Supplementary Materials to:

Twice weekly PCR surveillance swabs are not as effective as daily antigen testing for containment of SARS-CoV-2 outbreaks: a modeling study based on real world data from a child and adolescent psychiatry clinic

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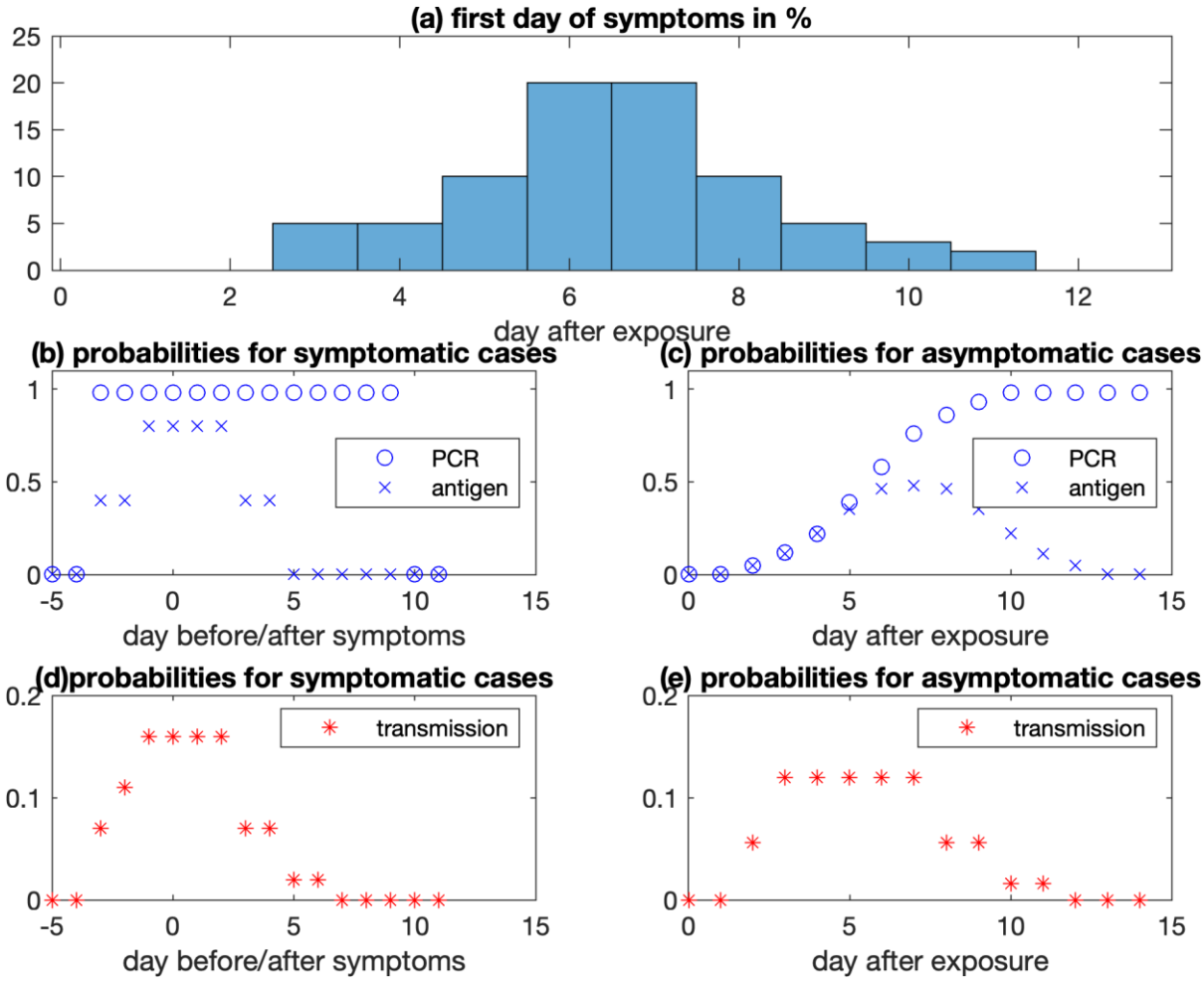
