Infection Control, or other high-risk occupations. Epidemiologic studies include a full-face respirator that protects workers in healthcare and other high-risk occupations.

We respectfully suggest a few limitations in the methods of this study and have questions for the authors that may help improve their model and allow others to replicate their findings. Was the half-mask respirator in the test chamber fit-tested to each study participant? Were the N95 respirators fit-tested by qualitative or quantitative methods, and were fit checks done before the studies? If the study respirators did not fit optimally, it is possible that virus detected in the nasal washes was due to penetration through the face mask leaks rather than through the eyes and nasal-lacrimal duct? We suggest that future studies include a full-face respirator that is quantitatively tested as a more protective barrier of both eyes and respiratory tract and a half-face elastomeric respirator as a better barrier of only the respiratory tract. Why did the investigators not do conjunctival swabs to conclusively demonstrate the presence of virus after the exposure challenge? What model of Uvex goggles were used, as several meet the ANSI Z87.1 standard? Was any testing done to assess potential leakage of aerosol through the goggle-face seal? Despite our questions and suggestions and the need to verify the findings in larger studies, we think that the authors' conclusions are probably correct. These data challenge us to further examine the optimal role of personal protective equipment to prevent influenza infection in the workplace. The article by Bischoff et al underscores the need for additional research in this area. The limitations of personal protective equipment suggested by their data emphasize the need to prioritize administrative control measures, especially widespread influenza vaccination among workers in healthcare and other high-risk occupations.

Notes

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Potential conflicts of interest. All authors: No reported conflicts. All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

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References


Transocular Infection With Influenza and Efficacy of Barrier Methods

To the Editor—The recent article by Bischoff and colleagues [1] on transocular entry of influenza and the effect of personal protective equipment is an important contribution to the literature despite the small sample size. It raises important questions about how best to protect workers in healthcare and other settings with a high risk of exposure to influenza aerosols, especially to strains with pandemic potential. Epidemiologic observations have supported the concept of ocular exposure and infection for decades. Although conjunctivitis due to influenza does not appear to be common with most seasonal strains, other strains seem to exhibit more tropism for the conjunctiva than others [2, 3]. A current concern is that avian influenza (H7) subtypes seem to demonstrate ocular tropism, with the eye serving as both a portal of entry and a site of disease [4]. As the data from Bischoff et al suggest, eye protection may help prevent ocular infections with influenza, as incomplete use of personal protective equipment was associated with conjunctivitis and influenza-like illness in an outbreak of avian influenza on a poultry farm [5].

We respectfully suggest a few limitations in the methods of this study and have questions for the authors that may help improve their model and allow others to replicate their findings. Was the half-mask respirator in the test chamber fit-tested to each study participant? Were the N95 respirators fit-tested by qualitative or quantitative methods, and were fit checks done before the studies? If the study respirators did not fit optimally, it is possible that virus detected in the nasal washes was due to penetration through the face mask leaks rather than through the eyes and naso-lacrimal duct? We suggest that future studies include a full-face respirator that is quantitatively tested as a more protective barrier of both eyes and respiratory tract and a half-face elastomeric respirator as a better barrier of only the respiratory tract. Why did the investigators not do conjunctival swabs to conclusively demonstrate the presence of virus after the exposure challenge? What model of Uvex goggles were used, as several meet the ANSI Z87.1 standard? Was any testing done to assess potential leakage of aerosol through the goggle-face seal? Despite our questions and suggestions and the need to verify the findings in larger studies, we think that the authors' conclusions are probably correct. These data challenge us to further examine the optimal role of personal protective equipment to prevent influenza infection in the workplace. The article by Bischoff et al underscores the need for additional research in this area. The limitations of personal protective equipment suggested by their data emphasize the need to prioritize administrative control measures, especially widespread influenza vaccination among workers in healthcare and other high-risk occupations.

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