

UV light disinfection of N95

- **Is UV light effective at killing COVID-19?**

- Given the newness of the COVID-19 infection there is no direct studies that have looked at the effectiveness of UV light in killing COVID-19 however there is ample other evidence that shows that this method of cleaning is effective for disinfecting masks.
- The University of Nebraska Medical Center has implemented a UV light disinfection and reuse program during the current COVID-19 pandemic (<https://www.nebraskamed.com/sites/default/files/documents/covid-19/n-95-decon-process.pdf>). The protocol we are using is highly similar to the Nebraska protocol.
- UV light disinfection has been shown to be effective in killing both the SARS and MERS coronavirus strains that are highly related to the COVID-19 related coronavirus using the same UV system that we use here at UMass.¹ The manufacturer has now provided guidance on how to use their equipment for this purpose.
- The use of UV light to disinfect N95 respirators has been studied, and has been shown to be effective in eradicating influenza viruses on N95 respirators.^{2,3,4} There can be small degradation of the mask with repeated exposures and this is why we are limiting the number of cleaning cycles.
- UV light is more effective at mask decontamination compared to other decontamination methods such as moist heat and microwave⁵

- **Why 10 cycles?**

- Repeated UV light treatment has been shown to be safe on N95 respirators.⁶ Treatments up to 10 cycles does not lead to decrease in the effectiveness of the N95 respirator.⁷ We will be doing an ongoing assessment of the integrity of respirators to see if we need to either shorten or potentially extend the number of cycles

- **What happens to the filtering ability of the N95 with prolonged use?**

- N95 respirator extended and reuse has been studied and shown that the mask is able to maintain performance even after prolonged use of time even after weeks of reuse.⁸

- **What is the general process for UV disinfection?**

- The N95 respirators will be collected at a regular interval and then brought to a central area for UV decontamination. The masks will be run in two 5-minute cycles (one for each side) with the UV light. By labeling your mask, this will insure that you get your mask back after it has been decontaminated.

¹ Infect Control Hosp Epidemiol 2016;37:598-599.

² J Occup Environ Hyg. 2015;12:509-517.

³ Ann Occup Hyg 2012;56:92-101.

⁴ J Appl Micro 2010;110:287-295.

⁵ Ann Occup Hyg 2012;56:92-101.

⁶ J Eng Fibers and Fabrics 2010;5:33-41

⁷ J Patient Saf 2020; 3/12/20. ePub ahead of print

⁸ J Occup Environ Hyg 2015;11:D115-128.

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