

Supplementary Movies for “Nonparametric Estimation and Inference for Spatiotemporal Epidemic Models”

The estimation results below are based on a 28-day window model fit from March 16 to September 3, 2020.

- Supplementary Movies 1-12 show the estimates and simultaneous confidence bands (SCBs) of the γ_k^I 's in the STEM Infection Model, in which the central black lines show the estimate of the functions and grey bands represent the 95% SCB.
- Supplementary Movies 13-14 show the estimated maps of the varying coefficient functions $\hat{\beta}_0^I$ and $\hat{\beta}_1^I$ in the STEM Infection Model.
- Supplementary Movie 15 shows the estimated map of the varying coefficient function $\hat{\beta}_0^D$ in the STEM Death Model.

Supplementary Movie 1 | Infection Model

Percent of African American population (AA)

Supplementary Movie 2 | Infection Model

Percent of Hispanic or Latino population (HL)

Supplementary Movie 3 | Infection Model

Population density per mile² of land area (PD*)

Supplementary Movie 4 | Infection Model

Aged people rate per population (Old)

Supplementary Movie 5 | Infection Model

Ratio of male over female (Sex)

Supplementary Movie 6 | Infection Model

Social affluence (Affluence)

Supplementary Movie 7 | Infection Model

Concentrated disadvantage (Disadvantage)

Supplementary Movie 8 | Infection Model

Gini coefficient (Gini)

Supplementary Movie 9 | Infection Model

Percent of people without health insurance (NHIC)

Supplementary Movie 10 | Infection Model

Government health expenditures per capita (EHPC)

Supplementary Movie 11 | Infection Model

Total bed counts per 1000 population (Tbed*)

Supplementary Movie 12 | Infection Model

Urban rate (Urban)

Supplementary Movie 13 | Infection Model

Estimated coefficient function map ($\hat{\beta}_0^I$).

Supplementary Movie 14 | Infection Model

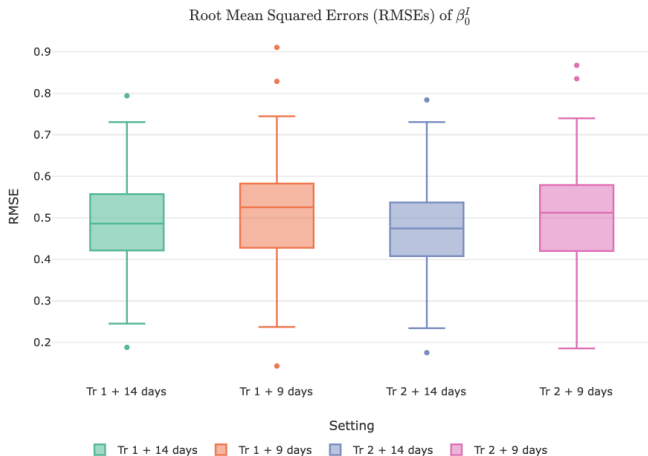
Estimated coefficient function map ($\hat{\beta}_1^I$).

Supplementary Movie 15 | Death Model

Estimated coefficient function map ($\hat{\beta}_0^D$).

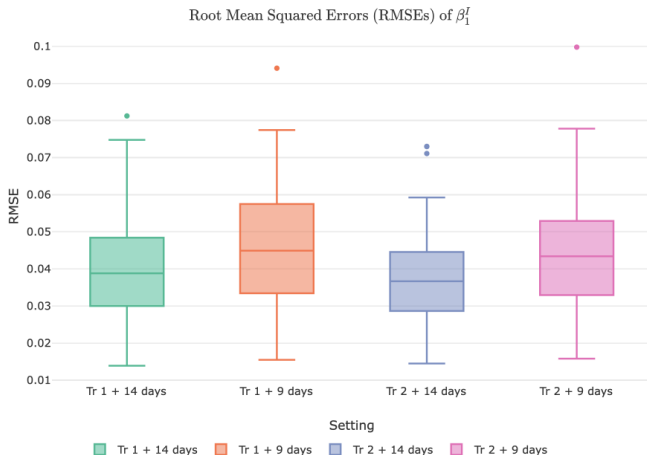
Supplementary Figure 1 | Infection Model

Root mean squared errors (RMSEs) of the estimated coefficient $\hat{\beta}_0^I$.



