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### Considerations in Selecting a Powered Air Purifying Respirator (Powered Air Turbo)

In the United States Center for Disease Prevention and Control (CDC) document “Guidance on Personal Protective Equipment To Be Used by Healthcare Workers During Management of Patients with Ebola Virus Disease in U.S. Hospitals, Including Procedures for Putting On (Donning) and Removing (Doffing)” (October 20, 2014) powered air purifying respirators (PAPRs) are one option for respiratory protection. The guidance recommends that no skin be exposed; therefore a PAPR that incorporates a full face shield, helmet, or headpiece, which covers the head, neck, and shoulders would comply with that criteria. Reusable components of helmets or headpieces must be covered with a single-use (disposable) hood that extends to the shoulders and fully covers the neck and is compatible with the selected PAPR. The CDC states that a PAPR with a self-contained filter and blower unit (also referred to as a “turbo”) integrated inside the helmet is preferred, though PAPRs with belt-mounted blower units are allowed.

In selecting a PAPR there are a number of elements to consider. In the United States, employers must comply with all elements of the Occupational Safety and Health Administration (OSHA) [OSHA Respiratory Protection Standard, 29 CFR 1910.134](#), including fit testing (if applicable), record keeping, medical evaluation, and training. For any PAPR system employers will need to train employees thoroughly in use, cleaning and decontamination, maintenance and proper storage. Consult the manufacturer’s user instructions for specifics of cleaning, decontamination and maintenance. PAPRs utilize batteries and therefore battery charging must be managed.

PAPRs deliver filtered air to the breathing zone of the wearer, and therefore the workers lungs do not need to work as hard as with some other forms of respiratory protection, such as N95 / FFP2 filtering facepiece respirators. However, PAPRs are heavier than filtering facepiece respirators. The weight of the PAPR will vary by model and this is an important consideration that should be addressed during medical clearance. Additionally, it is important to consider where the weight will be placed on the wearer. Head-mounted PAPRs may place strain on a wearer’s head and neck. Depending on the weight and design, a worker may find it awkward to conduct tasks that involve bending over. Belt-mounted PAPRs are more common, and the weight is placed on the back or waist. Evaluating the total weight and distribution is very important in selecting a PAPR model and should be considered during medical evaluation and the selection process.

The suitability to clean and decontaminate a unit is important as well. PAPRs in which the air enters the filter prior to the motor blower may be preferred, as all of the air circulating through the motor blower will have already been filtered. Additionally, some PAPRs are designed for routine cleaning and may have options including breathing tube covers and shower covers.

As with any piece of personal protective equipment, all local selection and use standards should be implemented and followed and the manufacturer’s user instructions should be read thoroughly.