

Indicator 23: 3+ adverse childhood experiences

Internal variable name: outc23_ace

Definition: Recode of any Yes/Once/More than once -- mental drinker druabuse prison divorce
phyabuse underabuse insult touchsex maketouch forceosex

Predictive models

	Mixed, demos only	Logit, no area effects	Mixed with area covariates
	b/se	b/se	b/se
Outcome 23: 3+ adverse childhood experiences			
NH Black vs. NH White	-0.0608 (0.0863)	-0.1510 (0.1076)	-0.1510 (0.0954)
NH Asian vs. NH White	- 1.1391** *	-1.1366***	-1.1366***
NH Other vs. NH White	(0.2068) 0.7234** *	(0.3005) 0.7336***	(0.2142) 0.7336***
Hispanic vs. NH White	(0.2066) 0.1046 (0.2177)	(0.1701) 0.1292 (0.1819)	(0.2080) 0.1292 (0.2154)
Female	0.2291** (0.0820)	0.2364** (0.0800)	0.2364** (0.0826)
Age 18-34 vs. 65+	1.4357** *	1.4168***	1.4168***
Age 35-44 vs. 65+	(0.1151) 1.3708** *	(0.1139) 1.3570***	(0.1177) 1.3570***
Age 45-54 vs. 65+	(0.1157) 1.0919** *	(0.1219) 1.1070***	(0.1128) 1.1070***
Age 55-64 vs. 65+	(0.1045) 1.0008** *	(0.1085) 1.0126***	(0.1035) 1.0126***
Road density per county land area	(0.1145)	(0.1042) 0.4121**	(0.1156) 0.4121***
% occupied HUs - renter-occupied		(0.1570) 2.5616 (1.5086)	(0.1014) 2.5616** (0.9715)
% renter occupied HUs, ACS 2016 5yr		-2.5747 (1.5086)	-2.5747** (0.9712)
Estimated infant mortality rate		-0.0245* (0.0109)	-0.0245* (0.0097)

Crude mortality rate of septicemia per 10K		0.1026* (0.0485)	0.1026** (0.0386)
Drug overdose mortality rate, County Rankings/CDC		0.0916 (0.0547)	0.0916** (0.0342)
VA BRFSS 2014 SAE outc4_health_cover		5.5973* (2.7899)	5.5973* (2.1727)
c.CHR_overdose_model#c.VA14SAE_outc4_health_cover		-0.2851 (0.3293)	-0.2851 (0.2082)
% moved last year, ACS 2016 5yr		0.0949 (0.0499)	0.0949* (0.0433)
VA BRFSS 2014 SAE outc34_pap_test		3.5298* (1.4315)	3.5298** (1.0636)
c.PDB_pct_diff_hu_1yr_ago_ACS126#c.VA14SAE_outc34_pap_test		-0.0761 (0.0638)	-0.0761 (0.0550)
Intercept	-	-	-
	2.1572** *	10.8963** *	10.8963** *
	(0.0889)	(2.3484)	(1.5447)
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	29.1%	(18.6%, 42.3%)	20.6%	(18.2%, 23.1%)
Bath County	51017	0.0%	(0.0%, 48.9%)	22.8%	(16.2%, 31.0%)
Caroline County	51033	46.8%	(20.6%, 74.9%)	35.7%	(27.9%, 44.3%)
Clarke County	51043	6.5%	(2.0%, 44.9%)	20.9%	(17.1%, 25.2%)
Culpeper County	51047	30.6%	(16.2%, 50.0%)	22.3%	(20.1%, 24.7%)
Fauquier County	51061	32.3%	(16.8%, 53.0%)	24.7%	(21.7%, 27.9%)
Frederick County	51069	19.8%	(9.9%, 35.9%)	24.5%	(21.4%, 28.0%)
Highland County	51091	0.0%	(0.0%, 53.2%)	12.7%	(8.2%, 19.0%)
King George County	51099	56.8%	(24.0%, 84.5%)	28.0%	(24.5%, 31.9%)
Madison County	51113	8.6%	(3.6%, 34.4%)	26.0%	(21.5%, 31.0%)
Orange County	51137	25.9%	(11.1%, 49.4%)	22.9%	(20.2%, 25.9%)
Page County	51139	21.4%	(9.1%, 42.6%)	21.3%	(18.4%, 24.5%)
Rappahannock County	51157	24.5%	(7.0%, 58.6%)	21.0%	(16.9%, 25.8%)
Rockbridge County	51163	22.1%	(8.5%, 46.5%)	22.7%	(19.7%, 26.0%)
Rockingham County	51165	22.0%	(13.5%, 33.8%)	24.7%	(22.2%, 27.3%)
Shenandoah County	51171	14.8%	(6.5%, 30.4%)	20.3%	(17.4%, 23.5%)
Spotsylvania County	51177	33.3%	(21.9%, 47.1%)	22.1%	(19.0%, 25.5%)
Stafford County	51179	24.1%	(15.7%, 35.2%)	22.8%	(20.0%, 25.9%)
Warren County	51187	30.7%	(16.4%, 49.9%)	24.7%	(21.6%, 28.0%)
Buena Vista City	51530	0.0%	(0.0%, 62.9%)	23.5%	(18.0%, 30.0%)
Fredericksburg City	51630	34.8%	(16.2%, 59.6%)	28.1%	(22.7%, 34.2%)
Harrisonburg City	51660	19.0%	(3.5%, 60.6%)	28.4%	(15.8%, 45.7%)
Lexington City	51678	0.0%	(0.0%, 96.3%)	14.6%	(9.7%, 21.5%)
Staunton City	51790	14.9%	(2.0%, 59.7%)	18.3%	(14.5%, 22.8%)
Waynesboro City	51820	32.0%	(8.8%, 69.8%)	21.1%	(17.6%, 25.1%)
Winchester City	51840	8.1%	(2.2%, 69.0%)	24.6%	(19.6%, 30.4%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Albemarle County	51003	23.3%	(14.8%, 34.7%)	18.2%	(15.5%, 21.1%)
Alleghany County	51005	15.8%	(5.5%, 37.9%)	12.4%	(9.1%, 16.8%)
Amherst County	51009	7.0%	(3.6%, 28.6%)	18.3%	(14.2%, 23.1%)
Appomattox County	51011	22.2%	(7.6%, 49.8%)	14.7%	(11.7%, 18.4%)
Arlington City	51013	23.2%	(14.7%, 34.7%)	29.1%	(25.1%, 33.4%)
Bedford County	51019	17.0%	(9.7%, 28.1%)	18.6%	(16.6%, 20.7%)
Botetourt County	51023	20.0%	(7.6%, 43.3%)	18.5%	(15.7%, 21.6%)
Campbell County	51031	24.4%	(14.1%, 38.7%)	21.4%	(17.9%, 25.3%)
Craig County	51045	38.7%	(7.4%, 83.4%)	22.2%	(17.2%, 28.2%)
Fairfax County	51059	25.3%	(20.4%, 30.9%)	21.9%	(19.9%, 24.0%)
Fluvanna County	51065	34.3%	(16.3%, 58.3%)	22.7%	(18.5%, 27.5%)
Greene County	51079	50.5%	(16.0%, 84.6%)	21.9%	(17.0%, 27.8%)
Loudoun County	51107	23.1%	(15.5%, 33.1%)	21.8%	(19.5%, 24.4%)
Louisa County	51109	42.5%	(24.5%, 62.7%)	25.4%	(21.9%, 29.3%)
Nelson County	51125	46.1%	(19.5%, 75.2%)	22.7%	(19.2%, 26.8%)
Prince William County	51153	23.5%	(18.1%, 30.0%)	23.6%	(21.7%, 25.7%)
Roanoke County	51161	25.2%	(15.9%, 37.5%)	22.0%	(19.4%, 24.8%)
Alexandria City	51510	29.7%	(20.0%, 41.7%)	24.8%	(21.2%, 28.9%)
Charlottesville City	51540	15.9%	(5.0%, 40.7%)	22.2%	(17.1%, 28.3%)
Covington City	51580	19.5%	(0.4%, 97.4%)	28.4%	(21.4%, 36.6%)
Fairfax City	51600	19.8%	(11.1%, 32.7%)	17.5%	(15.3%, 20.0%)
Falls Church City	51610	36.3%	(15.1%, 64.7%)	20.4%	(16.6%, 24.7%)
Lynchburg City	51680	41.1%	(27.9%, 55.7%)	26.8%	(21.9%, 32.4%)
Manassas City	51683	21.9%	(6.4%, 53.7%)	22.4%	(18.8%, 26.5%)
Manassas Park City	51685	52.4%	(7.6%, 93.6%)	18.5%	(14.4%, 23.3%)
Salem City	51775	58.6%	(24.5%, 86.1%)	28.2%	(22.8%, 34.4%)

