

Indicator 34: Pneumonia Vaccination - All Ages

Internal variable name: outc34_pneum_vacc

Definition: A pneumonia shot or pneumococcal vaccine is usually given only once or twice in a person's lifetime and is different from the flu shot. Have you ever had a pneumonia shot?

Predictive models

	Mixed, demos only	Logit, no area effects	Mixed with area covariates
	b/se	b/se	b/se
Outcome 34: Pneumonia Vaccination - All Ages			
NH Black vs. NH White	0.0652 (0.0984)	0.0327 (0.1040)	0.0327 (0.1052)
NH Asian vs. NH White	0.2168 (0.2188)	0.1970 (0.2173)	0.1970 (0.2132)
NH Other vs. NH White	0.0093 (0.2038)	-0.0102 (0.1679)	-0.0102 (0.1999)
Hispanic vs. NH White	0.0855 (0.1688)	0.0358 (0.1802)	0.0358 (0.1667)
Female	-0.0712 (0.0725)	-0.0777 (0.0747)	-0.0777 (0.0723)
Age 18-34 vs. 65+	-1.9843*** (0.1151)	-2.0029*** (0.1069)	-2.0029*** (0.1156)
Age 35-44 vs. 65+	-2.5038*** (0.1087)	-2.5133*** (0.1191)	-2.5133*** (0.1066)
Age 45-54 vs. 65+	-2.4459*** (0.0982)	-2.4553*** (0.1066)	-2.4553*** (0.0996)
Age 55-64 vs. 65+	-1.6836*** (0.0921)	-1.6864*** (0.0882)	-1.6864*** (0.0916)
VA BRFSS 2014 SAE outc9_stroke		-4.1810 (2.7361)	-4.1810 (2.5402)
Rural-urban continuum code category 4		-0.2735 (0.1886)	-0.2735 (0.1641)
% families with own children		-0.0058 (0.0071)	-0.0058 (0.0059)
Leukemia Male Rate		0.0092 (0.0053)	0.0092* (0.0042)
Non-stratified land domain index		-0.1767 (0.1439)	-0.1767 (0.0983)
c.LeukemiaMaleRate#c.land_eqi_22july2013		0.0014 (0.0093)	0.0014 (0.0062)
% below PL, householder worked		-0.0151 (0.0340)	-0.0151 (0.0220)
% unemployed, civ pop 16+, ACS 2016 5yr		-0.0658	-0.0658

c.ACS_pct_wrk_poor#c.PDB_pct_civ_unemp_16p_ACS126		(0.0488)	(0.0369)
		0.0027	0.0027
		(0.0044)	(0.0028)
Intercept	1.2375***	1.9021***	1.9021***
	(0.0977)	(0.4657)	(0.3692)
Area effect variance			
	0.0000		0.0000
	(0.0000)		(0.0000)

Number of alternative models used to estimate model error = 12.

Results

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Augusta County	51015	46.5%	(34.2%, 59.2%)	47.1%	(43.2%, 51.1%)
Bath County	51017	21.2%	(4.9%, 58.4%)	41.7%	(33.8%, 50.1%)
Caroline County	51033	52.2%	(22.6%, 80.3%)	47.6%	(44.9%, 50.3%)
Clarke County	51043	11.1%	(4.9%, 42.5%)	47.3%	(43.3%, 51.4%)
Culpeper County	51047	47.1%	(31.1%, 63.7%)	46.9%	(43.2%, 50.6%)
Fauquier County	51061	44.9%	(28.5%, 62.6%)	48.4%	(45.3%, 51.5%)
Frederick County	51069	27.3%	(16.9%, 41.0%)	45.0%	(41.9%, 48.1%)
Highland County	51091	78.5%	(26.5%, 97.4%)	59.9%	(50.4%, 68.7%)
King George County	51099	48.7%	(16.7%, 81.8%)	43.0%	(36.2%, 50.1%)
Madison County	51113	41.7%	(18.5%, 69.2%)	46.4%	(40.6%, 52.3%)
Orange County	51137	35.9%	(20.2%, 55.4%)	45.6%	(42.3%, 49.0%)
Page County	51139	46.3%	(24.7%, 69.4%)	48.4%	(42.1%, 54.6%)
Rappahannock County	51157	31.6%	(12.0%, 61.0%)	51.8%	(44.2%, 59.3%)
Rockbridge County	51163	50.5%	(29.9%, 70.9%)	47.7%	(42.9%, 52.4%)
Rockingham County	51165	28.7%	(19.4%, 40.1%)	43.0%	(40.1%, 46.0%)
Shenandoah County	51171	54.0%	(35.4%, 71.5%)	48.3%	(45.0%, 51.6%)
Spotsylvania County	51177	40.4%	(28.0%, 54.2%)	46.5%	(44.7%, 48.3%)
Stafford County	51179	38.2%	(28.0%, 49.5%)	43.3%	(41.0%, 45.6%)
Warren County	51187	52.4%	(33.7%, 70.4%)	45.7%	(42.1%, 49.4%)
Buena Vista City	51530	41.8%	(10.2%, 82.0%)	47.9%	(36.7%, 59.3%)
Fredericksburg City	51630	44.5%	(21.0%, 70.7%)	44.3%	(41.2%, 47.5%)
Harrisonburg City	51660	34.7%	(8.9%, 74.4%)	49.2%	(43.2%, 55.2%)
Lexington City	51678	0.0%	(0.0%, 96.3%)	70.0%	(41.7%, 88.4%)
Staunton City	51790	57.9%	(20.4%, 88.1%)	51.8%	(47.3%, 56.2%)
Waynesboro City	51820	48.8%	(16.8%, 81.8%)	52.9%	(47.7%, 58.0%)
Winchester City	51840	22.1%	(4.3%, 64.4%)	50.4%	(47.1%, 53.7%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Albemarle County	51003	38.5%	(27.7%, 50.6%)	47.0%	(43.8%, 50.2%)
Alleghany County	51005	41.0%	(18.4%, 68.1%)	51.2%	(47.4%, 55.0%)
Amherst County	51009	42.8%	(22.6%, 65.8%)	47.4%	(43.2%, 51.5%)
Appomattox County	51011	29.0%	(12.7%, 53.5%)	48.2%	(43.7%, 52.7%)
Arlington City	51013	48.0%	(37.1%, 59.2%)	43.6%	(40.6%, 46.7%)
Bedford County	51019	53.5%	(41.8%, 64.8%)	54.2%	(49.8%, 58.6%)
Botetourt County	51023	37.1%	(20.4%, 57.6%)	50.7%	(47.1%, 54.3%)
Campbell County	51031	44.2%	(31.8%, 57.4%)	45.9%	(42.3%, 49.6%)
Craig County	51045	39.4%	(6.9%, 85.1%)	60.3%	(53.0%, 67.1%)
Fairfax County	51059	37.3%	(33.0%, 41.7%)	42.7%	(40.6%, 44.7%)
Fluvanna County	51065	42.0%	(23.5%, 63.1%)	46.3%	(41.8%, 50.8%)
Greene County	51079	56.1%	(21.2%, 85.9%)	43.3%	(38.4%, 48.4%)
Loudoun County	51107	38.7%	(30.2%, 48.0%)	39.8%	(36.5%, 43.2%)
Louisa County	51109	32.7%	(17.4%, 52.7%)	48.9%	(44.4%, 53.4%)
Nelson County	51125	33.3%	(12.9%, 62.7%)	53.3%	(48.4%, 58.1%)
Prince William County	51153	35.7%	(28.8%, 43.4%)	40.5%	(38.1%, 43.1%)
Roanoke County	51161	34.8%	(25.4%, 45.6%)	48.2%	(44.9%, 51.5%)
Alexandria City	51510	47.0%	(35.4%, 58.9%)	42.9%	(39.2%, 46.7%)
Charlottesville City	51540	48.5%	(23.0%, 74.9%)	49.4%	(43.3%, 55.5%)
Covington City	51580	80.5%	(2.6%, 99.6%)	57.8%	(52.6%, 62.8%)
Fairfax City	51600	40.6%	(27.4%, 55.3%)	46.7%	(43.1%, 50.4%)
Falls Church City	51610	41.0%	(16.5%, 70.9%)	51.6%	(47.7%, 55.5%)
Lynchburg City	51680	47.4%	(33.5%, 61.6%)	47.1%	(43.6%, 50.7%)
Manassas City	51683	30.1%	(9.6%, 63.4%)	39.6%	(35.9%, 43.4%)
Manassas Park City	51685	38.0%	(5.9%, 85.7%)	58.5%	(36.8%, 77.3%)
Salem City	51775	48.8%	(14.2%, 84.5%)	48.1%	(45.1%, 51.2%)