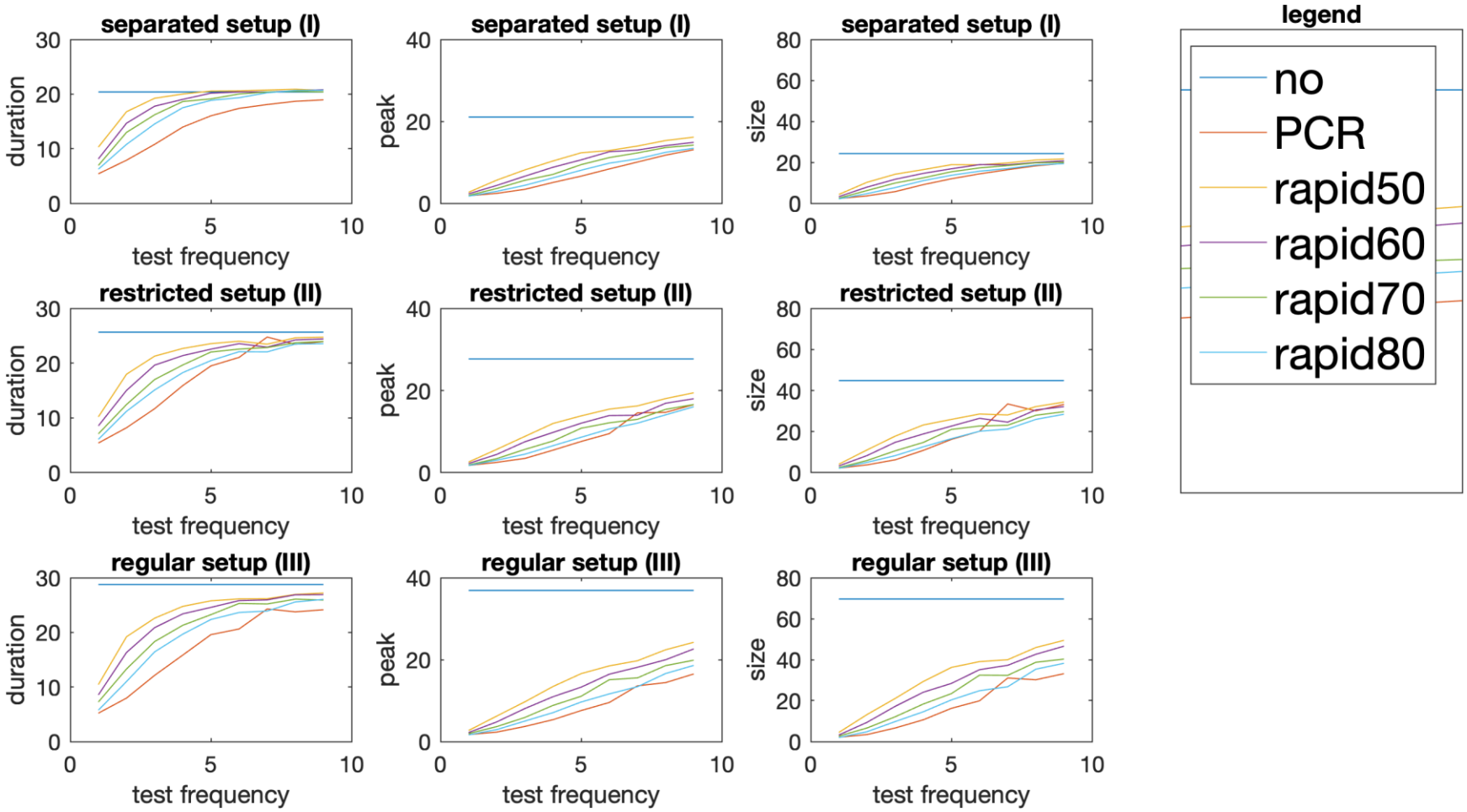
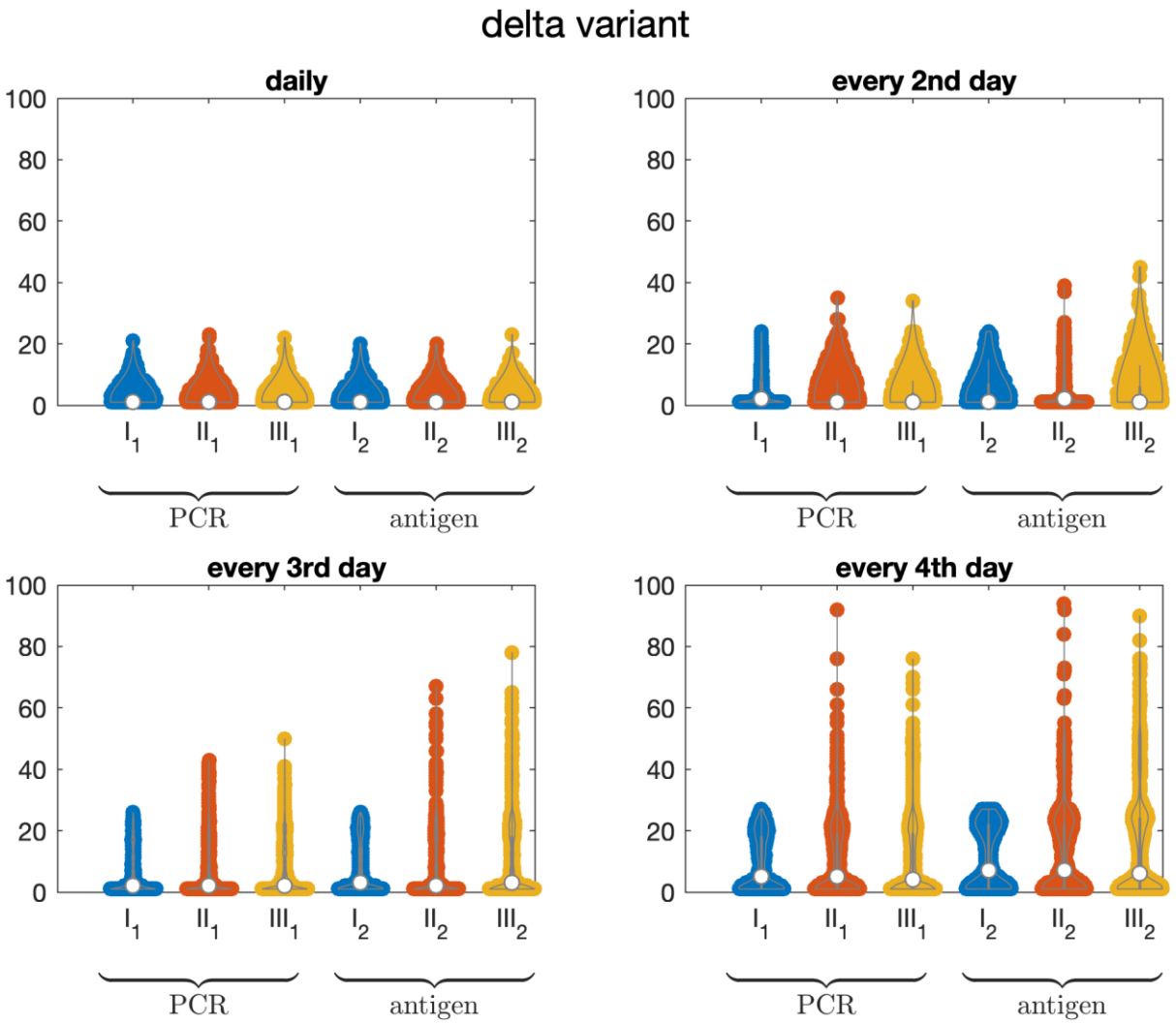
Suppl. Figure 1: Parameters of transmission kinetics for the delta variant. (a) Distribution of time to first symptom after exposure; 20% of cases were assumed to be asymptomatic. (b) Distribution of the probability for transmission and for a positive test result from start of symptoms. (c) Distribution of transmission and distribution of a positive test result for asymptomatic cases from day after exposure. PCR (o), Antigen test (x), transmission (*)



