

**Supplemental Table 1.** Key simulation parameters used in this study.

<b>Parameters</b>	<b>Input</b>
Number of staff per shift	5, 10, 20, 30
Number of shifts per day	1, 2, 3
Total number of staff (expressed as multiples of staff in the first shift)	2, 4, 6
Frequency of shift change	After 1 day, as well as after 3, 7, 14 consecutive days
Secondary attack rates	5%, 15%, 30%
Average number of staff contact per shift in Poisson distribution, $c$ , under base model	40% of the number of staff in the same shift
Average number of staff contact per shift in Poisson distribution, $c$ , under social distancing model	20% of the number of staff in the same shift
Duration of simulation when outcome is examined (days)	7, 14 and 21
<i>Protective measures</i>	<i>Odds ratio</i>
Wearing gloves	0.45
Wearing surgical mask	0.32
Wearing gown	0.23
Wearing N95 mask	0.09

**Supplemental Table 2.** Proportion of simulated laboratory staff infected by COVID-19 in [base scenario with 15% probability](#) of secondary infection at the end of day 7, day 14 and day 21 of the simulation. In this base scenario, the simulated staff worked fixed alternating workdays (i.e. fixed consecutive days on, and fixed minimum consecutive days off). The results shown are the median of 100 cycles of simulation. NA = not available as the number of staff per shift is too low to simulate under the required conditions.

Total number of staff strength		2					4					6						
End of Day 7	Freq. of staff change, days	1	3	7	14	21	1	3	7	14	21	1	3	7	14	21		
No. of shift/ day 1	Number of staff per shift	5	0.2	0.2	0.3	0.4	0.3	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.1	0.1	0.1	
		1	0	0	0	0	0	0	0	0	0	5	3	5	3	0	3	
		0	0.2	0.2	0.4	0.4	0.4	0.0	0.1	0.2	0.2	0.2	0.0	0.0	0.1	0.1	0.1	
		2	0	5	0	3	5	7	0	0	0	0	3	5	5	3	5	
		0	0.3	0.3	0.5	0.5	0.5	0.0	0.1	0.2	0.2	0.2	0.0	0.0	0.1	0.1	0.1	
		3	0	1	3	0	0	0	7	1	5	5	5	3	8	7	7	
	2	Number of staff per shift	0	0.4	0.4	0.5	0.5	0.5	0.0	0.1	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.1
			0	1	0	0	0	0	9	6	5	5	5	5	1	7	7	7
			5	NA	NA	NA	NA	NA	0.0	0.1	0.1	0.2	0.2	0.0	0.0	0.1	0.1	0.1
			1	NA	NA	NA	NA	NA	5	0	5	0	0	3	7	0	3	3
			0	NA	NA	NA	NA	NA	0.0	0.1	0.2	0.2	0.2	0.0	0.0	0.1	0.1	0.1
			2	NA	NA	NA	NA	NA	7	0	0	1	0	3	7	5	5	3
	3	Number of staff per shift	0	NA	NA	NA	NA	NA	0.0	0.1	0.2	0.2	0.2	0.0	0.0	0.1	0.1	0.1
			3	NA	NA	NA	NA	NA	9	4	5	5	5	5	8	7	7	7
			0	NA	NA	NA	NA	NA	0.1	0.1	0.2	0.2	0.2	0.0	0.0	0.1	0.1	0.1
			5	NA	NA	NA	NA	NA	5	8	5	5	5	5	9	7	7	7
			1	NA	NA	NA	NA	NA	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.1	0.1	0.1
			0	NA	NA	NA	NA	NA	0	0	5	0	5	3	7	3	0	0
End of Day 14	No. of shift/ day 1	5	0.3	0.4	0.3	0.5	0.5	0.1	0.1	0.2	0.2	0.2	0.0	0.0	0.1	0.1	0.1	
		1	0	0	0	0	0	0	5	0	5	5	7	7	3	7	7	
		0	0.4	0.4	0.4	0.5	0.5	0.1	0.2	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.1	
		2	0	5	0	0	0	7	1	0	5	5	5	0	5	7	7	
		0	0.5	0.5	0.5	0.5	0.5	0.2	0.4	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	
		3	0	0	0	0	0	6	2	5	5	5	0	4	7	7	7	