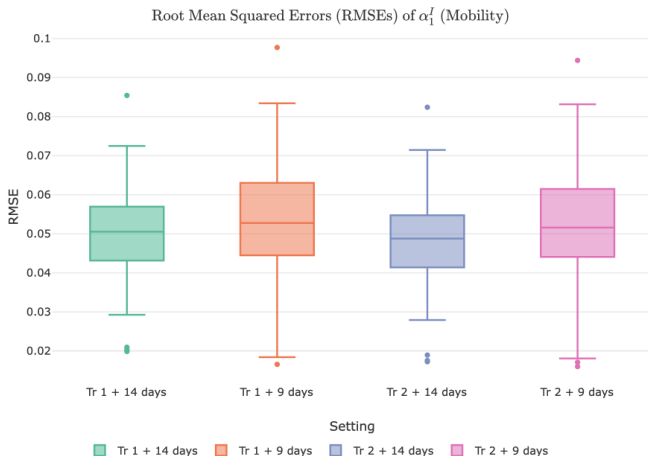
Supplementary Figure 2 | Infection Model

Root mean squared errors (RMSEs) of the estimated coefficient $\hat{\beta}_1^I$.



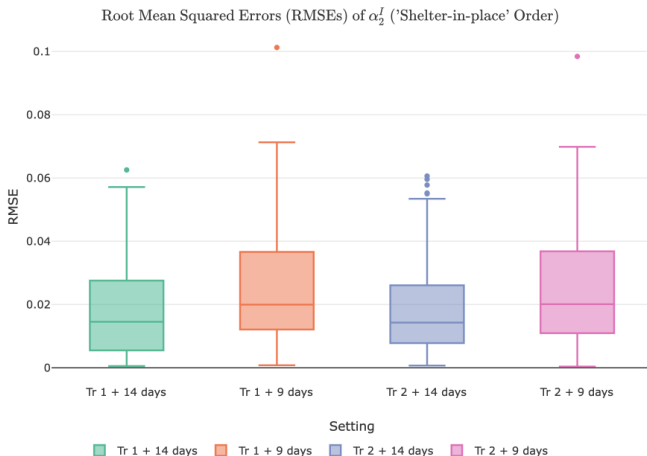
Supplementary Figure 3| Infection Model

Root mean squared errors (RMSEs) of the estimated coefficient $\hat{\alpha}_1^I$ (mobility).



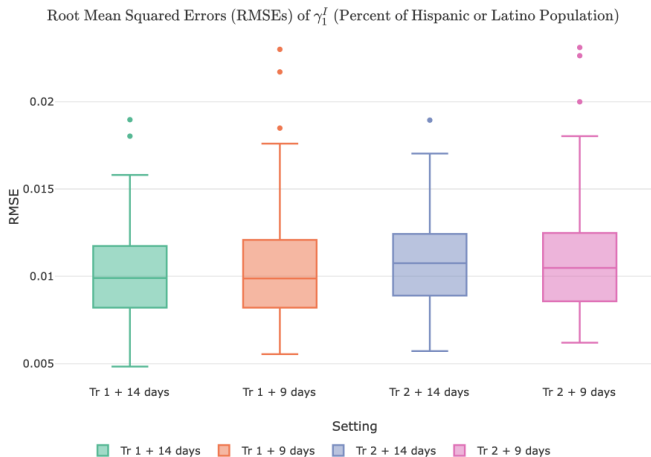
Supplementary Figure 4 | Infection Model

Root mean squared errors (RMSEs) of the estimated coefficient $\hat{\alpha}_2^I$ ('shelter-in-place' order).



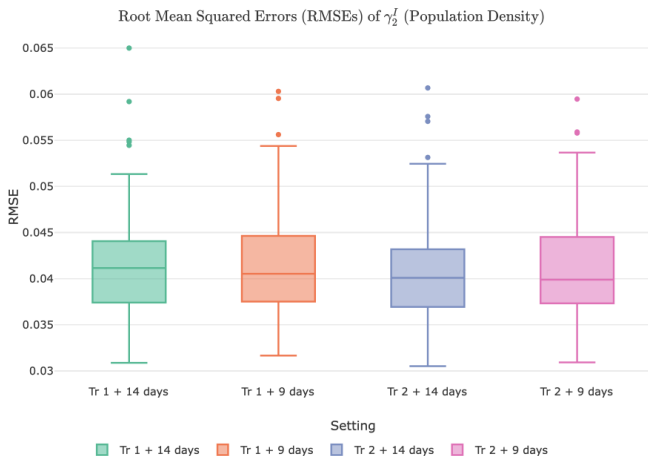
Supplementary Figure 5| Infection Model

Root mean squared errors (RMSEs) of the estimated coefficient $\hat{\gamma}_1^I$ (percent of Hispanic or Latino population).