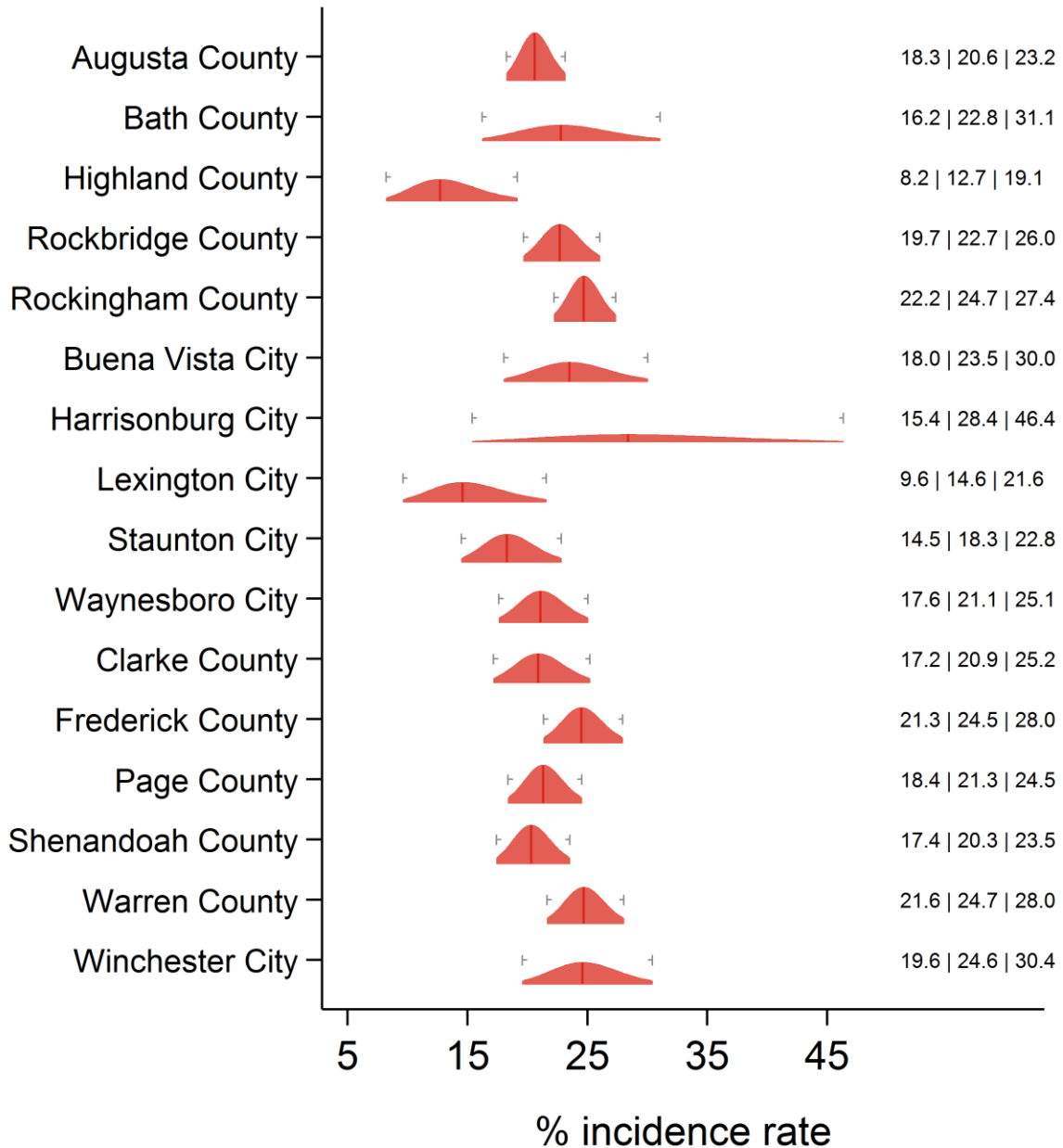
County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Bland County	51021	33.2%	(12.5%, 63.4%)	22.4%	(16.2%, 30.2%)
Buchanan County	51027	17.4%	(7.0%, 37.0%)	16.4%	(12.1%, 21.9%)
Carroll County	51035	20.1%	(8.3%, 41.1%)	21.3%	(17.5%, 25.5%)
Dickenson County	51051	37.3%	(15.7%, 65.5%)	19.3%	(14.9%, 24.6%)
Floyd County	51063	12.9%	(5.4%, 27.9%)	19.1%	(14.8%, 24.3%)
Franklin County	51067	27.7%	(11.6%, 52.7%)	22.5%	(19.8%, 25.4%)
Giles County	51071	27.3%	(13.5%, 47.3%)	26.8%	(23.0%, 31.0%)
Grayson County	51077	16.1%	(5.0%, 40.9%)	15.0%	(10.7%, 20.8%)
Henry County	51089	31.3%	(16.9%, 50.7%)	26.5%	(23.2%, 30.1%)
Lee County	51105	19.4%	(7.0%, 43.6%)	23.8%	(19.5%, 28.7%)
Montgomery County	51121	35.3%	(23.6%, 49.1%)	22.5%	(15.7%, 31.0%)
Patrick County	51141	52.9%	(23.6%, 80.4%)	22.8%	(18.2%, 28.1%)
Pittsylvania County	51143	33.8%	(23.1%, 46.3%)	24.1%	(20.8%, 27.7%)
Pulaski County	51155	39.7%	(21.9%, 60.7%)	29.8%	(25.3%, 34.8%)
Russell County	51167	12.2%	(5.8%, 30.9%)	20.5%	(16.5%, 25.3%)
Scott County	51169	17.5%	(6.0%, 41.3%)	26.0%	(22.7%, 29.6%)
Smyth County	51173	19.3%	(6.4%, 45.4%)	16.1%	(12.6%, 20.5%)
Tazewell County	51185	30.0%	(14.8%, 51.3%)	28.5%	(23.9%, 33.7%)
Washington County	51191	28.6%	(16.5%, 44.8%)	24.5%	(21.8%, 27.5%)
Wise County	51195	33.7%	(19.7%, 51.2%)	29.8%	(24.0%, 36.3%)
Wythe County	51197	35.6%	(18.6%, 57.1%)	30.3%	(25.7%, 35.4%)
Bristol City	51520	0.0%	(0.0%, 91.1%)	31.7%	(22.7%, 42.4%)
Danville City	51590	12.1%	(3.2%, 36.4%)	23.3%	(18.2%, 29.4%)
Galax City	51640	41.7%	(2.2%, 95.7%)	15.9%	(10.4%, 23.7%)
Martinsville City	51690	42.3%	(9.9%, 83.0%)	24.9%	(17.1%, 34.8%)
Norton City	51720	36.4%	(7.1%, 81.0%)	32.1%	(23.3%, 42.4%)
Radford City	51750	14.3%	(3.2%, 45.8%)	24.9%	(10.0%, 49.7%)
Roanoke City	51770	36.7%	(24.5%, 50.8%)	32.7%	(29.5%, 36.2%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Amelia County	51007	17.0%	(5.4%, 42.3%)	20.8%	(17.0%, 25.1%)
Brunswick County	51025	2.9%	(1.3%, 29.0%)	14.9%	(11.8%, 18.8%)
Buckingham County	51029	26.8%	(12.4%, 48.8%)	20.7%	(17.8%, 24.0%)
Charles City County	51036	46.4%	(10.0%, 87.0%)	26.6%	(21.2%, 32.8%)
Charlotte County	51037	14.0%	(6.9%, 33.5%)	15.6%	(11.2%, 21.4%)
Chesterfield County	51041	27.7%	(21.0%, 35.6%)	25.2%	(23.2%, 27.3%)
Cumberland County	51049	16.3%	(4.7%, 43.6%)	23.5%	(17.4%, 30.9%)
Dinwiddie County	51053	14.1%	(4.7%, 35.2%)	30.3%	(24.1%, 37.3%)
Goochland County	51075	20.0%	(6.2%, 48.6%)	18.5%	(15.9%, 21.4%)
Greensville County	51081	24.1%	(5.6%, 63.0%)	40.7%	(26.3%, 56.9%)
Halifax County	51083	17.5%	(8.1%, 34.0%)	14.8%	(11.7%, 18.6%)
Hanover County	51085	22.2%	(12.9%, 35.4%)	18.7%	(16.3%, 21.3%)
Henrico County	51087	29.3%	(21.2%, 39.0%)	26.6%	(24.0%, 29.3%)
Lunenburg County	51111	13.3%	(4.0%, 35.9%)	19.0%	(15.0%, 23.8%)
Mecklenburg County	51117	23.3%	(12.5%, 39.3%)	15.4%	(12.4%, 19.0%)
New Kent County	51127	12.9%	(3.8%, 35.8%)	18.2%	(15.0%, 22.0%)
Nottoway County	51135	5.3%	(2.6%, 43.6%)	16.1%	(13.3%, 19.3%)
Powhatan County	51145	21.2%	(8.5%, 43.8%)	15.9%	(13.3%, 18.8%)
Prince Edward County	51147	18.7%	(7.0%, 41.5%)	14.9%	(12.3%, 17.9%)
Prince George County	51149	17.4%	(8.5%, 32.2%)	15.2%	(12.9%, 17.7%)
Surry County	51181	29.4%	(9.1%, 63.3%)	25.3%	(21.6%, 29.5%)
Sussex County	51183	17.1%	(6.1%, 39.4%)	20.5%	(16.5%, 25.1%)
Colonial Heights City	51570	57.7%	(34.0%, 78.3%)	28.8%	(24.6%, 33.5%)
Emporia City	51595	62.9%	(3.5%, 98.6%)	30.6%	(20.9%, 42.4%)
Hopewell City	51670	36.5%	(15.3%, 64.5%)	27.6%	(23.6%, 32.0%)
Petersburg City	51730	37.4%	(21.0%, 57.2%)	26.4%	(22.3%, 30.9%)
Richmond City	51760	38.6%	(27.1%, 51.5%)	33.6%	(30.3%, 37.0%)