			3	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.6	0.2	0.2	0.2	0.1	0.3	0.1	0.1	0.1
			0	0	0	0	0	0	0	8	1	5	5	5	9	9	7	7	7
	2	Number of staff per shift								0.1	0.1	0.1	0.2	0.2	0.0	0.1	0.1	0.1	0.1
			5	NA	NA	NA	NA	NA	NA	5	5	5	5	5	7	0	0	7	7
			1							0.1	0.2	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.1
			0	NA	NA	NA	NA	NA	NA	7	5	0	5	5	7	2	5	7	7
			2							0.4	0.4	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1
			0	NA	NA	NA	NA	NA	NA	1	6	5	5	5	3	8	7	7	7
			3							0.6	0.6	0.2	0.2	0.2	0.2	0.4	0.1	0.1	0.1
			0	NA	NA	NA	NA	NA	NA	6	3	5	5	5	5	1	7	7	7
	3	Number of staff per shift								0.1	0.2	0.1	0.2	0.2	0.0	0.1	0.1	0.1	0.1
			5	NA	NA	NA	NA	NA	NA	5	0	5	5	5	7	0	3	7	7
			1							0.2	0.2	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.1
			0	NA	NA	NA	NA	NA	NA	0	5	0	5	5	8	0	3	7	7
			2							0.5	0.4	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1
			0	NA	NA	NA	NA	NA	NA	3	6	5	5	5	5	9	7	7	7
			3							0.7	0.6	0.2	0.2	0.2	0.3	0.4	0.1	0.1	0.1
			0	NA	NA	NA	NA	NA	NA	8	3	5	5	5	4	6	7	7	7
End of Day 21																			
		No. of shift/ day																	
	1	Number of staff per shift								0.4	0.5	0.5	0.5	0.5	0.5	0.2	0.2	0.3	0.2
			5	0	0	0	0	0	0	0	0	0	5	5	8	0	3	7	7
			1	0.5	0.5	0.5	0.5	0.5	0.5	0.3	0.4	0.3	0.2	0.2	0.1	0.1	0.2	0.1	0.1
			0	0	0	0	0	0	0	4	5	8	5	5	0	7	5	7	7
			2	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.4	0.2	0.2	0.2	0.4	0.2	0.1	0.1
			0	0	0	0	0	0	0	3	3	1	5	5	4	7	9	7	7
			3	0.5	0.5	0.5	0.5	0.5	0.5	0.8	0.8	0.4	0.2	0.2	0.5	0.6	0.3	0.1	0.1
			0	0	0	0	0	0	0	8	2	2	5	5	0	2	0	7	7
	2	Number of staff per shift								0.2	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1
			5	NA	NA	NA	NA	NA	NA	0	3	0	5	5	0	3	7	7	7
			1							0.4	0.4	0.3	0.2	0.2	0.1	0.2	0.2	0.1	0.1
			0	NA	NA	NA	NA	NA	NA	1	7	8	5	5	2	2	7	7	7
			2							0.8	0.7	0.4	0.2	0.2	0.3	0.5	0.3	0.1	0.1
			0	NA	NA	NA	NA	NA	NA	2	9	5	5	5	6	3	3	7	7
			3							0.9	0.9	0.4	0.2	0.2	0.6	0.6	0.3	0.1	0.1
			0	NA	NA	NA	NA	NA	NA	7	0	7	5	5	4	9	4	7	7
	3	Number of staff per shift								0.3	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1
			5	NA	NA	NA	NA	NA	NA	0	5	0	5	5	0	3	7	7	7

1						0.4	0.4	0.4	0.2	0.2	0.1	0.2	0.2	0.1	0.1
0	NA	NA	NA	NA	NA	5	7	0	5	5	7	1	7	7	7
2						0.9	0.7	0.4	0.2	0.2	0.4	0.5	0.3	0.1	0.1
0	NA	NA	NA	NA	NA	3	8	9	5	5	0	8	7	7	7
3						0.9	0.9	0.4	0.2	0.2	0.8	0.7	0.3	0.1	0.1
0	NA	NA	NA	NA	NA	9	3	9	5	5	0	8	9	7	7

**Supplemental Table 3.** Proportion of simulated laboratory staff infected by COVID-19 in [base scenario with 5% probability](#) of secondary infection at the end of day 7, day 14 and day 21 of the simulation. In this scenario, the simulated staff worked fixed alternating workdays (i.e. fixed consecutive days on, and fixed minimum consecutive days off). The results shown are the median of 100 cycles of simulation. NA = not available as the number of staff per shift was too low to simulate under the required conditions.

