

# Performance Requirements and Test Methods for Head Covers, Footwear Covers, Aprons, and Glove/Protective Clothing Interface Regions

## Objective

To provide the basis for and recommend appropriate design and performance criteria for head covers, aprons, footwear covers, and to develop a test method for the assessment of strikethrough through glove/protective clothing interface



## Key Partners

- ASTM F23, AAMI PB70
- & NFPA 1999
- KC, Medline, 3M, DuPont
- NIOSH EPRO
- Nelson Labs
- NIOSH/DSEFS
- FDA, AORN, ARTA, JHU

## Applicable Standards

- OSHA 1910.1030
- ASTM F23
- AAMI PB 70
- NFPA 1999
- AATCC Standards

## Stakeholders

- Healthcare workers, emergency resp.
- Infection control professionals
- Manufacturers
- Standard Development Organizations



## Project Scope

- Identify the specific hazards and use conditions
- Determine the performance, design and integration properties needed to demonstrate effectiveness
- Select and develop appropriate test methods to measure performance properties
- Establish design and performance criteria for each PPE element that ensure an appropriate level of protection based on the results and user expectations
- Communicate recommended test methods and criteria to the ASTM F23, AAMI PB70, and NFPA 1999 Committee and other industry stakeholders for use in standards

## Milestones FY17

- Q1: Responded to external review comments, submitted final proposal, completed experimental chamber set-up, completed the JHU robotic arm installation, started data collection
- Q2: Continued data collection on interface regions to understand the effect of exposure types/durations, wear durations, and external pressure, presented preliminary findings at IOM and AAMI meetings, started the data collection on head covers
- Q3: Draft a paper on parameters that affect the leakage at glove/gown interface, start testing for comparison of leakages for single/double gloving, surgical/isolation procedures, continue data collection on head covers
- Q4: Present data at AOHP conference, draft a paper on single/double gloving, continue data collection with gowns/coveralls leakages, complete head cover barrier & physical performance testing

## Outputs

- Final report with technical data used by SDO's for the development of a new standard on each PPE element (head cover, apron, footwear cover)
- A new test method for assessing the leakage through glove/protective clothing interface and a new guidance documents for PPE use for HCW
- Manuscripts published in peer-reviewed journals (expected min # of publications:6)
- Presentations at conferences and SDO's committee meetings (5 so far)
- Science blogs and a patent

## Outcomes

- CDC can use min requirements for PPE recommendations for infectious diseases such as Ebola
- Consensus standards development organizations (ASTM, ISO, ANSI, AAMI, NFPA), government agencies (FDA, etc.) and professional organizations (AORN, APIC, The Joint Commission) use recommended performance requirements to develop standards and / or guidance documents
- Healthcare workers use project outputs to select and use ensembles
- Manufacturers use the outputs to develop and /or improve current PPE elements and use test results to improve manufacturing processes
- Other researchers utilize the findings to initiate research on more effective healthcare worker personal protective ensembles.