County name	County FIPS	Direct estimate	Direct 95% CI	SAE composite	SAE CI
Accomack County	51001	36.9%	(22.3%, 54.4%)	23.8%	(19.0%, 29.4%)
Essex County	51057	17.2%	(6.4%, 38.5%)	11.2%	(7.4%, 16.4%)
Gloucester County	51073	30.9%	(16.9%, 49.6%)	20.6%	(18.5%, 22.8%)
Isle of Wight County	51093	28.5%	(12.8%, 52.0%)	19.4%	(16.5%, 22.7%)
James City County	51095	12.1%	(5.9%, 23.2%)	13.4%	(11.3%, 15.8%)
King and Queen County	51097	8.8%	(1.8%, 45.6%)	18.2%	(13.9%, 23.3%)
King William County	51101	55.3%	(25.4%, 81.8%)	22.5%	(19.3%, 26.0%)
Lancaster County	51103	28.2%	(9.8%, 58.7%)	21.8%	(18.7%, 25.3%)
Mathews County	51115	31.9%	(11.5%, 62.8%)	22.8%	(19.6%, 26.3%)
Middlesex County	51119	19.0%	(6.1%, 45.9%)	19.8%	(17.4%, 22.5%)
Northampton County	51131	31.6%	(12.3%, 60.2%)	25.7%	(19.5%, 33.1%)
Northumberland County	51133	7.5%	(4.4%, 27.5%)	16.2%	(12.2%, 21.3%)
Richmond County	51159	21.6%	(5.6%, 56.1%)	18.7%	(15.4%, 22.5%)
Southampton County	51175	32.3%	(9.9%, 67.3%)	20.7%	(18.2%, 23.6%)
Westmoreland County	51193	43.2%	(20.3%, 69.4%)	21.5%	(18.6%, 24.8%)
York County	51199	12.9%	(6.1%, 25.0%)	17.2%	(15.6%, 19.0%)
Chesapeake City	51550	19.6%	(13.7%, 27.3%)	18.4%	(16.5%, 20.4%)
Franklin City	51620	12.9%	(3.2%, 39.6%)	19.2%	(13.9%, 25.7%)
Hampton City	51650	28.6%	(20.3%, 38.7%)	24.8%	(22.7%, 27.0%)
Newport News City	51700	34.2%	(23.7%, 46.5%)	34.8%	(30.8%, 39.1%)
Norfolk City	51710	35.2%	(25.9%, 45.8%)	30.6%	(27.6%, 33.8%)
Poquoson City	51735	31.9%	(3.5%, 86.0%)	20.8%	(16.9%, 25.5%)
Portsmouth City	51740	32.6%	(22.1%, 45.3%)	33.7%	(30.6%, 37.0%)
Suffolk City	51800	24.0%	(14.2%, 37.6%)	22.6%	(20.1%, 25.4%)
Virginia Beach City	51810	27.4%	(21.8%, 33.9%)	23.4%	(21.9%, 25.0%)
Williamsburg City	51830	18.9%	(1.8%, 74.4%)	27.1%	(17.8%, 39.1%)

