

Indicator 31: Shingles (Zoster) Vaccination - Ages 50+

Internal variable name: outc31_shingles_vacc

Definition: Have you ever had the shingles or zoster vaccine?

Predictive models

	Mixed, demos only	Logit, no area effects	Mixed with area covariates
	b/se	b/se	b/se
Outcome 31: Shingles (Zoster) Vaccination - Ages 50+			
NH Black vs. NH White	-1.0376*** (0.1408)	-1.0177*** (0.1362)	-1.0177*** (0.1541)
NH Asian vs. NH White	0.8022** (0.2895)	0.7209 (0.4285)	0.7209* (0.2808)
NH Other vs. NH White	-0.3176 (0.1854)	-0.3159 (0.2152)	-0.3159 (0.1812)
Hispanic vs. NH White	-0.6590* (0.2767)	-0.7434* (0.3023)	-0.7434* (0.2947)
Female	0.1248 (0.0867)	0.1211 (0.0790)	0.1211 (0.0870)
Age 45-54 vs. 65+	-2.5039*** (0.1407)	-2.5165*** (0.1725)	-2.5165*** (0.1460)
Age 55-64 vs. 65+	-1.0489*** (0.0764)	-1.0664*** (0.0852)	-1.0664*** (0.0769)
% education below HS, population 25+ y/o		-0.0457** (0.0161)	-0.0457** (0.0149)
Breast Male Rate		0.0406* (0.0178)	0.0406* (0.0174)
Kidney Male Rate		-0.0053 (0.0037)	-0.0053 (0.0039)
% below 1.5x poverty line		-0.0225 (0.0191)	-0.0225 (0.0165)
Average aggregate household income per occupied housing unit in the ACS		0.0005 (0.0057)	0.0005 (0.0051)
c.ACS_pct_poor#c.PDB_avg_agg_hh_inc_ACS126		0.0010** (0.0003)	0.0010*** (0.0003)
% foreign born		-0.0115 (0.0292)	-0.0115 (0.0233)
VA BRFSS 2014 SAE outc13_arthritis		1.2739 (0.9879)	1.2739 (0.9414)
c.ACS_pct_foreign_born#c.VA14SAE_outc13_arthritis		0.0084 (0.1354)	0.0084 (0.1099)

Intercept	-0.0121 (0.0790)	-0.6477 (0.5557)	-0.6477 (0.5487)
Area effect variance	0.0000* (0.0000)		0.0000 (0.0000)

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

Results

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Augusta County	51015	30.5%	(20.5%, 42.8%)	39.7%	(35.8%, 43.6%)
Bath County	51017	23.3%	(5.2%, 67.8%)	44.3%	(39.0%, 49.8%)
Caroline County	51033	26.7%	(5.9%, 67.8%)	29.5%	(26.3%, 33.0%)
Clarke County	51043	28.9%	(9.5%, 66.2%)	44.5%	(37.8%, 51.3%)
Culpeper County	51047	24.6%	(13.5%, 40.6%)	33.2%	(28.7%, 37.9%)
Fauquier County	51061	33.4%	(17.0%, 55.2%)	42.9%	(37.6%, 48.3%)
Frederick County	51069	19.1%	(10.3%, 35.2%)	33.0%	(29.3%, 36.8%)
Highland County	51091	49.2%	(13.2%, 86.1%)	33.9%	(27.2%, 41.3%)
King George County	51099	56.4%	(23.4%, 84.6%)	37.4%	(32.9%, 42.1%)
Madison County	51113	32.0%	(10.5%, 65.4%)	42.0%	(37.0%, 47.1%)
Orange County	51137	19.6%	(9.6%, 39.0%)	34.8%	(31.5%, 38.3%)
Page County	51139	43.1%	(19.2%, 70.6%)	30.3%	(26.3%, 34.6%)
Rappahannock County	51157	51.2%	(20.8%, 80.7%)	34.4%	(30.0%, 39.1%)
Rockbridge County	51163	53.6%	(31.9%, 74.0%)	45.0%	(38.9%, 51.2%)
Rockingham County	51165	24.2%	(15.3%, 36.2%)	33.3%	(29.3%, 37.5%)
Shenandoah County	51171	28.4%	(15.2%, 46.8%)	38.2%	(33.9%, 42.7%)
Spotsylvania County	51177	25.9%	(16.1%, 39.0%)	36.1%	(32.9%, 39.3%)
Stafford County	51179	21.2%	(13.0%, 32.5%)	32.0%	(27.5%, 37.0%)
Warren County	51187	27.9%	(13.6%, 48.7%)	34.7%	(30.0%, 39.8%)
Buena Vista City	51530	33.0%	(5.9%, 79.4%)	28.9%	(21.6%, 37.5%)
Fredericksburg City	51630	44.4%	(21.1%, 70.4%)	51.5%	(41.7%, 61.2%)
Harrisonburg City	51660	57.3%	(7.7%, 95.6%)	41.0%	(34.0%, 48.4%)
Lexington City	51678	0.0%	(0.0%, 99.4%)	33.3%	(28.5%, 38.4%)
Staunton City	51790	100.0%	(40.3%, 100.0%)	40.5%	(37.0%, 44.1%)
Waynesboro City	51820	41.0%	(10.4%, 80.6%)	39.5%	(33.0%, 46.5%)
Winchester City	51840	27.4%	(5.1%, 72.5%)	40.0%	(35.0%, 45.1%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Albemarle County	51003	30.0%	(19.5%, 43.1%)	41.0%	(38.0%, 44.0%)
Alleghany County	51005	50.9%	(28.0%, 73.4%)	46.1%	(39.3%, 53.0%)
Amherst County	51009	30.0%	(11.9%, 57.8%)	30.8%	(27.9%, 33.9%)
Appomattox County	51011	49.8%	(21.4%, 78.4%)	51.2%	(39.0%, 63.3%)
Arlington City	51013	46.3%	(35.0%, 58.0%)	50.8%	(46.3%, 55.3%)
Bedford County	51019	31.7%	(22.1%, 43.1%)	34.7%	(31.5%, 38.1%)
Botetourt County	51023	45.3%	(25.3%, 66.9%)	38.5%	(34.0%, 43.1%)
Campbell County	51031	22.5%	(13.3%, 35.5%)	33.2%	(30.4%, 36.1%)
Craig County	51045	16.8%	(1.9%, 67.9%)	40.2%	(33.2%, 47.7%)
Fairfax County	51059	34.1%	(28.8%, 39.9%)	40.8%	(37.9%, 43.7%)
Fluvanna County	51065	42.4%	(21.6%, 66.3%)	33.2%	(29.4%, 37.2%)
Greene County	51079	35.0%	(12.7%, 66.7%)	38.5%	(34.3%, 42.9%)
Loudoun County	51107	23.1%	(16.3%, 31.6%)	32.2%	(27.8%, 37.0%)
Louisa County	51109	36.0%	(17.0%, 60.7%)	35.6%	(31.8%, 39.7%)
Nelson County	51125	17.1%	(6.7%, 45.1%)	38.3%	(34.3%, 42.4%)
Prince William County	51153	25.2%	(19.0%, 32.5%)	29.7%	(25.7%, 34.0%)
Roanoke County	51161	29.6%	(20.5%, 40.6%)	42.5%	(38.0%, 47.1%)
Alexandria City	51510	43.0%	(31.4%, 55.4%)	43.9%	(39.2%, 48.7%)
Charlottesville City	51540	18.4%	(8.7%, 44.5%)	43.6%	(35.7%, 51.8%)
Covington City	51580	19.5%	(0.4%, 97.4%)	36.6%	(28.9%, 45.0%)
Fairfax City	51600	31.3%	(18.4%, 47.9%)	39.6%	(35.3%, 44.0%)
Falls Church City	51610	63.2%	(31.9%, 86.3%)	48.9%	(37.8%, 60.2%)
Lynchburg City	51680	29.4%	(16.7%, 46.5%)	37.3%	(32.3%, 42.6%)
Manassas City	51683	17.8%	(4.3%, 71.4%)	31.3%	(22.0%, 42.4%)
Manassas Park City	51685	100.0%	(8.8%, 100.0%)	27.3%	(17.6%, 39.9%)
Salem City	51775	22.6%	(6.6%, 54.9%)	34.2%	(31.2%, 37.3%)