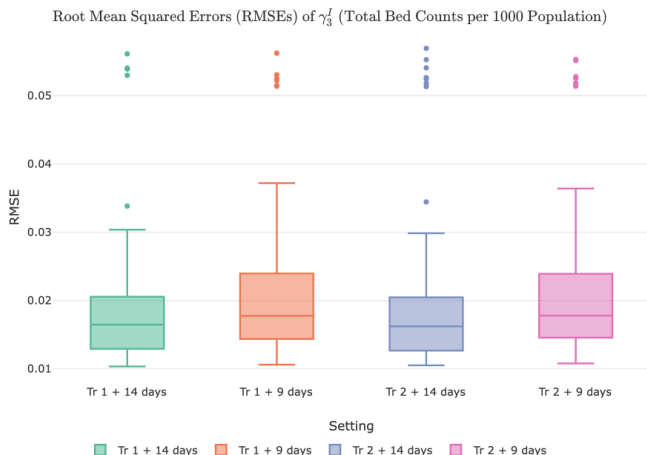
Supplementary Figure 6 | Infection Model

Root mean squared errors (RMSEs) of the estimated coefficient $\hat{\gamma}_2^I$ (population density).



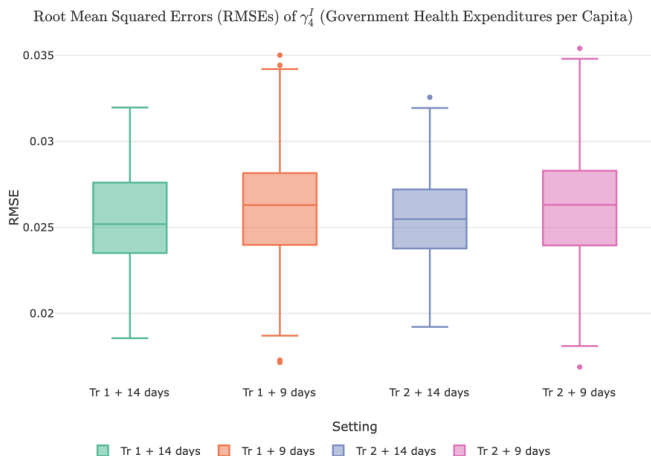
Supplementary Figure 7 | Infection Model

Root mean squared errors (RMSEs) of the estimated coefficient $\hat{\gamma}_3^I$ (total bed counts per 1000 population).



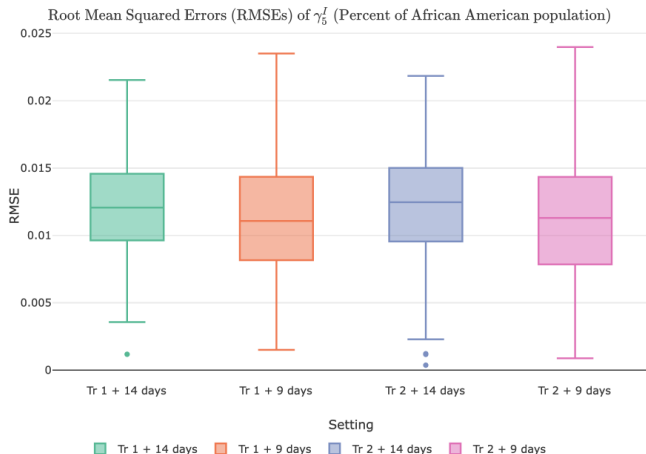
Supplementary Figure 8 | Infection Model

Root mean squared errors (RMSEs) of the estimated coefficient $\hat{\gamma}_4^I$ (government health expenditures per capita).



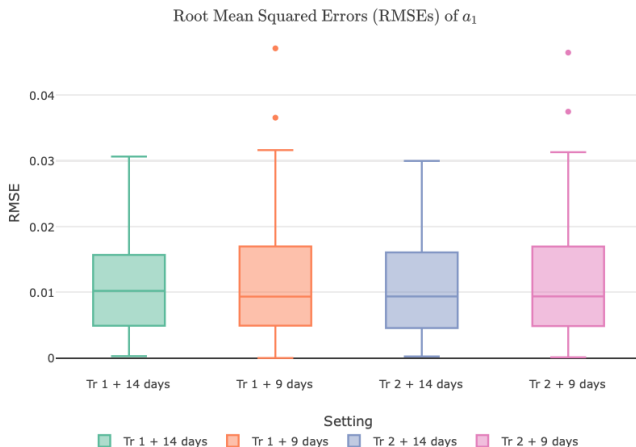
Supplementary Figure 9 | Infection Model

Root mean squared errors (RMSEs) of the estimated coefficient $\hat{\gamma}_5^I$ (percent of African American population).



