

Institute of Medicine
Workshop on Personal Protective Equipment for Healthcare Workers to Prevent
Transmission of Pandemic Influenza and Other Viral Respiratory Infections:
Current Research Issues

Comments from the Society for Healthcare Epidemiology of America (SHEA)
June 3, 2010

The Society for Healthcare Epidemiology of America (SHEA) appreciates this opportunity to provide comments on current research issues related to personal protective equipment (PPE) for healthcare workers (HCWs) to prevent transmission of pandemic influenza, seasonal influenza and other viral respiratory infections.

SHEA was founded in 1980 to advance the application of the science of healthcare epidemiology. The Society works to achieve the highest quality of patient care and healthcare personnel safety in all healthcare settings by applying epidemiologic principles and prevention strategies to a wide range of quality-of-care issues. SHEA is a growing organization, strengthened by its membership of 1,800 in all branches of medicine, public health, and healthcare epidemiology.

We are pleased with the far-reaching scope of today's agenda particularly as it relates to advances in PPE technology, PPE implementation studies based upon *real-world* workplace conditions and the critical issue of the workplace safety culture. We are also aware and appreciative of the various levels of research underway at the National Institute for Occupational Safety and Health (NIOSH) including those that are not only laboratory-based but also studies of behavior and outcomes in actual, real-world settings.

SHEA's primary goal is to ensure effective and sustainable delivery of patient care while protecting HCWs, patients, and visitors from acquisition of influenza and other viral respiratory infections in the healthcare setting. The foundation of infection prevention and control for all healthcare personnel is the rigorous and consistent application of basic infection control and personal hygiene practices including adherence to hand hygiene and cough etiquette, rapid identification and separation of patients with communicable diseases based on standard and transmission-based precautions, utilization of appropriate PPE, and environmental controls such as airborne isolation rooms for patients with, for example, pulmonary tuberculosis.

As the Society has noted previously, it is critical that respiratory protection be considered within the context of this overarching infection prevention framework. A recent study of the impact of nonpharmaceutical interventions (NPIs) noted that "more research is urgently needed" but concluded that "taken together, the data provide some evidence that face masks, hand hygiene, cough etiquette, reduced crowding, and school closures are effective in reducing the spread of influenza." The authors further stated that "if mutations do occur, or if new pandemic strains emerge in the future, NPIs likely will play a crucial role in mitigating the spread of infection when vaccines are unable to provide sufficient protection."¹ This underscores not only the

importance of the full range of NPIs but the need to be prepared for emerging pathogens not currently known to us.

Recent data further suggest that community exposures, failure to wear appropriate PPE, or failure to recognize and isolate affected patients were responsible for the majority of novel H1N1 influenza A illness among healthcare personnel.²

The unique factors associated with the transmission of pandemic influenza and other viral respiratory infections necessitate an evidence-based approach to healthcare worker protection that can be consistently applied throughout the healthcare system. SHEA has long advocated for the adoption of science-based guidelines directed toward protection of both our patients and HCWs as these populations are inextricably intertwined. Therefore, whenever possible and medically appropriate, SHEA supports and urges immunization as a primary means of prevention, particularly with annual influenza vaccines. When sufficient influenza vaccines are available, SHEA supports universal vaccination as a critical preventive measure to protect healthcare personnel and patients.

SHEA believes that uniform implementation of these basic infection prevention, surveillance, and control recommendations in all acute care hospitals in the United States will lead to reductions in hospitals' infection rates, including respiratory infections, as well as enhanced patient safety programs. The *Compendium of Strategies to Prevent Healthcare-Associated Infections in Acute Care Hospitals*³ was developed by SHEA and the Infectious Diseases Society of America (IDSA) in partnership with other organizations to provide a concise, evidence-based resource containing practical recommendations for acute care hospitals. In light of the importance of addressing the continuum of care, the accompanying patient safety guides have proven to be a very well-received complement to the *Compendium* providing patients and families with critical information in a question and answer format regarding practices and procedures to prevent HAIs. These efforts are good starts.

Unfortunately, there are still significant gaps in our knowledge and substantial obstacles to the implementation of currently recommended preventive measures. Much of what is recommended in the area of infection prevention and control is not based on reproducible scientific studies but rather on experience, empiricism, and common sense. While these interventions may seem rational based upon our limited science base, the evidence is simply inadequate to support their mandatory implementation.

As noted in SHEA's recently-released position paper, *Enhancing Patient Safety by Reducing Healthcare Associated Infections: The Role of Discovery and Dissemination*⁴, any national effort to address the problem of HAIs should begin with the following priorities: scrutinizing the science base, developing a prioritized research agenda, conducting studies that address the questions that have been identified as knowledge gaps, creating, deploying, and implementing guidelines that are based on the outcomes of these studies, initiating studies that assess the efficacy of the interventions and initiating studies that examine effective implementation strategies.

Toward this end, SHEA has issued the following specific recommendations:

- Creation of a national research agenda to identify the most pressing problems in healthcare epidemiology,
- Creation of a national research consortium of experts in healthcare epidemiology and participating institutions to address the most pressing questions in healthcare epidemiology, and
- Advocating for a substantial increase in funding for basic and applied research in healthcare epidemiology proportionate to the clinical significance of HAIs.

We welcome opportunities to collaborate on relevant studies for healthcare personnel.

SHEA applauds the Institute of Medicine (IOM) special committee for addressing the important topic of research issues related to HCW PPE. As healthcare epidemiologists and direct patient care providers, we urge the IOM and the Department of Health and Human Services (HHS) to support studies of critical issues in HCW safety. Ideally, these studies should be performed in hospitals and other healthcare settings and address issues such as:

- Virus transmission
- Environmental contamination and dissemination
- Protective device efficacy and optimal use, including safe ways of donning and doffing PPE, and considerations for reuse of equipment
- Optimal processes of care (for processes such as intubation and suctioning)
- HCW knowledge, attitudes, and behaviors, including work attendance, in crisis situations

These studies should be conducted using a variety of methodologies, including interventional studies, observational studies, surveys, and mathematical models. The desired end-products should be evidence-based recommendations that consider patient as well as HCW safety to prevent transmission of pandemic influenza, seasonal influenza and other viral respiratory infection; tools that can be used for risk assessment, pre-event planning, and tracking and monitoring during an event, and educational programs and materials.

The Committee is aware of recent studies that found that surgical masks are comparable to some types of respirators in the protection of HCWs from occupation acquisition of influenza.^{5, 6} Rather than continuing the focus on the mask versus respirator issue, SHEA is encouraged that attention is turning to future needs in the form of a better respirator that facilitates ease of use in real world settings. The Society has closely followed the findings of the IOM in this area, as well as the work of the NIOSH National Personal Protective Laboratory (NPPTL) presented in March. This includes the findings presented earlier today by NIOSH and others such as the VHA's Better Respiratory Equipment using Advanced Technologies for Healthcare Employees (B.R.E.A.T.H.E) project and the Clinical Effectiveness Trials by the VHA system.⁷⁻¹⁰

It is clear that the need for a better, more comfortable, no-fit respirator is receiving the attention it deserves – and we urge continued efforts to stay on course – even as the Committee seeks to examine the research science related to the specific issue of influenza and appropriate respiratory

protection. As SHEA works to translate research into action at the bedside, we look forward to continued collaboration with IOM and NIOSH on the critical issue of HCW respiratory protection in the interest of HCWs and patients alike.

We thank you for the invitation to comment.

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