SUPPLEMENT MATERIALS

Table S1 shows that the Poisson model demonstrated substantial overdispersion (Pearson χ^2/df > 14) and poor fit (AIC > 18,000). In contrast, the negative binomial model appropriately accounted for dispersion (Pearson χ^2/df $\approx$ 1.1) and provided substantially improved fit. Zero-inflated negative models did not meaningfully impact model fit (ΔAIC < 5). Residual diagnostics for the negative binomial model (Supplementary Table S2) demonstrated adequate fit, with Pearson and deviance residuals centered near zero and exhibiting approximately unit variance. Multicollinearity was assessed using variance inflation factors (VIF) and condition indices, with no evidence of problematic collinearity (all VIF values < 2 and condition indices < 10).

Table S1. Criteria For Assessing Goodness Of Fit

MODEL SPECIFICAION Fit Criteria	Negative Binomial	Zero-Inflated Negative Binomial	Poisson
UNADJUSTED			
AIC	7464	7468	18155
BIC	7479	--	18165
Pearson X^2/df	1.13	--	15.81
ADJUSTED			
AIC	7374	7378	17507
BIC	7400	--	17528
Pearson X^2/df	1.13	--	14.43
INTERACTION			
AIC	7363	7367	17183
BIC	7399	--	17214
Pearson X^2/df	1.15	--	14.28

Note: AIC, Akaike information criterion; BIC, Bayesian information criterion; df, degrees of freedom; X^2, Chi-square.

Table S2. Negative Binomial Regression Model Diagnostics

MODEL SPECIFICAION	Residual	Mean	Standard Deviation	Minimum	Maximum
UNADJUSTED	Raw	-0.91	13.9	-55.93	128.78
	Pearson	0	1.07	-0.73	11.42
	Deviance	-0.43	0.96	-2.24	3.71
ADJUSTED	Raw	-1.06	14.2	-63.39	125.07
	Pearson	0	1.06	-0.77	10.53
	Deviance	-0.41	0.97	-2.35	3.6
INTERACTION	Raw	-0.88	13.76	-53.43	130.01
	Pearson	0	1.07	-0.77	10.87
	Deviance	-0.41	0.97	-2.33	3.68