

# RECOMMENDATIONS

DECEMBER 2018 • REUSABLE ELASTOMERIC RESPIRATORS IN HEALTH CARE:  
CONSIDERATIONS FOR ROUTINE AND SURGE USE

## RECOMMENDATION 1: EXPAND RESEARCH TO IMPROVE RESPIRATORY PROTECTION

The National Institute for Occupational Safety and Health (NIOSH) and the National Center for Immunization and Respiratory Diseases of the Centers for Disease Control and Prevention (CDC), and the Biomedical Advanced Research and Development Authority—working in collaboration with manufacturers, researchers, infection prevention and occupational safety and health professional organizations, and other relevant agencies and organizations—should expand their support for and conduct of research on respiratory protection and reusable elastomeric respirators in the following areas for the ongoing improvement of respiratory protection for health care workers. This research should involve the collaborative efforts of a nationwide network of health care facilities that can address the research gaps, expand and refine the results for underserved health care settings, and share lessons learned and best practices.

### *Infection Risk Research for Hazard Assessment*

- Determine and better understand the relative contribution of the routes of transmission for potentially airborne transmissible pathogens to underpin and improve hazard assessment in health care to ensure proper respiratory protection;

### *Cleaning and Disinfection Research*

- Identify and disseminate guidance and standards for cleaning and disinfecting reusable respirators (including cleaning and disinfection agents that are mycobacterial, viral, and sporicidal) without damaging the integrity of the devices and degrading their performance;
- Develop and evaluate practical and effective cleaning, disinfection, and maintenance processes, systems, and equipment for reusable respirators that could be implemented for routine use and could be rapidly deployed for emergency use in health care environments;

### *Respirator Research and Development*

- Develop the next generation of reusable respirators to meet the needs of health care workers as informed by prior research (e.g., Project BREATHE), including but not limited to innovative materials and designs to enhance comfort (including the weight of the device, CO<sub>2</sub> buildup, temperature, work of breathing); ease of cleaning and disinfection; communication intelligibility while speaking; attention to visual aesthetics to enhance patient perceptions and interpersonal interactions; individual fit customization; sensors to detect breaches and provide notifications concerning end of service life; and potentially disposable pre-filters to minimize cross-contamination;
- Develop and evaluate rapid fit-test methods and new user seal-check training methods for reusable respirators, including exploring new technologies that provide an indicator of the quality of the fit;
- Standardize respirator sizing parameters among manufacturers to facilitate fit testing, with attention to seamless and rapid transitions to products from different manufacturers during a health care crisis;

### *Market Research*

- Conduct research to understand the barriers to market entry for a health care–specific, reusable respirator;
- Develop robust value analysis processes for decisions on respirator purchases that include interprofessional decision making and input from manufacturers and product distributors;
- Develop total cost estimates for reusable elastomeric respirators (including purchase, storage, cleaning, training, fitting, use) to compare with total cost estimates of other types of respirators;

### *Behavior and Safety Culture Research*

- Evaluate clinical programs that use reusable elastomeric respirators to more fully understand their processes and identify effective practices;
- Using implementation science methods and information, develop and evaluate best practices to improve adherence to respiratory protection by health care workers (this should include collaborative leadership, management, worker, and union decision making; practice champions) during routine use across the range of health care settings and jobs;
- Develop, implement, and evaluate best practices, implementation strategies, and integrated transition plans to ensure the health and effectiveness of the health care workforce through rapid transitions to new products and proper use of respirators during emergencies (rapid fit testing, just-in-time training, etc.);
- Build upon existing research about health care worker attitudes, knowledge, and perceptions on the use of respirators with a focus on the use of elastomeric respirators in various work settings.

## RECOMMENDATION 2: ENSURE ROBUST RESPIRATORY PROTECTION PROGRAMS AND TRAINING

The leadership of health care facilities, professional associations, professional schools (including continuing education programs), and accrediting and credentialing organizations (working in collaboration with NIOSH and other parts of CDC, the Occupational Safety and Health Administration [OSHA], the Joint Commission, health care workers, and other relevant stakeholders) should ensure that ongoing education and training for robust respiratory protection programs, including on the use of elastomeric respirators for health care workers, are a high priority for health care workers, managers, and leaders; that compliance is actively monitored; and that respiratory protection is championed and financially well-supported across the range of health care institutions and settings. To implement this recommendation:

- Health care professional associations, professional schools (including continuing education programs), and accrediting and credentialing organizations (in collaboration with infection prevention and occupational health and safety professional organizations) should adopt, implement, and evaluate a set of core competencies in respiratory protection that include reusable respirators as an integral component of new and updated respiratory protection curricula and should ensure that training and education programs, at all levels and across work settings, equip health care workers to meet those competencies;
- Health care employers, managers, and workers—working with CDC, OSHA, the Joint Commission, and professional associations—should champion the importance of respiratory protection programs, especially involving the use of reusable elastomeric respirators, and support the use of new models for building a workplace safety culture, such as the use of practice champions, to normalize the use of respiratory protection;
- CDC, relevant professional associations, health care employers, and clinical leadership should develop appropriate mechanisms, including a network of health care respiratory protection program managers and other leaders, to share best practices in respiratory protection within facilities, across regions, and across the nation, with the goal of assuring the health and safety of health care workers across all settings including currently underserved settings (e.g., home health care, some rural facilities, nursing homes).

## RECOMMENDATION 3: HARMONIZE STANDARDS AND CLARIFY GUIDELINES AND RESPONSIBILITIES

CDC, including NIOSH and the National Center for Immunization and Respiratory Diseases, OSHA, the U.S. Food and Drug Administration, staff of the Strategic National Stockpile, and state-level regulatory and stockpile entities—in conjunction with manufacturers, standards-setting organizations, health care facilities, health care professional associations, and other relevant stakeholders—should support the harmonization of guidance and operating procedures for the use of elastomeric respirators in the health care setting. To implement this recommendation:

- Standardize and clearly communicate respiratory protection and infection prevention guidance from international, national, state, and local public health authorities in the event of an influenza pandemic or other public health crisis (i.e., who in the health care facility should use respiratory protection and in what circumstances and what level of protection is to be used) for all types of workers in health care facilities;
- Provide clear, practical, and standardized guidance on effective cleaning and disinfection processes for reusable respirators, including harmonizing manufacturers' recommendations for cleaning and disinfection without damaging the integrity of the device; and
- Clarify and broadly communicate the expectations and responsibilities for emergency preparedness stockpiling of respirators among federal, state, and private sector agencies and entities and provide health care facilities with information as to the makes and models of respirators in stockpiles.

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