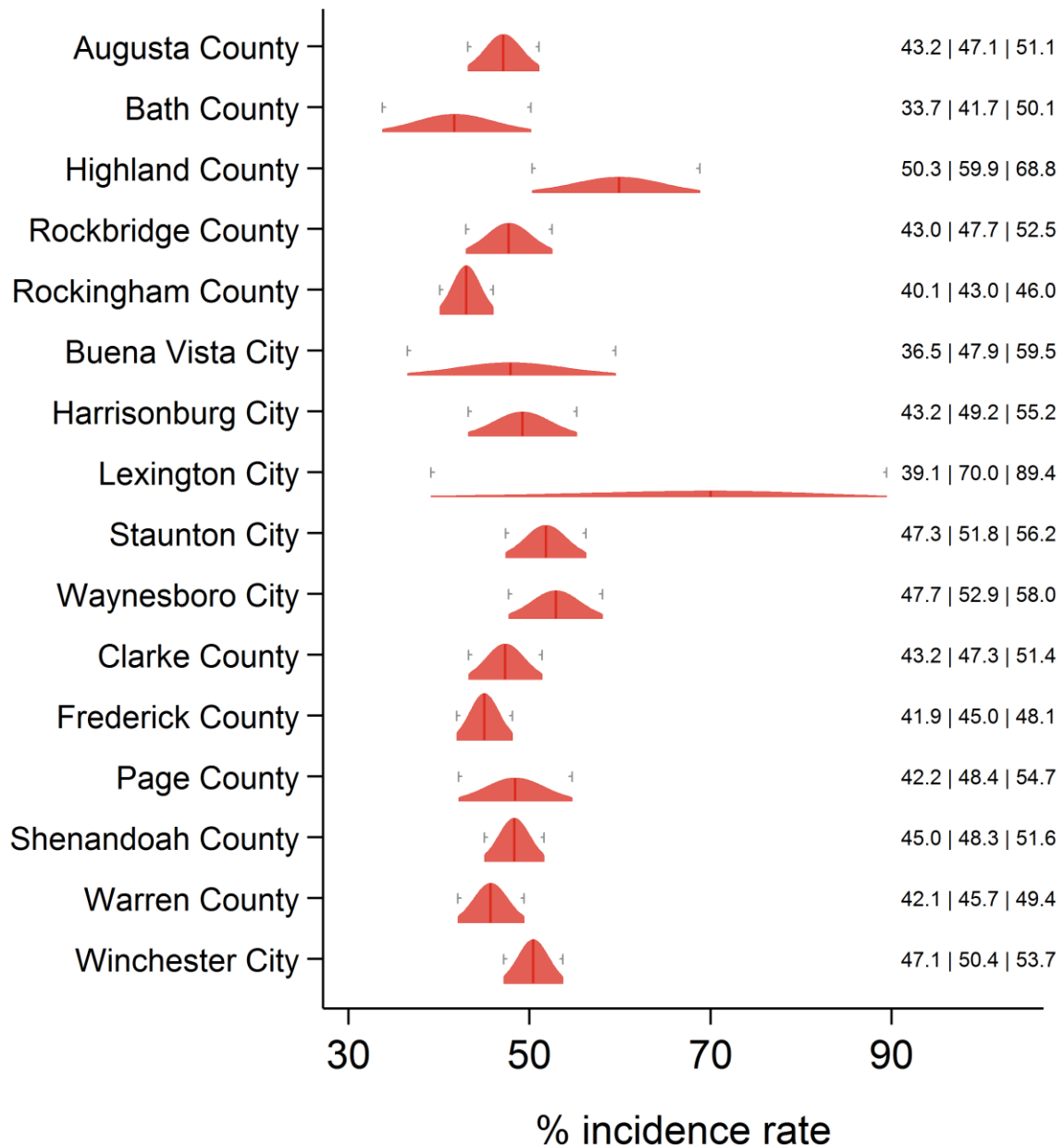
County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Bland County	51021	41.7%	(18.1%, 69.8%)	49.8%	(43.6%, 56.0%)
Buchanan County	51027	23.3%	(11.6%, 41.4%)	41.3%	(35.4%, 47.6%)
Carroll County	51035	51.1%	(30.3%, 71.6%)	50.9%	(46.5%, 55.2%)
Dickenson County	51051	42.7%	(19.2%, 70.0%)	45.2%	(38.4%, 52.1%)
Floyd County	51063	18.6%	(9.0%, 34.3%)	37.4%	(31.1%, 44.2%)
Franklin County	51067	39.7%	(22.6%, 59.8%)	49.0%	(45.3%, 52.6%)
Giles County	51071	45.2%	(27.5%, 64.2%)	42.9%	(39.6%, 46.2%)
Grayson County	51077	29.2%	(12.3%, 54.7%)	44.4%	(37.6%, 51.5%)
Henry County	51089	47.0%	(31.3%, 63.3%)	47.3%	(42.6%, 52.1%)
Lee County	51105	35.2%	(16.1%, 60.5%)	38.8%	(31.8%, 46.2%)
Montgomery County	51121	32.1%	(21.3%, 45.3%)	42.9%	(39.7%, 46.1%)
Patrick County	51141	48.2%	(20.7%, 76.8%)	43.0%	(36.3%, 49.9%)
Pittsylvania County	51143	31.1%	(22.3%, 41.5%)	48.7%	(45.6%, 51.8%)
Pulaski County	51155	73.3%	(52.7%, 87.1%)	40.4%	(36.4%, 44.4%)
Russell County	51167	33.8%	(17.9%, 54.5%)	49.4%	(45.2%, 53.6%)
Scott County	51169	57.7%	(36.2%, 76.6%)	48.2%	(42.5%, 54.0%)
Smyth County	51173	60.9%	(33.7%, 82.7%)	47.7%	(44.6%, 50.8%)
Tazewell County	51185	25.0%	(14.8%, 38.9%)	46.6%	(43.0%, 50.3%)
Washington County	51191	39.6%	(27.5%, 53.0%)	48.0%	(44.5%, 51.6%)
Wise County	51195	42.8%	(28.5%, 58.5%)	46.5%	(42.3%, 50.7%)
Wythe County	51197	33.3%	(17.9%, 53.2%)	45.8%	(42.0%, 49.7%)
Bristol City	51520	46.0%	(5.3%, 92.9%)	52.0%	(48.1%, 55.9%)
Danville City	51590	32.2%	(13.6%, 58.9%)	47.5%	(40.6%, 54.5%)
Galax City	51640	60.0%	(7.9%, 96.3%)	48.6%	(44.3%, 52.9%)
Martinsville City	51690	23.3%	(4.8%, 64.7%)	47.8%	(42.8%, 52.8%)
Norton City	51720	93.8%	(27.3%, 98.6%)	48.8%	(38.9%, 58.9%)
Radford City	51750	43.6%	(14.6%, 77.8%)	52.9%	(44.5%, 61.2%)
Roanoke City	51770	30.9%	(21.0%, 43.0%)	44.7%	(40.6%, 49.0%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Amelia County	51007	59.3%	(30.9%, 82.6%)	51.4%	(47.3%, 55.5%)
Brunswick County	51025	41.6%	(20.1%, 66.8%)	47.0%	(39.9%, 54.3%)
Buckingham County	51029	33.9%	(17.2%, 55.9%)	46.0%	(40.0%, 52.1%)
Charles City County	51036	64.4%	(19.0%, 93.3%)	57.5%	(50.9%, 63.7%)
Charlotte County	51037	45.6%	(26.1%, 66.6%)	49.1%	(43.6%, 54.6%)
Chesterfield County	51041	48.0%	(39.3%, 56.7%)	46.4%	(44.1%, 48.7%)
Cumberland County	51049	33.3%	(16.1%, 56.6%)	49.2%	(45.1%, 53.2%)
Dinwiddie County	51053	27.3%	(11.9%, 50.9%)	47.9%	(43.8%, 52.0%)
Goochland County	51075	65.6%	(39.6%, 84.7%)	50.8%	(46.2%, 55.3%)
Greensville County	51081	59.8%	(27.3%, 85.5%)	46.6%	(42.6%, 50.6%)
Halifax County	51083	53.8%	(36.5%, 70.3%)	48.8%	(45.0%, 52.5%)
Hanover County	51085	44.7%	(31.8%, 58.2%)	52.3%	(48.9%, 55.7%)
