

A. Temperature Variables and Heat/Cold Waves

	Negative Binomial	Poisson	Linear
(Intercept)	0.07 *** (0.01)	0.07 *** (0.01)	1.07 *** (0.01)
lag_t	0.02 (0.01)	0.01 * (0.01)	0.01 (0.01)
lag_at	-0.01 (0.01)	-0.01 (0.00)	-0.01 (0.01)
lag_vp	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
lag_wbt	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
heat_wave	0.50 *** (0.12)	0.49 *** (0.08)	0.66 *** (0.14)
cold_wave	-0.18 * (0.07)	-0.18 *** (0.05)	-0.19 * (0.07)
relative_heat	-0.05 (0.04)	-0.05 (0.03)	-0.05 (0.04)
relative_cold	0.07 (0.05)	0.07 * (0.03)	0.08 (0.05)
N	16298	16298	16298
AIC	46745.23	50402.97	57882.45
BIC	46822.22	50472.26	57959.43
Pseudo R2	0.00	0.00	
R2			0.00

*** p < 0.001; ** p < 0.01; * p < 0.05.

B. Just Temperature Variables

	Negative Binomial	Poisson	Linear
(Intercept)	0.07 *** (0.01)	0.07 *** (0.01)	1.07 *** (0.01)
lag_t	0.02 * (0.01)	0.01 * (0.01)	0.02 (0.01)
lag_at	-0.01 (0.01)	-0.01 (0.00)	-0.01 (0.01)
lag_vp	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
lag_wbt	-0.01 (0.01)	-0.01 * (0.01)	-0.01 (0.01)
N	16309	16309	16309
AIC	46790.85	50472.61	57936.90
BIC	46837.05	50511.11	57983.09
Pseudo R2	0.00	0.00	
R2			0.00

C. Temperature and Demographic Variables

	Negative Binomial	Poisson	Linear
(Intercept)	7.25 *** (0.39)	8.18 *** (0.32)	7.80 *** (0.42)
lag_t	0.02 * (0.01)	0.01 (0.01)	0.01 (0.01)
lag_at	-0.01 (0.01)	-0.00 (0.01)	-0.00 (0.01)
lag_vp	0.01 (0.01)	0.00 (0.01)	0.01 (0.01)
lag_wbt	-0.01 * (0.01)	-0.00 (0.01)	-0.01 (0.01)
heat_wave	-0.06 (0.09)	-0.05 (0.08)	-0.07 (0.12)
cold_wave	0.01 (0.06)	-0.01 (0.05)	0.03 (0.06)
relative_heat	0.05 (0.04)	0.06 * (0.03)	0.04 (0.04)
relative_cold	-0.00 (0.04)	0.02 (0.03)	-0.00 (0.04)
pct_female	-0.59 *** (0.14)	-0.52 *** (0.12)	-0.61 *** (0.13)
pct_white	-7.69 *** (0.34)	-8.49 *** (0.27)	-7.12 *** (0.38)
pct_black	-2.21 *** (0.39)	-3.82 *** (0.30)	-0.98 * (0.45)
pct_hispanic	-2.68 ** (0.88)	-1.69 * (0.66)	4.22 *** (1.26)
age015	-1.80 *** (0.27)	-1.65 *** (0.23)	-1.43 *** (0.25)
age1630	-1.06 *** (0.24)	-1.39 *** (0.20)	-1.10 *** (0.22)
age3145	0.09 (0.24)	0.27 (0.21)	0.20 (0.23)
age4660	0.62 * (0.26)	0.62 ** (0.22)	0.62 ** (0.24)
age6175	0.17 (0.28)	-0.35 (0.23)	0.27 (0.26)
N	16298	16298	16298
AIC	41404.92	42280.04	52429.02
BIC	41551.20	42418.62	52575.30
Pseudo R2	0.30	0.41	
R2			0.29

