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Evaluating the Need for Respirators during COVID-19 Pandemic – Non-healthcare Workplaces

Summary

During the COVID-19 pandemic, many employers need to determine whether their workers require personal protective equipment (PPE) to help reduce their potential on-the-job exposure to the virus which causes the disease. According to a non-regulatory guidance document published by the US Occupational Safety and Health Administration (OSHA), which takes a hazard banding approach to categorizing work, the majority of non-medical workers do not require the use of respiratory protection.

Guidance on Preparing Workplaces for COVID-19 (OSHA)

Background

The COVID-19 Pandemic has resulted in millions of confirmed cases as of November 2020. COVID-19 is a pneumonia-like disease caused by the virus SARS-CoV-2, which is transmitted primarily via airborne droplets, aerosols, and less commonly via surface contact.

To help reduce the chance of acquiring the disease, the World Health Organization (WHO) advises members of the public to practice physical distancing, wear a mask, keep rooms well ventilated, avoid crowds, wash their hands regularly, avoid touching their eyes, mouth and nose and cover their nose and mouth with a tissue or their elbow (not their hand) when sneezing and coughing.

Coronavirus disease (COVID-19) advice for the public (WHO)

Non-healthcare Workplaces during COVID-19

In many parts of the world, governments issued "Stay at Home" or "Shelter in Place" orders to promote social distancing measures, requiring some businesses to temporarily close. But many operations, such as utilities, transportation, food and other necessary goods, essential construction, etc., are considered critical and must remain operational.

In light of COVID-19, employers around the world have been needing to consider the possibility of PPE to their workers, in many cases for the first time.

Several sets of guidelines have been published to help employers prepare for and cope with the COVID-19 pandemic:

- Getting Your Workplace Ready for COVID-19 (WHO)
- Interim Guidance for Businesses and Employers to Plan and Respond to Coronavirus Disease 2019 (COVID-19) (U.S. Centers for Disease Control and Prevention, CDC)
- Guidance on Returning to Work (U.S. Occupational Safety and Health Administration, OSHA)

Evaluating the Need for PPE

Determining whether to provide PPE and which PPE to provide to workers may seem daunting. The U.S. Occupational Safety and Health Administration (OSHA) published a non-regulatory document, Guidance on Preparing Workplaces for COVID-19, which contains advisory recommendations "intended to assist employers in providing a safe and healthful workplace." This document may prove useful to employers around the world.

All of the guides listed above explain the importance of some basic concepts related to helping to reduce employee risk of exposure to the virus, including:

- Following local regulations
- Encouraging sick employees to stay home without repercussion
- Training employees on:
 - Transmission modes and symptoms of COVID-19
 - Frequent hand washing
 - Proper sneeze etiquette
- Site hygiene, including disinfection of frequently touched objects

The OSHA guide additionally encourages employers to conduct a hazard evaluation, to determine whether there is a potential for workers to possibly be exposure to SARS-CoV-2 during the course of their work. The hazard evaluation should take into account the environment in which the work must be done, the tasks that must be performed, and whether there is the possibility that workers will interact with potentially infected individuals and/or encounter viable viruses in their work environment. In many countries, industrial hygiene or occupational hygiene consultants can be hired to assist an organization with the hazard evaluation process. Some professional associations and coalitions have coordinated and financed this service on behalf of their member organizations, to create industry-specific guides on PPE selection for common tasks in that industry.

Should the hazard evaluation lead the employer to determine that there is some potential for exposure, then the hierarchy of controls is important to keep in mind. The US CDC's Interim Guidance for Businesses and Employers to Plan and Respond to Coronavirus Disease 2019 (COVID-19), US OSHA's Guidance on Preparing Workplaces, and Getting Your Workplace Ready for COVID-19 provide several recommendations for engineering and administrative controls.