Henrico County	51087	37.6%	(29.5%, 46.4%)	45.6%	(43.1%, 48.2%)
Lunenburg County	51111	54.3%	(24.2%, 81.5%)	50.4%	(44.5%, 56.4%)
Mecklenburg County	51117	51.2%	(36.5%, 65.6%)	50.6%	(46.8%, 54.5%)
New Kent County	51127	48.6%	(23.3%, 74.6%)	55.4%	(51.3%, 59.5%)
Nottoway County	51135	35.3%	(14.4%, 63.8%)	47.2%	(43.5%, 51.0%)
Powhatan County	51145	43.9%	(21.5%, 69.2%)	53.2%	(49.8%, 56.5%)
Prince Edward County	51147	48.5%	(29.0%, 68.5%)	52.2%	(48.9%, 55.6%)
Prince George County	51149	45.5%	(27.2%, 65.2%)	47.4%	(44.1%, 50.7%)
Surry County	51181	55.1%	(23.8%, 82.8%)	55.5%	(49.7%, 61.1%)
Sussex County	51183	40.0%	(20.1%, 63.8%)	45.8%	(41.1%, 50.5%)
Colonial Heights City	51570	48.9%	(25.0%, 73.4%)	44.2%	(39.3%, 49.2%)
Emporia City	51595	0.0%	(0.0%, 91.8%)	47.2%	(32.1%, 62.9%)
Hopewell City	51670	41.0%	(19.2%, 67.1%)	47.9%	(40.9%, 55.0%)
Petersburg City	51730	43.2%	(25.7%, 62.6%)	52.4%	(44.7%, 60.0%)
Richmond City	51760	41.9%	(30.2%, 54.6%)	47.7%	(43.9%, 51.4%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Accomack County	51001	45.1%	(31.0%, 60.0%)	54.8%	(49.8%, 59.8%)
Essex County	51057	33.4%	(15.0%, 58.8%)	50.7%	(44.6%, 56.8%)
Gloucester County	51073	40.7%	(27.0%, 55.9%)	54.9%	(51.6%, 58.1%)
Isle of Wight County	51093	44.1%	(24.7%, 65.6%)	48.3%	(44.3%, 52.4%)
James City County	51095	48.3%	(35.2%, 61.6%)	51.1%	(47.7%, 54.5%)
King and Queen County	51097	71.5%	(35.0%, 90.8%)	61.8%	(55.6%, 67.7%)
King William County	51101	80.1%	(45.8%, 95.0%)	51.1%	(47.8%, 54.5%)
Lancaster County	51103	25.3%	(12.6%, 44.4%)	42.0%	(31.1%, 53.7%)
Mathews County	51115	50.6%	(24.5%, 76.4%)	60.3%	(54.7%, 65.6%)
Middlesex County	51119	60.6%	(37.1%, 80.0%)	50.4%	(43.3%, 57.4%)
Northampton County	51131	39.2%	(20.7%, 61.3%)	50.5%	(44.2%, 56.7%)
Northumberland County	51133	59.0%	(32.6%, 81.1%)	45.3%	(38.9%, 51.8%)
Richmond County	51159	43.3%	(18.0%, 72.6%)	47.9%	(41.7%, 54.2%)
Southampton County	51175	45.1%	(19.3%, 73.9%)	46.1%	(42.0%, 50.3%)
Westmoreland County	51193	35.4%	(14.2%, 64.5%)	52.5%	(47.3%, 57.6%)
York County	51199	35.3%	(21.9%, 51.4%)	51.5%	(48.3%, 54.6%)
Chesapeake City	51550	36.4%	(27.6%, 46.2%)	43.8%	(41.7%, 45.9%)
Franklin City	51620	30.8%	(13.9%, 55.0%)	44.1%	(36.9%, 51.6%)
Hampton City	51650	40.9%	(30.3%, 52.4%)	47.6%	(44.0%, 51.1%)
Newport News City	51700	48.3%	(36.9%, 59.9%)	45.3%	(41.6%, 49.0%)
Norfolk City	51710	35.8%	(27.5%, 45.1%)	40.9%	(37.7%, 44.1%)
Poquoson City	51735	72.9%	(27.9%, 94.9%)	54.8%	(48.2%, 61.2%)
Portsmouth City	51740	36.1%	(25.5%, 48.1%)	41.3%	(37.5%, 45.1%)
Suffolk City	51800	34.6%	(23.5%, 47.8%)	47.5%	(44.8%, 50.2%)
Virginia Beach City	51810	37.3%	(31.1%, 44.0%)	43.3%	(41.6%, 45.0%)
Williamsburg City	51830	56.8%	(11.7%, 92.9%)	57.0%	(45.1%, 68.1%)

