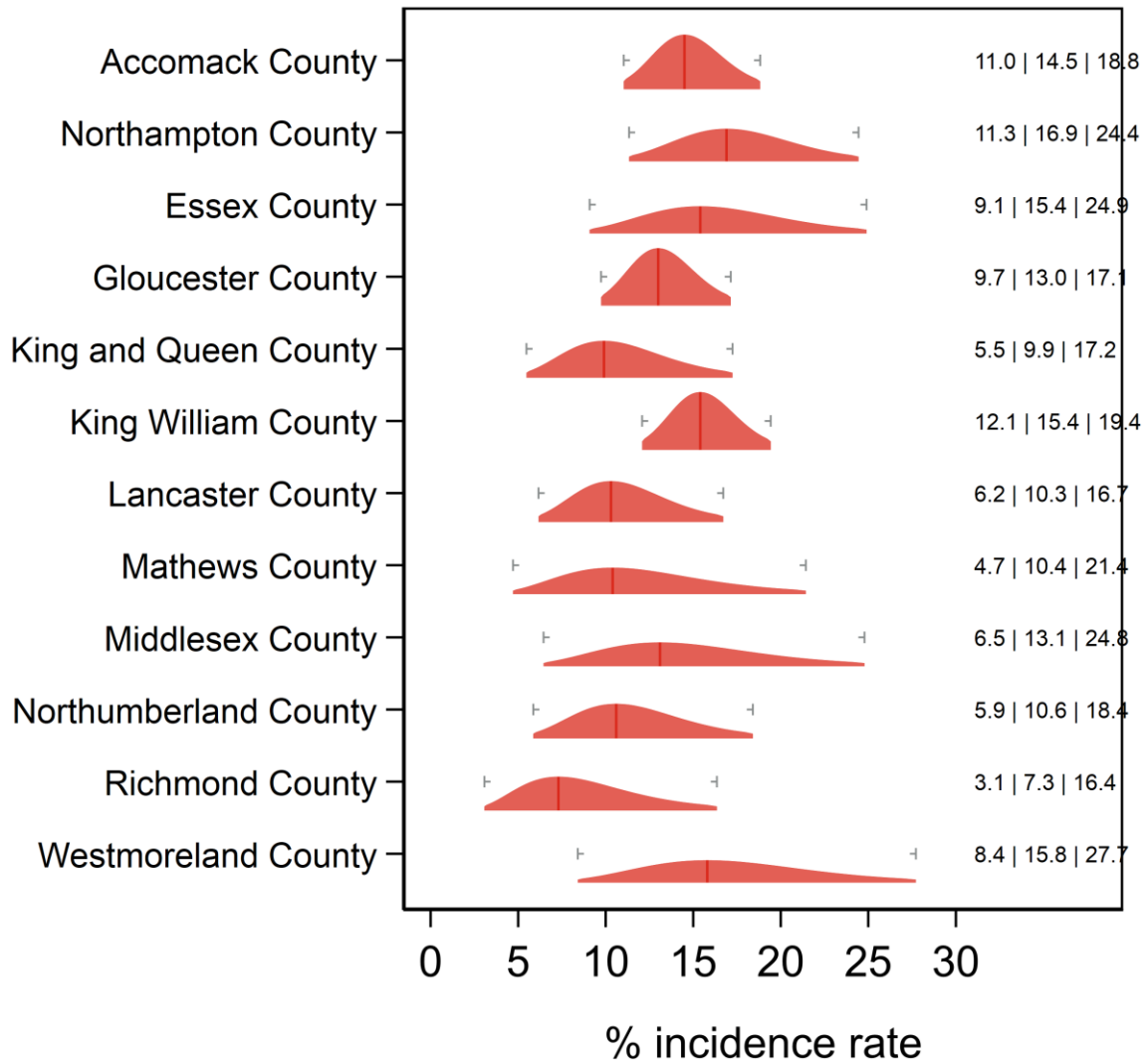
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Colon Cancer Screening 45+ past year Crater, Peninsula and Hampton HDs



