Reprocessing N-95 with LightStrike Pulsed Xenon UV light Technology during Critical Shortage due to COVID-19

1. A small label should be placed on the elastic band of the respirator with the healthcare workers name, and unit. Labeling should NOT be done on the filter material itself, as this may damage the respirator.

2. When the respirator is ready for disinfection, place it in a paper bag, and label the bag with the healthcare workers name and unit where the respirator needs to be returned after disinfection.

3. Place the bag with the respirator inside in the designated "dirty" drop-off location for the unit.

4. Respirators will be collected from the units on a cart and brought to a central disinfection location within the hospital. Staff who collects respirators will need to perform hand hygiene and wear gloves when performing collection. After all respirators on a unit have been collected, the staff member will remove their gloves and perform hand hygiene. The cart with the respirators will then be brought to the central disinfection location.

5. In the disinfection location, a staff member will perform hand hygiene and then don gloves, gown, and a respirator. They will then remove all respirators from the paper bags. During removal, the staff member will read the name and location written on the bag to another staff member, who will write the information on a clean bag to be used when the respirator is returned to the unit. The bag the respirator was sent in will be disposed of.

6. Prior to disinfection, all respirators should be inspected for signs of visible soil, or for physical damage (punctures/tears/creases). Respirators with signs of damage or visible soil should be discarded.

7. Respirators will have a small degree of degradation from exposure to the UV light, and the number of times a respirator has been disinfected should be tracked. A small mark can be made on the elastic band with a permanent marker before each disinfection is completed. Tracking marks should NOT be made on the filter material itself, as this may damage the respirator. Disinfection should not be completed more than five times on an individual respirator.

8. Respirators should be placed according to the disinfection process the facility will be using (LDP, clothesline, table). Each disinfection process is outlined on the following pages.

9. The cart used to transport the respirators should be disinfected with an EPA registered disinfectant with an emerging viral pathogens claim.

Disinfection of Cup or Duck Bill Style Respirators in a LightStrike Disinfection Pod (LDP)

1. Respirators should be oriented in a manner that maximizes UV exposure to the exterior surface. In the LDP, this is accomplished by placing the respirators on a wire rack inside the LDP. Respirators should not overlap on the wire rack. The LDP has a highly reflective lining that allows for 360˚ disinfection of items with a single 5-minute cycle of the robot.

2. Once the respirators have been arranged on the shelf, zip the door flap closes and dock the robot into the ring housing on the side of the LDP. Assure that the ring housing sits over the dome of the robot and down against the black top housing.

3. Perform a 5-minute disinfection cycle with the LightStrike Robot. The respirators are now disinfected and ready to be returned to the units.

Transportation of Respirators from Disinfection Area Back to Unit

1. After completing the disinfection process (LDP, clothesline, table) the staff manning the disinfection location should perform hand hygiene and don clean gloves.

2. Disinfected respirators should be matched with the labeled clean bag that matches the name and unit on the tag of the respirator.

3. Disinfected respirators in the clean bags should be returned to the units for re-use by staff.

References:

1. Fisher, E.M. and R.E. Shaffer, Considerations for recommending extended use and limited reuse of filtering facepiece respirators in health care settings. J Occup Environ Hyg, 2014. 11(8): p. D115-28.

2. Stibich, M. and J. Stachowiak, The microbiological impact of pulsed xenon ultraviolet disinfection on resistant bacteria, bacterial spore and fungi and viruses. Southern African Journal of Infectious Diseases, 2016. 31(1): p. 12-15.

3. Jinadatha, C., et al., Disinfecting personal protective equipment with pulsed xenon ultraviolet as a risk mitigation strategy for health care workers. Am J Infect Control, 2015. 43(4): p. 412-4.

4. Prevention, C.f.D.C.a. Recommended Guidance for Extended Use and Limited Reuse of N95 Filtering Facepiece Respirators in Healthcare Settings. 2020 [cited 2020 March 23]; Available from: https://www.cdc.gov/niosh/topics/hcwcontrols/recommendedguidanceextuse.html.

5. Prevention, C.f.D.C.a. Strategies for Optimizing the Supply of N95 Respirators: Contingency Capacity Strategies. 2020 [cited 2020 March 23]; Available from: https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy/contingency-capacity-strategies.html.

6. Rebmann, T., APIC Position Paper: Extending the Use and/or Reusing Respiratory Protection in Healthcare Settings During Disasters 2009.

7. Reid, D., et al., Germicidal irradiation of portable medical equipment: Mitigating microbes and improving the margin of safety using a novel, point of care, germicidal disinfection pod. Am J Infect Control, 2020. 48(1): p. 103-105.

8. Xenex Disinfection Services Practice Bulletin “LikeStrike Pulsed Xenon UV: Disinfection of N95 Respirators” .