Reuse of N95 Filtering Facepiece Respirator During Shortage

Filtering facepiece respirators, such as N95 respirators, are designed to be disposable, meaning that they should be discarded when they become unsuitable for further use due to considerations of hygiene, excessive resistance, or physical damage[1]. However, the practices of reusing these N95 respirators may be considered as an option for conserving the respirators under special circumstances such as respiratory pathogen outbreaks and pandemics during which the supplies of these respirators can be limited. “Reuse” refers to using the same N95 respirator for multiple activities and/or multiple times when the use of respirator is required. The respirator is stored between uses and donned prior to the next potential exposure.
The decision to implement policies that permit the reuse of N95 respirators should be made by the appropriate professionals in Environmental Health and Safety (EHS), in consultation with supervisors and/or managers. The following recommendations are provided for the reuse of N95 respirators:

Alternative strategies to conserve the N95 respirators

Although reusing disposable respirators, such as N95 respirators, may be considered as a “necessary practice” under special circumstances, it is not considered a “best practice” due to concerns about potential contamination and physical damage on the respirator over multiple uses. Therefore, supervisors and managers are encouraged to consider the following alternative strategies[2] before they consider the reuse of N95 respirators:

- Minimize the number of workers who need to use respiratory protection by adjusting workloads and tasks, where feasible.
- Consider the use of reusable respirators instead of N95 respirators, with guidance, fit testing, and training from EHS. In this regard, elastomeric half or full facepiece respirator equipped with NIOSH-approved particulate filters (e.g., P100), including particulate pre-filters on the gas/vapour cartridges, will provide equivalent or more protection than the N95 respirators. EHS can provide guidance on when to replace filters/cartridges. While N95 respirators are not washable, the half and full facepiece respirators are washable as per manufacturer’s recommendation [1].

Limitations to consider when reusing N95 respirators

When N95 respirators are re-used, the following limitations should be implemented as per NIOSH recommendations[1]:

- The user needs to inspect the respirator before each use for damage, soiling on the inside, or noticeably increased breathing resistance. If any of these conditions is detected, the respirator should be discarded.
- The respirator should be used and re-used only by the same wearer.
- Between uses, the respirator should be stored in a way that protects it from damage, dust, contamination, sunlight, extreme temperatures, excessive moisture, and damaging chemicals.
- In a dusty environment (such as bedding operation) which could result in high dust loading and reduced filtering, total service time for one N95 respirator should NOT exceed 8 hours of use.
- Reuse of N95 respirator should not be allowed when working with materials that are highly toxic (e.g. crystalline silica and lead).
- The user must be able to perform a successful user seal check each and every time the respirator is worn, in accordance with the user seal check video [2].

Special considerations for COVID-19

During COVID-19 pandemic, the following precautions are recommended to reduce the risk of potentially contaminating a respirator or using a contaminated respirator:

- Before donning the respirator and after doffing the respirator, wash your hands with soap and water for at least 15 seconds or use alcohol-based hand sanitizer[3].
- Avoid touching the respirator while you wear the respirator[3].
- When doffing the respirator, grasp the strap(s) carefully without touching the front surface of the respirator[3].
- If feasible, store the used respirator in a breathable paper bag and wait at least 3 days before using it again as a study evaluating the persistence of the virus on various surfaces showed that the virus could survive for up to 72 hours or 3 days. If you are required to wear the N95 respirator more than once in the 3-day period, you can rotate multiple respirators to allow the 3-day gap on each respirator between reuses[4].

In times of known shortage of N95 respirators, managers, supervisors and workers in the University of Guelph are encouraged to cooperate with these strategies in order to conserve and extend the existing supply of N95 respirators. If University personnel have questions or concerns about whether or not N95 respirator can be re-used in their specific work places or work activities, please contact Bryan Lee, Occupational Hygienist via email at bryanlee@uoguelph.ca [3] or via phone at extension x 54855, or EHS via email at ehs@uoguelph.ca [4].

Reference:

1. NIOSH, Respirator Reuse and Extended Use, https://www.cdc.gov/niosh/docs/2018-128/pdfs/2018-128.pdf [5](Accessed on April 17, 2020)
2. CDC, Recommended Guidance for Extended Use and Limited Reuse of N95 Filtering Facepiece Respirators in Healthcare Settings, https://www.cdc.gov/niosh/topics/hcwcontrols/recommendedguidanceextuse.html [6] (Accessed on April 17, 2020)
3. Ontario Public Health, When and How to Wear a Mask, https://www.publichealthontario.ca/-/media/documents/ncov/factsheet/factsheet-covid-19-how-to-wear-mask.pdf?la=en [7] (Accessed on April 17, 2020)
4. CDC, Decontamination and Reuse of Filtering Facepiece Respirators, https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/decontamination-reuse-respirators.html [8] (Accessed on April 17, 2020)

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Links
[1] https://multimedia.3m.com/mws/media/473937O/3mtm-cleaning-reusable-respirators.pdf. [2] https://www.youtube.com/watch?v=pGXiUyAoEd8 [3] mailto:bryanlee@uoguelph.ca [4] mailto:ehs@uoguelph.ca [5] https://www.cdc.gov/niosh/docs/2018-128/pdfs/2018-128.pdf [6] https://www.cdc.gov/niosh/topics/hcwcontrols/recommendedguidanceextuse.html [7] https://www.publichealthontario.ca/-/media/documents/ncov/factsheet/factsheet-covid-19-how-to-wear-mask.pdf?la=en [8] https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/decontamination-reuse-respirators.html