

**POF017: General platform presentation**

**NIOSH Research on Powered Air-Purifying Respirators.**

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**Abstract:**

The 2003 severe acute respiratory syndrome (SARS), 2009 H1N1 influenza, and the 2014 Ebola outbreak highlighted the ongoing need for effective respiratory protection for healthcare workers (HCWs) during public health emergencies. Loose-fitting powered air-purifying respirator (PAPRs) are comfortable and are an attractive option because they do not require fit testing. Some loose-fitting PAPR hood designs can fully cover the wearer's head and neck to prevent contact of body fluids from an infected person. Hence, loose-fitting PAPRs are often used by HCWs during high-risk aerosol-generating procedures. A recent study by the National Institute for Occupational Safety and Health (NIOSH) reported that the use of PAPRs by HCWs is increasing. One of the issues holding back increased use of PAPRs is that they are still considered by some users to be heavy and noisy. Research to improve existing test methods and to develop new test methods for evaluating PAPR performance and usability are needed to assure that NIOSH certification can accommodate future PAPR designs incorporating new technologies to achieve the overarching goal of compliance with proper PPE use practices and procedures.

In 2015, the Centers for Disease Control and Prevention's Influenza Coordination Unit funded NIOSH to develop a research program focused on PAPRs. Key projects in this portfolio are: (1) evaluation of eye dryness and conjunctivitis when wearing a PAPR; (2) healthcare worker breathing patterns; (3) quantifying factors affecting respirator comfort and tolerability – developing the next generation of B95 respirator test methods; and (4) simulated workplace protection factor (SWPF) study of PAPRs. This presentation will describe objectives, work to be performed, progress made, and key findings for each project.