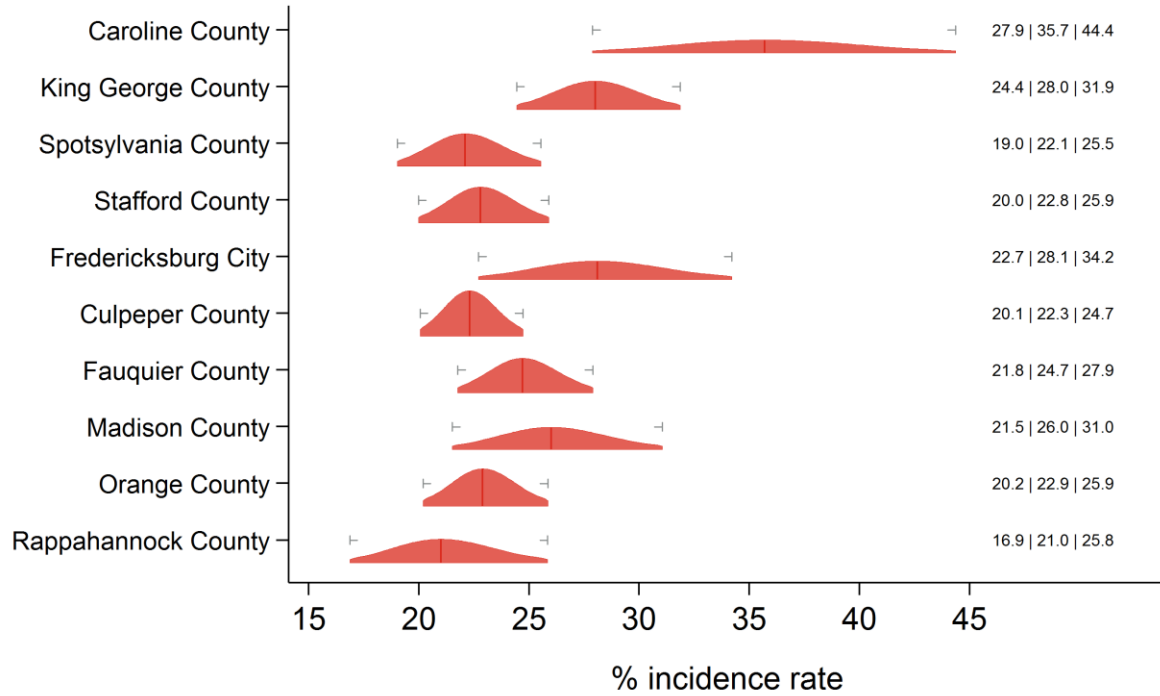
Graphical representation

3+ adverse childhood experiences Central Shenandoah and Lord Fairfax HDs



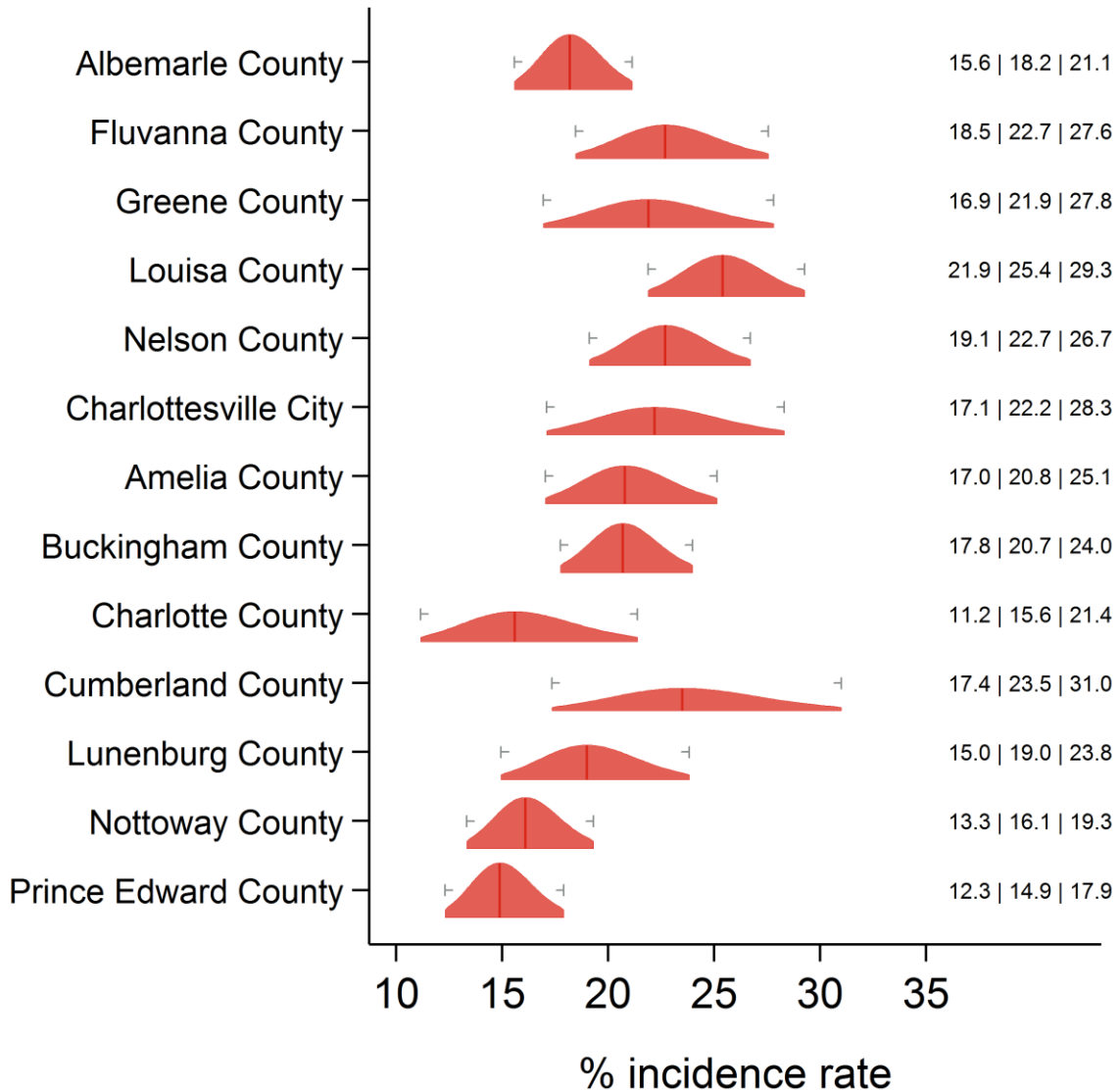
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 Gray markers: 95% confidence interval