Total number of staff strength		2					4					6						
End of Day 7	Freq. of staff change, days	1	3	7	14	21	1	3	7	14	21	1	3	7	14	21		
No. of shift/ day	1 shift	5	0.1	0.1	0.2	0.1	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
		1	0	0	0	0	0	5	5	0	5	5	3	3	7	7	3	
		0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		2	0	0	5	2	5	3	3	7	5	7	2	2	3	5	3	
		0	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		7	7	7	0	7	7	3	4	7	7	7	2	2	5	5	6	
	2 shift	3	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	
		0	8	8	3	3	3	2	3	2	2	2	1	2	9	8	8	
		5	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	
		1	NA	NA	NA	NA	NA	5	5	8	0	5	3	3	7	7	7	
		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
		2	NA	NA	NA	NA	NA	3	5	7	5	7	2	2	5	3	3	
	3 shift	0	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
		3	NA	NA	NA	NA	NA	3	3	9	9	7	2	3	5	6	6	
		0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	
		5	NA	NA	NA	NA	NA	3	3	2	1	2	1	2	9	8	9	
		1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	
		0	NA	NA	NA	NA	NA	5	5	0	0	0	3	3	3	3	7	
	End of Day 14	1 shift	1	0.1	0.2	0.2	0.3	0.3	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0
			5	0	0	0	0	0	5	5	0	0	0	3	3	7	0	7
			0	0.1	0.1	0.1	0.3	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1
2			5	5	5	0	5	5	5	7	5	5	2	3	3	0	0	
0			0.1	0.2	0.2	0.4	0.4	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.1	0.1	
7			0	0	5	5	4	6	7	2	1	2	2	3	5	5	5	
2 shift		3	0.2	0.3	0.2	0.5	0.4	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.1	
		0	3	0	3	0	9	5	7	2	5	4	2	4	9	6	6	
		5	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	
		1	NA	NA	NA	NA	NA	5	5	8	0	0	3	3	7	0	8	
		0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	
		2	NA	NA	NA	NA	NA	5	5	7	5	5	3	3	5	0	0	
		0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.1	0.1	
		7	NA	NA	NA	NA	NA	5	7	9	3	1	3	3	5	4	5	

		3					0.0	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.1
		0	NA	NA	NA	NA	6	1	2	4	5	2	5	9	6	7
	3						0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
		5	NA	NA	NA	NA	5	5	0	0	5	3	3	3	7	7
		1					0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1
		0	NA	NA	NA	NA	5	6	5	5	5	3	3	5	0	0
		2					0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.1	0.1
		0	NA	NA	NA	NA	5	9	8	3	4	3	4	6	5	5
		3					0.0	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.1
		0	NA	NA	NA	NA	9	1	2	5	5	3	5	8	7	6
End of Day 21																
	No. of shift/ day															
		1					0.2	0.2	0.2	0.3	0.4	0.0	0.0	0.1	0.1	0.2
		5	0	0	0	0	5	5	0	0	0	3	3	7	0	0
		1	0.2	0.3	0.3	0.3	0.4	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.1
		0	5	0	0	0	5	5	7	7	5	3	3	3	4	0
		2	0.3	0.3	0.4	0.4	0.5	0.0	0.1	0.2	0.2	0.2	0.0	0.0	0.1	0.1
		0	3	8	5	5	0	7	1	1	2	5	3	4	1	5
		3	0.4	0.4	0.4	0.5	0.5	0.1	0.1	0.3	0.2	0.2	0.0	0.0	0.2	0.1
		0	5	7	9	0	0	2	7	0	5	5	4	8	0	6
	2						0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1
		5	NA	NA	NA	NA	5	5	0	0	5	3	3	7	0	3
		1					0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.1
		0	NA	NA	NA	NA	5	7	2	5	3	3	3	7	0	5
		2					0.1	0.1	0.2	0.2	0.2	0.0	0.0	0.1	0.1	0.1
		0	NA	NA	NA	NA	0	3	5	3	5	3	5	2	4	7
		3					0.1	0.2	0.3	0.2	0.2	0.0	0.1	0.2	0.1	0.1
		0	NA	NA	NA	NA	4	6	3	4	5	5	0	2	6	7
	3						0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.1
		5	NA	NA	NA	NA	0	0	0	0	0	3	3	7	7	0
		1					0.0	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.1
		0	NA	NA	NA	NA	7	0	2	5	3	3	3	7	0	3
		2					0.1	0.1	0.2	0.2	0.2	0.0	0.0	0.1	0.1	0.1
		0	NA	NA	NA	NA	1	8	5	3	5	4	7	4	5	7
		3					0.2	0.2	0.3	0.2	0.2	0.0	0.1	0.2	0.1	0.1
		0	NA	NA	NA	NA	3	8	5	5	5	6	1	2	7	7