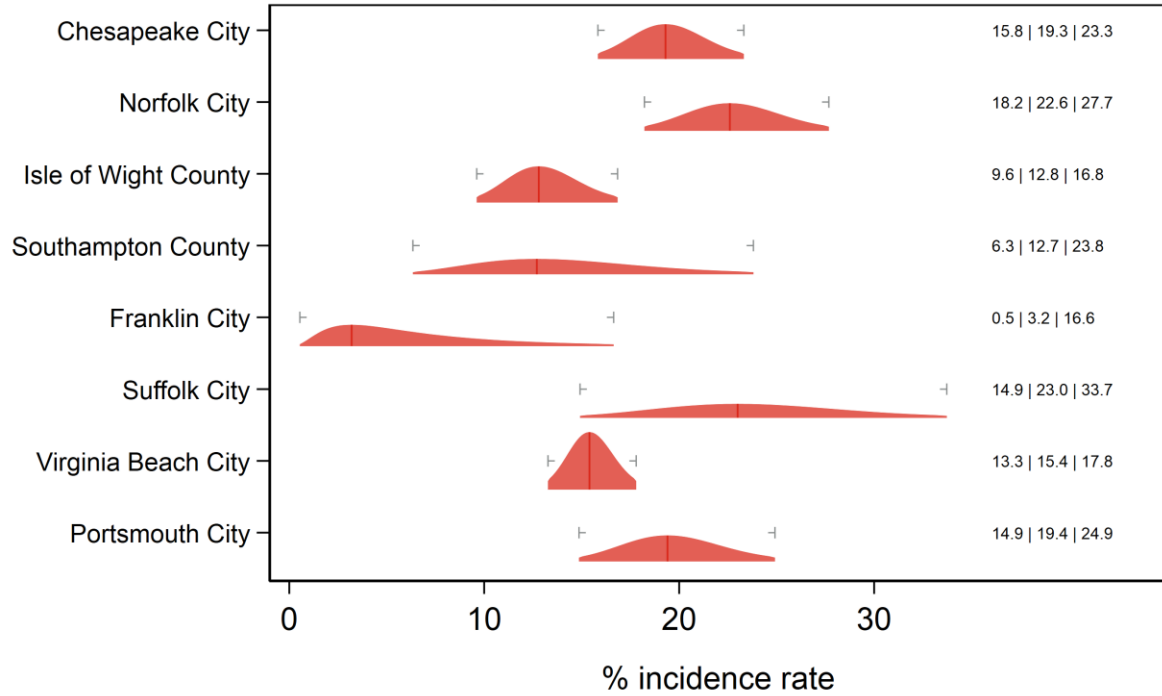
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Colon Cancer Screening 45+ past year Eastern Shore and Three Rivers HDs



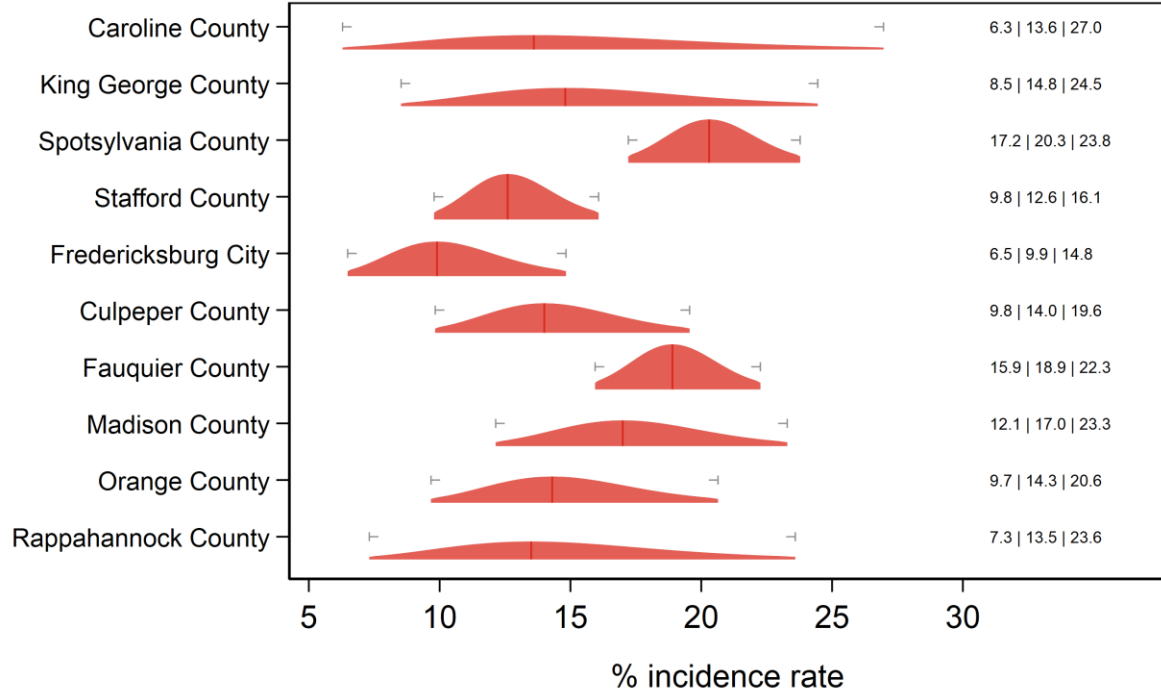
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Colon Cancer Screening 45+ past year Norfolk, Portsmouth, Chesapeake, VA Beach, W. Tidewater HDs