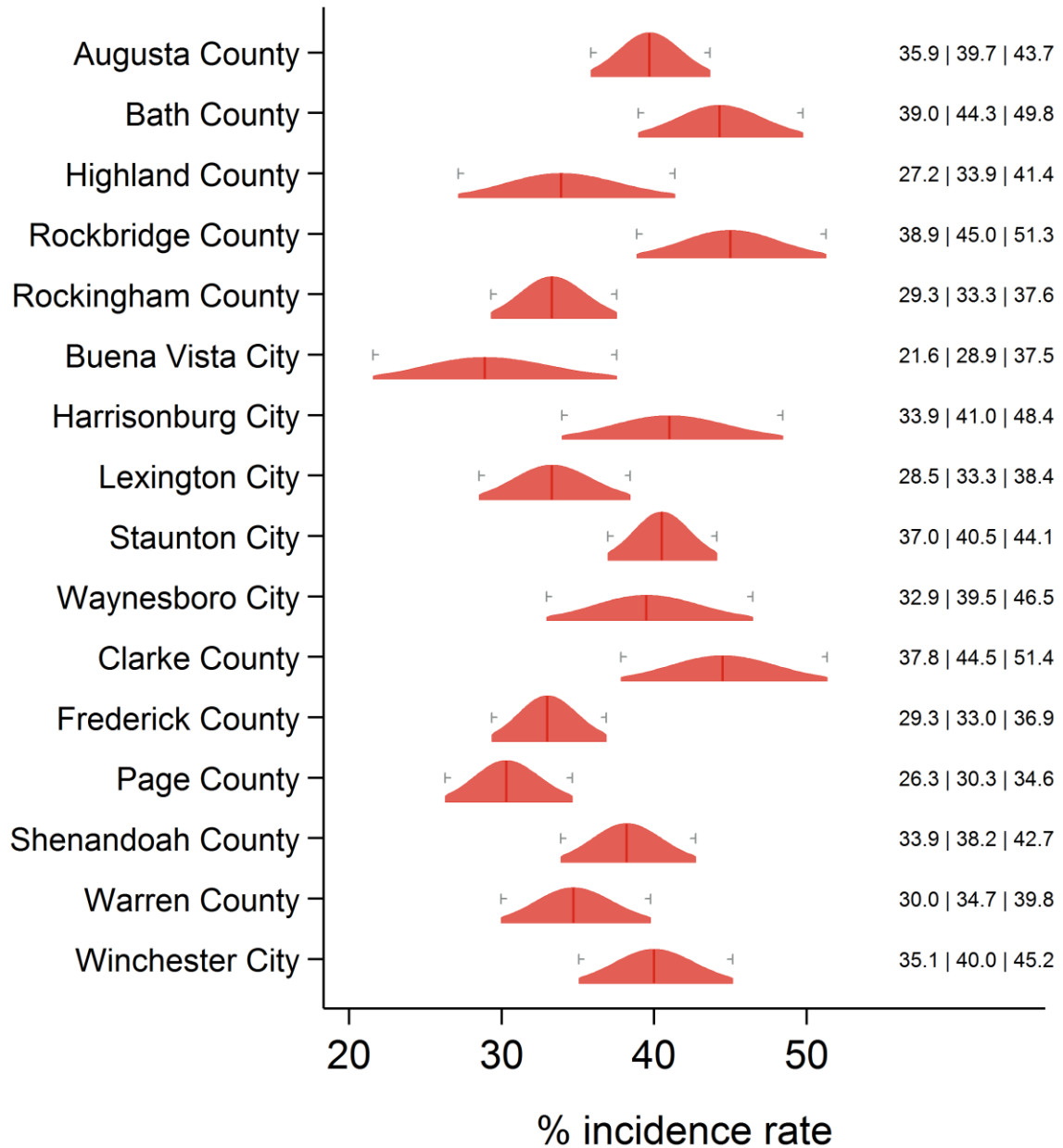
County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Bland County	51021	23.1%	(7.2%, 53.8%)	35.3%	(28.8%, 42.4%)
Buchanan County	51027	5.5%	(3.1%, 27.7%)	26.3%	(19.0%, 35.3%)
Carroll County	51035	16.3%	(5.4%, 40.0%)	32.3%	(27.7%, 37.2%)
Dickenson County	51051	61.0%	(33.7%, 82.8%)	47.2%	(33.3%, 61.5%)
Floyd County	51063	19.9%	(9.8%, 41.7%)	32.3%	(27.5%, 37.5%)
Franklin County	51067	28.4%	(15.1%, 46.9%)	38.8%	(35.6%, 42.1%)
Giles County	51071	31.1%	(15.8%, 52.0%)	33.5%	(29.2%, 38.1%)
Grayson County	51077	8.7%	(4.1%, 36.2%)	27.8%	(23.1%, 33.0%)
Henry County	51089	30.9%	(17.7%, 48.2%)	30.5%	(26.0%, 35.5%)
Lee County	51105	9.5%	(4.2%, 39.1%)	30.8%	(24.0%, 38.6%)
Montgomery County	51121	34.3%	(22.2%, 48.9%)	49.9%	(44.7%, 55.1%)
Patrick County	51141	49.3%	(21.4%, 77.6%)	28.0%	(23.9%, 32.5%)
Pittsylvania County	51143	27.2%	(18.5%, 38.2%)	29.7%	(26.4%, 33.2%)
Pulaski County	51155	26.9%	(13.4%, 46.5%)	38.6%	(35.3%, 42.1%)
Russell County	51167	25.1%	(10.7%, 48.3%)	30.4%	(24.4%, 37.1%)
Scott County	51169	23.4%	(10.9%, 43.1%)	35.1%	(29.2%, 41.5%)
Smyth County	51173	27.0%	(13.5%, 46.8%)	35.4%	(31.0%, 40.1%)
Tazewell County	51185	8.5%	(4.1%, 25.0%)	35.4%	(29.9%, 41.3%)
Washington County	51191	32.3%	(20.6%, 46.6%)	40.0%	(36.2%, 43.8%)
Wise County	51195	37.5%	(21.7%, 56.4%)	31.6%	(25.4%, 38.5%)
Wythe County	51197	36.8%	(19.4%, 58.6%)	38.2%	(32.7%, 44.1%)
Bristol City	51520	75.7%	(3.1%, 99.3%)	37.2%	(30.7%, 44.2%)
Danville City	51590	22.7%	(7.8%, 50.7%)	31.6%	(27.0%, 36.7%)
Galax City	51640	4.3%	(0.4%, 89.7%)	34.4%	(24.5%, 46.0%)
Martinsville City	51690	40.8%	(5.7%, 88.8%)	48.9%	(32.7%, 65.2%)
Norton City	51720	17.8%	(1.7%, 73.0%)	31.9%	(25.1%, 39.5%)
Radford City	51750	22.3%	(7.1%, 58.1%)	42.4%	(29.4%, 56.6%)
Roanoke City	51770	20.9%	(12.2%, 33.5%)	34.1%	(30.0%, 38.4%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Amelia County	51007	19.8%	(10.2%, 40.6%)	27.8%	(23.6%, 32.4%)
Brunswick County	51025	0.0%	(0.0%, 30.2%)	21.9%	(16.5%, 28.5%)
Buckingham County	51029	13.3%	(6.1%, 35.4%)	23.9%	(20.0%, 28.3%)
Charles City County	51036	72.0%	(12.1%, 97.6%)	30.1%	(23.5%, 37.6%)
Charlotte County	51037	23.7%	(10.5%, 45.2%)	26.0%	(21.3%, 31.5%)
Chesterfield County	51041	36.5%	(29.0%, 44.7%)	31.9%	(28.1%, 35.9%)
Cumberland County	51049	19.6%	(8.7%, 49.1%)	31.5%	(26.1%, 37.4%)
Dinwiddie County	51053	18.6%	(6.3%, 43.8%)	24.8%	(21.8%, 28.2%)
Goochland County	51075	51.7%	(28.3%, 74.3%)	37.0%	(30.7%, 43.7%)
Greensville County	51081	25.1%	(4.5%, 70.5%)	24.0%	(19.7%, 28.9%)
Halifax County	51083	27.7%	(14.8%, 46.0%)	27.9%	(24.1%, 32.1%)
Hanover County	51085	25.2%	(15.2%, 38.8%)	36.6%	(31.4%, 42.2%)