**Supplemental Table 4.** Proportion of simulated laboratory staff infected by COVID-19 in [base scenario with 30% probability](#) of secondary infection at the end of day 7, day 14 and day 21 of the simulation. In this scenario, the simulated staff worked fixed alternating workdays (i.e. fixed consecutive days on, and fixed minimum consecutive days off). The results shown are the median of 100 cycles of simulation. NA = not available as the number of staff per shift was too low to simulate under the required conditions.

Total number of staff strength		2					4					6					
End of Day 7	Freq. of staff change, days	1	3	7	14	21	1	3	7	14	21	1	3	7	14	21	
No. of shift/ day 1	Number of staff per shift	5	0.4	0.3	0.5	0.5	0.5	0.1	0.2	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.1
		1	0	0	0	0	0	0	0	0	5	5	5	7	0	7	7
		0	0.4	0.4	0.5	0.5	0.5	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.1	0.1	0.1
		2	3	5	0	0	0	2	1	5	5	5	7	2	7	7	7
		0	0.5	0.5	0.5	0.5	0.5	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
		0	0	0	0	0	0	5	0	5	5	5	0	9	7	7	7
	2	Number of staff per shift	3	0.5	0.5	0.5	0.5	0.5	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.1
			0	0	0	0	0	0	5	5	5	5	5	4	2	7	7
			5	NA	NA	NA	NA	NA	0.1	0.2	0.2	0.2	0.2	0.0	0.1	0.1	0.1
			1	NA	NA	NA	NA	NA	5	0	5	5	5	7	0	7	7
			0	NA	NA	NA	NA	NA	0.1	0.2	0.2	0.2	0.2	0.0	0.1	0.1	0.1
			2	NA	NA	NA	NA	NA	6	3	5	5	5	8	3	7	7
	3	Number of staff per shift	0	NA	NA	NA	NA	NA	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1
			3	NA	NA	NA	NA	NA	6	1	5	5	5	2	9	7	7
			0	NA	NA	NA	NA	NA	0.4	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.1
			5	NA	NA	NA	NA	NA	4	8	5	5	5	9	4	7	7
			1	NA	NA	NA	NA	NA	0.1	0.1	0.2	0.2	0.2	0.0	0.1	0.1	0.1
			0	NA	NA	NA	NA	NA	5	5	5	5	5	7	0	7	7
	End of Day 14	No. of shift/ day 1	1	0.5	0.5	0.5	0.5	0.5	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1
			0	0	0	0	0	0	5	0	5	5	5	2	7	7	7
			2	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.2	0.2	0.2	0.1	0.3	0.1	0.1
0			0	0	0	0	0	7	5	5	5	5	9	2	7	7	
3			0.5	0.5	0.5	0.5	0.5	0.8	0.7	0.2	0.2	0.2	0.4	0.5	0.1	0.1	
0			0	0	0	0	0	1	1	5	5	5	2	1	7	7	
2	Number of staff per shift	3	0.5	0.5	0.5	0.5	0.5	0.9	0.7	0.2	0.2	0.2	0.6	0.5	0.1	0.1	
		0	0	0	0	0	0	3	3	5	5	5	1	4	7	7	
		5	NA	NA	NA	NA	NA	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.1	
		1	NA	NA	NA	NA	NA	2	5	5	5	5	3	0	7	7	
		0	NA	NA	NA	NA	NA	0.6	0.5	0.2	0.2	0.2	0.2	0.3	0.1	0.1	
		2	NA	NA	NA	NA	NA	0	7	5	5	5	3	2	7	7	
End of Day 14	No. of shift/ day 1	2	0.8	0.7	0.2	0.2	0.2	0.5	0.5	0.1	0.1	0.1	0.5	0.5	0.1	0.1	
		0	0	0	0	0	0	9	9	5	5	5	4	7	7	7	

