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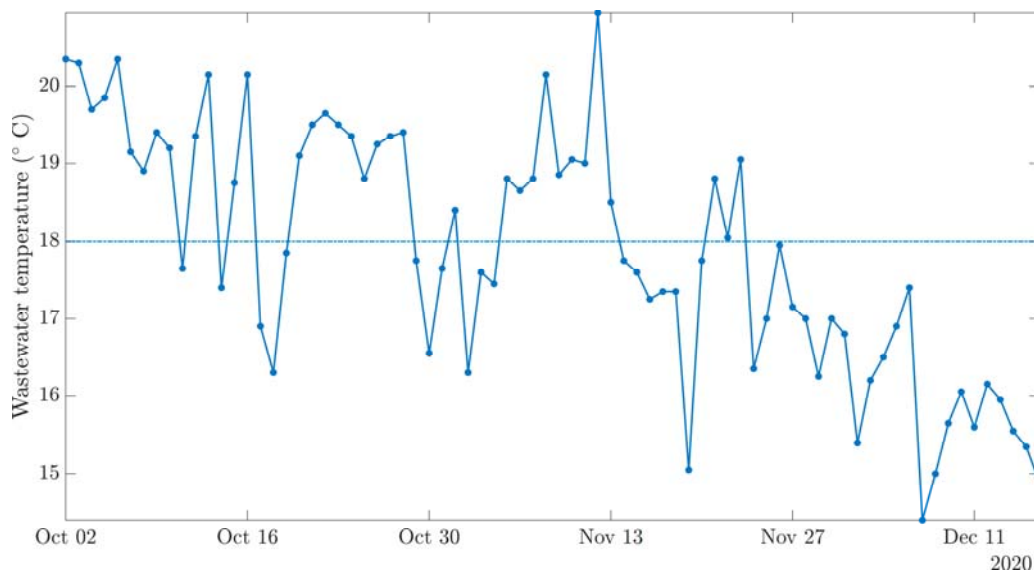
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591 **Supplementary Figures**

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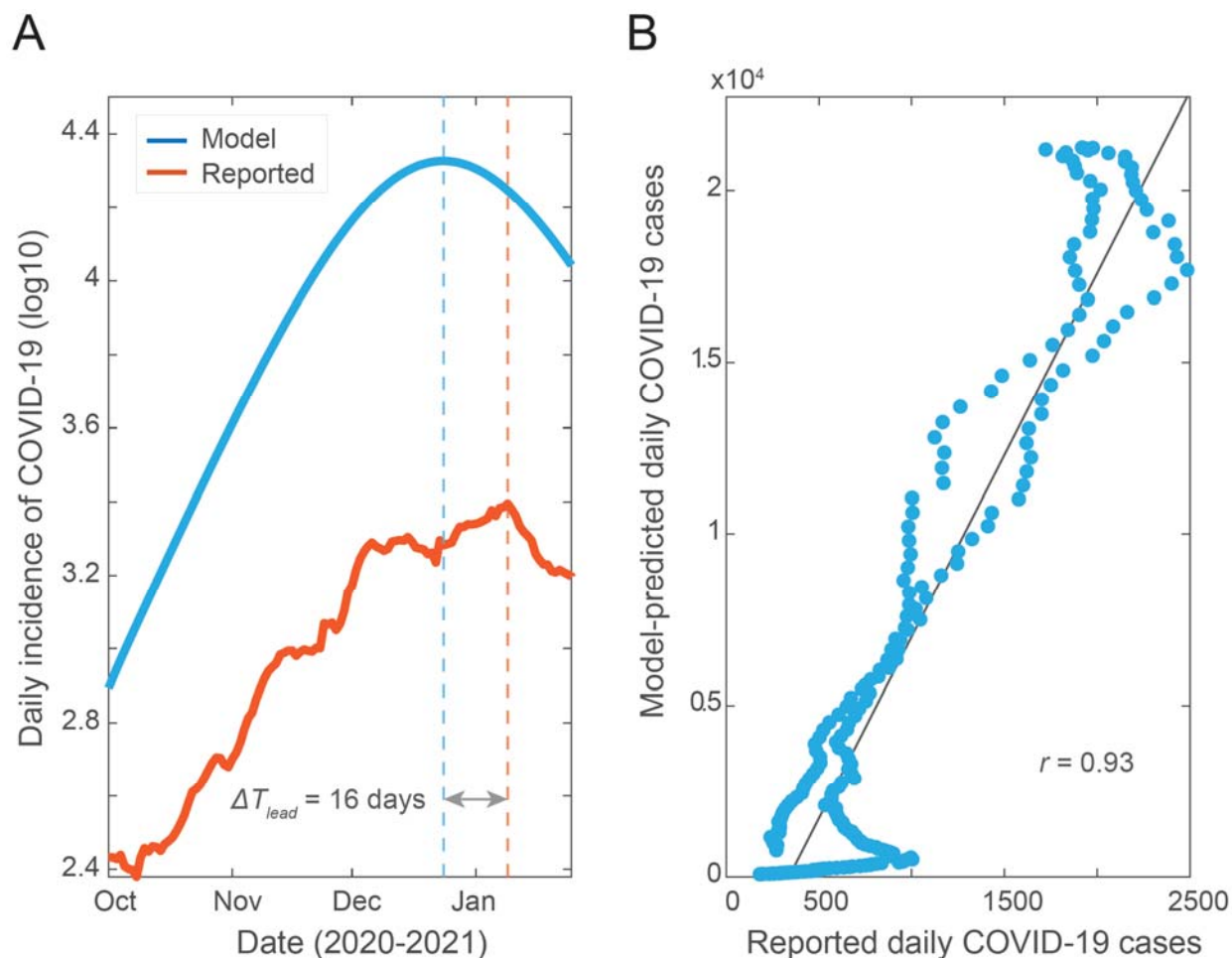