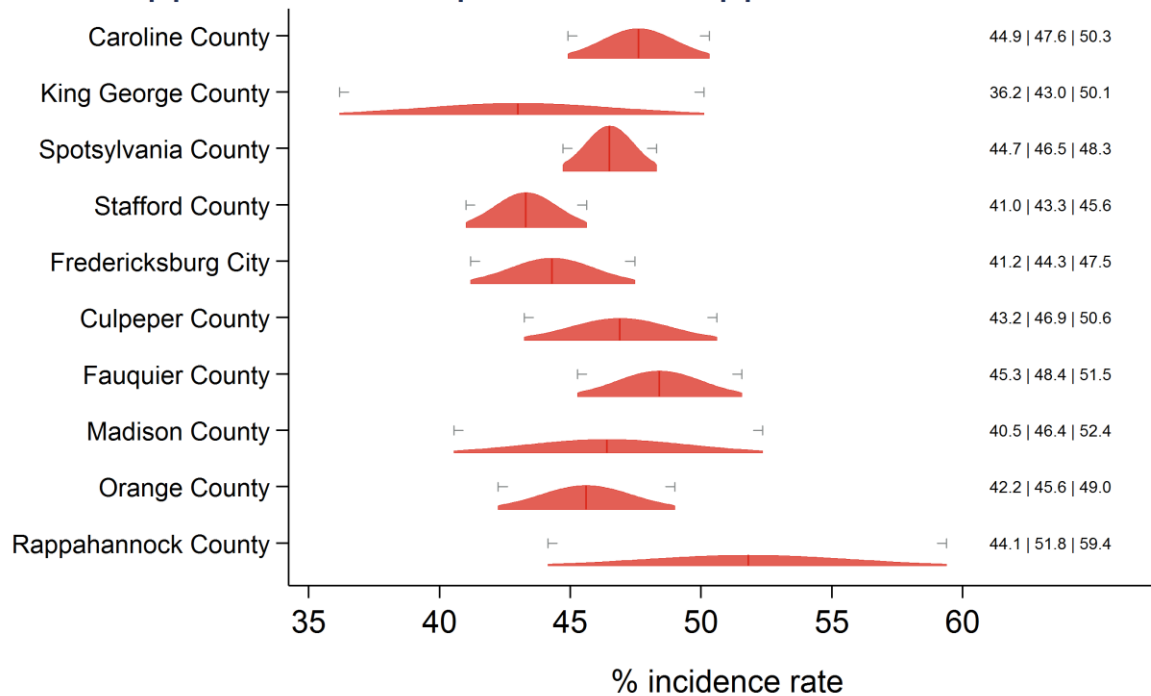
Graphical representation

Pneumonia Vaccination - All Ages Central Shenandoah and Lord Fairfax HDs



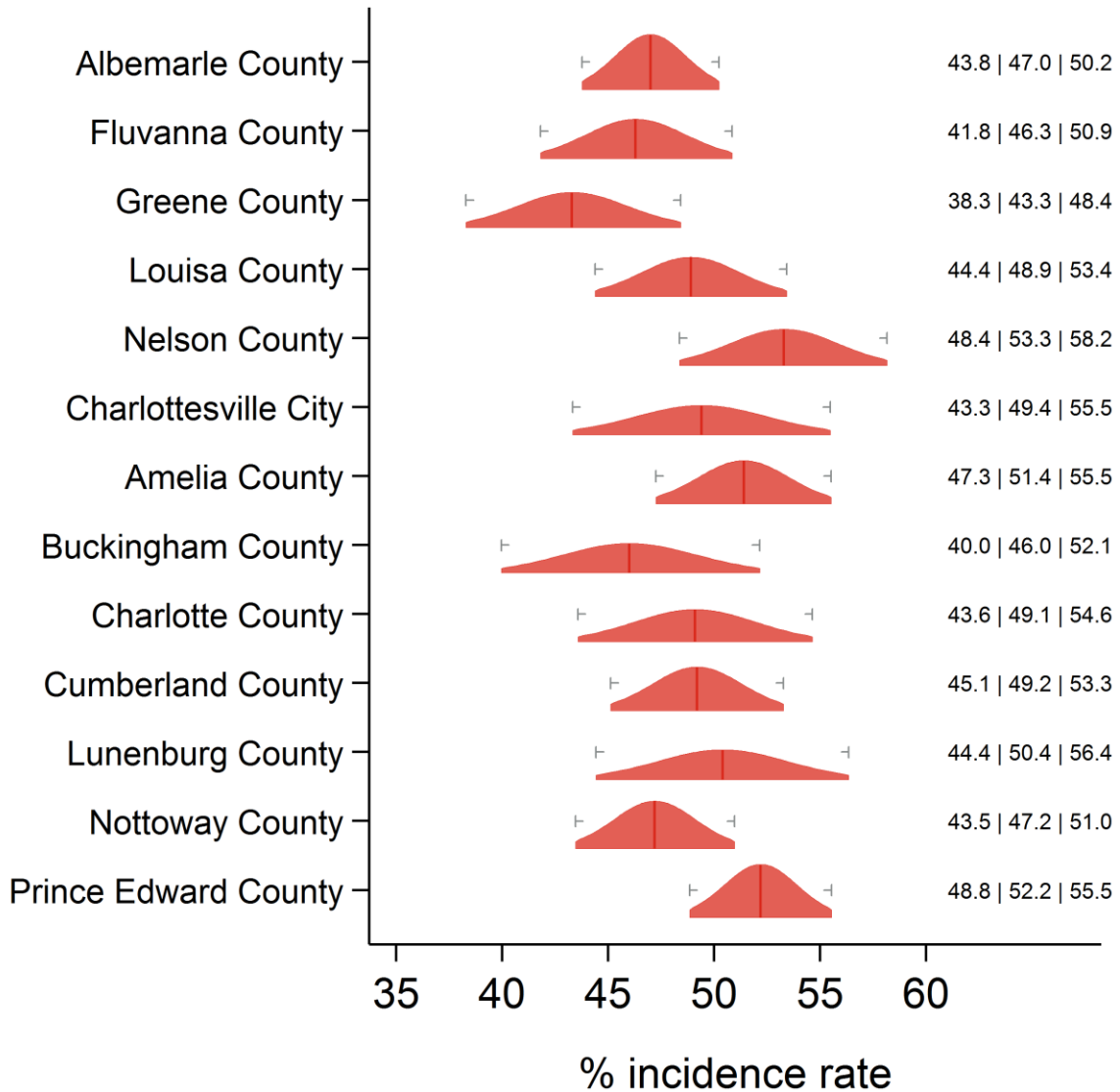
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
Gray markers: 95% confidence interval

