



Indicator 12: Ever had Chronic Obstructive Pulmonary Disease or COPD, emphysema or chronic bronchitis

Internal variable name: outc12_copd

Section 1: Definition

Definition: (Ever told) you have Chronic Obstructive Pulmonary Disease or COPD, emphysema or chronic bronchitis?

Section 2: Predictive models

	Mixed, demos only	Logit, no area effects	Mixed with area covariates
	b/se	b/se	b/se
Outcome 12: Ever had Chronic Obstructive Pulmonary Disease or COPD, emphysema or chronic bronchitis			
Non-Hispanic Black vs. Non-Hispanic White	-0.3545* (0.1701)	-0.4221* (0.1647)	-0.4221* (0.1683)
Non-Hispanic Asian vs. Non-Hispanic White	-1.0599 (0.6254)	-0.8150 (0.6011)	-0.8150 (0.6292)
Non-Hispanic Other vs. Non-Hispanic White	0.5251* (0.2434)	0.5244* (0.2251)	0.5244* (0.2476)
Hispanic vs. Non-Hispanic White	-0.5899 (0.3552)	-0.4301 (0.3496)	-0.4301 (0.3420)
Female	0.1527 (0.1197)	0.1251 (0.1053)	0.1251 (0.1204)
Age 18-24 vs. 65+	-2.0843*** (0.3916)	-2.0390*** (0.4036)	-2.0390*** (0.3918)
Age 25-34 vs. 65+	-1.6135*** (0.2458)	-1.5645*** (0.2515)	-1.5645*** (0.2504)
Age 35-44 vs. 65+	-1.2993*** (0.1789)	-1.2477*** (0.2221)	-1.2477*** (0.1758)
Age 45-54 vs. 65+	-0.6070*** (0.1421)	-0.5600*** (0.1390)	-0.5600*** (0.1424)
Age 55-64 vs. 65+	-0.3524* (0.1462)	-0.3322** (0.1212)	-0.3322* (0.1438)
% education below HS, population 25+ years old		0.0482*** (0.0110)	0.0482*** (0.0079)
% speaking English less than very well		-0.0608* (0.0273)	-0.0608*** (0.0127)
2010 Census Mail Return Rate		0.0000	0.0000***

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Leukemia Cancer Male Rate		(0.0000)	(0.0000)
		0.0047	0.0047
		(0.0142)	(0.0114)
Crude mortality rate of Diabetes mellitus per 10,000		0.1242*	0.1242*
		(0.0610)	(0.0486)
{Leukemia Cancer Male Rate}		-0.0041	-0.0041
interacted with {Crude mortality rate of Diabetes mellitus per 10K}		(0.0039)	(0.0031)
Oral Cancer Female Rate		-0.0742*	-0.0742**
		(0.0346)	(0.0226)
Diabetes Type II hospitalization rate per 1,000		-0.1043	-0.1043
		(0.0800)	(0.0547)
{Oral Cancer Female Rate}		0.0386**	0.0386***
interacted with {Diabetes Type II hospitalization rate per 1,000}		(0.0140)	(0.0101)
Intercept	-1.9442***	-2.5901***	-2.5901***
	(0.1100)	(0.3025)	(0.2321)
Area effect variance	0.1016*		0.0000*
	(0.0470)		(0.0000)

Number of alternative models used to estimate model error = 4.

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Section 3: Results

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE 95% CI
Augusta County	51015	9.7%	(5.5%, 16.6%)	7.7%	(6.7%, 8.8%)
Bath County	51017	12.0%	(3.7%, 46.9%)	8.0%	(5.9%, 10.9%)
Caroline County	51033	6.6%	(2.4%, 25.7%)	9.1%	(7.5%, 10.9%)
Clarke County	51043	6.8%	(1.1%, 32.9%)	4.8%	(3.8%, 5.9%)
Culpeper County	51047	5.3%	(2.8%, 14.5%)	6.7%	(5.7%, 7.8%)
Fauquier County	51061	8.0%	(3.4%, 17.4%)	5.7%	(4.7%, 6.9%)
Frederick County	51069	7.0%	(4.3%, 13.9%)	6.4%	(5.5%, 7.5%)
Highland County	51091	0.0%	(0.0%, 83.2%)	6.5%	(1.9%, 19.7%)
King George County	51099	0.0%	(-0.0%, 23.5%)	4.2%	(3.4%, 5.1%)
Madison County	51113	2.4%	(1.1%, 22.7%)	8.1%	(6.3%, 10.3%)
Orange County	51137	8.4%	(3.2%, 20.0%)	7.1%	(6.3%, 7.9%)
Page County	51139	13.8%	(2.9%, 45.8%)	12.8%	(10.4%, 15.6%)
Rappahannock County	51157	15.7%	(3.9%, 46.1%)	7.8%	(5.7%, 10.6%)
Rockbridge County	51163	11.8%	(5.5%, 29.5%)	7.5%	(6.1%, 9.1%)
Rockingham County	51165	4.8%	(1.7%, 12.6%)	6.9%	(5.8%, 8.1%)
Shenandoah County	51171	11.0%	(3.1%, 32.2%)	7.7%	(6.8%, 8.7%)
Spotsylvania County	51177	6.8%	(4.1%, 14.6%)	5.1%	(4.6%, 5.7%)
Stafford County	51179	3.0%	(1.0%, 8.2%)	3.7%	(3.1%, 4.4%)
Warren County	51187	9.6%	(2.9%, 27.2%)	6.6%	(5.6%, 7.8%)
Buena Vista City	51530	0.0%	(-0.0%, 89.6%)	21.7%	(13.9%, 32.2%)
Fredericksburg City	51630	6.7%	(2.3%, 28.0%)	4.2%	(3.4%, 5.2%)
Harrisonburg City	51660	0.0%	(0.0%, 32.5%)	3.7%	(2.4%, 5.7%)
Lexington City	51678	0.0%	(0.0%, 99.4%)	4.4%	(1.5%, 12.4%)
Staunton City	51790	0.0%	(0.0%, 42.2%)	8.5%	(6.8%, 10.5%)
Waynesboro City	51820	19.2%	(4.6%, 54.1%)	7.5%	(5.4%, 10.2%)
Winchester City	51840	2.6%	(1.2%, 26.3%)	4.3%	(3.1%, 5.9%)