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594 **Figure S1. Wastewater temperature data during the model fitting period.** Over the fitting
595 duration (from Oct 02 to Dec 16, 2020), the average temperature is relatively constant at around
596 18 degrees Celsius.

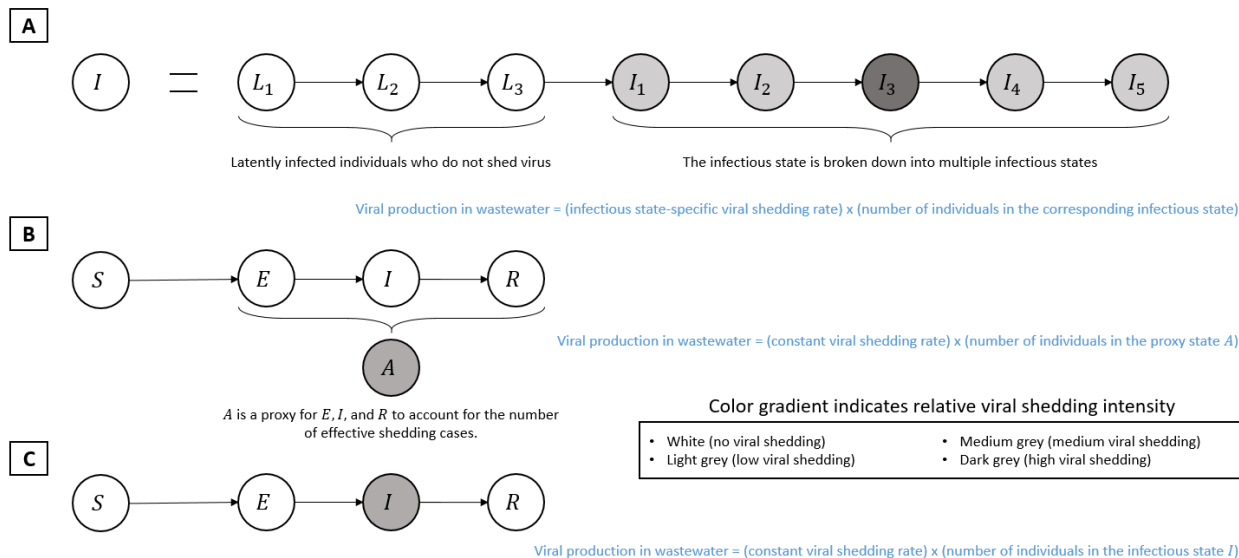
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600 **Figure S2. Predicted cases and correlation plot for the SEIR-V model with temperature**
601 **effect.** The wastewater data covers the second wave of pandemic (October 2, 2020 to January 25,
602 2021). (A) Model simulation of the true number of COVID-19 cases and clinically reported
603 cases. (B) Correlation between the number of model-predicted cases and reported cases (daily).



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605 **Figure S3. Comparison of underlying frameworks for modeling of wastewater surveillance data.** Two general
 606 methods have been reported to connect viral concentration in wastewater to epidemic model. (A) is representative of
 607 Brouwer et al. and Nourbakhsh et al. (Brouwer et al., 2022; Nourbakhsh et al., 2022), (B) is representative of
 608 Proverbio et al. (Proverbio et al., 2022), and (C) is the proposed model framework.