

## **PPE Conservation**

### Frequently Asked Questions

#### **Q. What is Bioquell technology?**

A. Specialized equipment (Bioquell Vaporiser) allows us to aerosolize hydrogen peroxide, which permeates the layers of the mask to chemically disinfect and eliminate any microbial contaminants, including viruses, without degrading the filtration efficiency of the mask. Memorial Hermann has used the Bioquell technology for 12 years to disinfect rooms, equipment and supplies. While this is the first time the System has used the technology on N95 respirator masks, our internal validation, external research and real world adoption of this practice in various parts of the country has proven effective.

#### **Q. Where is the research that says this is safe and effective?**

A. In addition to internal validation studies, the following links provide external research and evidence of efficacy of Hydrogen Peroxide Vapor sterilization on N95 respirator masks.

- Final Report for Bioquell HPV Decontamination for Reuse of N95 Respirators - <https://www.fda.gov/media/136386/download>
- Decontamination and Reuse of N95 Respirators with Hydrogen Peroxide Vapor to Address Worldwide Personal Protective Equipment Shortages During the SARS-CoV-2 (COVID-19) Pandemic - [https://www.safety.duke.edu/sites/default/files/N-95\\_VHP-Decon-Re-Use.pdf](https://www.safety.duke.edu/sites/default/files/N-95_VHP-Decon-Re-Use.pdf)
- Urgent Research Shows Face Masks Can Be Safely Reused by Pandemic Medical Workers - <https://www.umass.edu/newsoffice/article/urgent-research-shows-face-masks-can-be>
- Evaluation of Five Decontamination Methods for Filtering Facepiece Respirators - <https://academic.oup.com/annweh/article/53/8/815/154763>
- Decontamination and Reuse of Filtering Facepiece Respirators using Contingency and Crisis Capacity Strategies - <https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/decontamination-reuse-respirators.html>

#### **Q. Why are we implementing this method now?**

A. Our approach to planning for COVID-19 is to do everything we can today that will help us in the event of a surge. We feel strongly that these proactive measures will further secure our workforce so that we can continue to safely care for our community.

**Q. I've read that UV and other types of disinfecting will break down or degrade the mask. How is this process different?**

A. Research and FDA guidance have shown that vaporized hydrogen peroxide disinfection is effective for disinfecting N95 respirator masks for multiple cycles. Our research and internal validations to date have shown that masks are safe and effective up to 15 cycles and we are actively testing efficacy for additional cycles. While differences were found between control respirators and those that have undergone decontamination for both filter aerosol penetration and filter airflow resistance, the practical significance is minimal. Most degradation appears to happen when the elastic band that secures the mask stretches as well as discoloration of the metal piece. Our reprocessing team has a strong inspection process in place to take out of circulation any mask that appears to be soiled or damaged; however, it is important to always assure a good fit and a properly functioning mask before use.

**Q. I've read that if you get the mask wet, it is outside of manufacturers' recommendations. Is this true in this case?**

A. While masks are coated in a hydrogen peroxide vapor, which then reduces to water, our process includes drying time. The filtration efficiency of the mask has been validated internally and externally after undergoing this process.

**Q. The CDC says I can wear a homemade mask or bandana. Is that safe?**

A. CDC only recommends cloth masks as a last resort, when other masks are not available and that is not the case at Memorial Hermann. Cloth masks do not protect against aerosols and tend to saturate with moisture, which promotes the growth of bacteria. Cloth masks should also not be worn on the outside of N95 respirators. In order to protect yourself and the N95 mask from respiratory secretions while performing aerosolizing or invasive airway procedures, you should don a faceshield over the mask.

**Q. Should I label or write on my mask?**

A. No, do not write anything on your mask. You may notice markings made during the sterilization and reprocessing. These markings indicate how many

cycles the masks have undergone. This should be the only markings made on the masks.

### **Q. N95 Respirator Mask Etiquette**

A.

- Do not write on the N95 mask.
- Do not wear makeup or perfume/cologne, which will damage the mask.
- Tie long hair back, do not wear jewelry, and avoid touching/readjusting the N95 mask as much as possible.
- Wear, store and recycle N95 mask as directed, taking care not to over-stretch elastic.
- Always ensure proper fit and seal of N95 mask to your face.

Thanks to Memorial Hermann TMC