Henrico County	51087	30.9%	(22.9%, 40.3%)	36.9%	(32.9%, 41.0%)
Lunenburg County	51111	19.3%	(5.8%, 48.4%)	23.4%	(19.3%, 28.0%)
Mecklenburg County	51117	24.2%	(14.0%, 38.6%)	27.1%	(23.7%, 30.7%)
New Kent County	51127	62.3%	(31.7%, 85.5%)	33.1%	(28.9%, 37.6%)
Nottoway County	51135	11.7%	(3.8%, 30.8%)	20.6%	(15.5%, 26.8%)
Powhatan County	51145	12.9%	(3.2%, 40.2%)	33.9%	(29.1%, 39.0%)
Prince Edward County	51147	33.3%	(16.3%, 56.1%)	32.0%	(28.5%, 35.8%)
Prince George County	51149	22.8%	(11.7%, 39.8%)	29.8%	(26.4%, 33.3%)
Surry County	51181	12.7%	(3.9%, 51.2%)	26.8%	(23.4%, 30.4%)
Sussex County	51183	29.9%	(12.1%, 56.9%)	19.0%	(14.5%, 24.4%)
Colonial Heights City	51570	40.9%	(12.7%, 76.6%)	32.3%	(27.2%, 37.9%)
Emporia City	51595	0.0%	(0.0%, 99.4%)	19.1%	(10.6%, 31.9%)
Hopewell City	51670	24.9%	(10.8%, 47.6%)	31.0%	(23.6%, 39.5%)
Petersburg City	51730	11.1%	(4.4%, 25.2%)	19.6%	(14.8%, 25.5%)
Richmond City	51760	32.1%	(21.3%, 45.1%)	37.7%	(32.8%, 42.8%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Accomack County	51001	25.2%	(15.4%, 38.5%)	32.0%	(26.2%, 38.4%)
Essex County	51057	35.4%	(14.6%, 63.7%)	29.9%	(23.8%, 36.8%)
Gloucester County	51073	35.5%	(21.4%, 52.7%)	39.6%	(34.2%, 45.1%)
Isle of Wight County	51093	28.6%	(12.9%, 52.1%)	32.2%	(28.1%, 36.7%)
James City County	51095	46.5%	(31.8%, 61.9%)	44.4%	(40.6%, 48.3%)
King and Queen County	51097	27.2%	(7.2%, 64.4%)	37.6%	(33.6%, 41.7%)
King William County	51101	47.6%	(20.0%, 76.8%)	36.6%	(31.3%, 42.2%)
Lancaster County	51103	22.6%	(12.0%, 42.7%)	40.0%	(34.8%, 45.4%)
Mathews County	51115	68.0%	(34.8%, 89.4%)	38.9%	(34.7%, 43.2%)
Middlesex County	51119	24.5%	(9.7%, 49.6%)	37.2%	(32.6%, 42.1%)
Northampton County	51131	41.6%	(21.7%, 64.7%)	32.2%	(27.5%, 37.2%)
Northumberland County	51133	33.5%	(15.7%, 57.7%)	38.1%	(34.1%, 42.2%)
Richmond County	51159	46.1%	(18.8%, 76.0%)	36.6%	(31.3%, 42.2%)
Southampton County	51175	65.8%	(33.4%, 88.0%)	29.4%	(26.1%, 33.0%)
Westmoreland County	51193	54.7%	(26.9%, 79.8%)	39.5%	(35.4%, 43.9%)
York County	51199	30.9%	(17.2%, 49.0%)	40.1%	(35.7%, 44.6%)
Chesapeake City	51550	26.0%	(19.2%, 34.2%)	34.4%	(31.4%, 37.5%)
Franklin City	51620	26.3%	(9.7%, 54.2%)	25.8%	(22.8%, 29.0%)
Hampton City	51650	21.9%	(14.9%, 31.2%)	31.6%	(28.4%, 34.9%)
Newport News City	51700	21.9%	(13.4%, 33.8%)	32.1%	(28.5%, 35.8%)
Norfolk City	51710	33.2%	(24.8%, 42.7%)	36.6%	(33.7%, 39.6%)
Poquoson City	51735	0.0%	(0.0%, 75.5%)	42.9%	(36.1%, 50.1%)
Portsmouth City	51740	31.2%	(20.7%, 44.1%)	28.1%	(25.4%, 31.0%)
Suffolk City	51800	24.6%	(14.7%, 38.1%)	33.6%	(30.8%, 36.4%)
Virginia Beach City	51810	35.7%	(29.3%, 42.7%)	37.8%	(34.2%, 41.5%)
Williamsburg City	51830	20.2%	(4.5%, 74.9%)	45.7%	(27.6%, 64.9%)