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County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE 95% CI
Albemarle County	51003	1.2%	(0.7%, 5.7%)	3.8%	(3.2%, 4.4%)
Alleghany County	51005	2.7%	(2.0%, 16.0%)	6.6%	(5.0%, 8.6%)
Amherst County	51009	7.4%	(1.9%, 24.3%)	10.5%	(9.2%, 12.0%)
Appomattox County	51011	9.8%	(2.4%, 32.1%)	9.0%	(7.5%, 10.6%)
Arlington City	51013	1.8%	(1.2%, 5.9%)	2.2%	(1.8%, 2.7%)
Bedford County	51019	5.1%	(1.9%, 13.3%)	5.7%	(4.2%, 7.7%)
Botetourt County	51023	5.7%	(1.8%, 16.8%)	5.7%	(4.6%, 7.0%)
Campbell County	51031	7.0%	(2.4%, 18.8%)	7.6%	(6.6%, 8.8%)
Craig County	51045	0.0%	(0.0%, 73.6%)	8.4%	(4.3%, 15.8%)
Fairfax County	51059	3.7%	(2.2%, 6.2%)	3.6%	(3.2%, 4.0%)
Fluvanna County	51065	16.7%	(5.8%, 39.6%)	8.9%	(6.2%, 12.5%)
Greene County	51079	6.9%	(1.1%, 33.2%)	5.9%	(4.6%, 7.7%)
Loudoun County	51107	2.2%	(1.4%, 5.2%)	2.4%	(2.1%, 2.8%)
Louisa County	51109	5.5%	(1.4%, 19.1%)	10.4%	(8.9%, 12.2%)
Nelson County	51125	0.0%	(0.0%, 16.1%)	8.0%	(6.7%, 9.6%)
Prince William County	51153	3.0%	(1.5%, 6.0%)	2.7%	(2.3%, 3.2%)
Roanoke County	51161	5.7%	(3.8%, 10.5%)	5.8%	(5.0%, 6.8%)
Alexandria City	51510	3.3%	(1.0%, 10.8%)	2.4%	(1.9%, 3.1%)
Charlottesville City	51540	0.0%	(0.0%, 23.6%)	4.6%	(3.3%, 6.5%)
Covington City	51580	0.0%	(0.0%, 99.4%)	5.2%	(2.8%, 9.3%)
Fairfax City	51600	1.5%	(0.3%, 8.4%)	1.7%	(1.3%, 2.4%)
Falls Church City	51610	7.8%	(1.0%, 40.4%)	2.9%	(1.8%, 4.7%)
Lynchburg City	51680	8.3%	(1.8%, 31.1%)	5.9%	(4.8%, 7.3%)
Manassas City	51683	3.7%	(1.5%, 35.1%)	2.3%	(1.7%, 3.3%)
Manassas Park City	51685	0.0%	(-0.0%, 96.8%)	1.9%	(1.1%, 3.1%)
Salem City	51775	7.5%	(1.1%, 37.8%)	6.2%	(5.1%, 7.6%)

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County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE 95% CI
Bland County	51021	6.7%	(2.0%, 48.0%)	9.2%	(6.9%, 12.3%)
Buchanan County	51027	18.4%	(9.6%, 32.6%)	16.8%	(13.8%, 20.4%)
Carroll County	51035	17.7%	(7.8%, 35.0%)	14.0%	(12.2%, 16.1%)
Dickenson County	51051	14.9%	(6.2%, 31.4%)	16.7%	(14.0%, 19.9%)
Floyd County	51063	7.2%	(2.0%, 22.7%)	5.8%	(4.5%, 7.5%)
Franklin County	51067	23.2%	(9.5%, 46.6%)	10.2%	(9.1%, 11.4%)
Giles County	51071	10.4%	(5.5%, 34.2%)	7.4%	(6.2%, 8.8%)
Grayson County	51077	11.8%	(5.1%, 34.6%)	11.7%	(9.2%, 14.8%)
Henry County	51089	13.2%	(7.7%, 21.8%)	11.6%	(10.1%, 13.2%)
Lee County	51105	15.2%	(5.9%, 33.8%)	14.3%	(12.4%, 16.5%)
Montgomery County	51121	3.5%	(1.3%, 9.4%)	4.1%	(3.4%, 4.8%)
Patrick County	51141	10.7%	(5.1%, 28.0%)	11.9%	(10.1%, 14.0%)
Pittsylvania County	51143	9.0%	(5.3%, 14.9%)	11.0%	(9.8%, 12.3%)
Pulaski County	51155	6.5%	(3.8%, 17.9%)	8.2%	(7.1%, 9.5%)
Russell County	51167	16.5%	(7.2%, 33.4%)	12.5%	(10.9%, 14.3%)
Scott County	51169	18.7%	(9.3%, 34.0%)	19.7%	(15.4%, 24.8%)
Smyth County	51173	8.2%	(4.2%, 22.5%)	11.7%	(10.7%, 12.8%)
Tazewell County	51185	17.3%	(9.1%, 30.6%)	13.0%	(11.6%, 14.6%)
Washington County	51191	12.2%	(6.2%, 22.7%)	10.2%	(8.8%, 11.7%)
Wise County	51195	19.6%	(10.8%, 32.9%)	19.3%	(15.7%, 23.5%)
Wythe County	51197	19.4%	(9.8%, 34.7%)	14.8%	(12.2%, 17.9%)
Bristol City	51520	28.0%	(8.2%, 65.6%)	12.2%	(9.9%, 15.0%)
Danville City	51590	4.2%	(2.4%, 22.8%)	11.7%	(8.8%, 15.5%)
Galax City	51640	0.0%	(0.0%, 70.9%)	8.1%	(5.9%, 11.0%)
Martinsville City	51690	0.0%	(0.0%, 47.8%)	7.2%	(4.7%, 10.9%)
Norton City	51720	28.7%	(2.9%, 84.6%)	10.7%	(7.7%, 14.7%)
Radford City	51750	1.0%	(0.4%, 57.3%)	2.5%	(1.2%, 5.2%)
Roanoke City	51770	8.5%	(4.5%, 15.5%)	8.9%	(7.2%, 11.1%)

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Amelia County	51007	1.7%	(0.9%, 24.9%)	9.5%	(7.7%, 11.7%)
Brunswick County	51025	10.0%	(1.8%, 40.7%)	8.6%	(5.9%, 12.3%)
Buckingham County	51029	14.7%	(4.7%, 37.7%)	20.2%	(14.6%, 27.1%)
Charles City County	51036	19.7%	(4.4%, 56.6%)	9.2%	(5.3%, 15.4%)
Charlotte County	51037	4.3%	(2.3%, 33.5%)	8.3%	(6.2%, 10.9%)
Chesterfield County	51041	6.0%	(3.6%, 10.0%)	4.8%	(4.2%, 5.4%)
Cumberland County	51049	6.4%	(3.3%, 33.5%)	8.5%	(6.5%, 11.1%)
Dinwiddie County	51053	13.5%	(4.8%, 32.7%)	8.2%	(6.4%, 10.5%)
Goochland County	51075	3.2%	(2.0%, 22.4%)	5.9%	(4.9%, 7.2%)
Greensville County	51081	16.1%	(3.4%, 50.9%)	11.4%	(8.3%, 15.4%)
Halifax County	51083	6.4%	(4.2%, 16.6%)	10.7%	(8.3%, 13.7%)
Hanover County	51085	3.7%	(1.7%, 8.2%)	5.4%	(4.6%, 6.4%)
Henrico County	51087	3.8%	(2.2%, 6.5%)	4.6%	(4.1%, 5.2%)
Lunenburg County	51111	12.7%	(3.1%, 39.4%)	13.4%	(10.2%, 17.5%)
Mecklenburg County	51117	12.8%	(3.7%, 35.9%)	11.4%	(9.5%, 13.5%)
New Kent County	51127	2.2%	(1.1%, 24.3%)	5.8%	(4.3%, 7.9%)
Nottoway County	51135	15.9%	(3.1%, 53.0%)	10.1%	(8.0%, 12.6%)
Powhatan County	51145	0.0%	(-0.0%, 32.8%)	5.3%	(4.2%, 6.7%)
Prince Edward County	51147	9.1%	(2.5%, 28.2%)	11.9%	(10.1%, 14.0%)
Prince George County	51149	3.2%	(2.1%, 15.5%)	6.2%	(5.4%, 7.1%)
Surry County	51181	16.7%	(2.8%, 57.8%)	7.8%	(5.2%, 11.4%)
Sussex County	51183	9.9%	(3.2%, 26.5%)	12.6%	(9.1%, 17.1%)
Colonial Heights City	51570	9.9%	(1.9%, 49.5%)	8.7%	(6.4%, 11.9%)
Emporia City	51595	31.1%	(3.1%, 86.3%)	16.4%	(10.8%, 24.1%)
Hopewell City	51670	0.0%	(0.0%, 25.6%)	4.9%	(2.8%, 8.2%)
Petersburg City	51730	14.8%	(6.6%, 30.0%)	13.2%	(8.2%, 20.5%)
Richmond City	51760	7.0%	(3.9%, 12.2%)	6.8%	(5.6%, 8.2%)