		3					0.9	0.8	0.2	0.2	0.2	0.7	0.6	0.1	0.1	0.1	
		0	NA	NA	NA	NA	8	5	5	5	5	7	3	7	7	7	
	3						0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	
		5	NA	NA	NA	NA	0	5	5	5	5	7	0	7	7	7	
		1					0.6	0.5	0.2	0.2	0.2	0.3	0.3	0.1	0.1	0.1	
		0	NA	NA	NA	NA	8	5	5	5	5	1	7	7	7	7	
		2					0.9	0.7	0.2	0.2	0.2	0.7	0.6	0.1	0.1	0.1	
		0	NA	NA	NA	NA	6	8	5	5	5	0	1	7	7	7	
		3					1.0	0.8	0.2	0.2	0.2	0.8	0.7	0.1	0.1	0.1	
		0	NA	NA	NA	NA	0	6	5	5	5	7	2	7	7	7	
End of Day 21																	
	No. of shift/ day																
	1						0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.4	0.2	0.2	0.2
		5	0	0	0	0	0	3	0	0	5	5	0	0	3	7	7
		1	0.5	0.5	0.5	0.5	0.5	0.8	0.7	0.4	0.2	0.2	0.4	0.5	0.3	0.1	0.1
		0	0	0	0	0	0	2	8	2	5	5	1	3	0	7	7
		2	0.5	0.5	0.5	0.5	0.5	0.9	0.8	0.4	0.2	0.2	0.8	0.6	0.3	0.1	0.1
		0	0	0	0	0	0	7	8	1	5	5	0	9	0	7	7
		3	0.5	0.5	0.5	0.5	0.5	1.0	0.8	0.4	0.2	0.2	0.9	0.7	0.3	0.1	0.1
		0	0	0	0	0	0	0	8	2	5	5	1	1	0	7	7
	2						0.6	0.5	0.4	0.2	0.2	0.2	0.3	0.2	0.1	0.1	
		5	NA	NA	NA	NA	5	5	0	5	5	3	0	7	7	7	
		1					0.9	0.8	0.4	0.2	0.2	0.5	0.5	0.3	0.1	0.1	
		0	NA	NA	NA	NA	3	5	5	5	5	1	7	2	7	7	
		2					1.0	0.9	0.4	0.2	0.2	0.9	0.7	0.3	0.1	0.1	
		0	NA	NA	NA	NA	0	5	6	5	5	0	8	5	7	7	
		3					1.0	0.9	0.4	0.2	0.2	0.9	0.8	0.3	0.1	0.1	
		0	NA	NA	NA	NA	0	7	6	5	5	7	3	5	7	7	
	3						0.6	0.5	0.4	0.2	0.2	0.3	0.3	0.2	0.1	0.1	
		5	NA	NA	NA	NA	5	0	0	5	5	0	3	7	7	7	
		1					0.9	0.8	0.4	0.2	0.2	0.6	0.6	0.3	0.1	0.1	
		0	NA	NA	NA	NA	5	5	7	5	5	6	5	3	7	7	
		2					1.0	0.9	0.5	0.2	0.2	0.9	0.8	0.3	0.1	0.1	
		0	NA	NA	NA	NA	0	9	0	5	5	7	6	8	7	7	
		3					1.0	0.9	0.5	0.2	0.2	0.9	0.9	0.3	0.1	0.1	
		0	NA	NA	NA	NA	0	9	0	5	5	9	1	9	7	7	

**Supplemental Table 5.** Proportion of simulated laboratory staff working in a single shift infected by COVID-19 in a scenario with 15% probability of secondary infection at the end of day 7, day 14 and day 21 of the simulation [without predefined minimum rest day](#) (i.e. random shift assignment after each shift). The results shown are the median of 100 cycles of simulation.