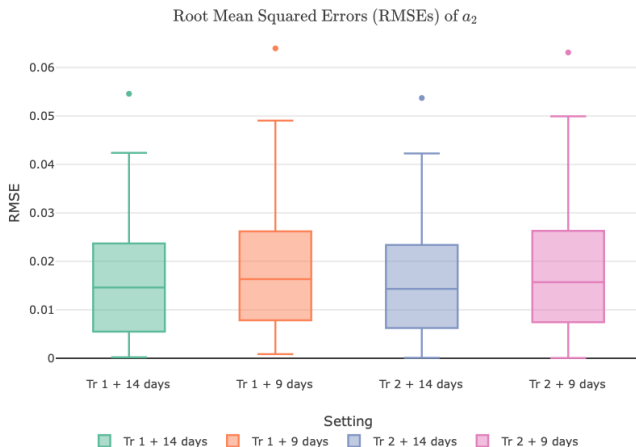
Supplementary Figure 10 | Infection Model

Root mean squared errors (RMSEs) of the estimated component \hat{a}_1 .



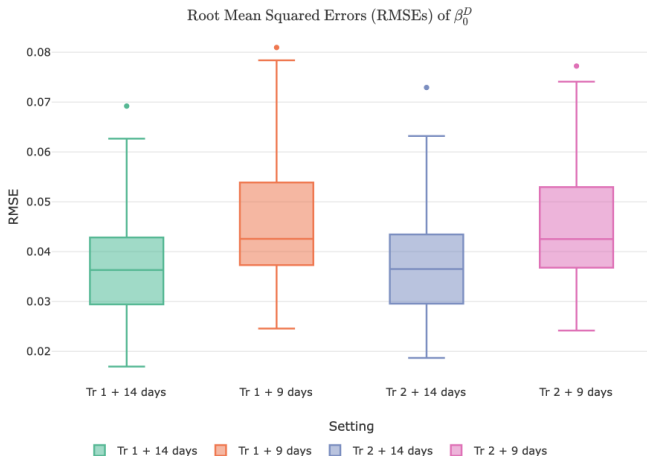
Supplementary Figure 11 | Infection Model

Root mean squared errors (RMSEs) of the estimated component \hat{a}_2 .



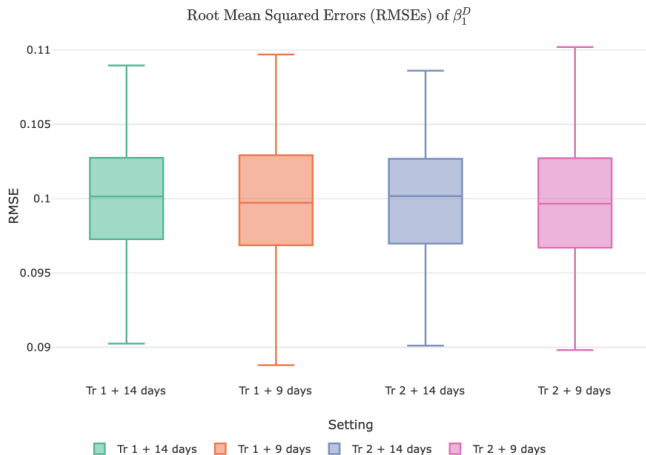
Supplementary Figure 12 | Death Model

Root mean squared errors (RMSEs) of the estimated coefficient $\hat{\beta}_0^D$.



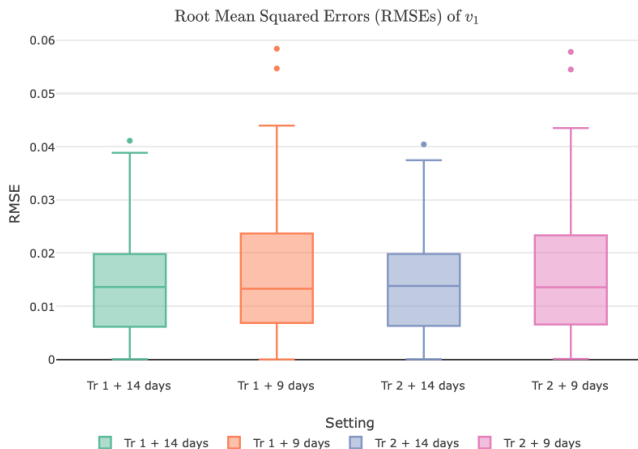
Supplementary Figure 13 | Death Model

Root mean squared errors (RMSEs) of the estimated coefficient $\hat{\beta}_1^D$.



Supplementary Figure 14 | Death Model

Root mean squared errors (RMSEs) of the estimated component \hat{v}_1 .



Supplementary Figure 15 | Death Model

Root mean squared errors (RMSEs) of the estimated component \hat{v}_2 .