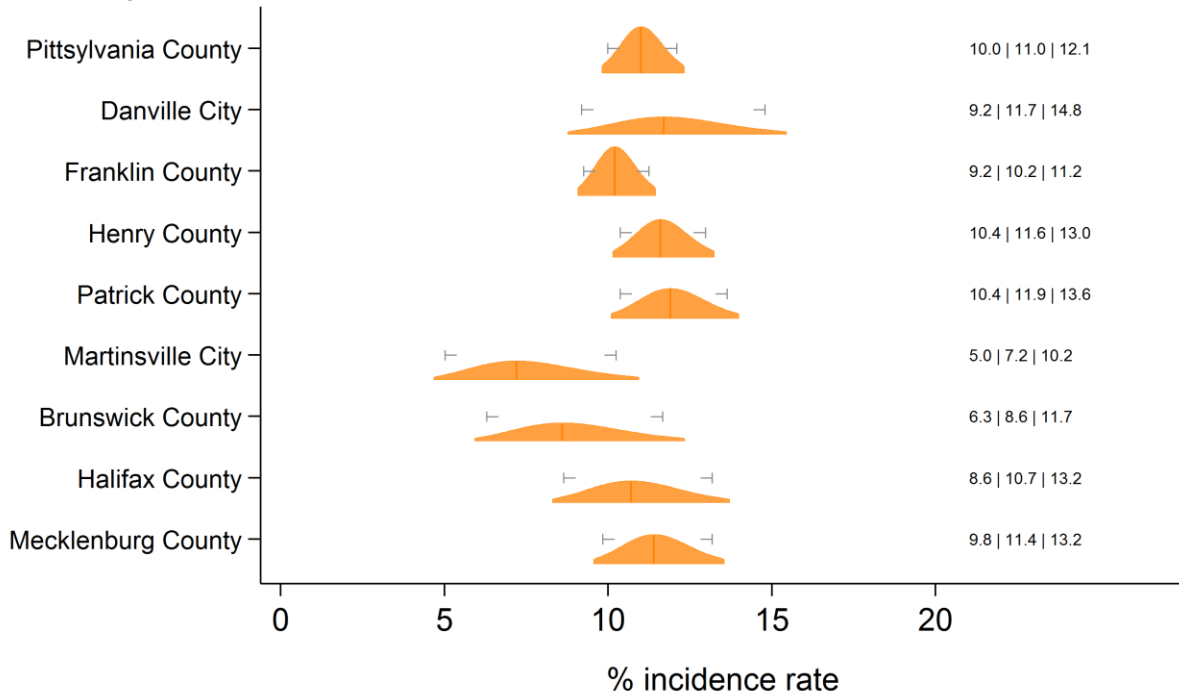
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County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE 95% CI
Accomack County	51001	11.9%	(4.8%, 26.3%)	9.0%	(7.4%, 11.0%)
Essex County	51057	0.0%	(0.0%, 28.1%)	8.1%	(6.4%, 10.3%)
Gloucester County	51073	7.3%	(2.7%, 18.2%)	6.4%	(5.3%, 7.7%)
Isle of Wight County	51093	10.4%	(4.0%, 24.4%)	5.6%	(4.7%, 6.7%)
James City County	51095	6.9%	(2.4%, 18.3%)	4.6%	(3.9%, 5.5%)
King and Queen County	51097	24.0%	(3.3%, 74.6%)	5.8%	(3.5%, 9.4%)
King William County	51101	10.4%	(2.4%, 35.5%)	8.3%	(6.4%, 10.8%)
Lancaster County	51103	5.9%	(2.4%, 31.8%)	7.5%	(6.6%, 8.5%)
Mathews County	51115	7.5%	(2.6%, 28.1%)	3.4%	(2.2%, 5.3%)
Middlesex County	51119	0.0%	(0.0%, 53.2%)	5.0%	(3.1%, 8.1%)
Northampton County	51131	2.4%	(1.6%, 18.9%)	5.9%	(3.8%, 8.9%)
Northumberland County	51133	1.6%	(0.9%, 23.4%)	8.3%	(7.0%, 9.8%)
Richmond County	51159	8.4%	(2.4%, 25.3%)	7.5%	(5.8%, 9.8%)
Southampton County	51175	6.3%	(1.3%, 26.0%)	8.5%	(6.9%, 10.5%)
Westmoreland County	51193	12.7%	(4.1%, 33.2%)	16.6%	(10.8%, 24.7%)
York County	51199	3.7%	(1.2%, 11.1%)	4.6%	(3.8%, 5.5%)
Chesapeake City	51550	8.3%	(5.2%, 13.0%)	5.4%	(4.7%, 6.2%)
Franklin City	51620	11.8%	(2.9%, 37.6%)	10.9%	(7.9%, 14.9%)
Hampton City	51650	4.6%	(3.0%, 9.2%)	7.4%	(5.8%, 9.5%)
Newport News City	51700	5.3%	(2.4%, 11.1%)	5.4%	(4.6%, 6.3%)
Norfolk City	51710	6.6%	(3.9%, 11.1%)	6.2%	(5.4%, 7.2%)
Poquoson City	51735	0.0%	(0.0%, 55.5%)	6.5%	(5.2%, 8.0%)
Portsmouth City	51740	11.9%	(6.2%, 21.6%)	8.6%	(7.2%, 10.3%)
Suffolk City	51800	4.6%	(1.9%, 11.1%)	6.5%	(5.7%, 7.5%)
Virginia Beach City	51810	5.3%	(3.2%, 8.4%)	4.6%	(4.0%, 5.3%)
Williamsburg City	51830	0.0%	(0.0%, 55.7%)	3.4%	(2.1%, 5.4%)

Section 4: Graphical representation

Lifetime COPD, emphysema, chronic bronchitis Pittsylvania/Danville, Southside and West Piedmont HDs



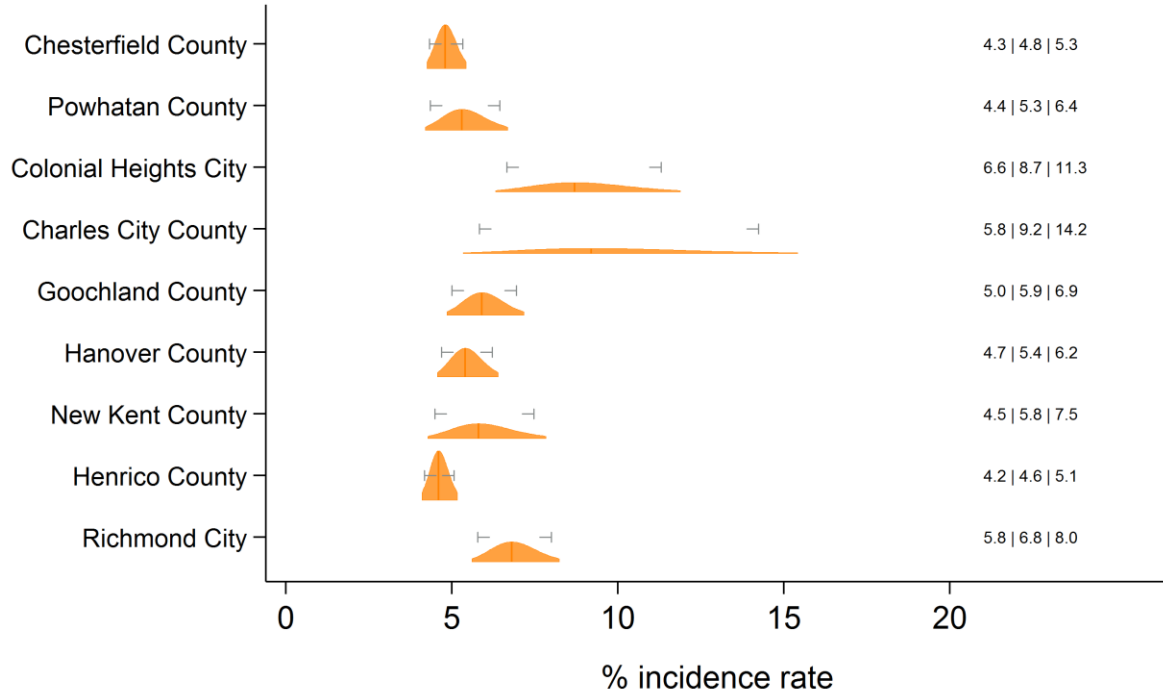
Text at right: 1-sided 95% LCB | Point Estimate | 1-sided 95% UCB
 Gray markers: 90% confidence interval