Pneumonia Vaccination - All Ages Rappahannock/Rapidan and Rappahannock HDs



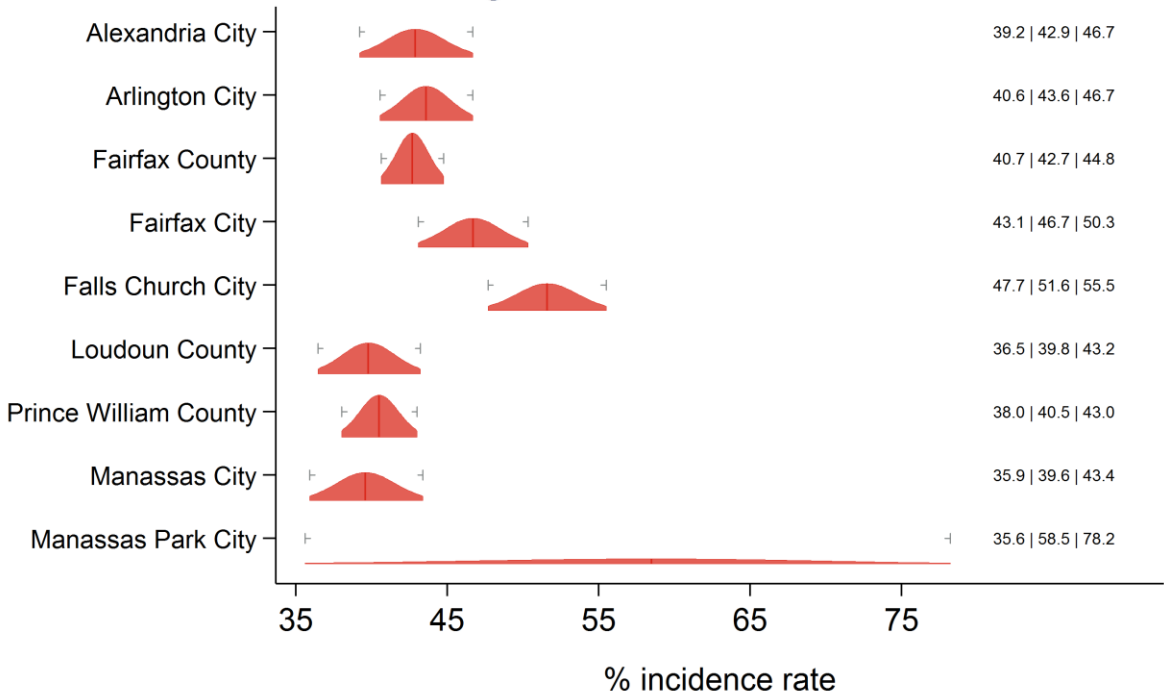
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
Gray markers: 95% confidence interval

Pneumonia Vaccination - All Ages Thomas Jefferson and Piedmont HDs



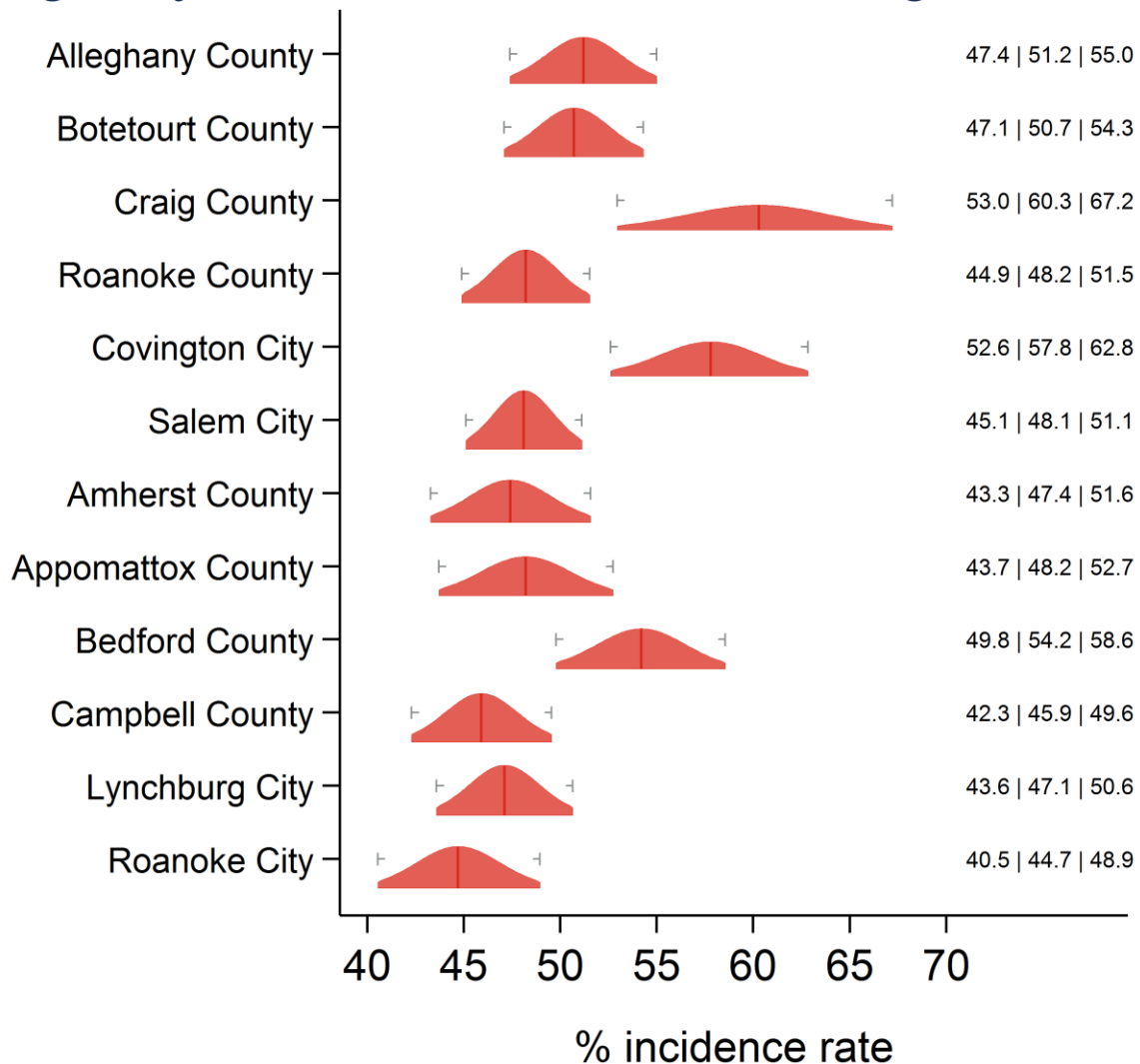
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
Gray markers: 95% confidence interval

Pneumonia Vaccination - All Ages Alexandria, Fairfax, Arlington, Loudon, Prince William HDs



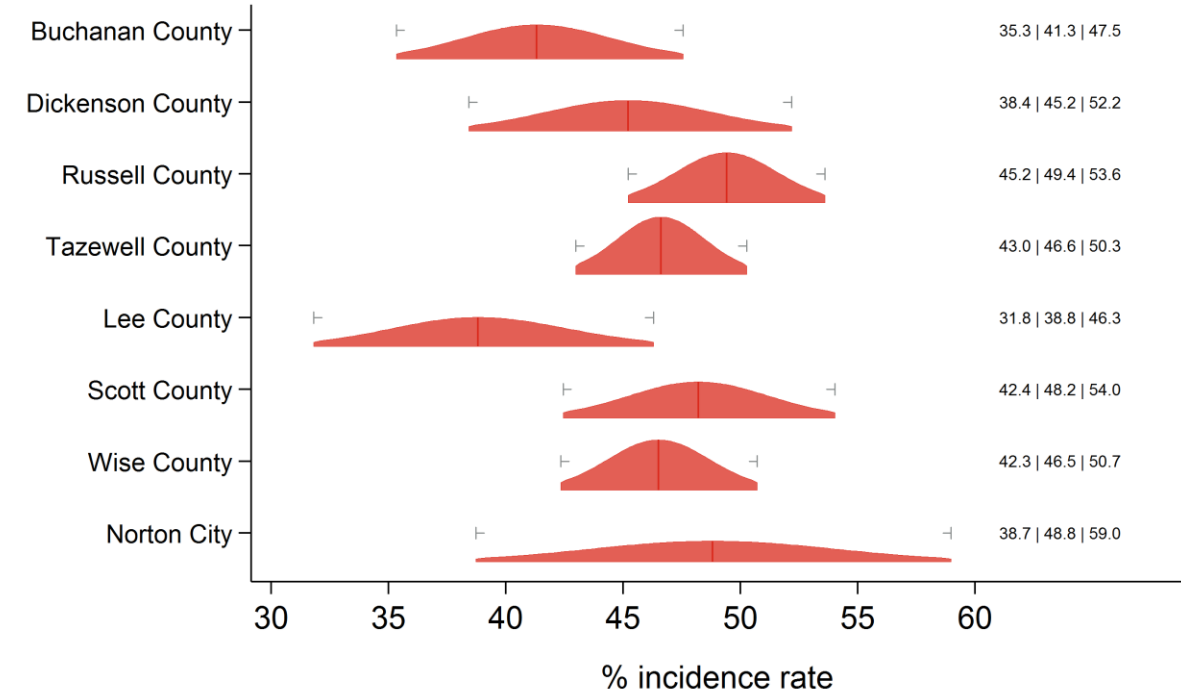
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
Gray markers: 95% confidence interval

