**Technical Appendix: Formal Models**

Notation: i subscript for county, t subscript for day

Model: Difference-in-Difference

Model: Event Study

Where,

is the number of inpatient beds occupied by a patient with COVID-19 per 100,000 individuals on day t, in county i

is the % of inpatient beds in county i occupied with COVID-19 patients on day t

is equal to 1 if county i was subject to a mask mandate on day t, 0 otherwise

is equal to 1 if day t is 29-42 days before county i was subject to a mask mandate, 0 otherwise

is equal to 1 if day t is 15-28 days before county i was subject to a mask mandate, 0 otherwise

is equal to 1 if day t is 0-14 days after county i was subject to a mask mandate, 0 otherwise

is equal to 1 if day t is 15-28 days after county i was subject to a mask mandate, 0 otherwise

is equal to 1 if day t is 29-42 days after county i was subject to a mask mandate, 0 otherwise

is equal to 1 if day t is 43-56 days after county i was subject to a mask mandate, 0 otherwise

is equal to 1 if day t is 57-70 days after county i was subject to a mask mandate, 0 otherwise

includes additional policy covariates for county i at time t (includes gathering bans, stay-at-home orders, restaurant closures, bar closures (note these are individual dummy variables for each policy).

are county fixed effects

are day fixed effects

is the error term

Note: left out as reference period in event study models (1-14 days before mask implementation). Analyses were also conducted at the Hospital Referral Region level in addition to county-level.