Indicator 12: Ever had Chronic Obstructive Pulmonary Disease or COPD, Emphysema or Chronic Bronchitis

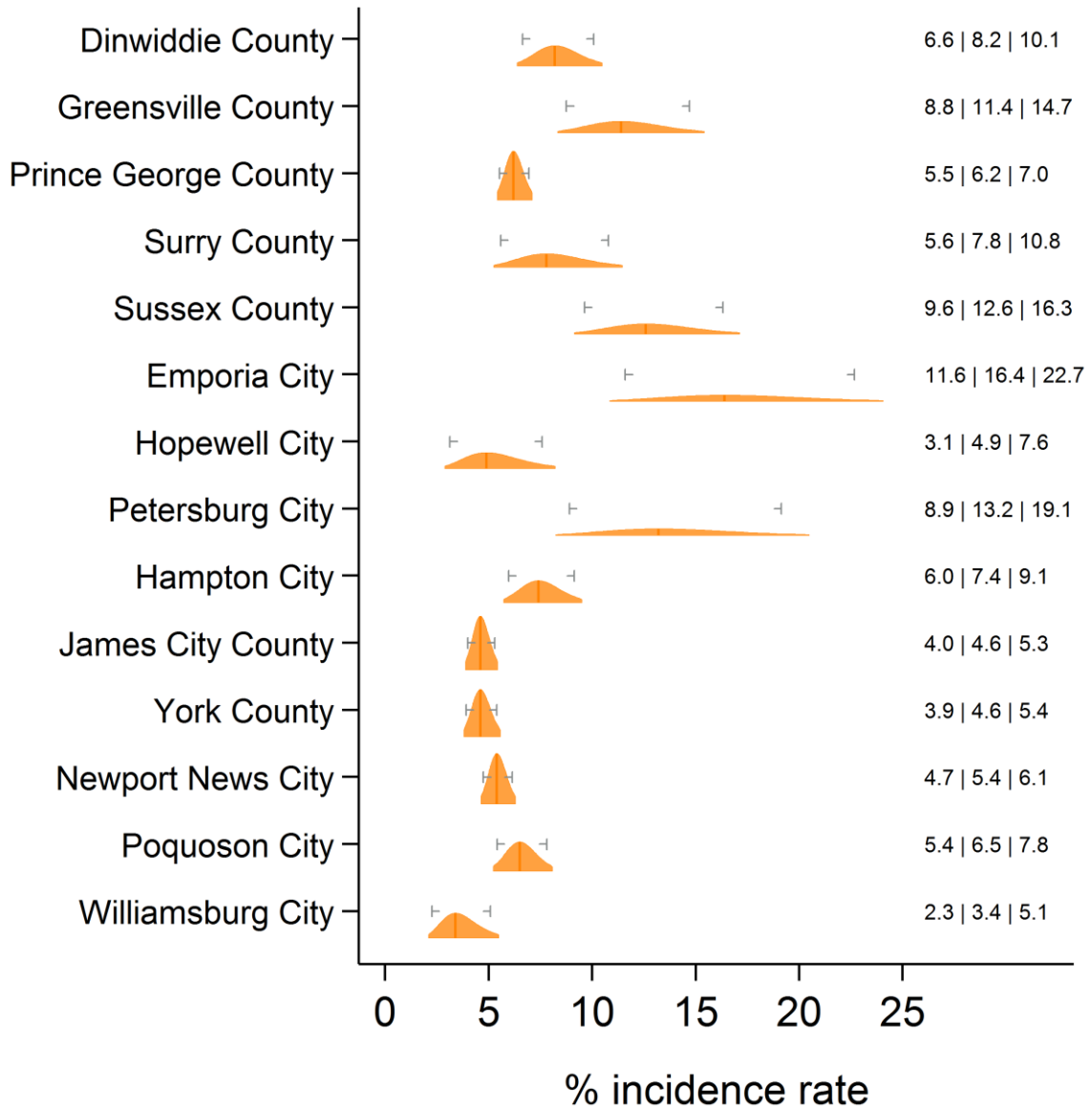


Lifetime COPD, emphysema, chronic bronchitis Chesterfield, Chickahominy, Henrico and Richmond HDs



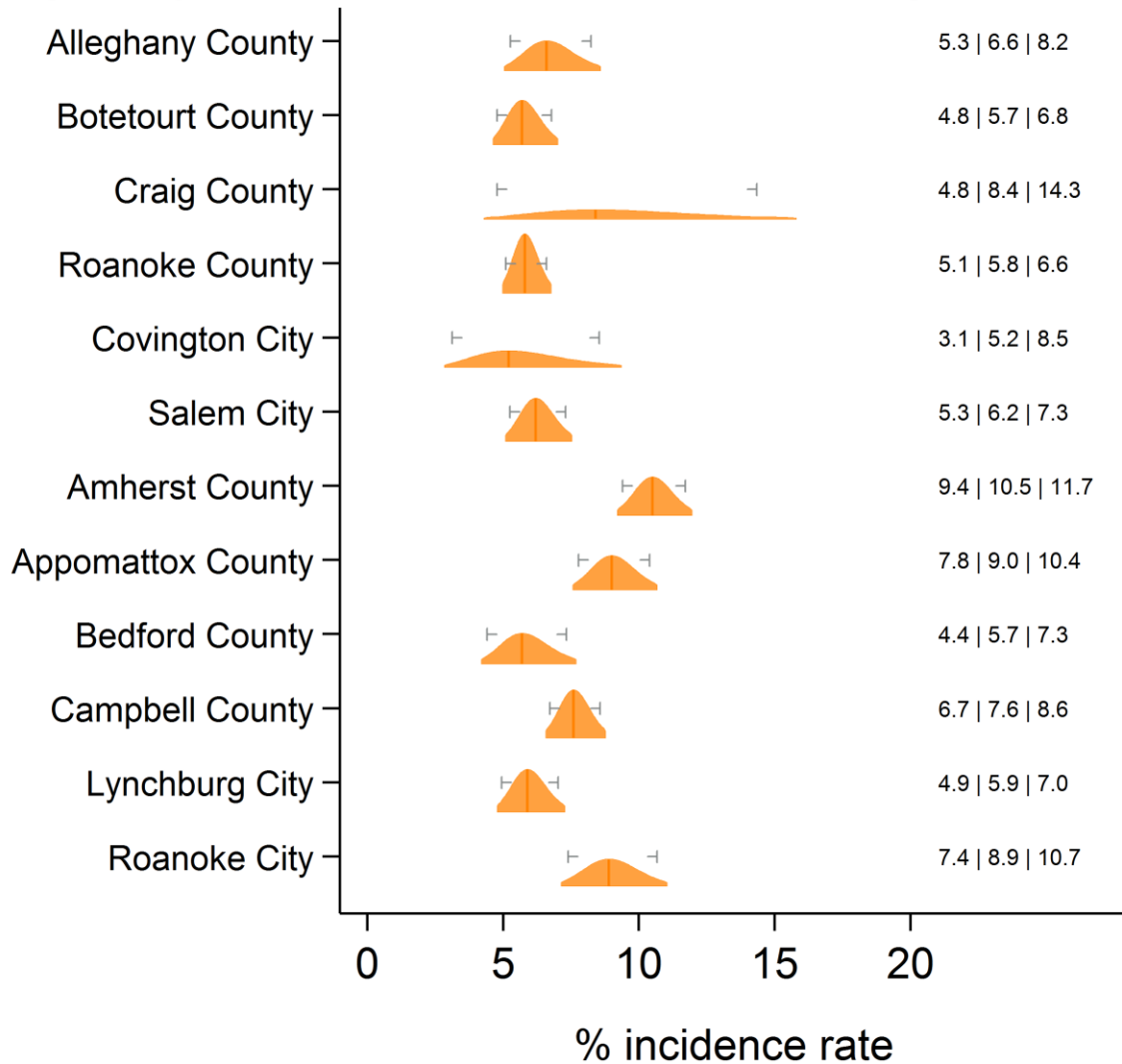
Text at right: 1-sided 95% LCB | Point Estimate | 1-sided 95% UCB
 Gray markers: 90% confidence interval