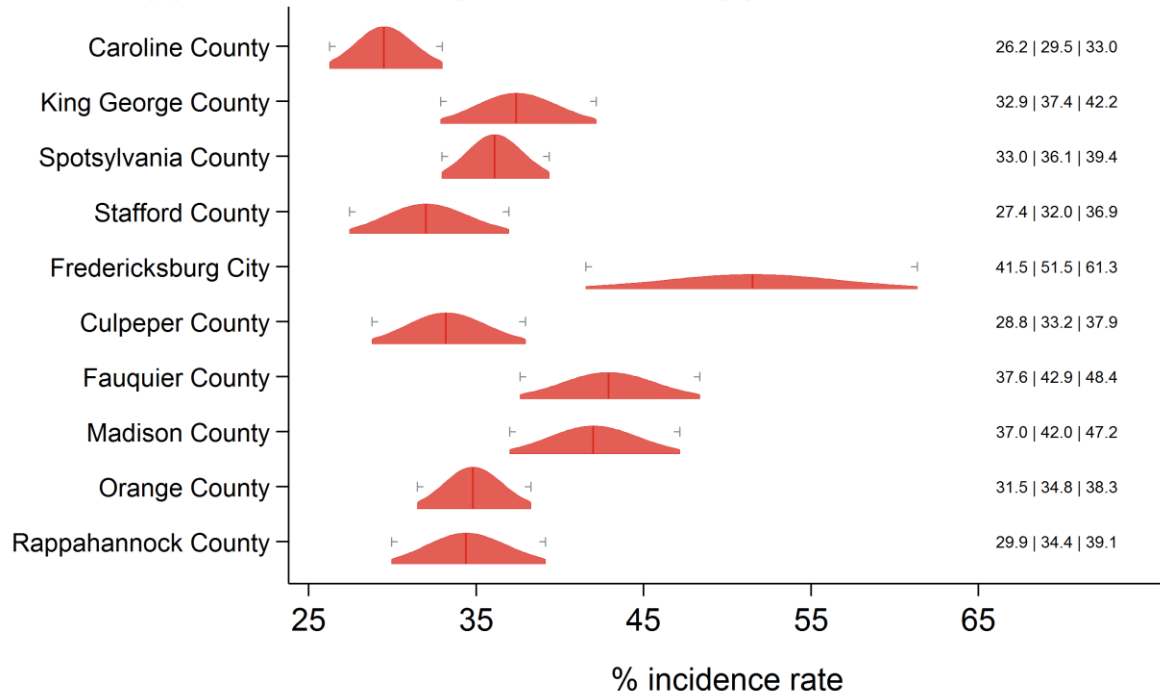
Graphical representation

Shingles (Zoster) Vaccination - Ages 50+ Central Shenandoah and Lord Fairfax HDs



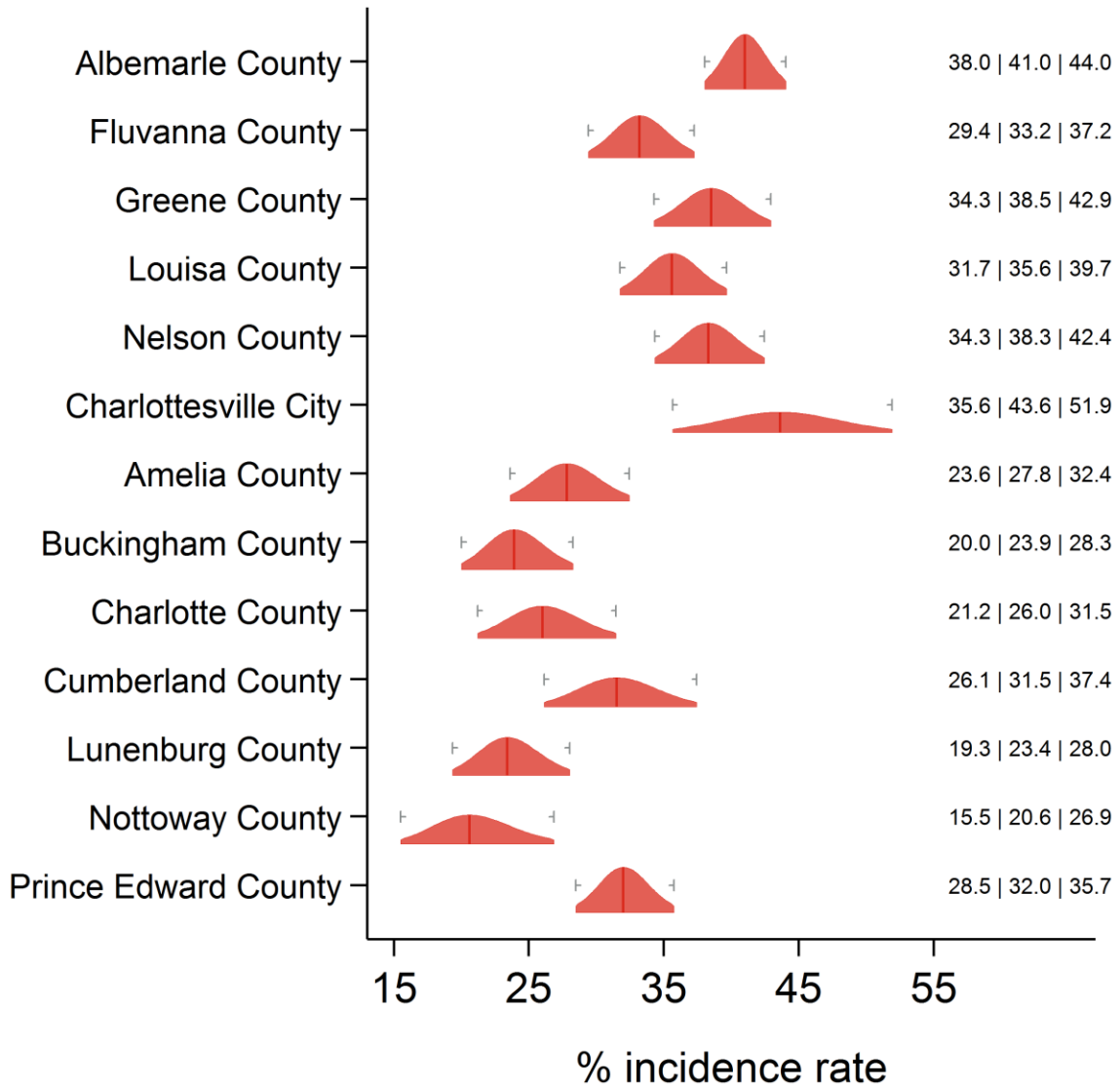
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Shingles (Zoster) Vaccination - Ages 50+ Rappahannock/Rapidan and Rappahannock HDs



