Projectile Fluid Resistance and Flammability of Respirators and Other Head/Facial Personal Protective Equipment (CAN# 93905MH)

**Objectives**

- Test the hypothesis that resistance to penetration of projectile synthetic biological fluids is dependent upon projectile direction, velocity, fluid volume, surface tension viscosity and rigidity of the PPE.
- Test the hypothesis that respirators and head/facial PPE used in healthcare settings provide resistance to penetration of projectile synthetic biological fluids under the worst conditions identified above.
- Test the hypothesis that respirators and head/facial PPE provide expected flammability levels at controlled test conditions.

**Project Scope (all years)**

- Measure resistance to synthetic blood penetration of respirators and other PPE using the ASTM F1862 method and evaluate the effect of fluid direction, velocity, volume, viscosity and rigidity of PPE.
- Measure the flammability levels of PPE.

**FY17 Milestones**

- Q1. The protocol was reviewed by external reviewers. Comments will be addressed and submitted to OD. Test the effect of velocity and fluid volume on blood penetration.
- Q2. Test the flammability of fabric materials.
- Q3. Test the rigidity of respirators.
- Q4. Test the effect of viscosity/surface tension.

**Applicable standards**

- 42 CFR Part 84; FDA clearance
- ASTM Standards; OSHA blood borne pathogen standard

**Key Partners**

- CDC, FDA, ASTM, OSHA

**Stakeholders**

- Respirator manufacturers; Healthcare Professionals
- FDA, ASTM

**Outputs (completed and/or planned)**

- FDA/NIOSH Inter Agency Agreement in process

**Outcomes (completed and/or planned)**

- Citation in scientific literature
- Incorporation of findings into new or existing standards (ASTM F23) and government (e.g. FDA, CDC and OSHA) and non-government organizations (IAB, WHO, and MSF) that make recommendations and selection guidance for healthcare workers
- ASTM F23 committee will use research findings to improve the ASTM F1862 test method
- CDC will update/validate PPE recommendations for use during public health emergency situations