Total number of staff strength		2					4					6						
End of Day	Freq. of staff change, days	1	3	7	14	21	1	3	7	14	21	1	3	7	14	21		
End of Day 7	No. of shift/ day 1	Number of staff per shift	0.2	0.3	0.3	0.3	0.4	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	
			5	5	0	0	0	0	0	0	5	5	5	3	7	0	3	3
			1	0.2	0.3	0.4	0.4	0.4	0.0	0.1	0.2	0.2	0.2	0.0	0.0	0.1	0.1	0.1
			0	0	5	0	0	0	7	2	0	3	3	3	8	4	5	5
			2	0.4	0.6	0.5	0.5	0.5	0.0	0.2	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.1
			0	7	2	0	0	0	9	8	5	5	5	4	5	7	7	7
			3	0.6	0.7	0.5	0.5	0.5	0.1	0.3	0.2	0.2	0.2	0.0	0.2	0.1	0.1	0.1
0	5	3	0	0	0	5	7	5	5	5	6	4	7	7	7			
End of Day 14	No. of shift/ day 1	Number of staff per shift	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.1	
			5	0	0	0	0	0	7	0	5	5	7	0	3	7	7	
			1	0.6	0.7	0.7	0.5	0.5	0.1	0.3	0.3	0.2	0.2	0.0	0.1	0.2	0.1	0.1
			0	5	5	0	0	0	7	0	8	5	5	8	7	3	7	7
			2	0.9	0.9	0.7	0.5	0.5	0.4	0.6	0.4	0.2	0.2	0.1	0.3	0.3	0.1	0.1
			0	5	3	5	0	0	1	1	2	5	5	3	8	0	7	7
			3	0.9	0.9	0.7	0.5	0.5	0.6	0.6	0.4	0.2	0.2	0.2	0.5	0.3	0.1	0.1
0	8	5	5	0	0	2	9	3	5	5	4	1	1	7	7			
End of Day 21	No. of shift/ day 1	Number of staff per shift	0.8	0.8	0.7	0.7	0.5	0.2	0.2	0.3	0.3	0.2	0.0	0.1	0.1	0.2	0.1	
			5	0	0	0	0	0	5	0	5	5	8	3	3	0	7	
			1	0.9	0.9	0.8	0.7	0.5	0.3	0.5	0.5	0.4	0.2	0.1	0.2	0.3	0.2	0.1
			0	5	0	5	5	0	9	1	3	2	5	3	6	3	8	7
			2	1.0	0.9	0.8	0.7	0.5	0.7	0.7	0.5	0.4	0.2	0.3	0.5	0.4	0.3	0.1
			0	0	7	8	5	0	6	8	7	4	5	4	7	2	1	7
			3	1.0	0.9	0.8	0.7	0.5	0.9	0.8	0.5	0.4	0.2	0.5	0.6	0.4	0.3	0.1
0	0	8	7	3	0	1	2	7	4	5	9	7	2	1	7			

**Supplemental Table 6.** Proportion of simulated laboratory staff infected by COVID-19 in base scenario with 15% probability of secondary infection at the end of day 14 of the simulation with the staff observing [workplace social distancing](#) (by reducing the contact rate by half) and using [various personal protective equipment](#). In this scenario, the simulated staff worked fixed alternating workdays (i.e. fixed consecutive days on, and fixed minimum consecutive days off). The results shown are the median of 100 cycles of simulation. NA = not available as the number of staff per shift is too low to simulate under the required conditions.