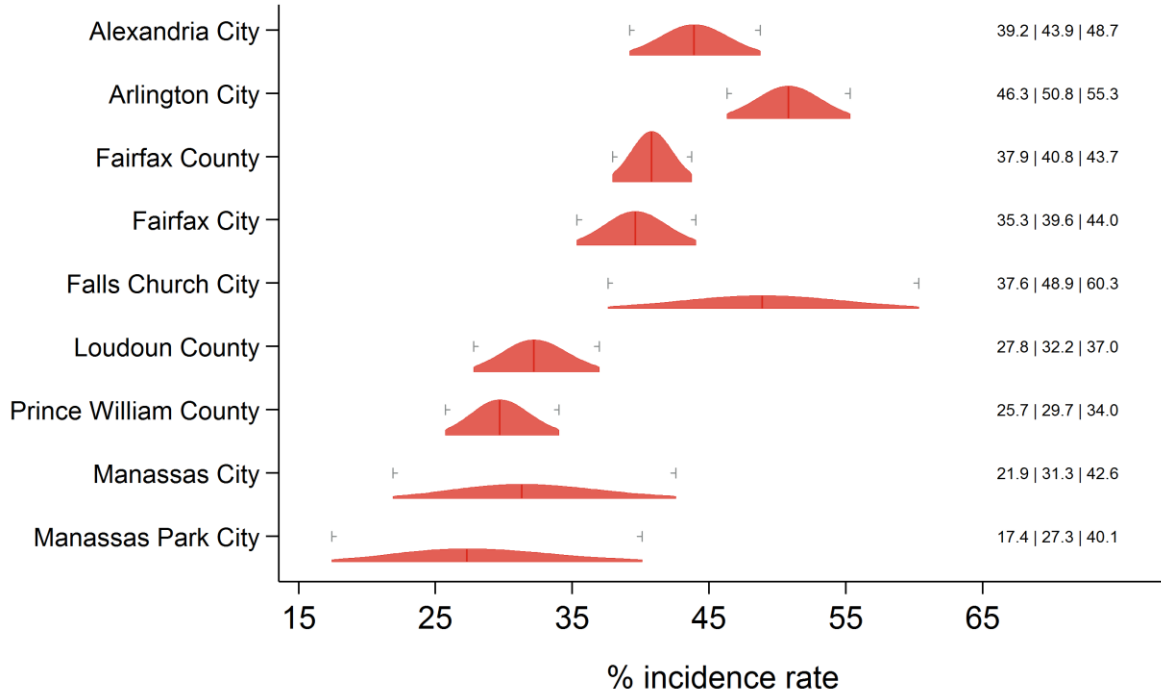
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Shingles (Zoster) Vaccination - Ages 50+ Thomas Jefferson and Piedmont HDs



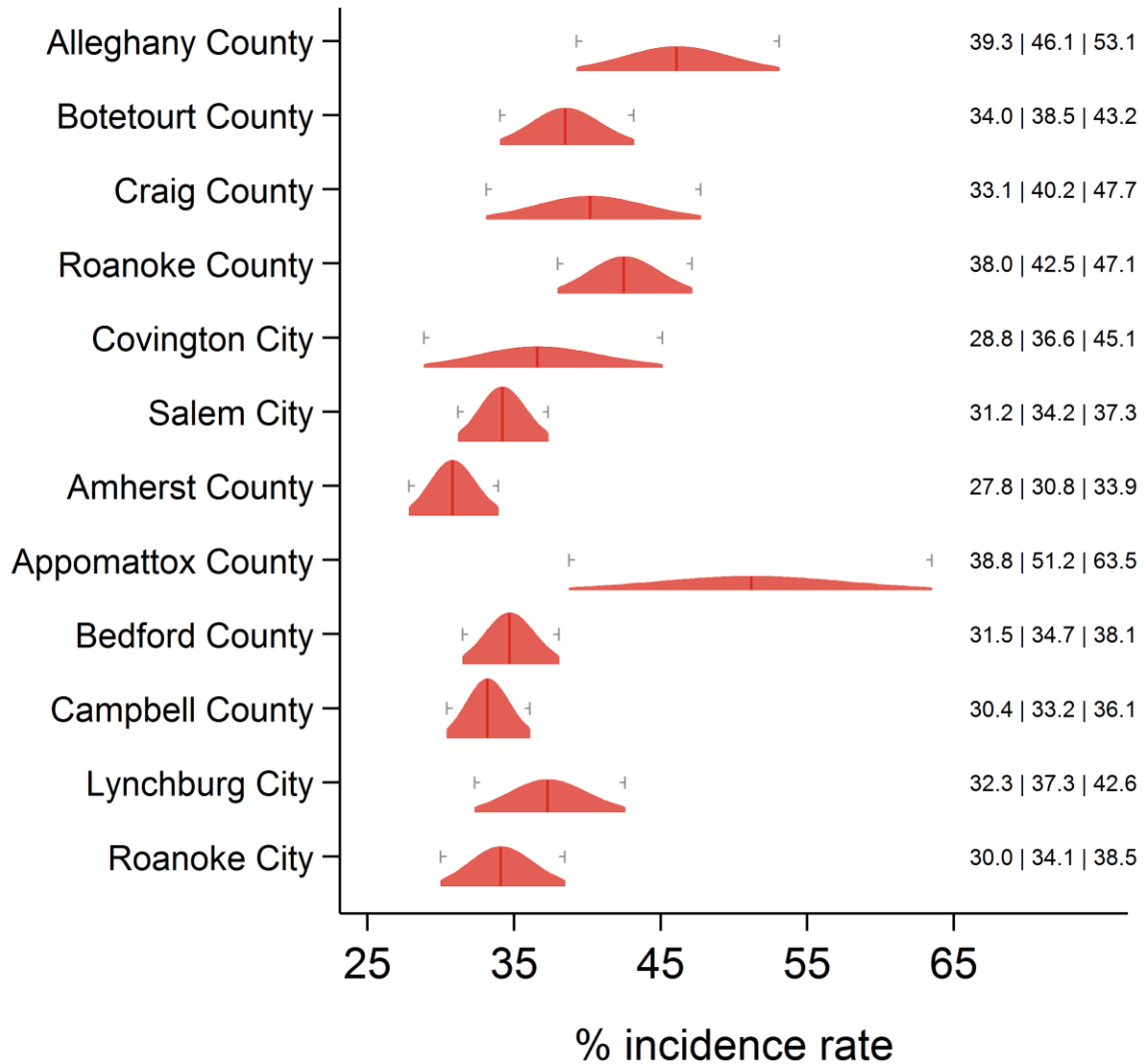
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Shingles (Zoster) Vaccination - Ages 50+ Alexandria, Fairfax, Arlington, Loudon, Prince William HDs



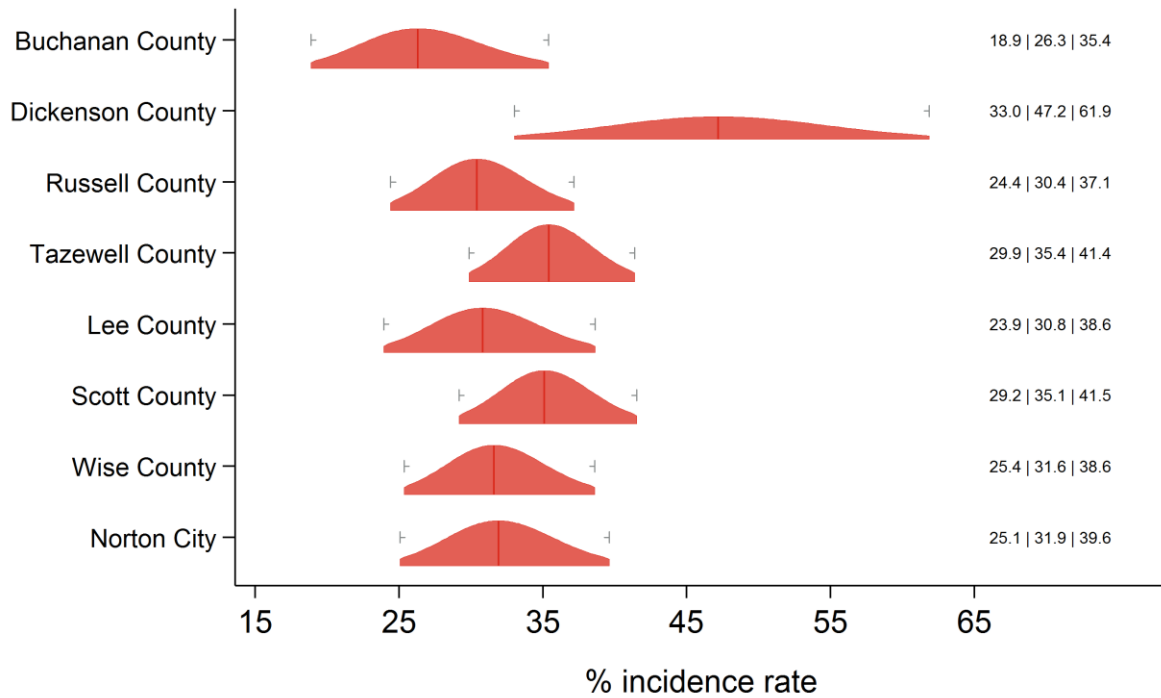
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Shingles (Zoster) Vaccination - Ages 50+ Alleghany, Roanoke and Central Virginia HDs