3+ adverse childhood experiences Rappahannock/Rapidan and Rappahannock HDs



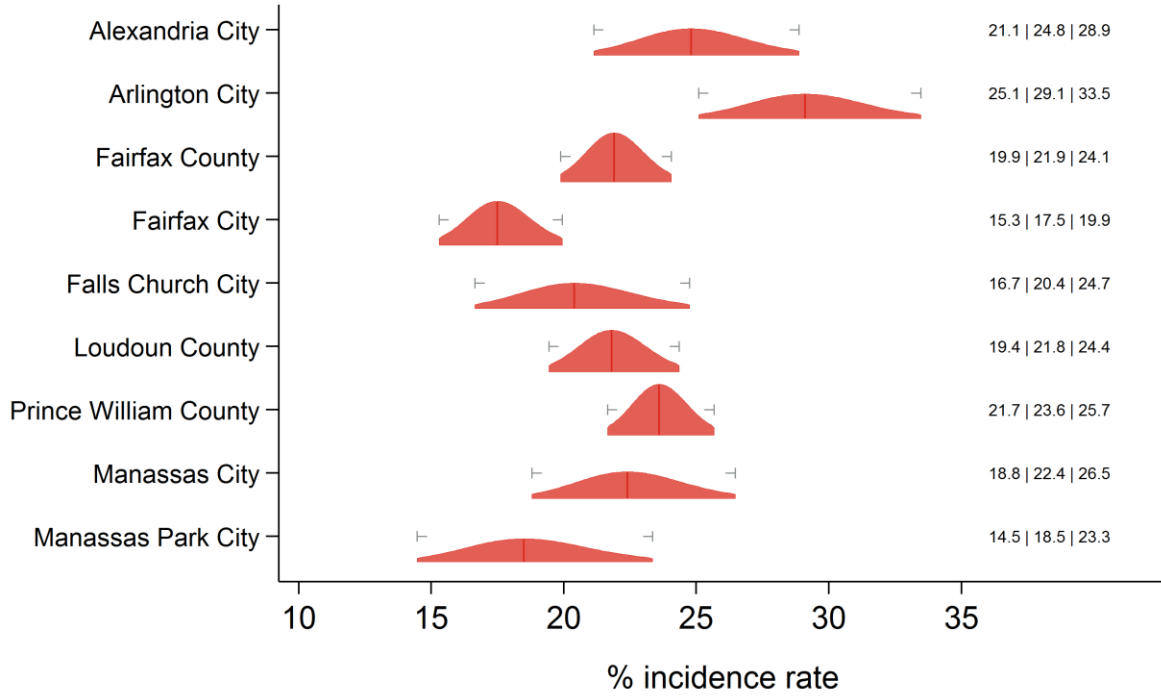
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

3+ adverse childhood experiences Thomas Jefferson and Piedmont HDs



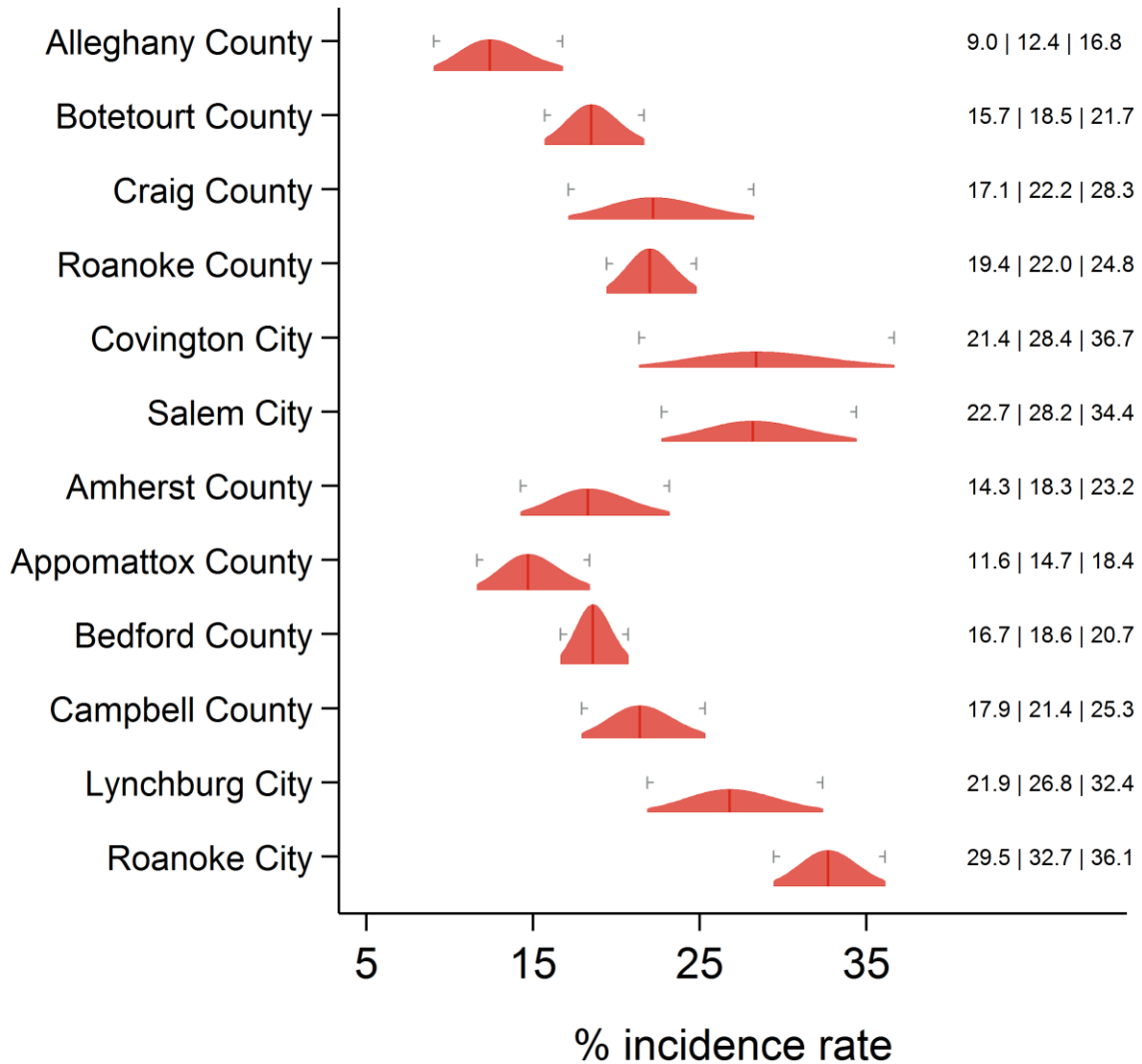
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

3+ adverse childhood experiences Alexandria, Fairfax, Arlington, Loudon, Prince William HDs



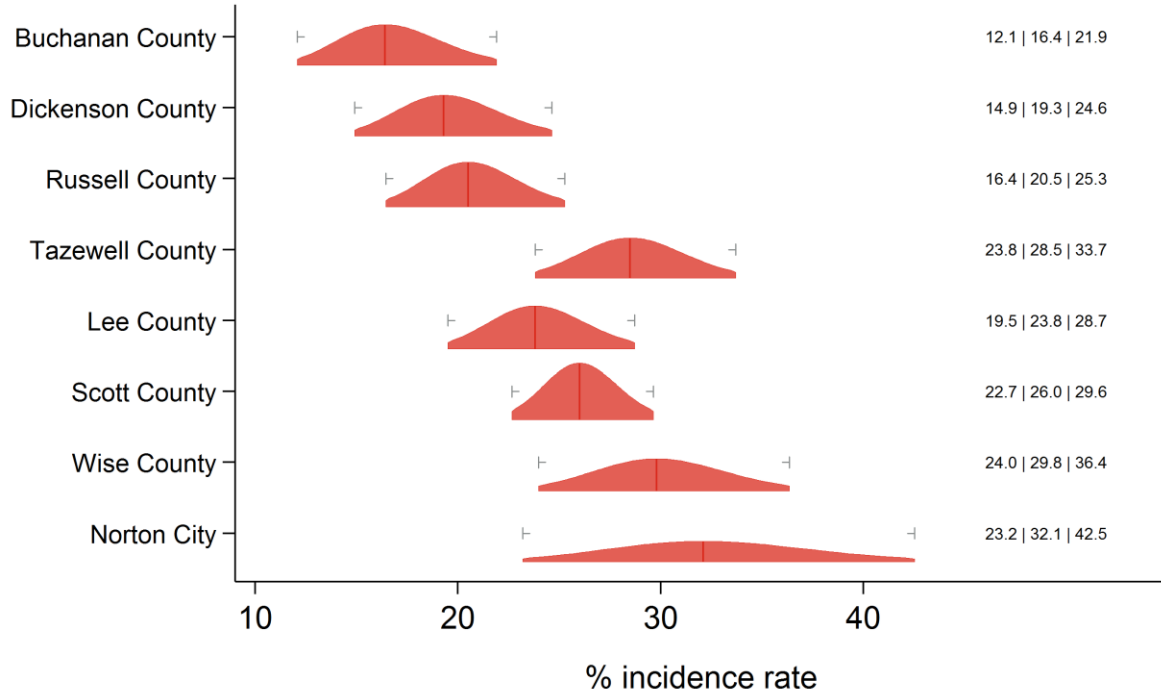
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