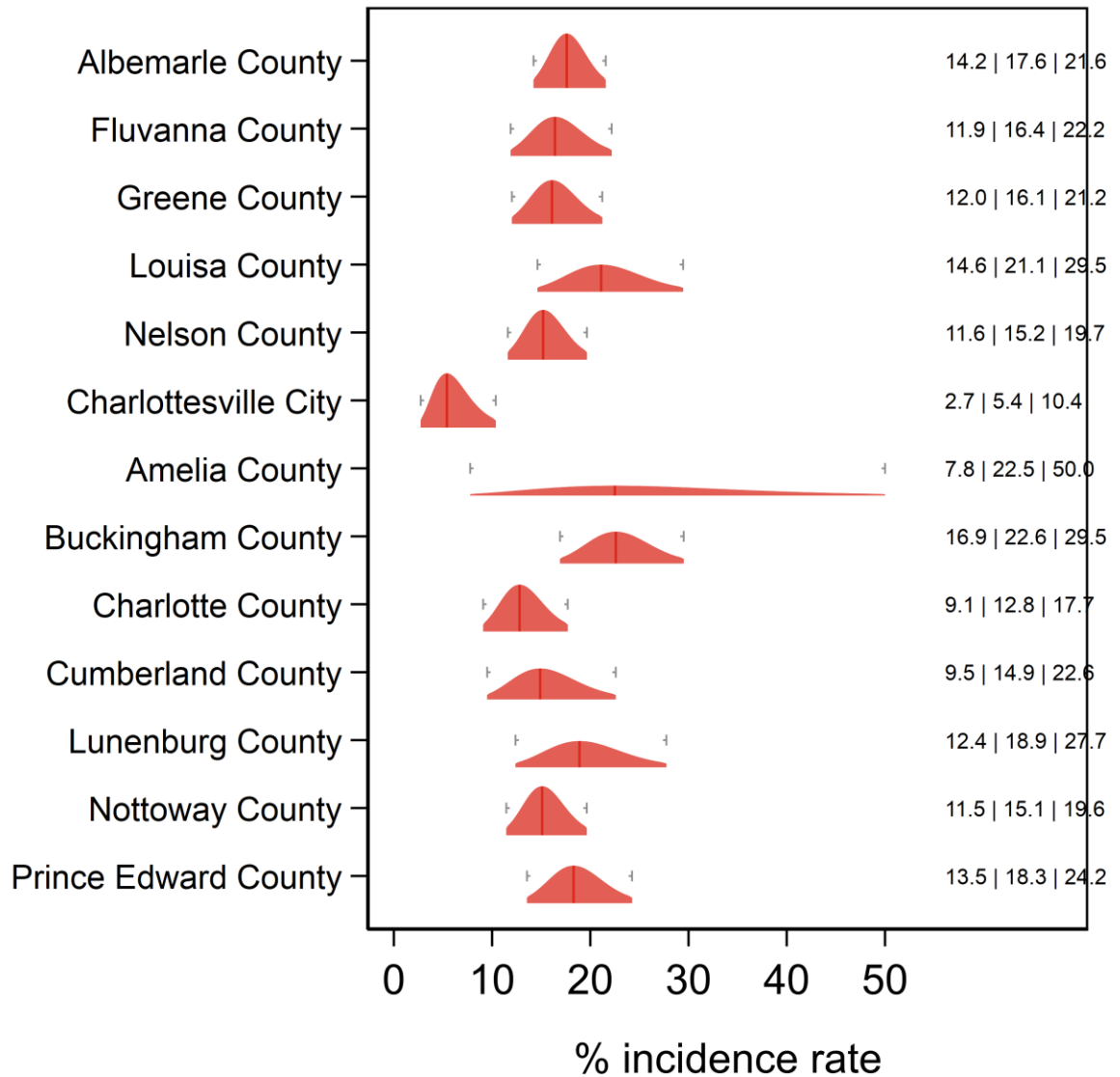
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Colon Cancer Screening 45+ past year Rappahannock/Rapidan and Rappahannock HDs



