

Electronic Supplementary Material

Identifying the Risk of SARS-CoV-2 Infection and Environmental Monitoring in Airborne Infectious Isolation Rooms (AIIRs)

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Table S1. Detection of SARS-CoV-2 in environmental samples collected from the semi-contaminated and clean areas of the hospital.

Sampling sites	Building 1		Building 2		Building 3		Total
	1st ^a	2nd	1st	2nd	1st	2nd	
<i>Semi-contaminated area</i>							0/224
Corridor							0/85
1. Floor	0/3 ^b	0/3	0/3	0/3	0/6	0/3	0/21
2. Wall	0/3	0/3	0/3	0/3	0/3	0/3	0/18
3. Door handle	0/3	NA	0/2	NA	0/3	NA	0/8
4. Foot operated opener	0/3	NA	0/2	0/3	NA	NA	0/8
5. Medical equipment	0/2	NA	0/4	NA	0/2	0/3	0/11
6. Personal equipment	0/2	NA	NA	NA	NA	NA	0/2
7. Table including handle	NA	NA	0/1	NA	0/1	NA	0/2
8. Pass-through box	0/3	NA	0/3	NA	0/6	0/3	0/15
Nurse station							0/91
9. Floor	0/4	0/1	0/5	0/1	NA	NA	0/11
10. Wall	0/1	0/	0/2	0/1	NA	NA	0/4
11. Door handle	0/1	0/	0/2	0/1	0/3	NA	0/7
12. Chair	0/3	0/3	0/3	0/1	0/1	0/3	0/14
13. Medical equipment	0/8	0/3	0/7	0/3	0/7	0/6	0/34
14. Personal equipment	0/2	NA	NA	NA	0/3	NA	0/5
15. Table including handle	0/7	NA	0/6	NA	0/3	NA	0/16
Changing room							0/44
16. Floor	0/1	NA	0/2	0/5	0/7	NA	0/15
17. Wall	0/1	NA	0/1	0/1	0/1	NA	0/4
18. Door handle	NA	NA	0/1	0/1	0/4	NA	0/6
19. Medical equipment	0/3	0/1	0/3	0/3	0/2	NA	0/12
20. Table including handle	0/1	NA	0/1	NA	0/1	NA	0/3
21. Air sample	0/3	NA	NA	NA	0/3	NA	0/6
Healthcare workers							0/4
22. Hand (with gloves)	0/3	NA	0/1	NA	NA	NA	0/4
<i>Clean area</i>							0/146
Office							0/62
23. Floor	0/4	NA	0/6	NA	0/1	NA	0/11
24. Wall	0/3	NA	NA	NA	0/4	NA	0/7
25. Door handle	NA	NA	0/3	NA	NA	NA	0/3
26. Chair	0/5	NA	0/3	NA	0/2	NA	0/10
27. Medical equipment	0/6	NA	0/6	NA	0/2	NA	0/14
28. Table including handle	0/5	NA	0/3	NA	0/3	NA	0/11
29. Light switches	0/3	NA	0/3	NA	NA	NA	0/6
Dressing room							0/23
30. Floor	0/3	NA	0/6	NA	0/1	NA	0/10
31. Wall	0/3	NA	0/6	NA	0/1	NA	0/10

32. Table including handle	NA	NA	0/3	NA	NA	NA	0/3
Corridor							0/23
33. Floor	0/3	NA	NA	NA	0/3	NA	0/6
34. Wall	0/3	NA	NA	NA	0/	NA	0/3
35. Door handle	0/6	NA	NA	NA	0/2	NA	0/8
36. Medical equipment	0/1	NA	NA	NA	0/1	NA	0/2
37. Light switches	0/1	NA	NA	NA	0/3	NA	0/4
Elevator							0/29
38. Floor	0/2	NA	0/13	NA	0/2	NA	0/17
39. Wall	0/2	NA	0/2	NA	0/1	NA	0/5
40. Elevator button	0/3	NA	0/3	NA	0/1	NA	0/7
Hall							0/9
41. Chair	0/1	NA	0/1	NA	0/2	NA	0/4
42. Table including handle	0/3	NA	0/1	NA	0/1	NA	0/5

^a Different numbers refer to different sampling times.

^b It stands for the number of positive samples/the total number of samples.

NA, not available.

Table S2. Time points and clinical conditions for air sampling.

Room No.	Number of patients	Type of facility	Clinical condition	Date of air sample collection	Patient viral load on the day of air sample collection (10^6 copies/mL)	Result of air samples
Building 1^a						
1	3	Patient's room	mild	Feb. 17 th , 2020	NA	0/2
2	3	Patient's room	mild	Feb. 17 th , 2020	3.10, 0.13, 0.64 ^c	0/1
3	6	Patient's room	mild	Feb. 18 th , 2020	1.10, 0.09, ND, NA, NA, NA	0/2
4	NA	Contaminated corridor	NA	Feb. 17 th , 2020	NA	0/3
5	NA	Changing room (Semi-contaminated)	NA	Feb. 18 th , 2020	NA	0/3
Building 2^b						
6	2	Patient's room	mild	Feb. 24 th , 2020	2.68, 0.09	0/1
7	2	Patient's room	mild	Feb. 24 th , 2020	0.54, NA	0/2
8	2	Patient's room	mild	Feb. 24 th , 2020	4.66, NA	0/2
9	2	Patient's room	mild	Feb. 24 th , 2020	NA	0/2
10	2	Patient's room	mild	Feb. 24 th , 2020	NA	0/2
Building 3^a						
11	1	Patient's room	Invasive ventilator	Feb. 10 th , 2020	NA	0/1
12	2	Patient's room	Oxygen inhalation	Feb. 11 th , 2020	NA	0/2
13	1	Patient's room	Invasive ventilator; Tracheotomy	Feb. 11 th , 2020	NA	0/2
14	1	Patient's room	ECMO; Tracheotomy	Feb. 11 th , 2020	NA	0/2
15	2	Patient's room	Oxygen inhalation	Feb. 12 th , 2020	NA	0/2
16	2	Patient's room	Oxygen inhalation	Feb. 12 th , 2020	NA	0/2
17	2	Patient's room	Oxygen inhalation	Feb. 13 th , 2020	NA	0/2
18	NA	Contaminated corridor	NA	Feb. 13 ^h , 2020	NA	0/4
19	NA	Changing room (Semi-contaminated)	NA	Feb. 12 th , 2020	NA	0/5

^aAir sampling was conducted using an automatic sampling system Derenda PNS 16T-3.1;

^bAir sampling was conducted using the 10cm*10cm paper of the high efficiency particulate air filter installed in the ward;

^cViral load was detected by quantitative real-time RT-PCR using the throat swab of patient collected on the day of air sample collection; each figure was individual viral load of individual patient.

ECMO, extracorporeal membrane oxygenation; NA, not applicable; ND, undetermined.