Healthcare Workers' Disinfection Practices for Elastomeric Half-mask Respirators

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Introduction: Elastomeric half-mask respirators (EHMR) can be used in healthcare settings provided that decontamination strategies exist. During the COVID-19 pandemic, two eastern U.S. medical centers deployed reusable EHMRs to their workforces, integrating them into their respiratory protection programs (RPP). One site issued individual EHMRs to healthcare workers (HCW) for the first time, while the other, which used EHMRs pre-2020, used a shared pool approach. While post-use wipe-based disinfection was expected by individual HCWs at both sites, centralized decontamination also occurred, though optional at the site using personally deployed EHMRs (pEHMR). HCWs were surveyed one year into the COVID-19 pandemic regarding their EHMR disinfection practices to assess compliance with infection control expectations. Methods: The survey assessed occupational characteristics, EHMR use frequency, training, when the EHMR was disinfected and by whom, and confidence in centralized decontamination. If respondents selected “central sterile processing” in response to “who disinfects the EHMR?”, this was interpreted to mean they used the facility’s centralized decontamination. Descriptive and inferential statistics were utilized for survey analysis. Multivariate logistic regression was employed to determine the relationship between site, role, primary unit, training, use frequency, and receipt of a pEHMR with selecting a) when the EHMR was disinfected, b) by whom, and c) confidence in centralized EHMR disinfection. Results: Of the 1,080 HCWs surveyed, most (76%) respondents reported they disinfected their respirator after each patient encounter. Significant predictors of compliance with this practice included recall of EHMR disinfection training and greater use frequency, while predictors of non-compliance included work as a provider, work on medical/surgical and pediatric floors, and pEHMR. Only 36% of respondents indicated EHMRs underwent centralized decontamination, with reporting higher at the site where this was expected (53%). Significant predictors of not selecting centralized decontamination included work at the site where this was optional, provider status, work on medical/surgical and pediatric floors, and pEHMR. Significant positive predictors of confidence in centralized EHMR cleanliness and disinfection included work at the site where this was optional, provider status, recall of disinfection training, and use of centralized decontamination. Shared pool respirator use did not significantly affect confidence in centralized EHMR disinfection. Conclusions: Most HCWs reported high compliance with expected post-use disinfection of the EHMRs but did not consistently use available centralized decontamination. Training and use frequency improved HCWs’ compliance with expected practices. Centralized

decontamination, which reduces reliance on human behavior in exposure control, may yield greater HCW confidence in EHMR disinfection.

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