Appendix A: Bivariate and multivariate associations of hospital volume with RSRR

Cohort	Volume group	Unadjusted parameter estimate (95% CI)	p value	Adjusted parameter estimate (95% CI)*	p value
All condition	A	-0.10 (-0.19, -0.01)	0.038	-0.24 (-0.38, -0.10)	<0.001
	B	-0.07 (-0.16, 0.02)	0.12	-0.25 (-0.37, -0.12)	<0.001
	C	-0.01 (-0.10, 0.08)	0.85	-0.21 (-0.32, -0.09)	<0.001
	D	0.08 (-0.01, 0.17)	0.09	0.03 (-0.07, 0.13)	0.55
	E	REF		REF	
Medicine	A	-0.17 (-0.30, -0.03)	0.02	-0.44 (-0.64, -0.25)	<0.001
	B	-0.14 (-0.28, -0.01)	0.04	-0.48 (-0.67, -0.30)	<0.001
	C	-0.05 (-0.19, 0.09)	0.47	-0.36 (-0.53, -0.20)	<0.001
	D	-0.06 (-0.20, 0.07)	0.38	-0.17 (-0.31, -0.03)	0.01
	E	REF		REF	
Surgery/ gynecology	A	-0.01 (-0.12, 0.11)	0.93	0.38 (0.23, 0.53)	<0.001
	B	0.03 (-0.08, 0.15)	0.54	0.36 (0.21, 0.50)	<0.001
	C	0.04 (-0.07, 0.15)	0.47	0.30 (0.17, 0.43)	<0.001
	D	0.04 (-0.07, 0.16)	0.44	0.23 (0.11, 0.34)	<0.001
	E	REF		REF	
Cardiorespiratory	A	-0.38 (-0.54, -0.23)	<0.001	-0.83 (-1.04, -0.62)	<0.001
	B	-0.30 (-0.46, -0.15)	<0.001	-0.83 (-1.03, -0.63)	<0.001
	C	-0.04 (-0.20, 0.11)	0.58	-0.49 (-0.66, -0.31)	<0.001
	D	0.06 (-0.09, 0.21)	0.44	-0.14 (-0.30, 0.02)	0.08
	E	REF		REF	
Cardiovascular	A	0.14 (0.04, 0.23)	0.004	-0.07 (-0.20, 0.07)	0.34
	B	0.18 (0.08, 0.27)	<0.001	0.01 (-0.11, 0.13)	0.85
	C	0.15 (0.05, 0.24)	0.002	0.05 (-0.05, 0.16)	0.34
	D	0.05 (-0.05, 0.14)	0.28	0.03 (-0.06, 0.13)	0.49
	E	REF		REF	
Neurology	A	-0.20 (-0.29, -0.10)	<0.001	-0.17 (-0.30, -0.05)	0.006
	B	-0.16 (-0.26, -0.07)	<0.001	-0.14 (-0.25, -0.03)	0.02
	C	-0.19 (-0.28, -0.09)	<0.001	-0.13 (-0.23, -0.03)	0.01
	D	-0.17 (-0.26, -0.07)	<0.001	-0.11 (-0.20, 0.01)	0.02

Cohort	Volume group	Unadjusted parameter estimate (95% CI)	p value	Adjusted parameter estimate (95% CI)*	p value
	E	REF		REF	

*Adjusted for safety net status, ownership, teaching status, cardiac procedure capability, urban/rural status, geographic region

Volume group A: 25 cases-20th percentile; B: 21st percentile-40th percentile; C: 41st percentile-60th percentile; D: 61st percentile-80th percentile; E: 81st percentile-100th percentile