Pneumonia Vaccination - All Ages Alleghany, Roanoke and Central Virginia HDs



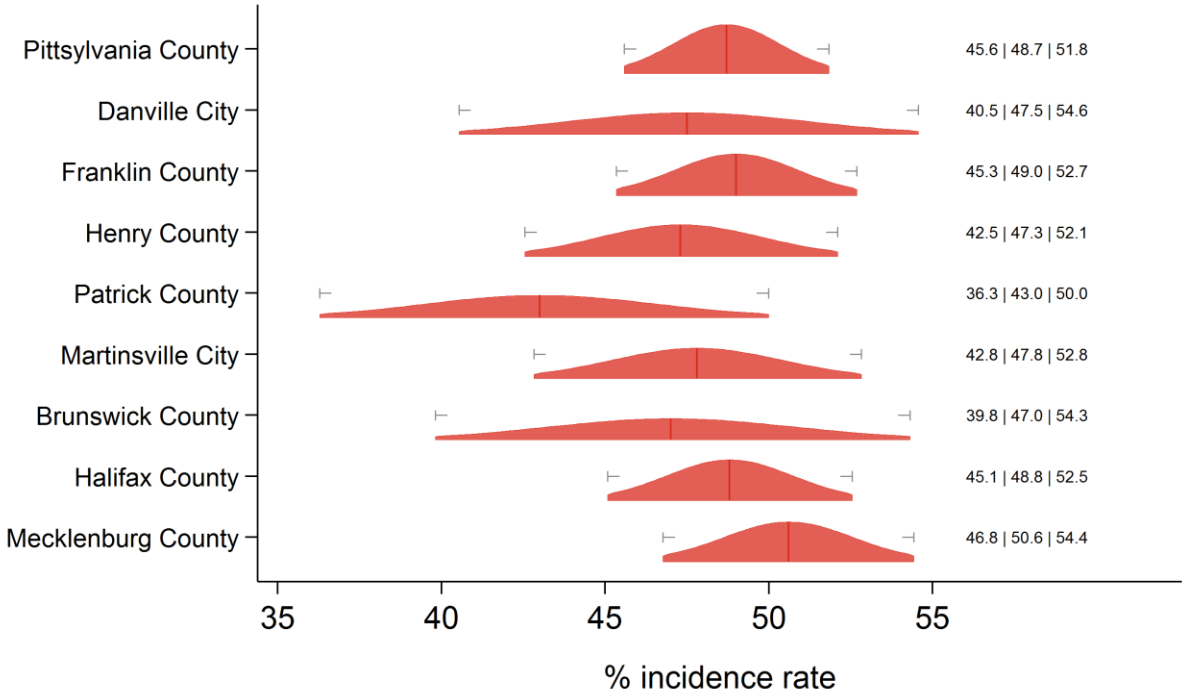
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
Gray markers: 95% confidence interval

Pneumonia Vaccination - All Ages Cumberland Plateau and Lenowisco HDs



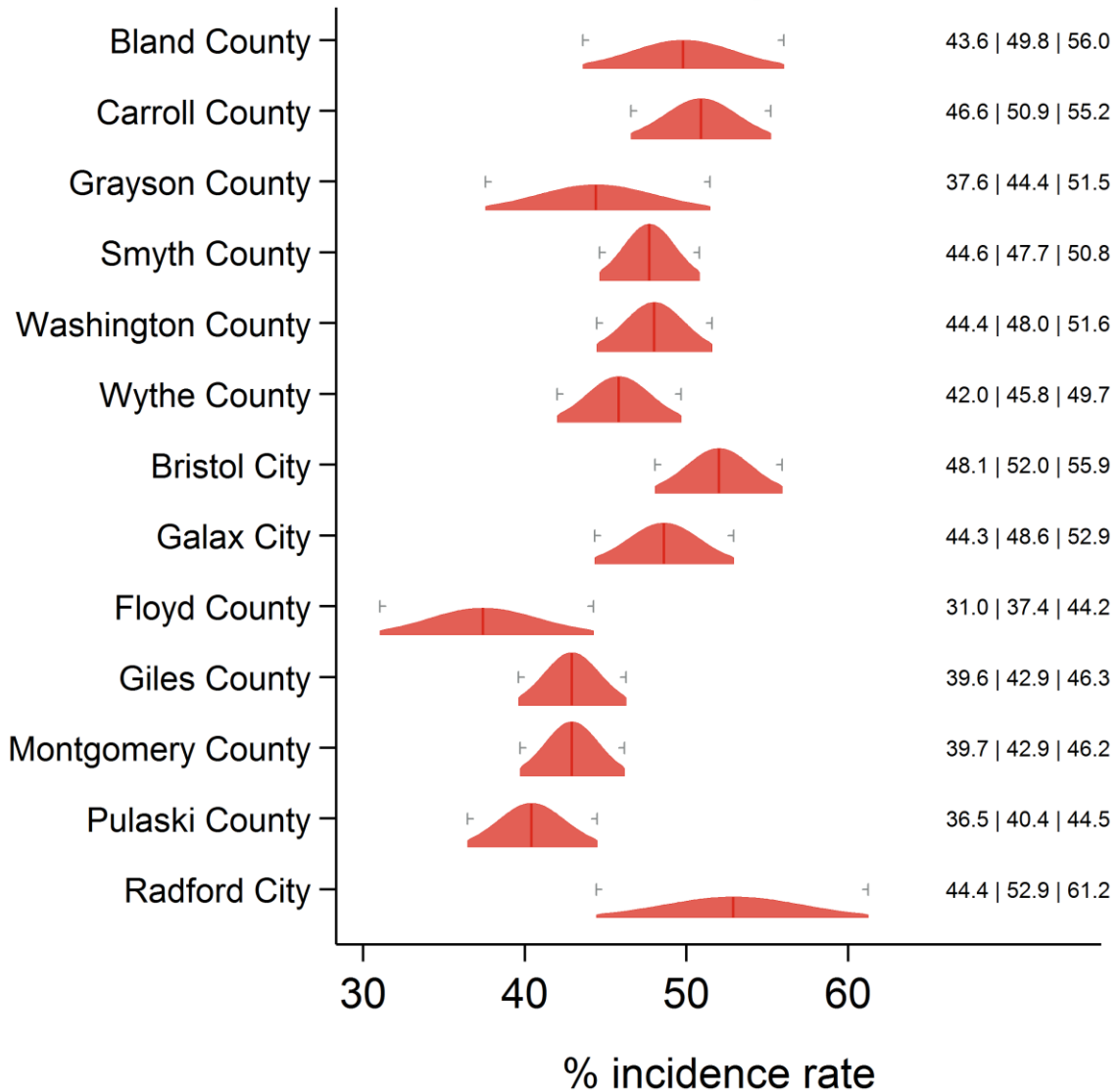
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
Gray markers: 95% confidence interval