*** p < 0.001; ** p < 0.01; * p < 0.05.

D. Weather, Demographic, and Temporal Variables

	Negative Binomial	Poisson	Linear
(Intercept)	7.64 *** (0.40)	8.53 *** (0.33)	8.10 *** (0.43)
lag_t	0.02 * (0.01)	0.01 (0.01)	0.01 (0.01)
lag_at	-0.01 (0.01)	-0.00 (0.01)	-0.00 (0.01)
lag_vp	0.01 (0.01)	0.00 (0.01)	0.01 (0.01)
lag_wbt	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
heat_wave	-0.07 (0.09)	-0.06 (0.08)	-0.07 (0.12)
cold_wave	-0.01 (0.06)	-0.02 (0.05)	0.03 (0.06)
relative_heat	0.05 (0.04)	0.06 (0.03)	0.04 (0.04)
relative_cold	-0.00 (0.04)	0.02 (0.03)	-0.00 (0.04)
pct_female	-0.60 *** (0.14)	-0.55 *** (0.12)	-0.60 *** (0.13)
pct_white	-7.98 *** (0.34)	-8.70 *** (0.27)	-7.34 *** (0.38)
pct_black	-2.52 *** (0.39)	-3.97 *** (0.31)	-1.21 ** (0.45)
pct_hispanic	-4.10 *** (0.98)	-3.09 *** (0.77)	3.53 ** (1.33)
age015	-1.79 *** (0.28)	-1.65 *** (0.24)	-1.40 *** (0.25)
age1630	-1.11 *** (0.24)	-1.42 *** (0.20)	-1.17 *** (0.23)
age3145	-0.01 (0.25)	0.10 (0.21)	0.09 (0.23)
age4660	0.60 * (0.26)	0.54 * (0.22)	0.59 * (0.24)
age6175	0.30 (0.28)	-0.17 (0.24)	0.35 (0.26)
factor(day)Monday	0.06 (0.03)	0.06 * (0.03)	0.06 (0.04)
factor(day)Saturday	-0.10 ** (0.03)	-0.12 *** (0.03)	-0.13 *** (0.04)
factor(day)Sunday	-0.11 *** (0.03)	-0.16 *** (0.03)	-0.14 *** (0.04)
factor(day)Thursday	-0.04 (0.03)	-0.04 (0.03)	-0.04 (0.04)
factor(day)Tuesday	-0.02 (0.03)	-0.02 (0.03)	-0.01 (0.04)
factor(day)Wednesday	-0.05 (0.03)	-0.05 (0.03)	-0.05 (0.04)
factor(year)2011	0.01 (0.04)	0.01 (0.03)	0.03 (0.04)
factor(year)2012	-0.09 * (0.04)	-0.08 * (0.03)	-0.02 (0.04)
factor(year)2013	-0.07 (0.04)	-0.06 (0.03)	-0.01 (0.04)
factor(year)2014	-0.03 (0.04)	-0.02 (0.03)	0.02 (0.04)
factor(year)2015	-0.03 (0.04)	-0.02 (0.03)	0.01 (0.04)
factor(year)2016	-0.10 * (0.04)	-0.08 * (0.03)	-0.06 (0.04)
factor(year)2017	-0.12 ** (0.04)	-0.17 *** (0.03)	-0.09 * (0.04)
N	16298	16298	16298
AIC	41373.50	42185.74	52391.97
BIC	41619.86	42424.41	52638.33
Pseudo R2	0.30	0.42	
R2			0.29

*** p < 0.001; ** p < 0.01; * p < 0.05.

Weather, Demographic, Temporal, and Facility Fixed Effect:

	Negative Binomial	Poisson	Linear
(Intercept)	0.74 (0.41)	0.75 (0.40)	1.55 *** (0.39)
lag_t	0.02 * (0.01)	0.02 * (0.01)	0.01 * (0.01)
lag_at	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.00)
lag_vp	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
lag_wbt	-0.01 * (0.01)	-0.01 * (0.01)	-0.01 * (0.01)
heat_wave	-0.06 (0.08)	-0.06 (0.08)	-0.09 (0.10)
cold_wave	-0.00 (0.05)	-0.01 (0.05)	-0.00 (0.06)
relative_heat	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)
relative_cold	0.03 (0.03)	0.03 (0.03)	0.02 (0.04)
pct_female	-0.11 (0.14)	-0.11 (0.14)	-0.07 (0.12)
pct_white	-0.65 (0.36)	-0.65 (0.36)	-0.50 (0.36)
pct_black	-0.56 (0.39)	-0.57 (0.38)	-0.50 (0.41)
pct_hispanic	3.48 *** (0.74)	3.48 *** (0.72)	8.13 *** (1.18)
age015	-1.09 *** (0.27)	-1.09 *** (0.27)	-0.72 ** (0.23)
age1630	-1.12 *** (0.24)	-1.14 *** (0.23)	-0.87 *** (0.20)
age3145	-0.55 * (0.25)	-0.56 * (0.24)	-0.41 * (0.21)
age4660	-0.06 (0.26)	-0.07 (0.26)	-0.02 (0.22)
age6175	-0.21 (0.28)	-0.23 (0.27)	-0.12 (0.23)
factor(day)Monday	0.07 ** (0.03)	0.07 ** (0.03)	0.09 ** (0.03)
factor(day)Saturday	-0.12 *** (0.03)	-0.12 *** (0.03)	-0.14 *** (0.03)
factor(day)Sunday	-0.14 *** (0.03)	-0.14 *** (0.03)	-0.15 *** (0.03)
factor(day)Thursday	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)
factor(day)Tuesday	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)
factor(day)Wednesday	-0.02 (0.03)	-0.02 (0.03)	-0.02 (0.03)
factor(facility)CGCH	-0.56 *** (0.05)	-0.56 *** (0.05)	-0.26 *** (0.05)
factor(facility)CNRV	0.35 *** (0.04)	0.35 *** (0.04)	0.24 *** (0.04)
factor(facility)CRMH	1.51 *** (0.03)	1.51 *** (0.03)	2.18 *** (0.03)
factor(facility)CSJH	-0.52 *** (0.05)	-0.52 *** (0.05)	-0.25 *** (0.04)
factor(facility)CTCH	-0.60 *** (0.05)	-0.60 *** (0.05)	-0.29 *** (0.04)
factor(facility)UVA	1.26 *** (0.04)	1.26 *** (0.04)	1.57 *** (0.04)
N	16298	16298	16298
AIC	38040.49	38047.13	48344.91

BIC	38279.15	38278.09	48583.57
Pseudo R2	0.44	0.56	
R2			0.45

*** p < 0.001; ** p < 0.01; * p < 0.05.
UVA Insurance:

	Negative Binomial	Poisson	Linear
(Intercept)	-1.09 (1.04)	-1.06 (1.01)	-1.75 (2.48)
lag_t	0.00 (0.02)	0.00 (0.02)	0.01 (0.05)
lag_at	-0.01 (0.02)	-0.01 (0.02)	-0.02 (0.05)
lag_vp	0.01 (0.02)	0.01 (0.02)	0.02 (0.04)
lag_wbt	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.02)
heat_wave	0.04 (0.12)	0.04 (0.12)	0.11 (0.28)
cold_wave	-0.13 (0.10)	-0.13 (0.10)	-0.33 (0.25)
relative_heat	-0.06 (0.07)	-0.06 (0.06)	-0.15 (0.16)
relative_cold	0.08 (0.06)	0.08 (0.06)	0.18 (0.15)
pct_female	0.86 * (0.36)	0.86 * (0.35)	1.99 * (0.86)
pct_white	0.36 (0.74)	0.35 (0.72)	0.82 (1.74)
pct_black	0.73 (0.79)	0.73 (0.77)	1.63 (1.85)
pct_hispanic	1.02 (0.96)	1.01 (0.93)	2.23 (2.29)
age015	0.89 (0.92)	0.86 (0.90)	1.63 (2.19)
age1630	-0.13 (0.77)	-0.16 (0.75)	-0.60 (1.85)
age3145	0.38 (0.78)	0.36 (0.76)	0.55 (1.86)
age4660	0.75 (0.78)	0.73 (0.76)	1.40 (1.87)
age6175	-0.84 (0.76)	-0.85 (0.74)	-2.19 (1.80)
factor(day)Monday	0.00 (0.05)	0.00 (0.05)	0.01 (0.13)
factor(day)Saturday	-0.17 ** (0.06)	-0.17 ** (0.06)	-0.36 ** (0.14)
factor(day)Sunday	-0.22 *** (0.06)	-0.22 *** (0.06)	-0.47 *** (0.14)
factor(day)Thursday	-0.06 (0.05)	-0.06 (0.05)	-0.14 (0.13)
factor(day)Tuesday	-0.01 (0.05)	-0.01 (0.05)	-0.03 (0.13)
factor(day)Wednesday	-0.07 (0.05)	-0.07 (0.05)	-0.16 (0.13)
medicare	1.63 ** (0.58)	1.62 ** (0.56)	3.58 ** (1.37)
medicaid	0.10 (0.49)	0.10 (0.47)	0.27 (1.15)
tricare	-2.35 (1.86)	-2.35 (1.81)	-5.17 (4.32)
other	4.22 (2.38)	4.24 (2.31)	9.89 (5.68)
self	1.59 *** (0.45)	1.59 *** (0.43)	3.60 *** (1.05)
none	3.58 *** (0.69)	3.57 *** (0.67)	9.11 *** (1.72)