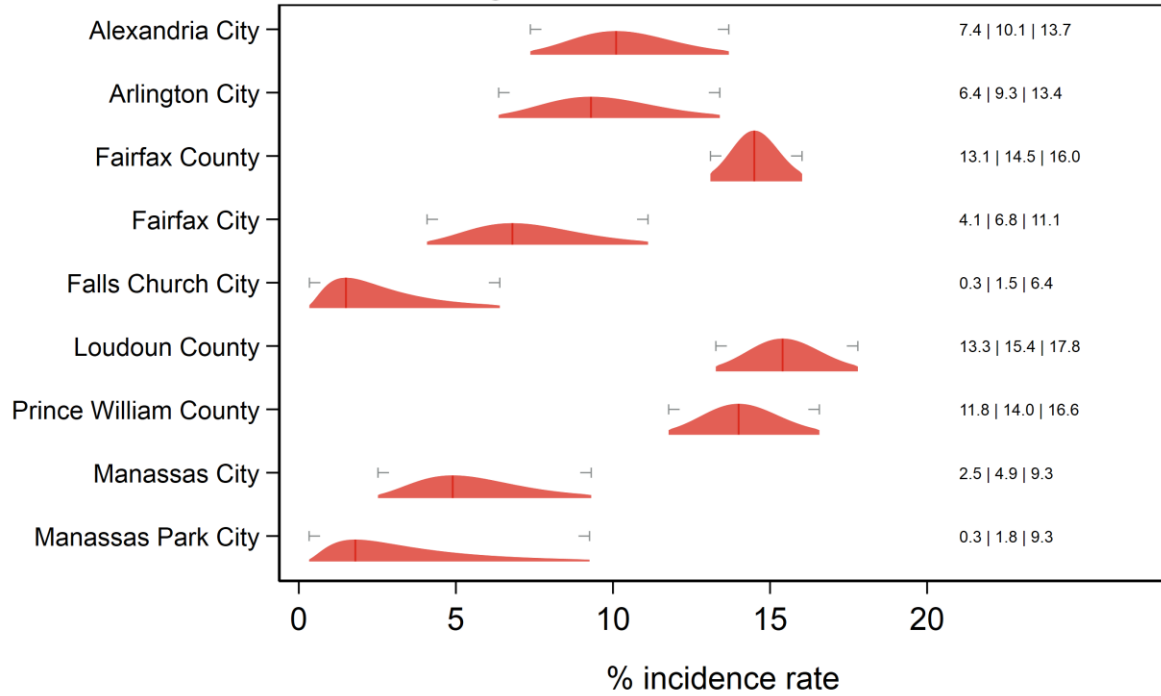
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Colon Cancer Screening 45+ past year Thomas Jefferson and Piedmont HDs



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

Colon Cancer Screening 45+ past year 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: 65 areas.

Direct estimate is outside the 95% SAE Wilson CI: 68 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: 109 areas.

SAE Wilson 95% CI partially overlaps with the 95% direct Wilson CI: 24 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: 109 areas.

SAE standard error is greater than the (nonzero) direct standard error: 8 areas.

Direct standard error is zero: 16 areas.

Proportion of SAE variance due to ACS sampling error: min = 0.00%; med = 0.73%; max = 4.39%.

Proportion of SAE variance due to sampling error in regression coefficient estimates: min = 14.56%; med = 96.63%; max = 99.59%.

Proportion of SAE variance due to model selection: min = 0.04%; med = 1.96%; max = 85.44%.

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