Pneumonia Vaccination - All Ages Pittsylvania/Danville, Southside and West Piedmont HDs



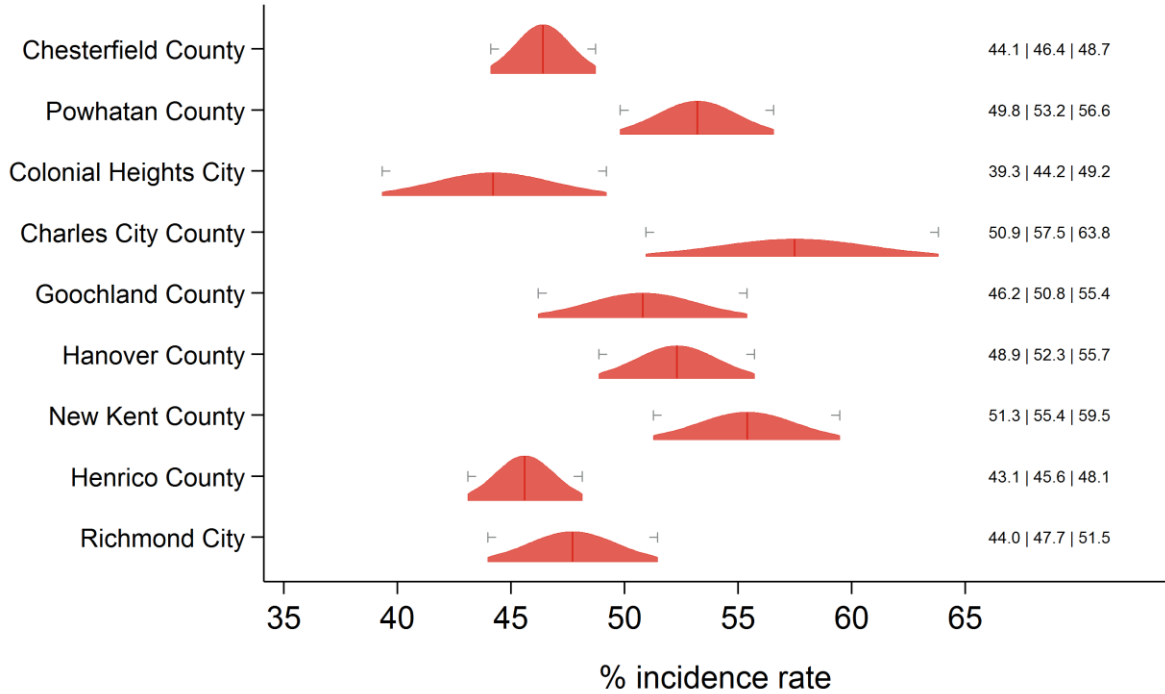
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
Gray markers: 95% confidence interval

Pneumonia Vaccination - All Ages New River and Mount Rogers HDs



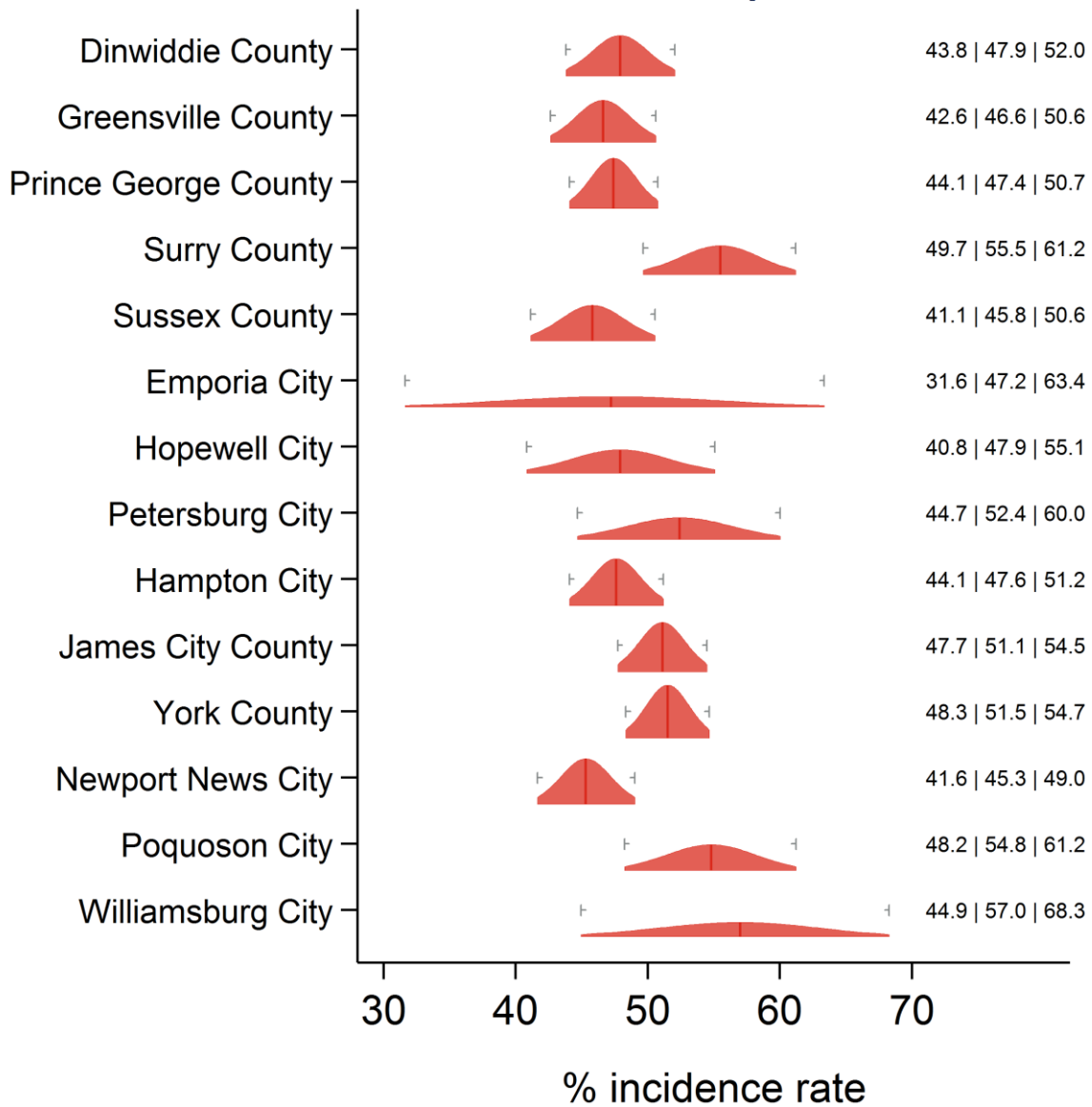
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
Gray markers: 95% confidence interval

Pneumonia Vaccination - All Ages Chesterfield, Chickahominy, Henrico and Richmond HDs