Total number of staff strength		2					4					6							
Social distancing	Freq. of staff change, days	1	3	7	14	21	1	3	7	14	21	1	3	7	14	21			
No. of shift/ day	1	Number of staff per shift	5	0.2	0.2	0.2	0.3	0.3	0.0	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.1	
			1	0	0	0	5	5	5	0	0	0	7	3	3	7	2	3	
			0	0.2	0.2	0.2	0.4	0.4	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.1
			2	0	5	0	5	5	5	7	0	3	0	3	3	8	5	3	
			0	0.3	0.3	0.3	0.5	0.5	0.0	0.1	0.1	0.2	0.2	0.0	0.0	0.1	0.1	0.1	0.1
			0	1	8	3	0	0	7	2	6	5	5	3	6	1	7	7	7
			3	0.4	0.4	0.4	0.5	0.5	0.1	0.2	0.1	0.2	0.2	0.0	0.1	0.1	0.1	0.1	0.1
			0	2	6	3	0	0	0	1	9	5	5	5	1	4	7	7	7
	2	Number of staff per shift	5	NA	NA	NA	NA	NA	0.0	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.1	
			1	NA	NA	NA	NA	NA	5	0	0	0	7	3	3	5	3	3	
			0	NA	NA	NA	NA	NA	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.1	
			2	NA	NA	NA	NA	NA	7	7	0	0	3	3	5	7	5	3	
			0	NA	NA	NA	NA	NA	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.1	0.1	0.1	
			3	NA	NA	NA	NA	NA	0	3	6	5	5	4	7	0	7	7	
			0	NA	NA	NA	NA	NA	0.1	0.2	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.1	
			0	NA	NA	NA	NA	NA	4	5	0	5	5	5	1	4	7	7	
	3	Number of staff per shift	5	NA	NA	NA	NA	NA	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	
			1	NA	NA	NA	NA	NA	0	0	0	5	5	3	7	7	0	3	
			0	NA	NA	NA	NA	NA	0.0	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.1	
			2	NA	NA	NA	NA	NA	7	0	0	1	3	3	5	7	5	5	
			0	NA	NA	NA	NA	NA	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.1	
			3	NA	NA	NA	NA	NA	3	5	5	5	5	3	8	9	7	7	
			0	NA	NA	NA	NA	NA	0.2	0.2	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.1	
			0	NA	NA	NA	NA	NA	3	8	1	5	5	5	3	4	7	7	
Gloves	1	Number of staff per shift	5	0.2	0.2	0.2	0.3	0.3	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	
			1	0	0	0	0	0	5	5	0	5	5	3	3	7	0	0	
			0	0.1	0.2	0.2	0.4	0.4	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.1	0.1	
			2	5	5	0	0	0	5	6	7	0	0	2	3	5	3	5	
			0	0.2	0.3	0.2	0.5	0.5	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.1	0.1	0.1	
			0	9	5	8	0	0	6	9	3	5	5	3	5	0	7	7	
			3	0.3	0.4	0.3	0.5	0.5	0.0	0.1	0.1	0.2	0.2	0.0	0.0	0.1	0.1	0.1	
			0	7	3	8	0	0	8	7	8	5	5	3	9	2	7	7	
	2	Number of staff per shift	5	NA	NA	NA	NA	NA	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	
			1	NA	NA	NA	NA	NA	5	0	0	5	5	3	5	7	2	0	
			0	NA	NA	NA	NA	NA	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.1	
			2	NA	NA	NA	NA	NA	5	7	0	0	0	3	5	7	3	3	
			0	NA	NA	NA	NA	NA	0.0	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.1	
			0	NA	NA	NA	NA	NA	7	2	2	5	5	3	5	9	7	7	

