NURSE HEALTH & SAFETY ALERT »

Reusing N95 Respirators is Dangerous

Health care employers continue to dangerously ration single-use N95 filtering facepiece respirators and other personal protective equipment (PPE). Many months into the Covid-19 pandemic, health care employers have had ample time to prepare a stockpile to respond safely to a surge in potentially infectious patients.

Reuse of N95 respirators and other single-use PPE endangers nurses, health care workers, and their patients in two ways:

1. PPE becomes contaminated during use. Donning contaminated PPE poses a serious risk of exposure.[1]
2. Single-use PPE can be degraded or damaged with multiple uses. Studies have shown that repeat donning and doffing damages the fit of the N95 and the elasticity of the straps.[2,3] N95 respirators that have been reused multiple times are significantly more likely to fail fit testing, and therefore do not fully protect wearers.[4]

Healthcare employers have implemented different reuse policies.

» **Extended use** Wearing the same N95 or single-use PPE for longer than one patient interaction can put both nurses and patients at risk of exposure.

› Wearing the same N95 for multiple patient interactions increases the potential for spread of Covid-19 or other infectious diseases within the facility, except where patients with the same infectious disease are cohorted.

› Wearing an N95 for an extended period of time can result in physiological impacts for nurses, including:[5,6,7]

» Increased heart and respiratory rates

» Thermal stress and increased fatigue

» Increased transcutaneous carbon dioxide

» Headache and lightheadedness

» Difficulty breathing and communicating

» **Reusing an N95** Many employers have restricted nurses' access to N95 respirators, such as providing only one N95 per shift. These policies require nurses to repeatedly don and doff the same N95, which endangers nurses and patients

» **Decontamination of N95s** Many employers have implemented methods to "decontaminate" N95 respirators and other single-use PPE between uses. No decontamination method has been shown to be both safe and effective. In fact, several decontamination methods have been shown to be ineffective, to damage PPE, and to create a new chemical hazard.

› Putting an N95 in a paper bag for five days does not "decontaminate" the N95. Research has shown that the virus

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that causes Covid-19 can survive for extremely long periods outside the human body, including for at least 21 days on N95 respirators.[8]

- Other methods may be ineffective, can damage N95s, or may pose a hazard to nurses wearing the N95s. For more information on NNU's research into N95 decontamination methods: https://www.nationalnursesunited.org/covid-19-ppe-decontamination.

» **Locking up N95s** If nurses do not have immediate access to N95s, this can result in dangerous delays in care for patients. Employers must ensure nurses have access to the PPE they need to do their jobs safely.

Instead of dangerous reuse policies, health care employers should turn to more protective options that are designed to be safely cleaned and reused, including powered air-purifying respirators (PAPRs) and elastomeric respirators.

For more information visit:
www.nationalnursesunited.org/covid-19

Endnotes

1 COVID-19 patients emit significant amounts of virus when they breathe, cough, sneeze, and talk and when procedures are performed, including intubation, suctioning, bronchoscopy, etc. These viral particles can end up on and trapped within the N95 respirator.

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Aumeran et al., "Isolation gown contamination during health care of confirmed SARS-CoV-2 infected patients," *Journal of Hospital Infection*, Nov 11, 2020.

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3 Bergman, Michael S., et al., "Impact of multiple consecutive donnings on filtering facepiece respirator fit," *American Journal of Infection Control*, 2012, 40(4): 375-80.

4 Degesys et al., "Correlation Between N95 Extended Use and Reuse and Fit Failure in an Emergency Department, *JAMA*, 324(1): 94.

5 Kim, Jung-Hyun, Stacey M. Benson, and Raymond J. Roberge, "Pulmonary and heart rate responses to wearing N95 filtering facepiece respirators," *American Journal of Infection Control*, 2013, 41(1): 24-27.

6 Chen, Yumiao, et al., "Physiological and subjective responses to breathing resistance of N95 filtering facepiece respirators in still-sitting and walking," *International Journal of Industrial Ergonomics*, 2016, 53: 93-101.

7 Rebmann, Terri, Ruth Carrico, and Jing Wang, "Physiologic and other effects and compliance with long-term respirator use among medical intensive care unit nurses," *American Journal of Infection Control*, 2013, 41(12): 1218-1223.

8 Kasloff, Samantha B., et al., "Stability of SARS-CoV-2 on Critical Personal Protective Equipment," *medRxiv*, June 12, 2020, https://www.medrxiv.org/content/10.1101/2020.06.11.20128884v1.

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