Lifetime COPD, emphysema, chronic bronchitis Crater, Peninsula and Hampton HDs



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

Lifetime COPD, emphysema, chronic bronchitis Alleghany, Roanoke and Central Virginia HDs



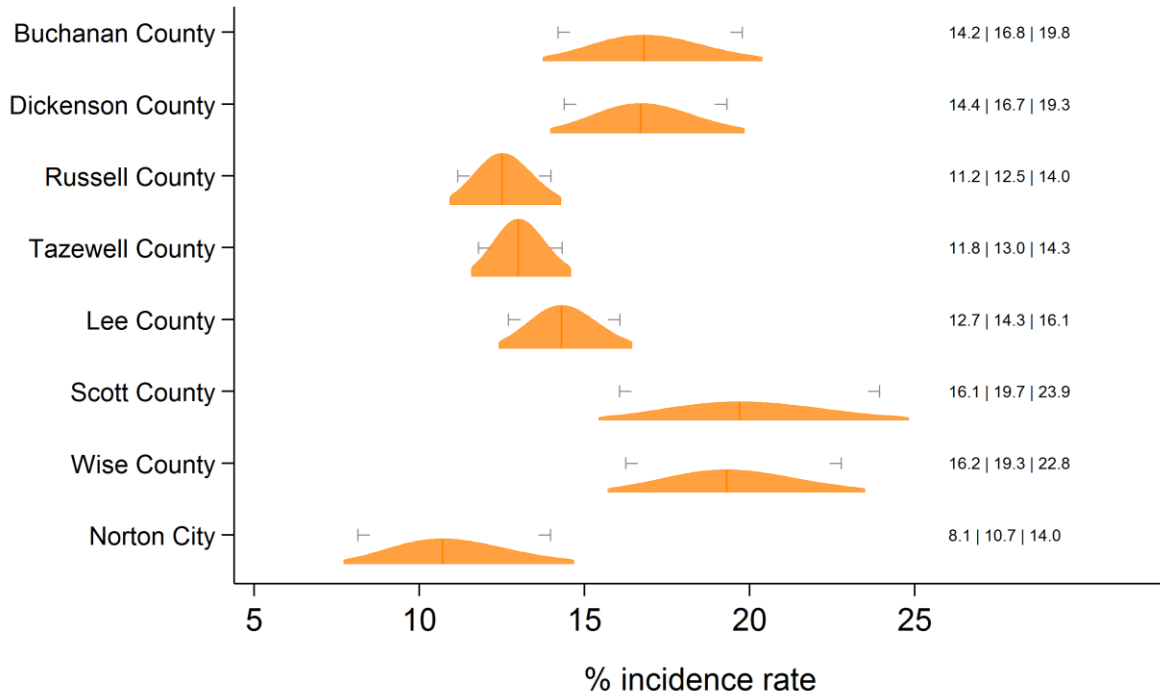
Text at right: 1-sided 95% LCB | Point Estimate | 1-sided 95% UCB
Gray markers: 90% confidence interval



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Lifetime COPD, emphysema, chronic bronchitis Cumberland Plateau and Lenowisco HDs



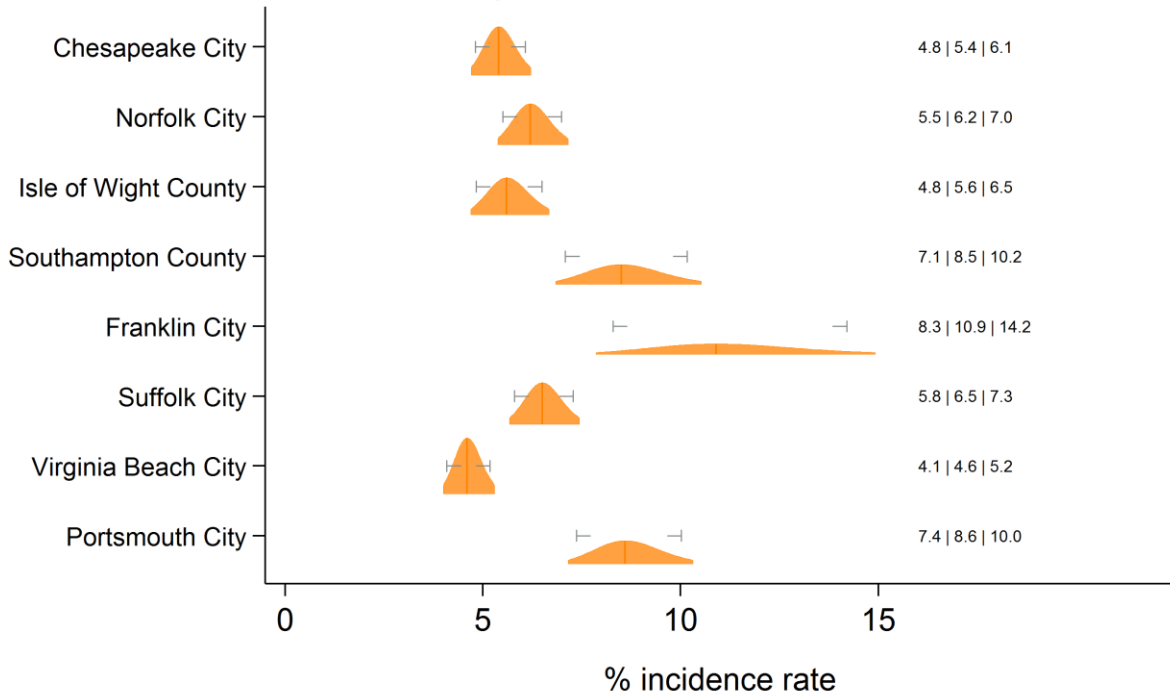
Text at right: 1-sided 95% LCB | Point Estimate | 1-sided 95% UCB
 Gray markers: 90% confidence interval