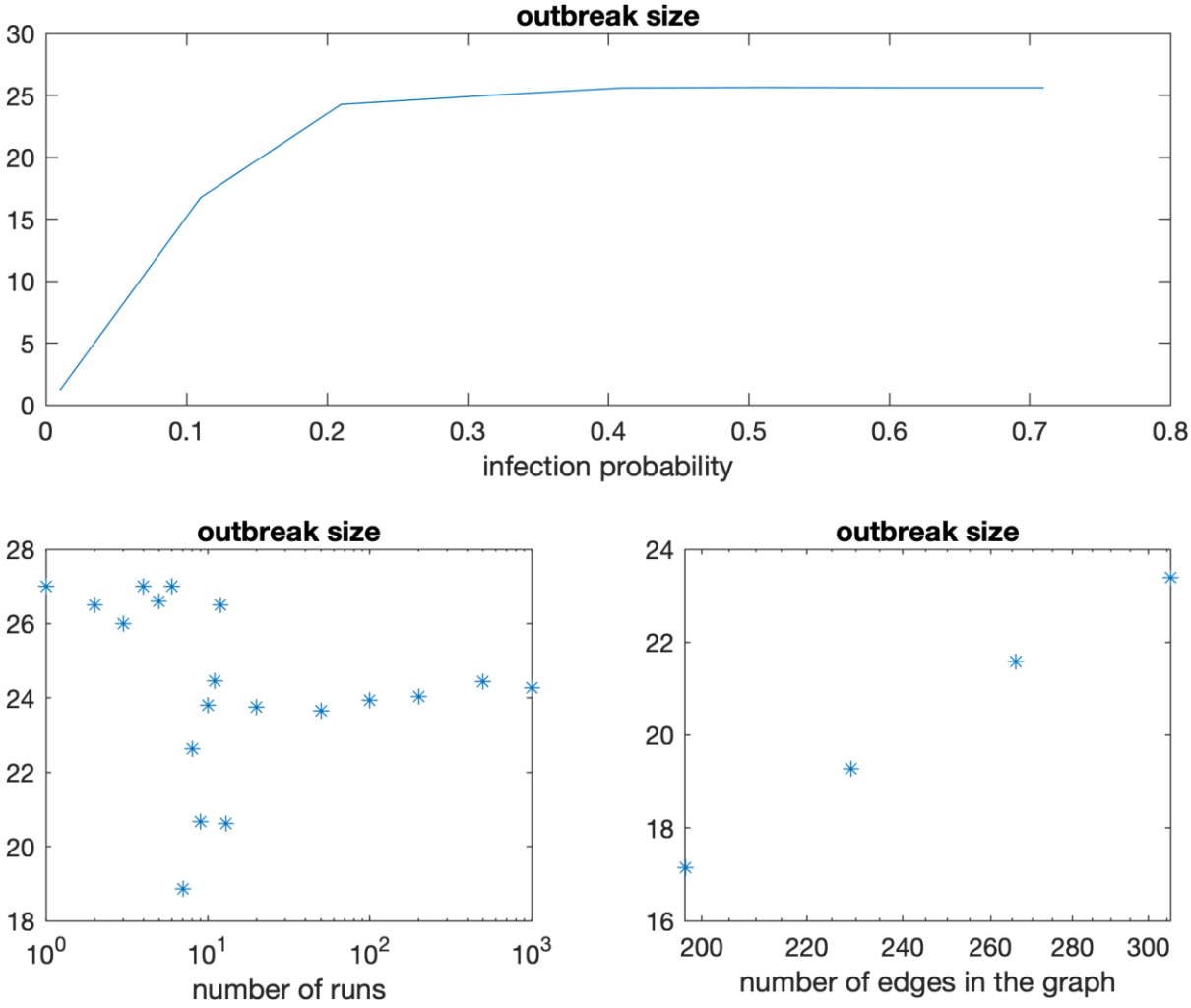
Suppl. Figure 2: Influence of test frequency on outbreak duration (left panels), peak (middle panels), and size of the outbreak (right panels) in the separated (I), restricted (II), and regular setup (III). The colored lines denote PCR test and rapid antigen tests with different sensitivities (50%, 60%, 70%, and 80%). All data is for the delta virus variant.