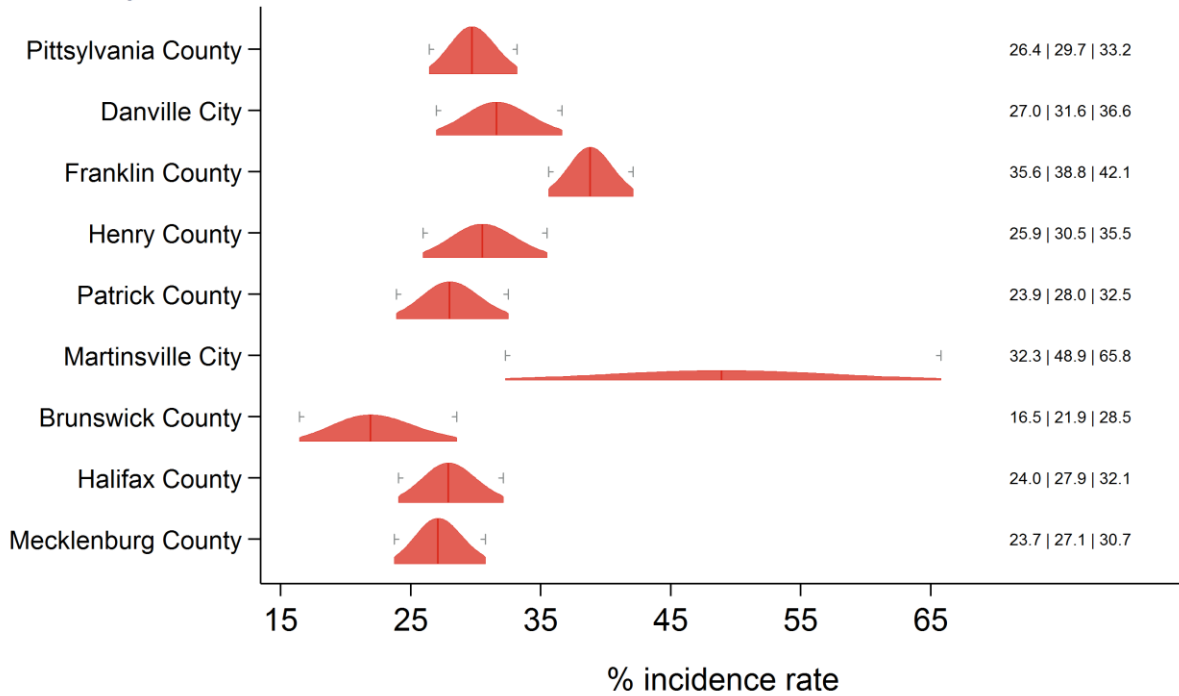
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Shingles (Zoster) Vaccination - Ages 50+ Cumberland Plateau and Lenowisco HDs



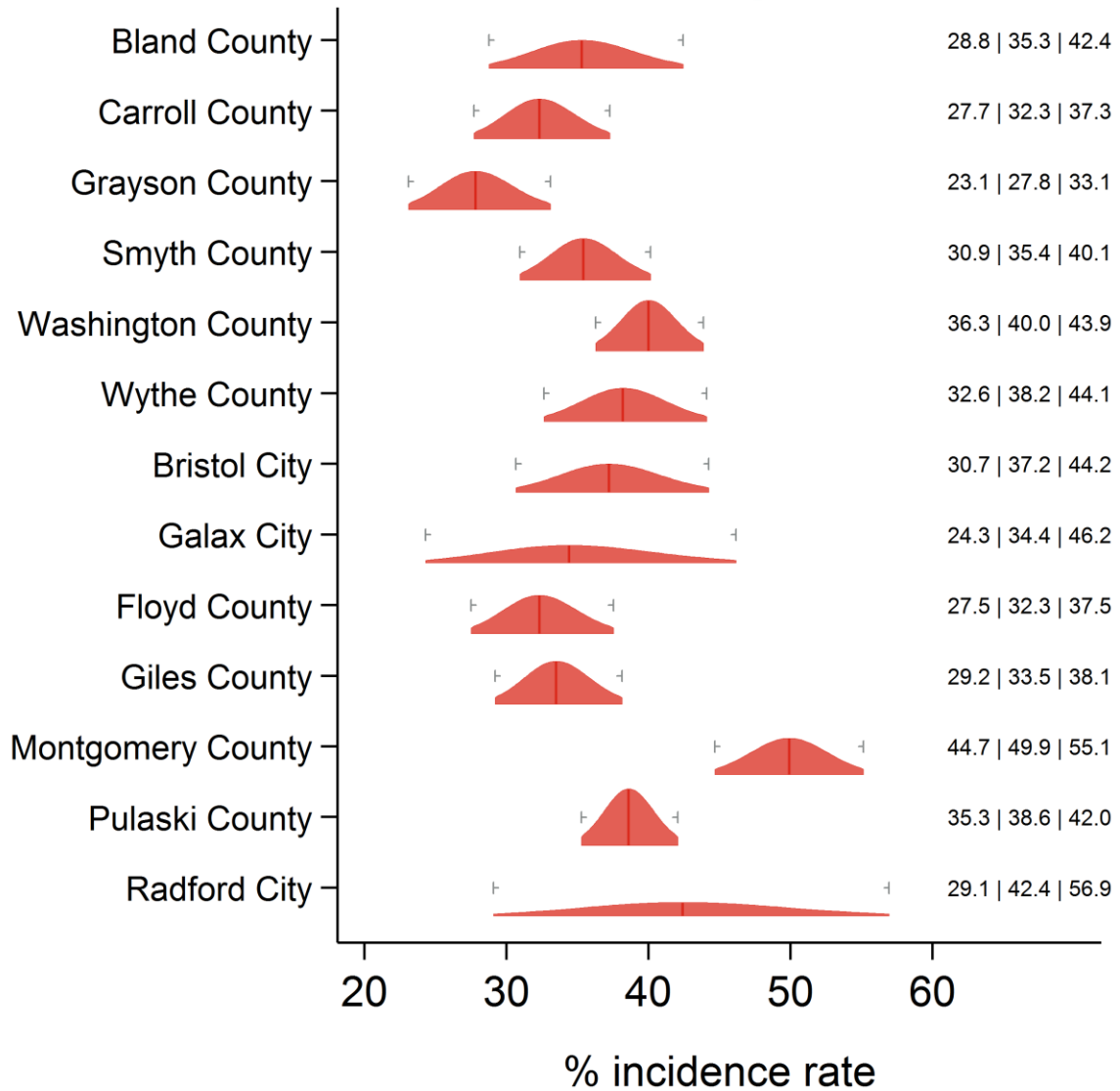
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Shingles (Zoster) Vaccination - Ages 50+ Pittsylvania/Danville, Southside and West Piedmont HDs



