



## Using Vaporized Hydrogen Peroxide (VHP) Sterilization to Decontaminate N95 Respirators: Frequently Asked Questions

### What you need to know:

MedStar Health has taken advantage of the opportunity to participate in a Federal Emergency Management Agency (FEMA) program run by Battelle, which is intended to manage the national constraint on the availability of precious N95 respirator resources. FEMA designated the Baltimore and Washington, D.C., regions as an eligible geography, and MedStar established a relationship with Battelle to provide this N95 respirator decontamination program to extend our own supply of N95 respirators as the COVID-19 pandemic continues. The Food and Drug Administration-approved Battelle process, which has emerged as a crisis standard of care, is known as Vaporized Hydrogen Peroxide (VHP) Sterilization and is offered to healthcare systems through the federal program. This practice has been used for many years to successfully decontaminate medical and other equipment, and is supported by both the National Institutes of Health (NIH) and the Centers for Disease Control and Prevention (CDC) to prolong the use of N95 respirators.<sup>1</sup> As with any PPE practice change, MedStar's Infection Prevention, Infectious Disease, Occupational Safety, Occupational Health, and Quality & Safety teams have reviewed the process and developed this information to answer your questions about the use of VHP to safely decontaminate N95 respirators.

### Q: What is Vaporized Hydrogen Peroxide (VHP) Sterilization?

**A:** Vaporized Hydrogen Peroxide (VHP) Sterilization is a technique that uses hydrogen peroxide vapor (gas) that is evenly spread over surfaces to decontaminate and sterilize the surface. The process is fast-acting and does not leave a residue or chemical on the N95 respirator. VHP has been used for the past 10 years to disinfect clinical healthcare areas and has been shown to be effective against different types of bacteria, viruses and fungi.<sup>9</sup>

### Q: How well does VHP decontaminate N95 respirators?

**A: It is highly effective.** A recent study tested how well VHP works to decontaminate N95 respirators contaminated with COVID-19. The study found that after VHP treatment, no living virus remained on any of the decontaminated respirators.<sup>4</sup> Other studies support the findings that VHP can completely eradicate other human respiratory viruses, such as SARS-CoV-1 and viruses similar to COVID-19.<sup>3,4,9</sup>

### Q: Are other hospital systems using Battelle's VHP process to decontaminate disposable N95 respirators?

**A:** Yes, MedStar is joining 500 other hospital systems around the U.S. that are working with Battelle, including Partners HealthCare, Ohio Health, Stony Brook Medicine, Providence St. Joseph Health, Kaiser Permanente Northwest, Catholic Health System, CommonSpirit Health, Mount Sinai, New York City Health and Hospitals, State University of New York, Tulane Medical Center, Dartmouth Hitchcock, University of Pennsylvania, University of Pittsburgh Medical Center, WVU Medicine, Bon Secours, Lifebridge Health, Wellforce,



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## **Q: How are used N95 respirators collected for decontamination by Battelle and redistributed?**

**A:** Used N95 respirators should be placed in the designated collection bin lined with a green plastic bag in your clinical area. Do not put any other PPE or waste in these bins. The N95 respirators will be shipped to the closest Battelle facility, decontaminated, returned to MedStar, and distributed across the system, according to supply needs.

## **Q: When should an N95 respirator be thrown out and not decontaminated?**

**A:** N95 respirators must be thrown out and **not** decontaminated if they are visibly damaged or soiled (including make-up). N95s will also be thrown out if they have been decontaminated 20 times. **In order to maximize the recovery of this precious resource, we ask that associates who wear N95 respirators refrain from wearing makeup.**

## **Q: How many times can the respirator be decontaminated using Battelle's process?**

**A:** Studies show that an N95 respirator can be decontaminated up to 20 times with VHP before the respirator's structure starts to break down. At that point, there is no impact on the respirator's filtration function, but you might start to see some mild tarnishing on the metal nose bands.<sup>4,5,6</sup> After 20 decontamination cycles, N95 respirators will be thrown out. Battelle will add a tally mark to each N95 respirator to track the number of times it has been decontaminated. You should do a seal check every time you put on any N95 respirator. Review how to do a seal check [here](#). If you do not have a good seal, do not use that N95 respirator and request a replacement.

## **Q: How do I label a new N95 respirator so it can be returned to MedStar after decontamination?**

**A:** If you use a new N95 respirator, use a permanent marker to write MedStar's code (**DXN**) on the inside or outside of the respirator before you begin using it. This code is used to make sure MedStar N95 respirators are returned to MedStar entities. Previously decontaminated N95 respirators will already be labeled with this code.

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