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Lifetime COPD, emphysema, chronic bronchitis
Norfolk, Portsmouth, Chesapeake, VA Beach, W. Tidewater HDs



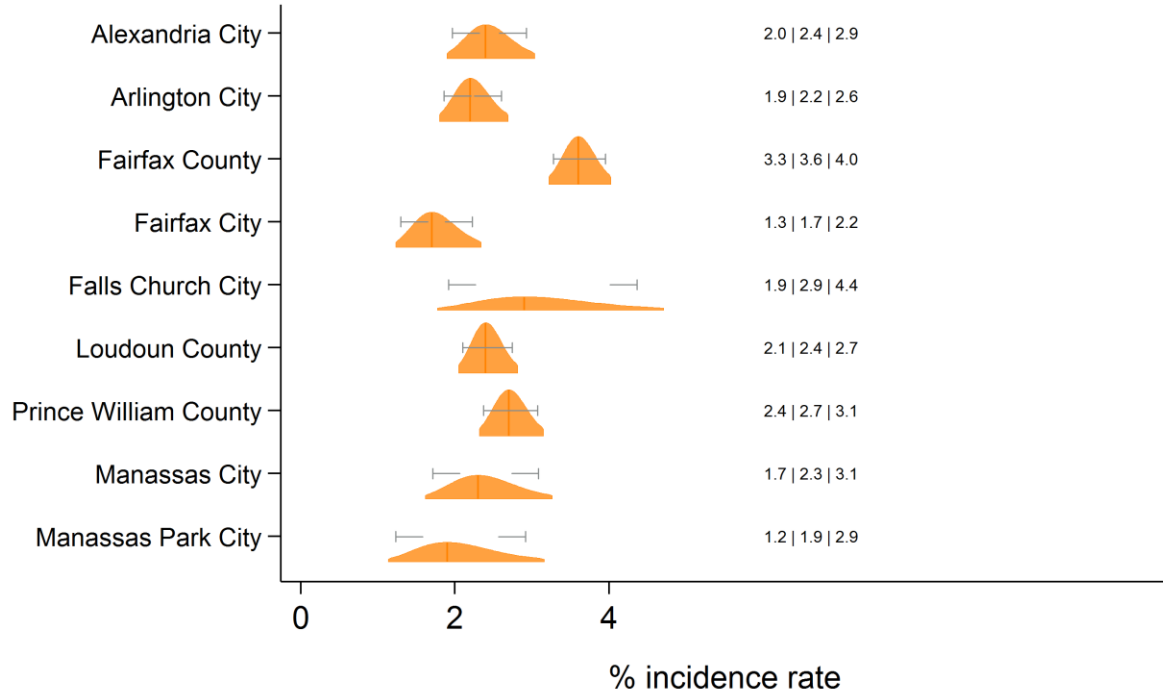
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Gray markers: 90% confidence interval



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Lifetime COPD, emphysema, chronic bronchitis Alexandria, Fairfax, Arlington, Loudon, Prince William HDs



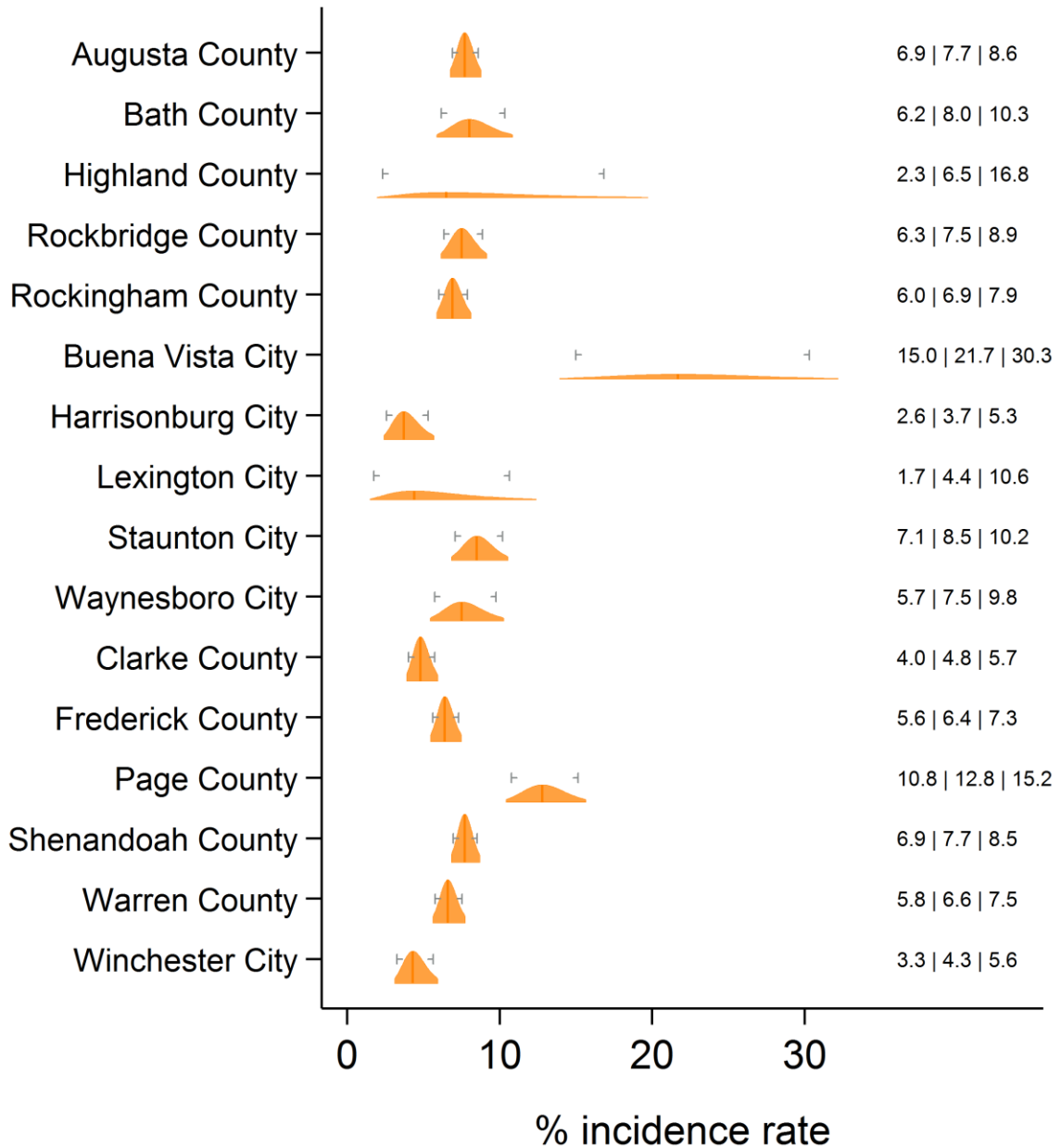
Text at right: 1-sided 95% LCB | Point Estimate | 1-sided 95% UCB
Gray markers: 90% confidence interval



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Lifetime COPD, emphysema, chronic bronchitis Central Shenandoah and Lord Fairfax HDs