N	2070	2070	2070
AIC	7540.97	7542.46	7833.11
BIC	7715.66	7711.52	8007.80
Pseudo R2	0.07	0.08	
R2			0.07

*** p < 0.001; ** p < 0.01; * p < 0.05.

Carilion Insurance:

	Negative Binomial	Poisson	Linear
(Intercept)	6.60 *** (0.48)	6.92 *** (0.42)	7.17 *** (0.43)
lag_t	0.02 * (0.01)	0.02 ** (0.01)	0.02 * (0.01)
lag_at	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.01)
lag_vp	0.02 * (0.01)	0.02 ** (0.01)	0.02 * (0.01)
lag_wbt	-0.03 * (0.01)	-0.03 ** (0.01)	-0.02 * (0.01)
heat_wave	-0.05 (0.13)	-0.09 (0.11)	-0.12 (0.14)
cold_wave	0.16 * (0.07)	0.17 ** (0.06)	0.15 * (0.06)
relative_heat	0.07 (0.04)	0.08 * (0.03)	0.06 (0.04)
relative_cold	-0.08 (0.05)	-0.09 * (0.04)	-0.09 * (0.04)
pct_female	-0.86 *** (0.16)	-0.91 *** (0.15)	-0.76 *** (0.13)
pct_white	-7.69 *** (0.41)	-7.90 *** (0.35)	-6.88 *** (0.38)
pct_black	-0.38 (0.50)	-0.59 (0.43)	0.17 (0.47)
age015	-1.27 *** (0.35)	-1.32 *** (0.31)	-0.89 ** (0.27)
age1630	-0.22 (0.30)	-0.43 (0.27)	-0.63 ** (0.24)
age3145	0.70 * (0.30)	0.61 * (0.28)	0.48 * (0.24)
age4660	1.12 *** (0.30)	0.98 *** (0.27)	0.71 ** (0.24)
age6175	1.03 *** (0.31)	0.92 ** (0.28)	0.76 ** (0.25)
factor(day)Monday	0.09 * (0.04)	0.09 ** (0.03)	0.06 (0.04)
factor(day)Saturday	-0.03 (0.04)	-0.03 (0.03)	-0.03 (0.04)
factor(day)Sunday	-0.01 (0.04)	-0.01 (0.03)	-0.02 (0.04)
factor(day)Thursday	0.00 (0.04)	0.00 (0.03)	-0.00 (0.04)
factor(day)Tuesday	0.03 (0.04)	0.04 (0.03)	0.03 (0.04)
factor(day)Wednesday	-0.01 (0.04)	0.00 (0.03)	0.00 (0.04)
medicare_c	-0.08 (0.24)	-0.04 (0.21)	0.06 (0.18)
medicaid_c	-1.18 *** (0.22)	-1.13 *** (0.20)	-0.47 ** (0.17)
commercial_c	3.02 *** (0.36)	3.23 *** (0.32)	2.72 *** (0.30)
other_c	0.49 * (0.24)	0.49 * (0.21)	0.20 (0.19)
N	13956	13956	13956
AIC	32146.09	32517.83	42480.81
BIC	32357.32	32721.51	42692.04