3+ adverse childhood experiences Alleghany, Roanoke and Central Virginia HDs



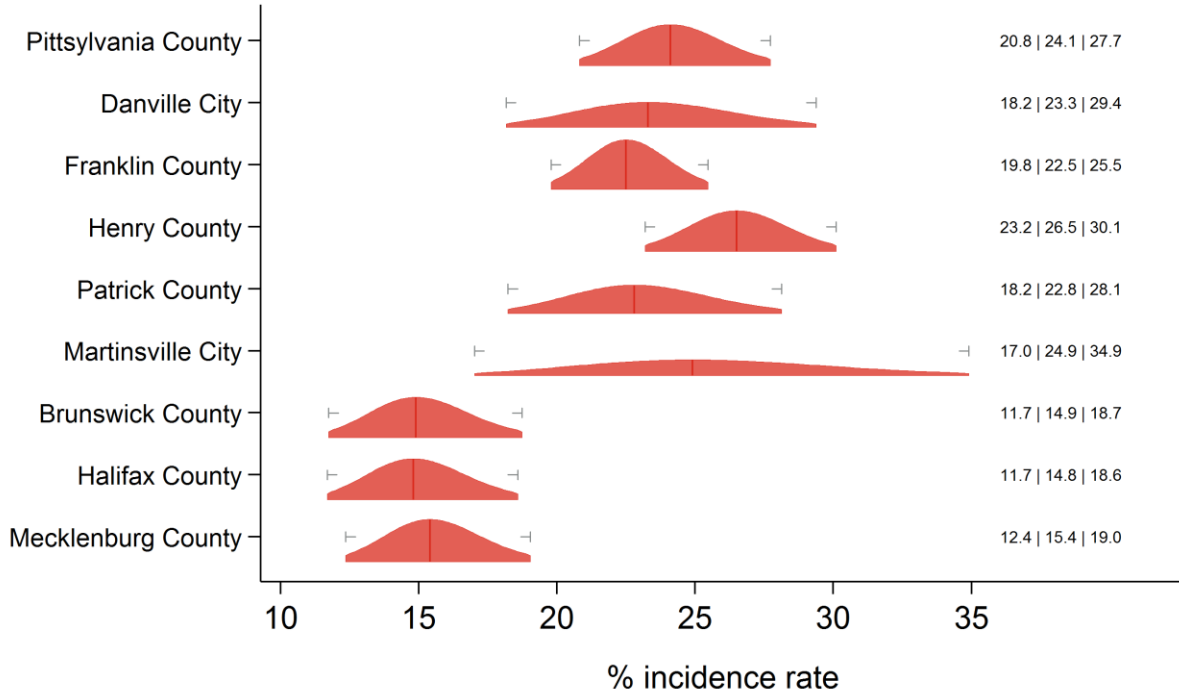
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

3+ adverse childhood experiences Cumberland Plateau and Lenowisco HDs



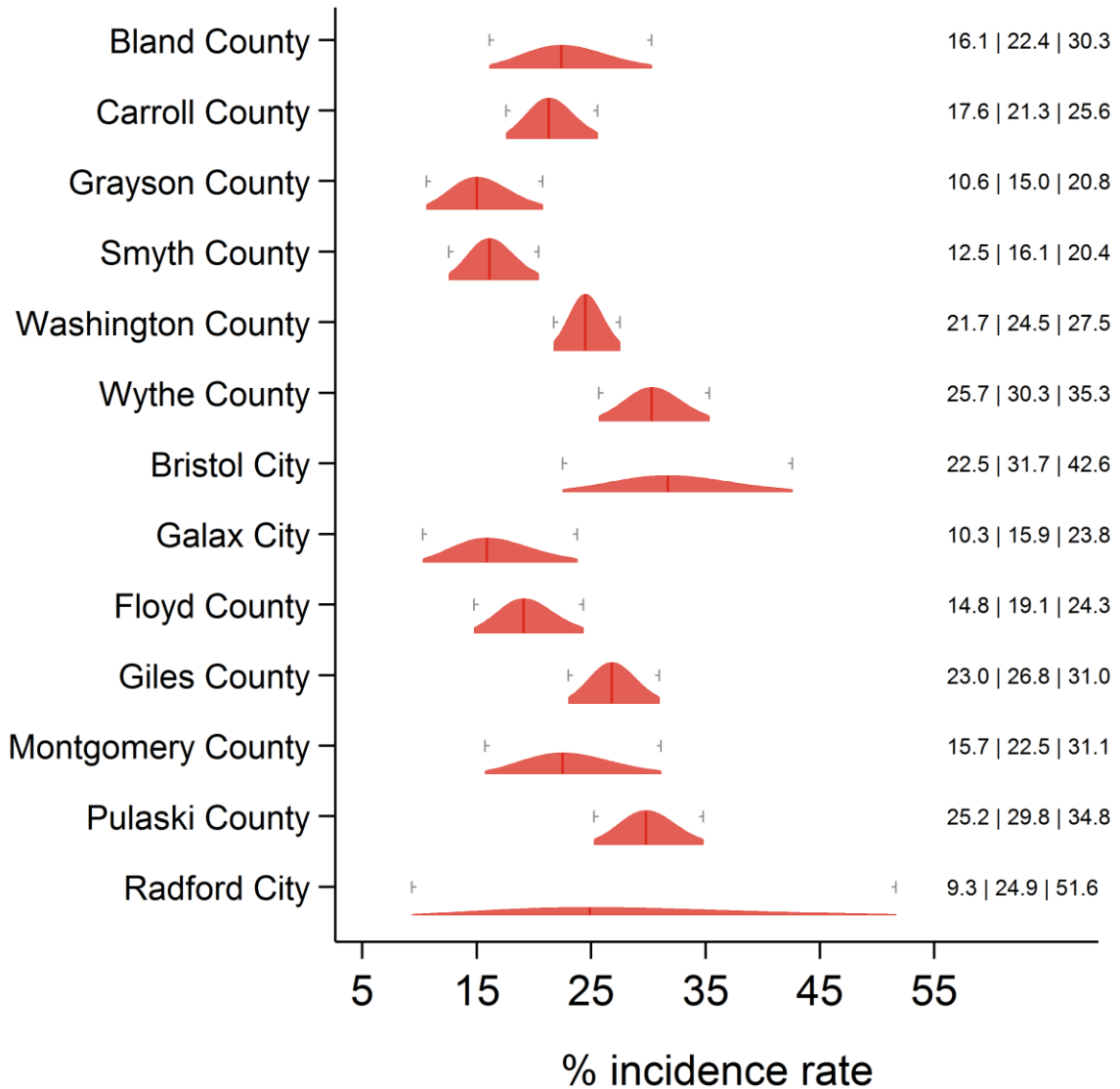
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