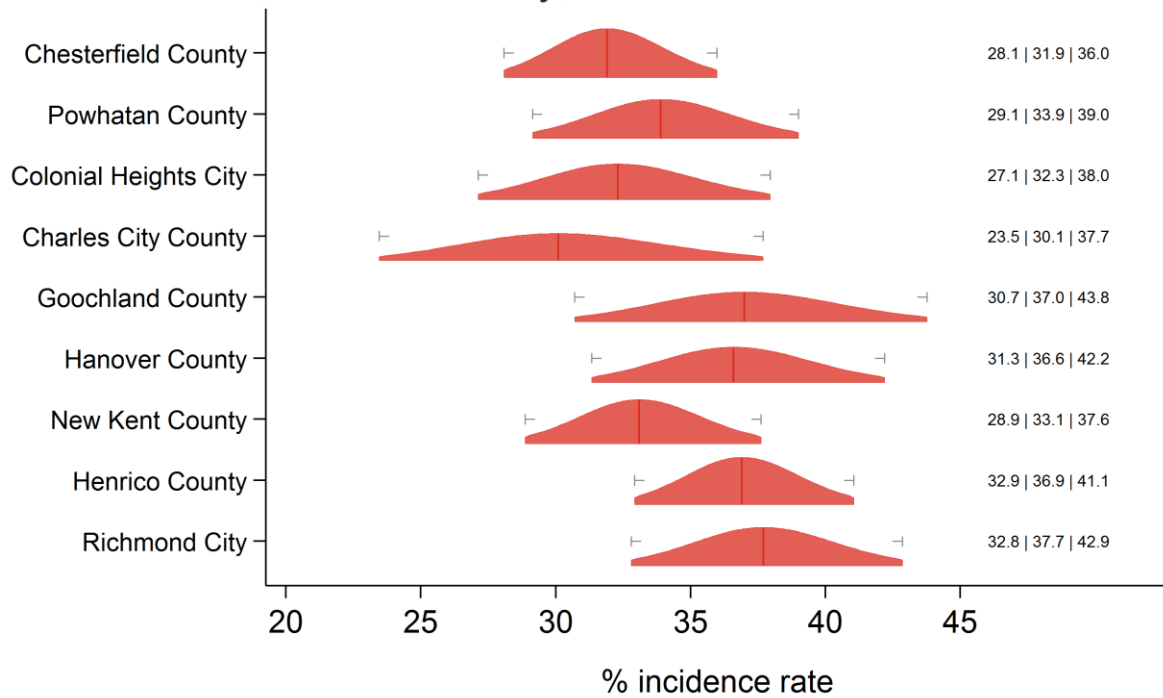
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Shingles (Zoster) Vaccination - Ages 50+ New River and Mount Rogers HDs



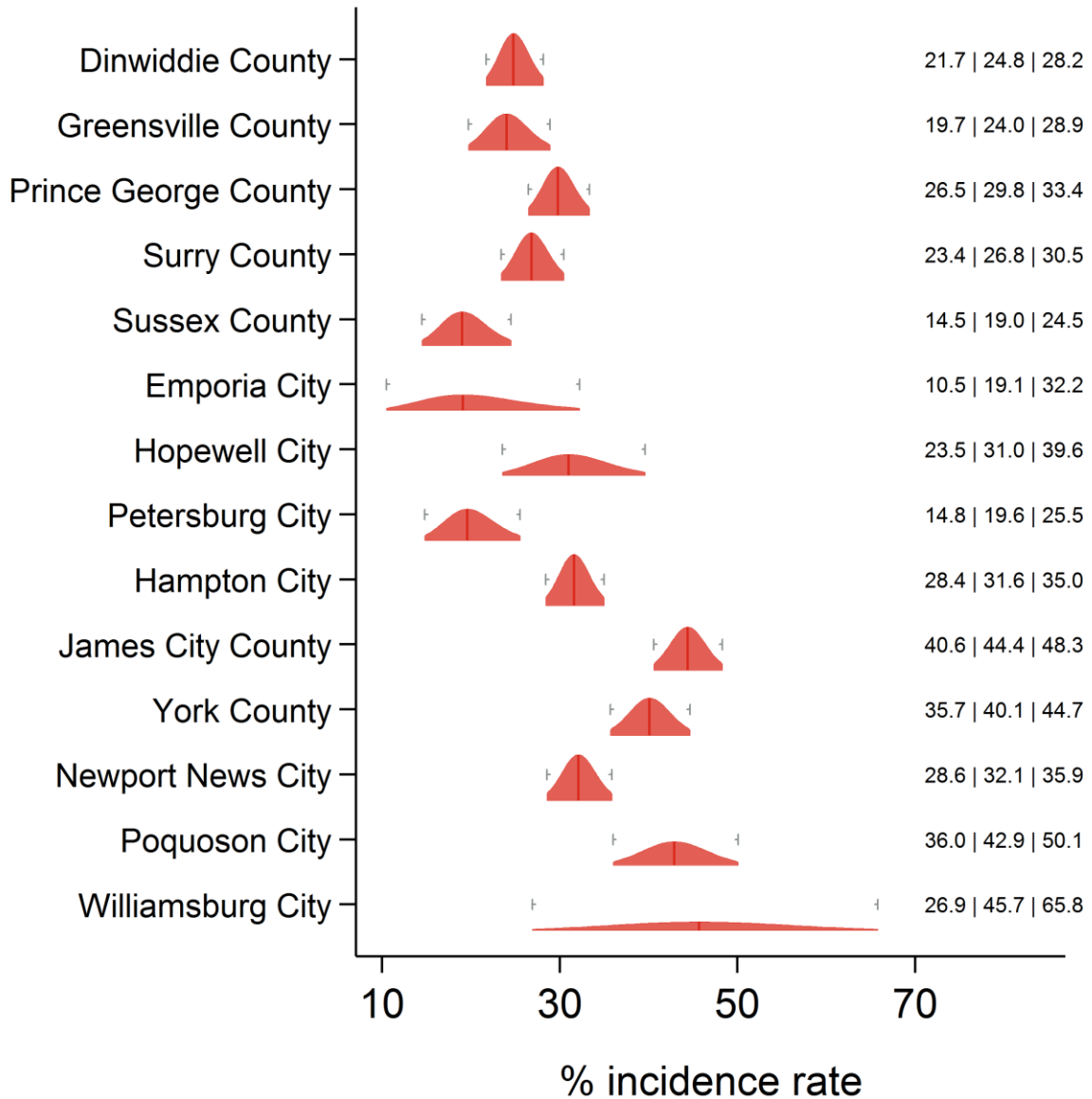
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Shingles (Zoster) Vaccination - Ages 50+ Chesterfield, Chickahominy, Henrico and Richmond HDs