Pseudo R2	0.27	0.39	
R2			0.26

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Carilion Insurance with Facility Fixed Effects

	Negative Binomial	Poisson	Linear
(Intercept)	0.50 (0.51)	0.51 (0.51)	1.30 *** (0.39)
lag_t	0.03 ** (0.01)	0.03 ** (0.01)	0.02 * (0.01)
lag_at	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.00)
lag_vp	0.03 ** (0.01)	0.03 ** (0.01)	0.02 * (0.01)
lag_wbt	-0.02 ** (0.01)	-0.02 ** (0.01)	-0.02 * (0.01)
heat_wave	-0.07 (0.11)	-0.07 (0.11)	-0.08 (0.12)
cold_wave	0.12 * (0.06)	0.12 * (0.06)	0.10 (0.05)
relative_heat	0.03 (0.04)	0.03 (0.04)	0.03 (0.03)
relative_cold	-0.05 (0.04)	-0.05 (0.04)	-0.04 (0.04)
pct_female	-0.36 * (0.16)	-0.36 * (0.16)	-0.20 (0.11)
pct_white	-0.75 (0.45)	-0.75 (0.44)	-0.52 (0.35)
pct_black	-0.32 (0.51)	-0.32 (0.51)	-0.29 (0.41)
age015	-0.88 * (0.35)	-0.88 * (0.35)	-0.53 * (0.24)
age1630	-0.67 * (0.31)	-0.68 * (0.31)	-0.45 * (0.21)
age3145	-0.32 (0.32)	-0.33 (0.32)	-0.23 (0.22)
age4660	0.22 (0.32)	0.21 (0.32)	0.11 (0.22)
age6175	0.26 (0.32)	0.25 (0.32)	0.17 (0.22)
factor(day)Monday	0.10 ** (0.03)	0.10 ** (0.03)	0.09 ** (0.03)
factor(day)Saturday	-0.03 (0.03)	-0.04 (0.03)	-0.04 (0.03)
factor(day)Sunday	-0.04 (0.04)	-0.04 (0.04)	-0.05 (0.03)
factor(day)Thursday	-0.00 (0.03)	-0.00 (0.03)	-0.01 (0.03)
factor(day)Tuesday	0.05 (0.03)	0.05 (0.03)	0.04 (0.03)
factor(day)Wednesday	0.01 (0.03)	0.02 (0.03)	0.01 (0.03)
medicare_c	0.57 * (0.24)	0.57 * (0.24)	0.30 (0.16)
medicaid_c	0.16 (0.24)	0.16 (0.23)	0.10 (0.16)
commercial_c	0.53 (0.37)	0.53 (0.37)	0.44 (0.26)
other_c	-0.28 (0.25)	-0.28 (0.25)	-0.14 (0.17)
factor(facility)CGCH	-0.55 *** (0.06)	-0.55 *** (0.06)	-0.25 *** (0.04)
factor(facility)CNRV	0.36 *** (0.05)	0.36 *** (0.05)	0.25 *** (0.04)
factor(facility)CRMH	1.46 *** (0.03)	1.46 *** (0.03)	2.12 *** (0.03)
factor(facility)CSJH	-0.47 *** (0.05)	-0.47 *** (0.05)	-0.22 *** (0.04)
factor(facility)CTCH	-0.61 *** (0.06)	-0.61 *** (0.06)	-0.28 *** (0.04)
N	13956	13956	13956
AIC	29716.72	29715.65	38175.50
BIC	29965.66	29957.05	38424.44
Pseudo R2	0.40	0.52	
R2			0.46

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.