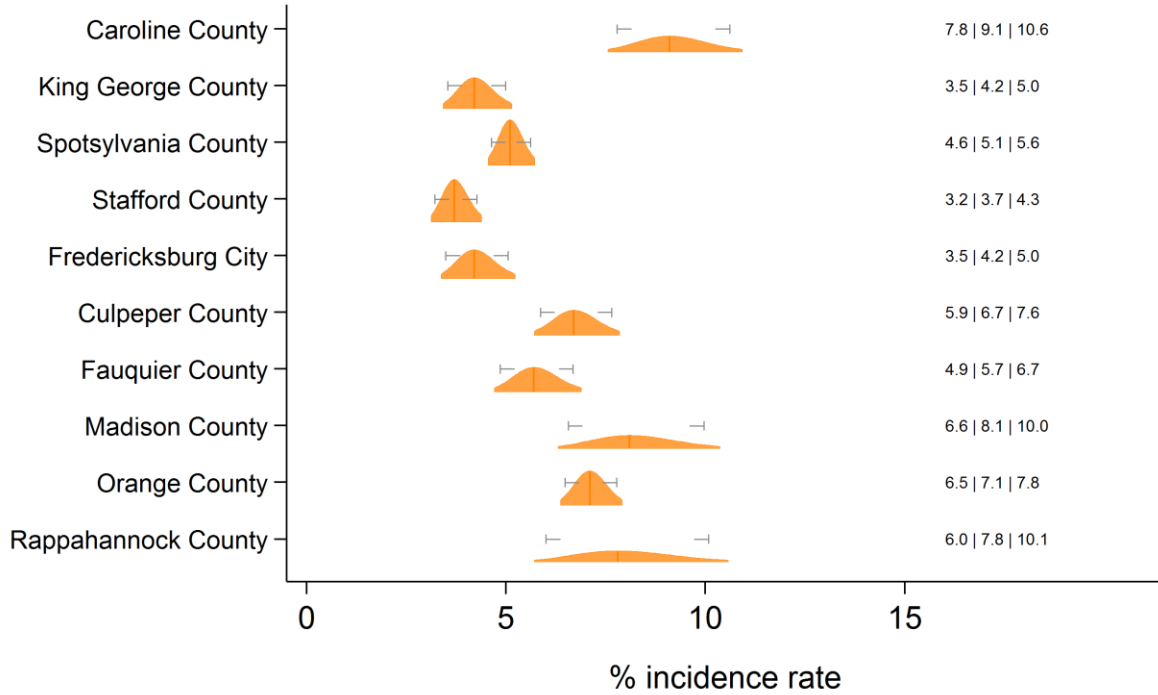
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 Gray markers: 90% confidence interval



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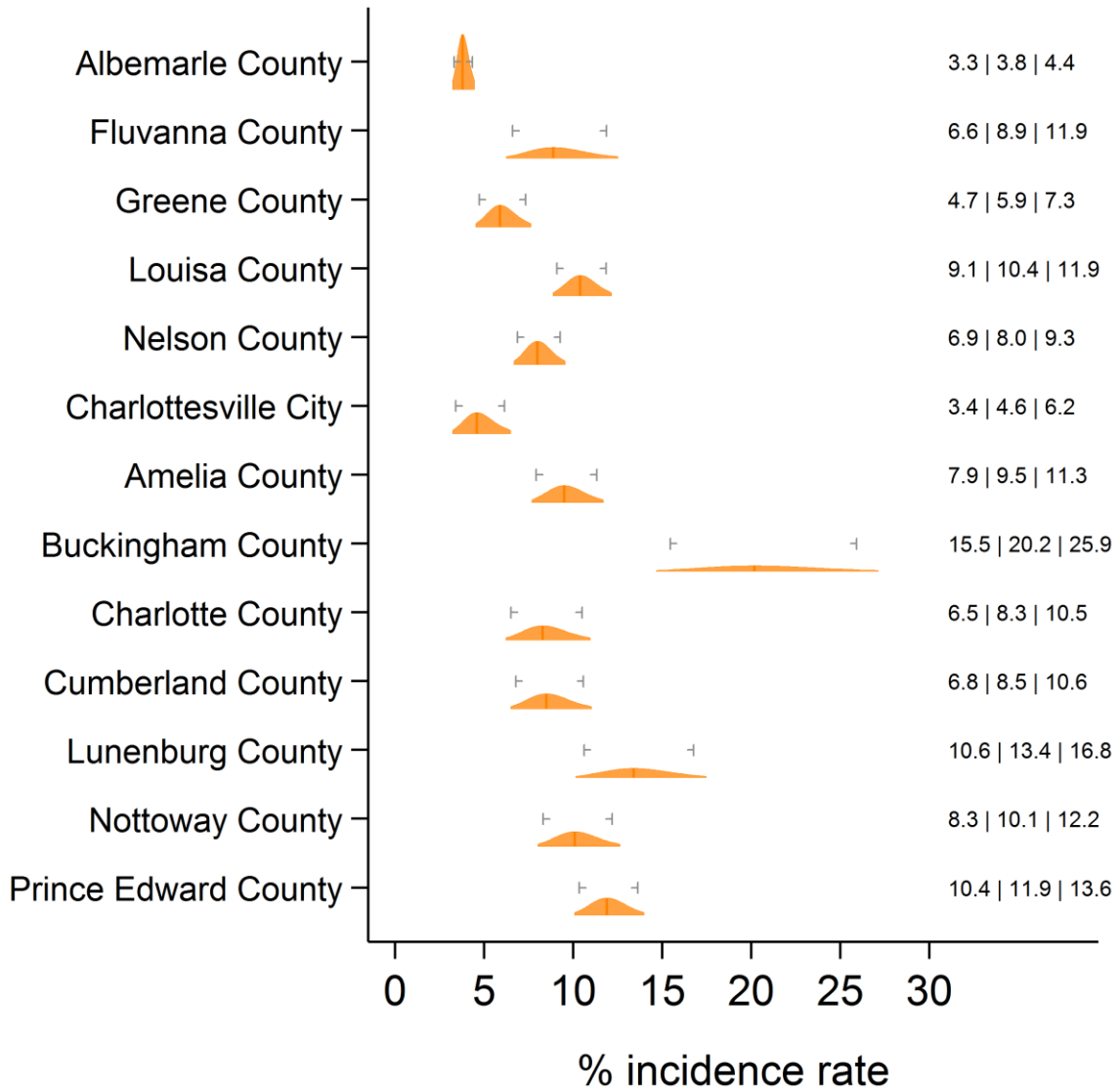
Lifetime COPD, emphysema, chronic bronchitis Rappahannock/Rapidan and Rappahannock HDs