Suppl. Figure 3: Outbreak size for four testing frequencies (every day to every 4 days). Simulations were performed for the delta variant with three network setups (I, II, III), PCR tests (1) and rapid antigen tests with 80% sensitivity (2).



Suppl. Figure 4: For model validation, we varied one input setting of the model and observed whether changes in outbreak size followed expected patterns. When increasing infection probability (a) and increasing the number of edges in the graph (c), outbreak size increased. When the number of runs were increased, outbreak size converged (b).



Suppl. Table 1a: Distribution of the start of symptoms counting from the day of transmission.

day symptoms start	1	2	3	4	5	6	7	8	9	10
percentage delta	0	5	5	10	20	20	10	5	3	2
percentag omicron	5	5	10	20	20	10	5	3	2	0

Suppl. Table 1b: Probability of positive test results for PCR and antigen testing and probability of infectiousness for symptomatic individuals, counting from the day the symptoms start

day after symtoms start	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
CT value			25	20	20	20	20	20	25	25	30	30	35	35	35
probability positiv PCR	0,00	0,00	0,98	0,98	0,98	0,98	0,98	0,98	0,98	0,98	0,98	0,98	0,98	0,98	0,98
probability positiv antigen	0,00	0,00	0,40	0,40	0,80	0,80	0,80	0,80	0,40	0,40	0,00	0,00	0,00	0,00	0,00
probability of being infectious	none	none	medium	high	high	high	high	high	medium	medium	low	low	none	none	none
probability of being infectious	0,00	0,00	0,07	0,11	0,16	0,16	0,16	0,16	0,07	0,07	0,02	0,02	0,00	0,00	0,00

Suppl. Table 1c: Probability of positive test results for PCR and antigen testing and probability of infectiousness for symptomatic individuals, counting from the day of transmission

day after exposure	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
probability positiv PCR delta	0,00	0,00	0,05	0,12	0,22	0,39	0,58	0,76	0,86	0,93	0,98	0,98	0,98	0,98	0,98
probability positiv antigen delta	0,00	0,00	0,06	0,14	0,28	0,44	0,58	0,60	0,58	0,44	0,28	0,14	0,06	0,00	0,00
probability of being infectious delta	0,00	0,00	0,07	0,15	0,15	0,15	0,15	0,15	0,07	0,07	0,02	0,02	0,00	0,00	0,00
probability positiv PCR omicron	0,00	0,05	0,12	0,22	0,39	0,58	0,76	0,86	0,93	0,98	0,98	0,98	0,98	0,98	0,00
probability positiv antigen omircon	0,00	0,06	0,14	0,28	0,44	0,58	0,60	0,58	0,44	0,28	0,14	0,06	0,00	0,00	0,00
probability of being infectious omicron	0,00	0,07	0,15	0,15	0,15	0,15	0,15	0,07	0,07	0,02	0,02	0,00	0,00	0,00	0,00

Suppl. Table 2: Results of 1,000 simulations in the indicated setting. Mean, median, and percentiles are shown for duration, peak, and size of the outbreak. Additionally, the percentage of spread to one, two, or three additional wards is shown. **Table 2a:** Data for the delta virus variant; **Table 2b:** Data for the omicron variant.