		3					0.1	0.2	0.1	0.2	0.2	0.0	0.0	0.1	0.1	0.1		
		0	NA	NA	NA	NA	1	0	8	5	5	3	9	3	7	7		
	3	Number of staff per shift					0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1		
		5	NA	NA	NA	NA	5	0	0	5	5	3	3	7	0	2		
		1					0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.1		
		0	NA	NA	NA	NA	5	7	0	3	0	3	5	5	3	3		
		2					0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.1		
		0	NA	NA	NA	NA	2	3	1	5	5	3	5	8	7	7		
		3					0.1	0.2	0.1	0.2	0.2	0.0	0.1	0.1	0.1	0.1		
		0	NA	NA	NA	NA	2	2	8	5	5	6	1	3	7	7		
Surgical mask																		
	No. of shift/ day	Number of staff per shift					0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.1		
	1		5	0	5	0	0	5	5	5	0	0	3	3	3	0	0	
			1	0.1	0.1	0.1	0.3	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	
			0	0	5	5	0	5	5	5	7	5	2	2	3	5	2	0
			2	0.1	0.2	0.1	0.4	0.4	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.1	0.1
			0	7	3	5	5	5	4	5	9	3	3	2	3	6	5	4
			3	0.2	0.2	0.2	0.4	0.5	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.1
			0	4	7	3	8	0	4	9	1	4	4	2	3	7	7	6
	2	Number of staff per shift					0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0		
			5	NA	NA	NA	NA	5	5	5	5	0	3	3	5	0	7	
			1					0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	
			0	NA	NA	NA	NA	5	6	7	2	5	3	3	5	0	0	
			2					0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.1	0.1	
			0	NA	NA	NA	NA	5	5	9	3	1	2	4	5	4	5	
			3					0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.1	
			0	NA	NA	NA	NA	6	7	2	5	4	2	5	7	6	6	
	3	Number of staff per shift					0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0		
			5	NA	NA	NA	NA	5	5	0	0	0	3	3	3	7	7	
			1					0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	
			0	NA	NA	NA	NA	5	5	7	5	5	2	3	3	8	0	
			2					0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.1	0.1	
			0	NA	NA	NA	NA	5	7	9	1	3	3	3	5	5	4	
			3					0.0	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.1	
			0	NA	NA	NA	NA	7	0	2	4	4	2	5	8	6	6	
Gown																		
	No. of shift/ day	Number of staff per shift	5	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	
	1		5	0	0	0	0	0	5	5	5	0	0	3	3	3	7	7

			1	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
			0	0	0	0	0	0	3	5	5	0	0	2	2	3	7	7
			2	0.1	0.1	0.1	0.3	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1
			0	0	0	0	0	1	3	4	6	4	5	2	2	3	0	0
			3	0.1	0.1	0.1	0.4	0.4	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.1	0.1
			0	3	8	2	2	2	3	4	6	1	3	1	2	4	4	4
		2							0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
			5	NA	NA	NA	NA	NA	5	5	5	0	0	3	3	3	7	7
			1						0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
			0	NA	NA	NA	NA	NA	5	5	5	0	0	2	2	3	7	7
			2						0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1
			0	NA	NA	NA	NA	NA	4	4	6	6	6	2	2	3	0	0
			3						0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.1	0.1
			0	NA	NA	NA	NA	NA	3	4	7	0	2	2	2	4	4	4
		3							0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
			5	NA	NA	NA	NA	NA	5	5	5	0	0	3	3	3	7	7
			1						0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
			0	NA	NA	NA	NA	NA	5	5	5	0	7	2	2	3	7	7
			2						0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1
			0	NA	NA	NA	NA	NA	4	5	5	6	6	2	2	3	0	0
			3						0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.1	0.1
			0	NA	NA	NA	NA	NA	4	7	5	2	1	2	3	4	4	4
N95 mask																		
	No. of shift/ day	Number of staff per shift	1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
			5	0	0	0	0	0	5	5	5	5	5	3	3	3	3	3
			1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
			0	5	5	5	0	0	3	3	3	5	5	2	2	2	3	3
			2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
			0	3	5	5	7	7	1	1	1	4	4	1	1	1	3	3
			3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
			0	3	5	3	8	2	1	1	3	5	5	1	1	1	3	3
		2							0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
			5	NA	NA	NA	NA	NA	5	5	5	5	5	3	3	3	3	3
			1						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
			0	NA	NA	NA	NA	NA	3	3	3	5	3	2	2	2	2	3
			2						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
			0	NA	NA	NA	NA	NA	1	1	3	4	4	1	1	1	2	3



	3						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0	NA	NA	NA	NA	NA	1	2	2	3	4	1	1	1	3	3	
Number of staff per							0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 shift	5	NA	NA	NA	NA	NA	5	5	5	5	5	3	3	3	3	3	
	1						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0	NA	NA	NA	NA	NA	3	3	3	4	5	2	2	2	3	3	
	2						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0	NA	NA	NA	NA	NA	1	3	1	4	4	1	1	2	3	3	
	3						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0	NA	NA	NA	NA	NA	2	2	2	5	5	1	1	1	3	3	