3+ adverse childhood experiences Pittsylvania/Danville, Southside and West Piedmont HDs



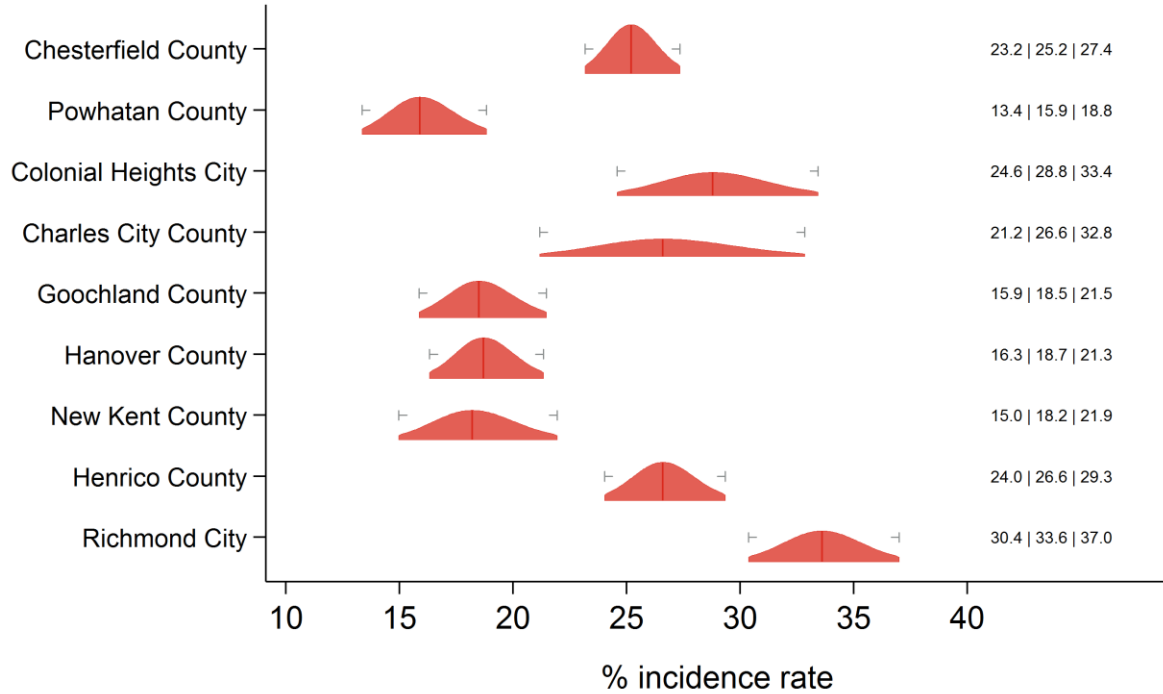
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

3+ adverse childhood experiences New River and Mount Rogers HDs



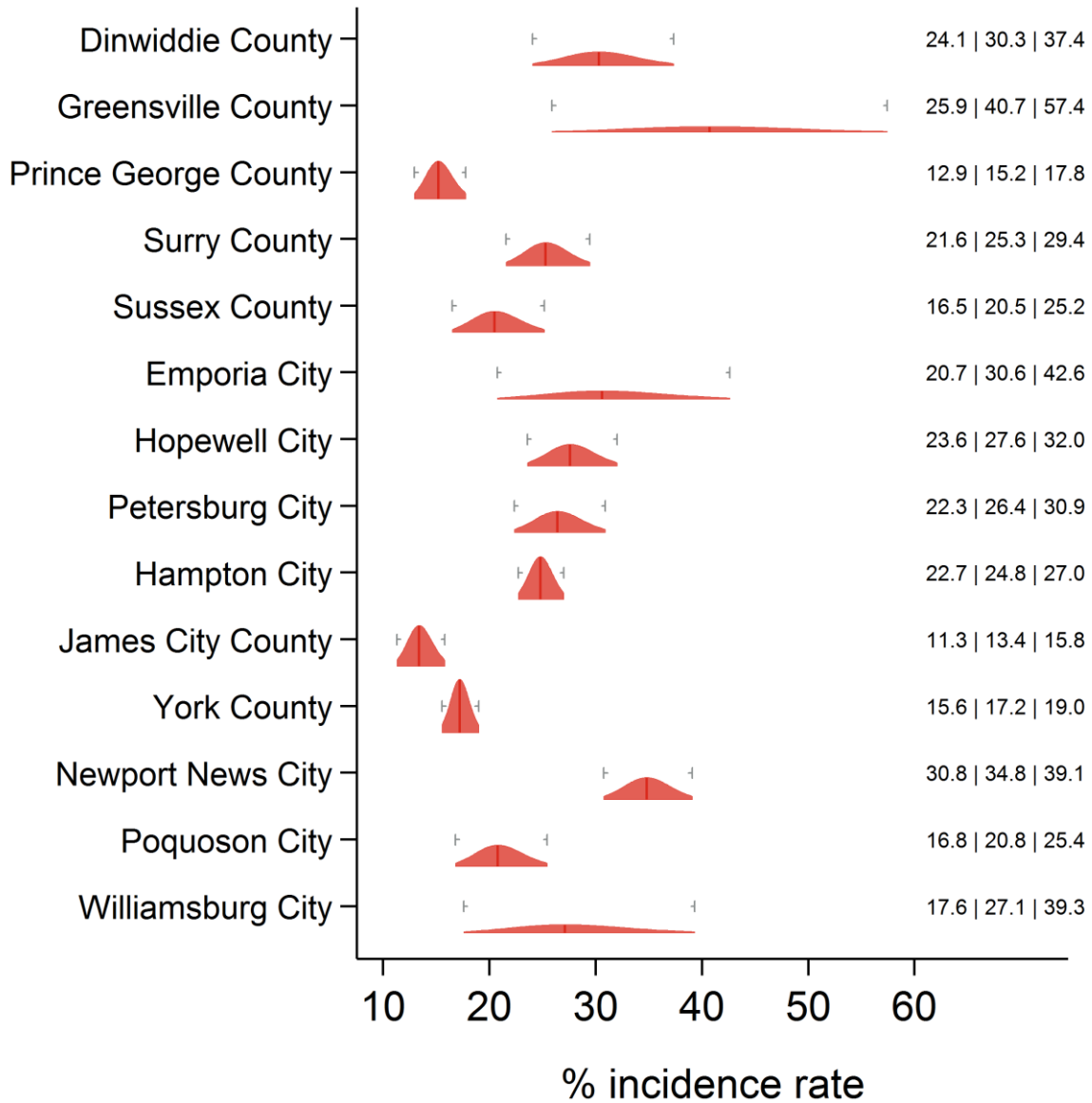
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

3+ adverse childhood experiences Chesterfield, Chickahominy, Henrico and Richmond HDs