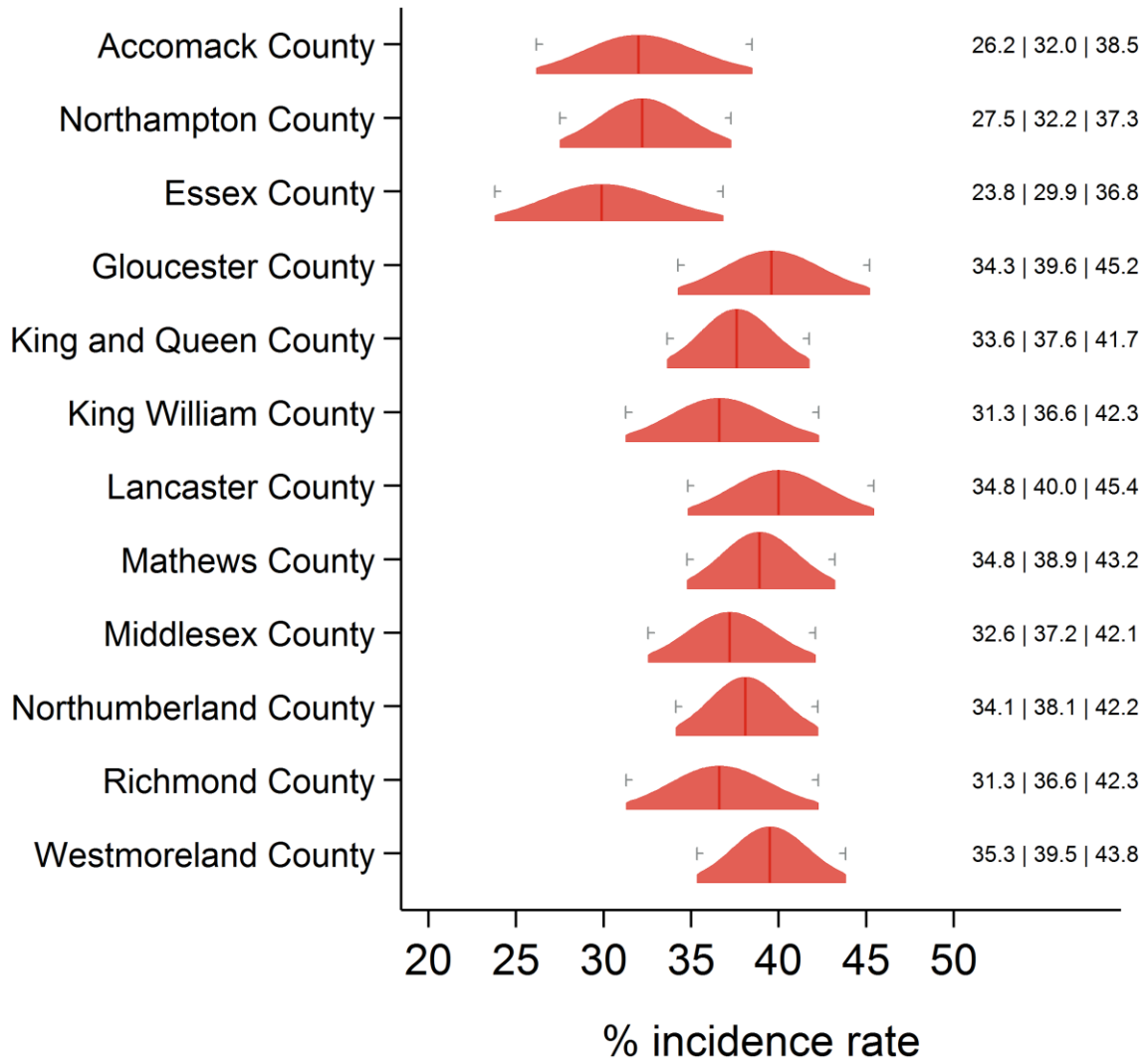
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Shingles (Zoster) Vaccination - Ages 50+ Crater, Peninsula and Hampton HDs



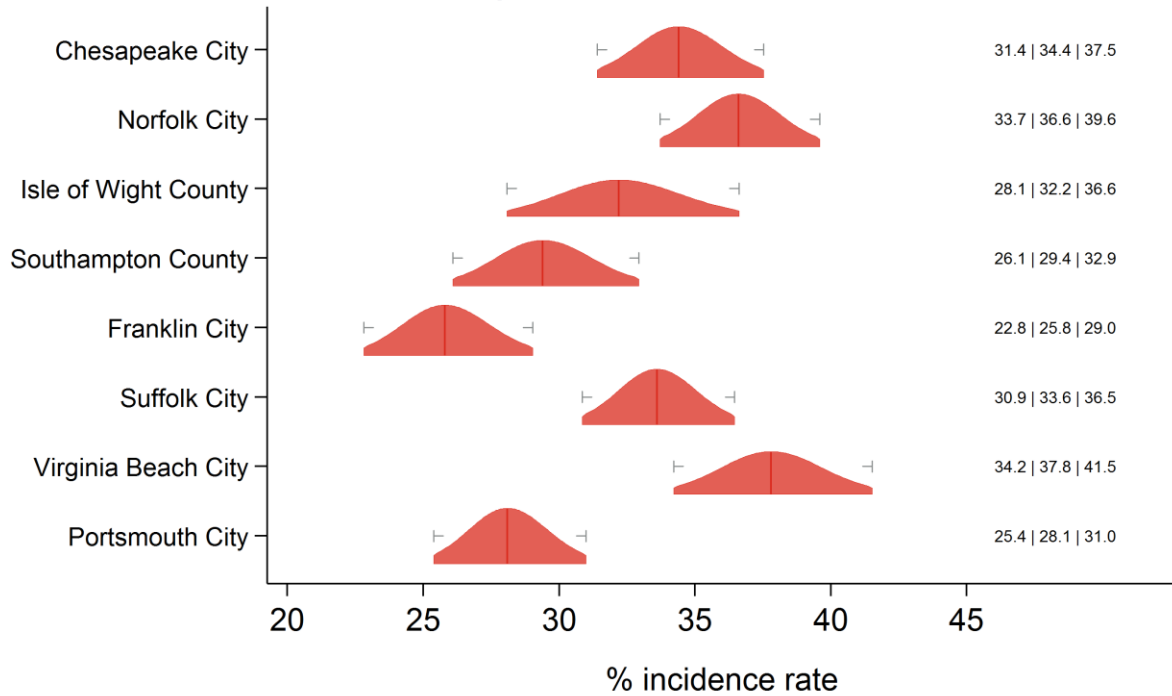
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

Shingles (Zoster) Vaccination - Ages 50+ Eastern Shore and Three Rivers HDs



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

Shingles (Zoster) Vaccination - Ages 50+ 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: 31 areas.

Direct estimate is outside the 95% SAE Wilson CI: 102 areas.

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

SAE estimate is outside the 95% direct Wilson CI: 9 areas.

SAE Wilson 95% CI is fully inside the 95% direct Wilson CI: 104 areas.

SAE Wilson 95% CI partially overlaps with the 95% direct Wilson CI: 29 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: 125 areas.

SAE standard error is greater than the (nonzero) direct standard error: 2 areas.

Direct standard error is zero: 6 areas.

Proportion of SAE variance due to ACS sampling error: min = 0.43%; med = 5.49%; max = 19.42%.

Proportion of SAE variance due to sampling error in regression coefficient estimates: min = 78.42%; med = 92.88%; max = 99.20%.

Proportion of SAE variance due to model selection: min = 0.03%; med = 1.03%; max = 16.52%.

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