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

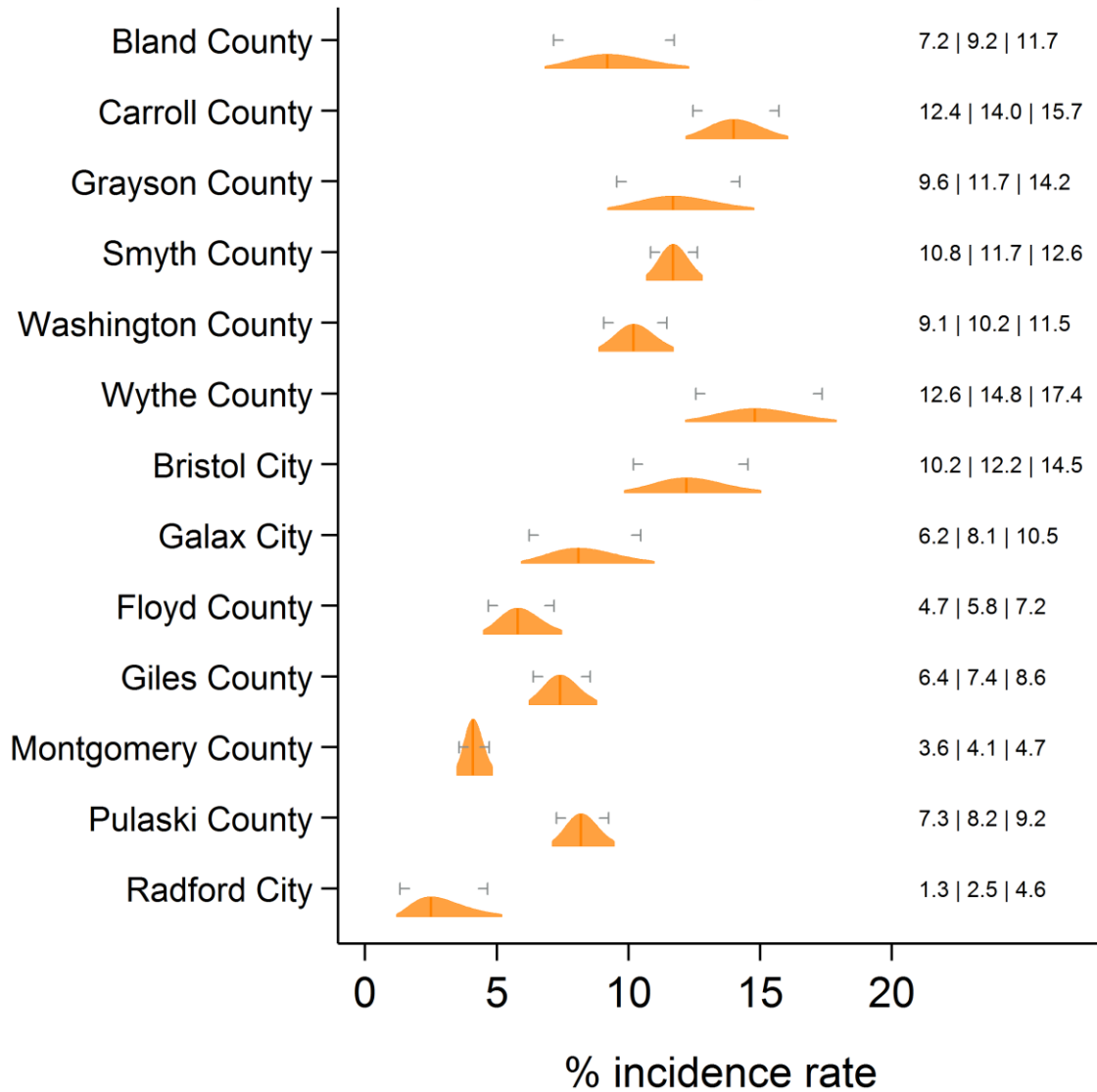


Lifetime COPD, emphysema, chronic bronchitis Thomas Jefferson and Piedmont HDs



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

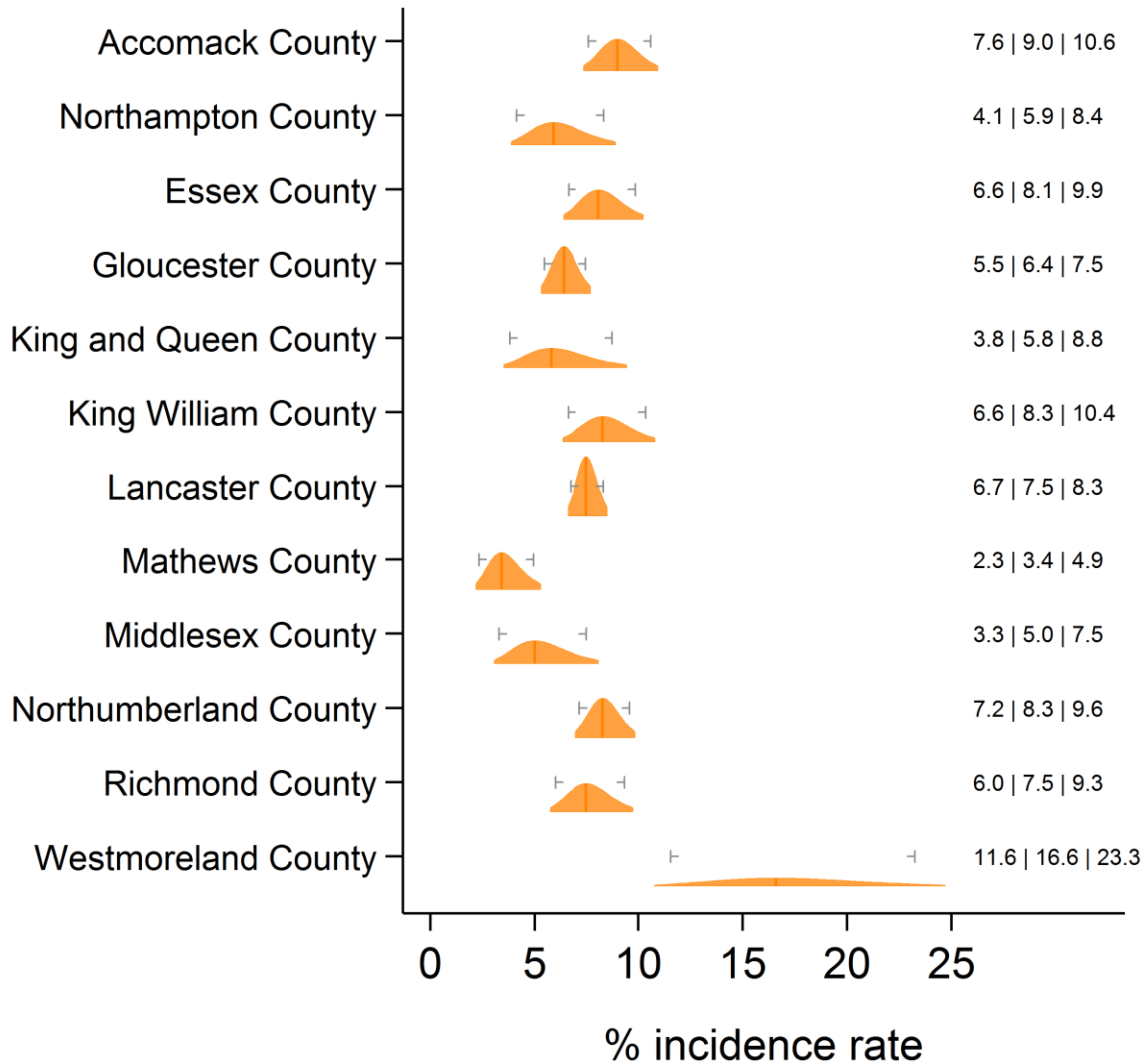
Lifetime COPD, emphysema, chronic bronchitis New River and Mount Rogers HDs



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



Lifetime COPD, emphysema, chronic bronchitis 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: 40 areas.

Direct estimate is outside the 95% SAE Wilson CI: 93 areas.

SAE estimate is inside the 95% direct Wilson CI: 133 areas.

SAE estimate is outside the 95% direct Wilson CI: 0 areas.

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

SAE Wilson 95% CI partially overlaps with the 95% direct Wilson CI: 4 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: 114 areas.

SAE standard error is greater than the (nonzero) direct standard error: 0 areas.

Direct standard error is zero: 19 areas.

Proportion of SAE variance due to ACS sampling error: min = 0.06%; med = 1.93%; max = 8.74%.

Proportion of SAE variance to sampling error in regression coefficient estimates: min = 65.35%; med = 94.45%; max = 99.64%.

Proportion of SAE variance due to model selection: min = 0.08%; med = 3.40%; max = 33.76%.