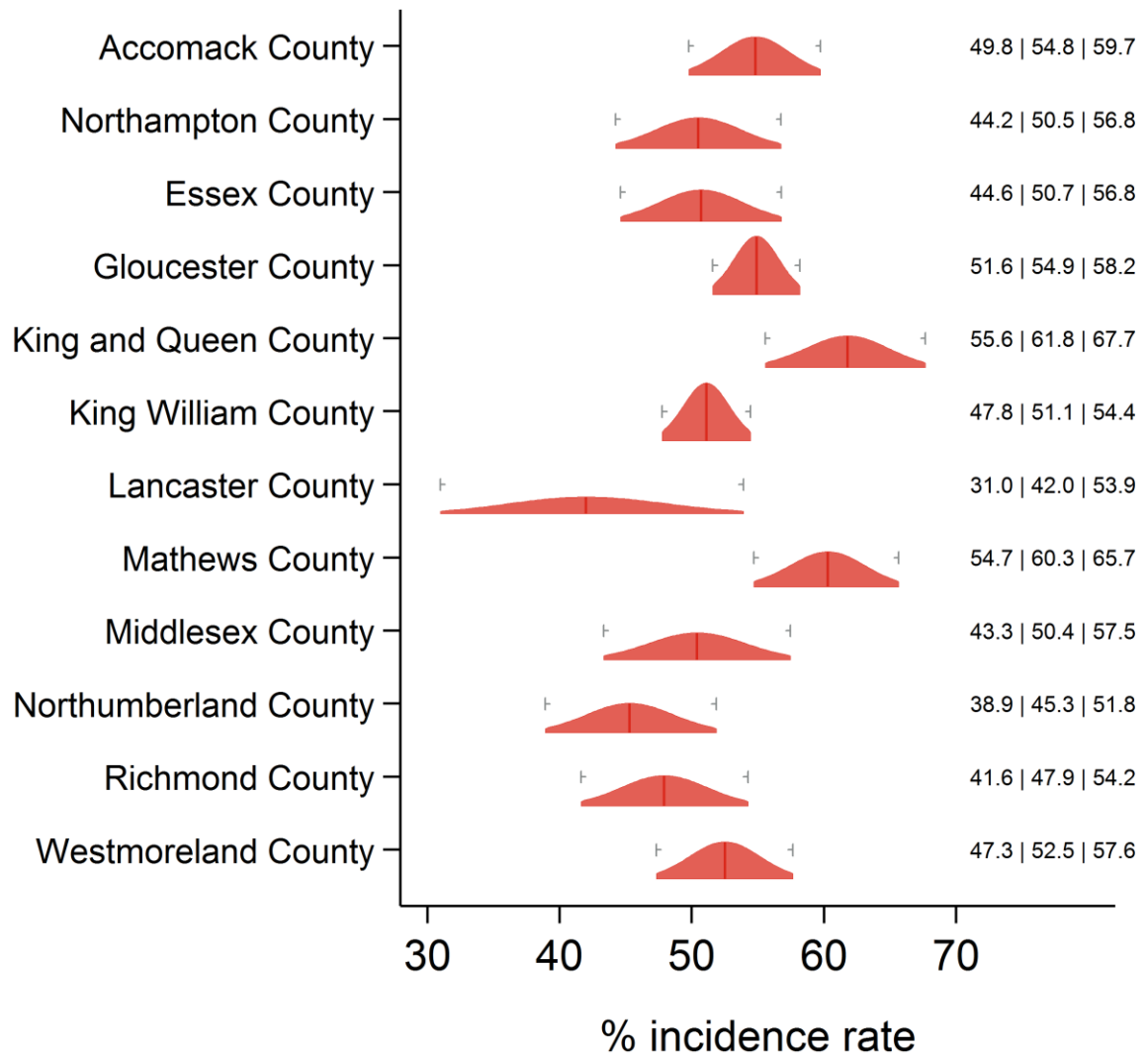
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
Gray markers: 95% confidence interval

Pneumonia Vaccination - All Ages Crater, Peninsula and Hampton HDs



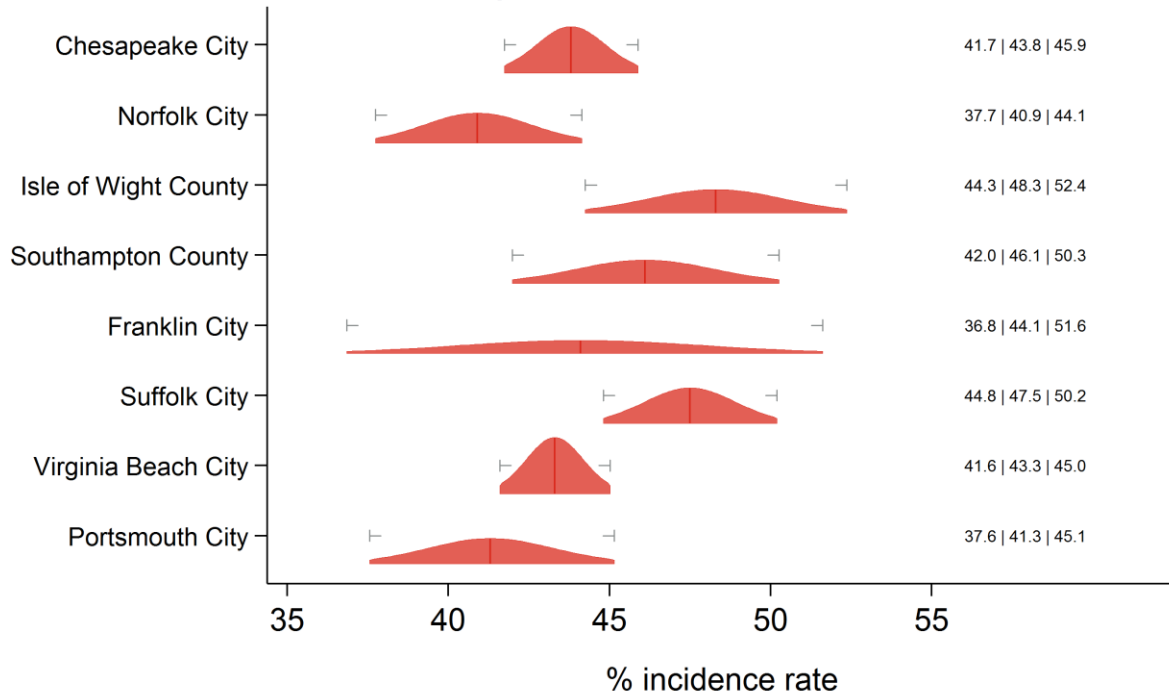
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
Gray markers: 95% confidence interval

Pneumonia Vaccination - All Ages Eastern Shore and Three Rivers HDs



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

Pneumonia Vaccination - All Ages 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: 38 areas.

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

SAE estimate is inside the 95% direct Wilson CI: 122 areas.

SAE estimate is outside the 95% direct Wilson CI: 11 areas.

SAE Wilson 95% CI is fully inside the 95% direct Wilson CI: 113 areas.

SAE Wilson 95% CI partially overlaps with the 95% direct Wilson CI: 20 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: 131 areas.

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

Direct standard error is zero: 2 areas.

Proportion of SAE variance due to ACS sampling error: min = 0.74%; med = 11.66%; max = 53.69%.

Proportion of SAE variance due to sampling error in regression coefficient estimates: min = 45.85%; med = 86.63%; max = 97.77%.

Proportion of SAE variance due to model selection: min = 0.11%; med = 1.35%; max = 11.75%.

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