Once all other options have been exhausted, the PPE can be considered. Taking a hazard banding approach, the OSHA guide categorizes work into four categories: Very High Exposure Risk, High Exposure Risk, Medium Exposure Risk, and Lower

Exposure Risk, based on the types of work performed. The Very High Risk and High Risk categories include medical workers who interact with alive and deceased COVID-19 patients and specimens.



https://www.osha.gov/Publications/OSHA3990.pdf

According to the guide, most non-healthcare workers fall into the Medium and Lower Exposure Risk categories. In the guide, these categories are described this way:

"Medium Exposure Risk

Medium exposure risk jobs include those that require frequent and/or close contact with (i.e., within 6 feet of) people who may be infected with SARS-CoV-2, but who are not known or suspected COVID-19 patients. In areas without ongoing community transmission, workers in this risk group may have frequent contact with travelers who may return from international locations with widespread COVID-19 transmission. In areas where there is ongoing community transmission, workers in this category may have contact with the general public (e.g., schools, high-population-density work environments, some high-volume retail settings).

Lower Exposure Risk (Caution)

Lower exposure risk (caution) jobs are those that do not require contact with people known to be, or suspected of being, infected with SARS-CoV-2 nor frequent close contact with (i.e., within 6 feet of) the general public. Workers in this category have minimal occupational contact with the public and other coworkers."

For the **Lower Exposure** group, OSHA says that "Additional PPE [PPE for COVID-19] is not recommended for workers in the lower exposure risk group. Workers should continue to use the PPE, if any, that they would ordinarily use for other job tasks."

For the **Medium Exposure** group, OSHA says, "Workers with medium exposure risk may need to wear some combination of gloves, a gown, a facemask [not a respirator], and/or a faceshield or goggles. PPE ensembles for workers in the medium exposure risk category will vary by work task, the results of the employer's hazard assessment, and the types of exposures workers have on the job. **In rare situations that would require workers in this risk category to use respirators**, see the PPE section beginning on page 14 of this booklet, which provides more details about respirators."

That section reminds employers that in the US, as in many other parts of the world, whenever respiratory protection is required by an employer, the employer must assemble a complete respiratory protection program, including training, fit testing, etc. It also encourages respirator selectors to consider all types of particulate respirators, including elastomeric respirators, powered air purifying respirators, and supplied-air respirators, when filtering facepiece respirators are not suitable or available. This table outlines factors to consider when choosing a respirator type. In addition, 3M Technical Data Bulletin Optimizing Supplies of Filtering Facepiece Respirators provides additional considerations to help workplaces manage respirator programs during periods of supply shortage.

	Key Attributes	Key Potential Advantages	Key Potential Limitations
Non-surgical filtering facepiece respirators	 Effectively filter airborne biological particles such as viruses and bacteria Designed to fit tightly to the face Wide variety Certified as particulate respirator 	 Low Cost Minimal care and maintenance 	 Wearer to be clean shaven in area of the faceseal Fit with certain safety glasses
Elastomeric respirators	 Effectively filter airborne biological particles such as viruses and bacteria Designed to fit tightly to the face Multiple sizes Cleaned and reused 	 Low Cost Reusable – longevity / replacement parts Eye protection (Full-face only) 	 Wearer to be clean shaven in area of the faceseal Fit with certain safety glasses (half face) Communication Storage, cleaning, maintenance Prescription in-facepiece eyewear (Full-face)
Powered air-purifying respirators (PAPRs)	 Effectively filter airborne biological particles such as viruses and bacteria Designed to fit over some facial hair Variety of styles and facepiece/headtop offerings 	 Wide variety of head- tops Limited facial hair permitted for loose-fitting headgear Eye protection (certain headgear) More of face visible Low breathing burden and increased comfort for longer wear time 	 Storage, cleaning, maintenance Care, charging, and life of PAPR batteries Weight and size Communication
Supplied air respirators	 Air is supplied from a qualified source Designed to fit over some facial hair Variety of styles and facepiece/headtop offerings 	 Wide variety of head- tops (same as above) No replacement filters needed 	 Worker is "tethered" to air supply via airline Employer needs to certify breathing air System can be costly to install

3M Personal Safety Division

Resources

- 1) Guidance on Preparing Workplaces (US OSHA)
- 2) Guidance on Returning to Work (US OSHA)
- 3) Coronavirus disease (COVID-19) advice for the public (WHO)
- Interim Guidance for Businesses and Employers to Plan and Respond to Coronavirus Disease 2019 (COVID-19) (US 4) CDC)
- Getting Your Workplace Ready for COVID-19 (WHO) 5)

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