

Supplementary Materials for

Evaluation of the microbiota and integrity of respirators reused by health professionals in a hospital environment

Supplementary Text 1. Equipment that make up the air filter test method.

The air filter test method, used to evaluate chemical cartridges and PFF2 respirators, comprises the following equipment:

- Indutec oil-free vacuum pump: suction capacity 0 - 100 L/min;
- Particle counter with coupled thermo-hygrometer from Instrutherm; Counting efficiency greater than 50% for diameter particles: 0.3 – 0.45 μm and 100% for particles with a diameter greater than 0.45 μm ;
- Blaster rotameter: measuring capacity from 0 – 100 L/min;
- Support rod;
- T connection - 1/2" male x 1/2" male x 3/4" male;
- 1/2" hose;
- 3M PFF2 respirators;
- Filter holder for PFF2 respirators.

Supplementary Text 2. Protocol for positioning the sterile respirator on the user's face.

1. Wash your hands with soap and water or 70% alcohol;
2. Put on sterile gloves;
3. Open the respirator package;
4. Remove the respirator by the elastics;
5. Open the respirator using the elastics, touching only the sides where they are attached;
6. Position the respirator on the face using only the elastics, taking care not to touch the inner part of the respirator;
7. Adjust the upper part of the respirator using both hands to better adapt to the face;
8. Carry out the sealing test:
 - With the respirator adapted to the face, place both palms on the sides, covering completely;
 - Apply positive pressure (blow out) and check for leakage at any point in the respirator (if there is a leak, the seal must be corrected until there is no more leakage).

Supplementary Text 3. Protocol for removing the respirator from the user.

1. Remove gloves;
2. Wash your hands with soap and water or 70% alcohol
3. Open sterile container for respirator storage;
4. Put on sterile gloves;
5. Remove the respirator using the elastics and the side where the elastics are fixed;
6. Close the respirator avoiding contact;
7. Place the respirator inside the sterile container for storage;
8. Place the silica gel together with the respirator and close the container;
9. Remove procedure gloves and dispose of them in infectious waste;
10. Wash your hands with soap and water or 70% alcohol;

Supplementary Text 4. Protocol for reusing the respirator by the same user.

1. Wash your hands with soap and water or 70% alcohol;
2. Put on sterile gloves;
3. Open the respirator's storage container and remove the respirator by the elastics;
4. Open the respirator using the elastics, touching only the sides where the elastics are attached;
5. Fit the respirator to the face using only the elastics, taking care not to touch the inside of the respirator;
6. Adjust the upper part with the adapter of the respirator to the nose using both hands to better fit the face;
7. Carry out the sealing test:
 - With the respirator adapted to the face, place both palms on the sides of the respirator, covering it completely;
 - Perform positive pressure (blow out) and check for leakage at any point on the respirator (if there is a leak, the positioning must be corrected until there is no more leakage).
8. Discard gloves, re-sanitize hands and put on new sterile gloves.

Figure S1. Kit provided for extended use of PFF2 respirators in MSC. (A) Sterile container. (B) Portion of silica. (C) Clip for identification of respirators



A.



B.



C.

Figure S2. Detail of the respirator cutout in the contact region of the user's nose and mouth to study the microbiota.



Figure S3 - Detail of the evaluation of the filtration efficiency of a respirator. (A) Filter holder for the respirator (B) Respirator PFF2. (C) Thermo-hygrometer. (D) Particle counter.