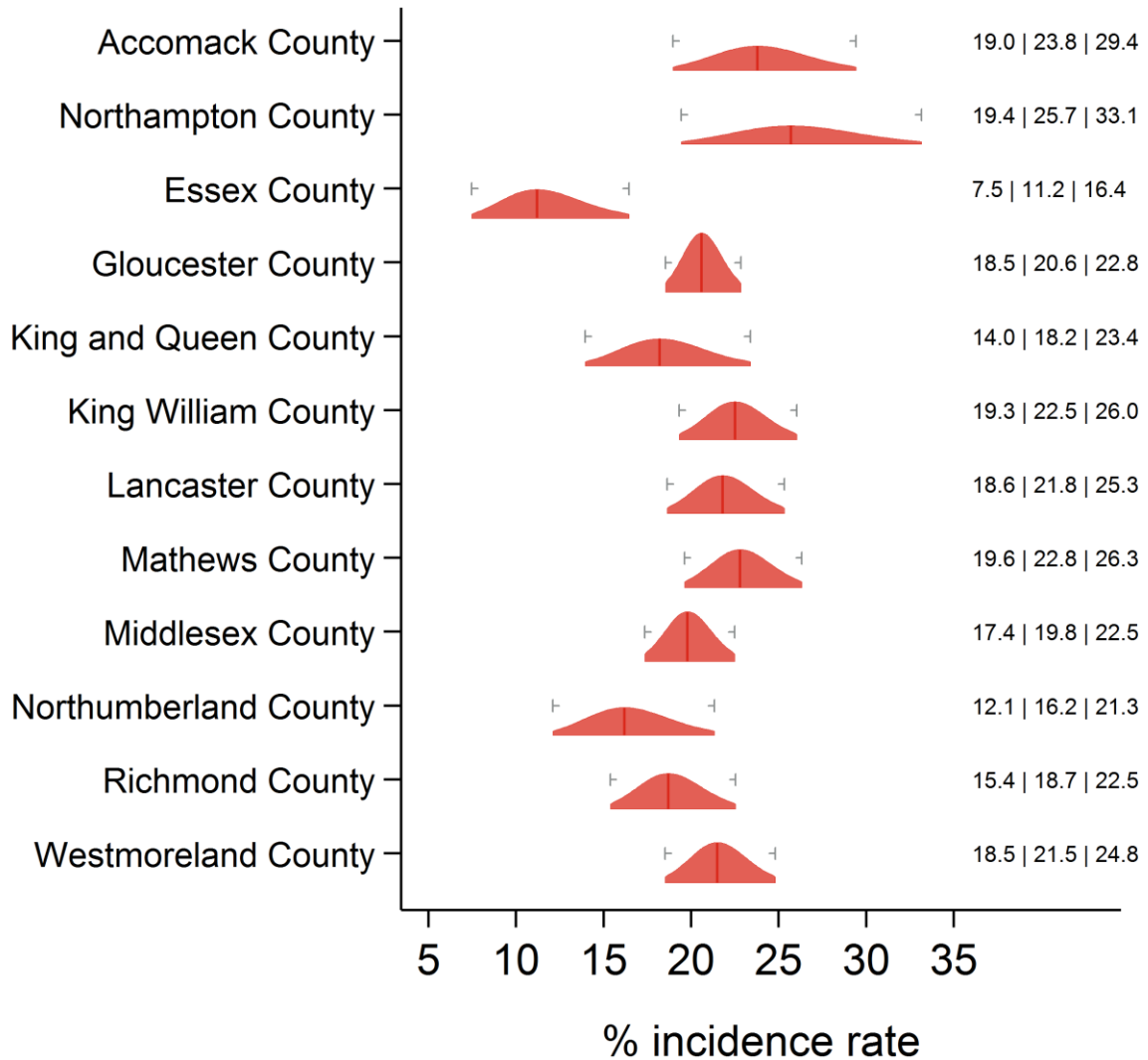
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

3+ adverse childhood experiences Crater, Peninsula and Hampton HDs



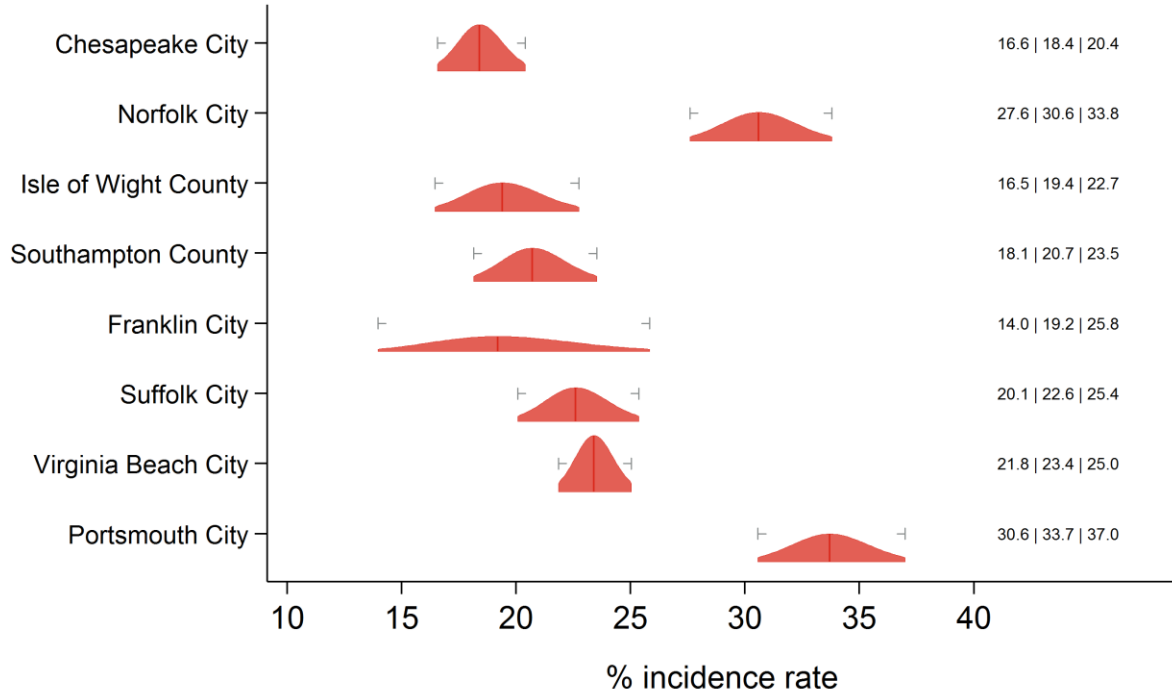
Text at right: 2-sided 95% LCB | Point Estimate | 2-sided 95% UCB
 Gray markers: 95% confidence interval

3+ adverse childhood experiences Eastern Shore and Three Rivers HDs



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

3+ adverse childhood experiences 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: 128 areas.

SAE estimate is outside the 95% direct Wilson CI: 5 areas.

SAE Wilson 95% CI is fully inside the 95% direct Wilson CI: 115 areas.

SAE Wilson 95% CI partially overlaps with the 95% direct Wilson CI: 18 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: 127 areas.

SAE standard error is greater than the (nonzero) direct standard error: 1 areas.

Direct standard error is zero: 5 areas.

Proportion of SAE variance due to ACS sampling error: min = 0.25%; med = 4.82%; max = 24.75%.

Proportion of SAE variance due to sampling error in regression coefficient estimates: min = 47.07%; med = 86.18%; max = 98.65%.

Proportion of SAE variance due to model selection: min = 0.08%; med = 7.01%; max = 51.53%.

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