

PPE: Eye Protection

The Centers for Disease Control and Prevention (CDC) recommends eye protection for a variety of potential exposure settings where workers may be at risk of acquiring infectious diseases via ocular exposure. Healthcare Workers should understand that regular prescription eyeglasses and contact lenses are not considered eye protection. The most commonly available items are safety goggles, full-face visors or an integral transparent panel on the top of a surgical face mask. The Occupational Safety and Health Administration (OSHA) examples of eye protection are Eye goggles and face shields.

Infectious diseases can be transmitted through various mechanisms, among which are infections that can be introduced through the mucous membranes of the eye (conjunctiva). Infectious agents are introduced to the eye either directly (e.g., blood splashes, respiratory droplets generated during coughing or suctioning) or from touching the eyes with contaminated fingers or other objects.

Eye protection provides a barrier to infectious materials entering the eye and is often used in conjunction with other personal protective equipment (PPE) such as gloves, gowns, masks or respirators. Eye protection should be used when there is a risk of contamination of the eyes from splashing [e.g. by secretions (including respiratory secretions), blood, body fluids or excretions]. Eye protection should always be worn by all those present in the room during potentially infectious AGPs. Disposable, single-use eye protection is recommended; however, if this is re-usable, appropriate decontamination between uses is required. Eye protection is required when interacting with patients diagnosed with COVID-19.

Types of eye protection include the following:

Safety Goggles



Appropriately fitted, indirectly-vented goggles* with a manufacturer's anti-fog coating provide the most reliable practical eye protection from splashes, sprays, and respiratory droplets. Newer styles of goggles may provide better indirect airflow properties to reduce fogging, as well as better peripheral vision and more size options for fitting goggles to different workers. Many styles of goggles fit adequately over

prescription glasses with minimal gaps. However, to be efficacious, goggles must fit snugly, particularly from the corners of the eye across the brow. While highly effective as eye protection, goggles do not provide splash or spray protection to other parts of the face. Many safety goggles or plano (non-prescription) safety glasses fit comfortably over street eyewear and can provide satisfactory protection without impairing the fit of the prescription eyewear. Prescription safety glasses with side protection are available, but do not protect against splashes or droplets as well as goggles

Types of Safety Goggles

Safety goggles can provide more than enough protection from these hazards. However, you need to choose the correct type of safety goggle. Common types of goggles include:

- **Direct vent:** These goggles have multiple perforations around their body to promote air flow, which reduces lens fogging. Direct vent goggles are primarily used for impact protection.
- **Indirect vent:** This style of goggle uses covered vents to increase air flow. Since the vents are covered, they provide better protection from liquid splash and dust. Even though the covered vents help with airflow, indirect vent goggles will fog up more often.
- **Non-vented:** This style of goggle is completely sealed and doesn't have any vents. They provide excellent protection from impact, splash, dust and caustic vapors. Due to the lack of vents, these goggles tend to fog up quickly; an anti-fog lens is necessary.

* Directly-vented goggles may allow penetration by splashes or sprays; therefore, indirectly-vented or non-vented goggles are preferred for infection control.

Face Shields



Face shields are commonly used as an infection control alternative to goggles.** As opposed to goggles, a face shield can also provide protection to other facial areas. **To provide better face and eye protection from splashes and sprays, a face shield should have crown and chin protection and wrap around the face to the point of the ear, which reduces the likelihood that a splash could go around the edge of the shield and reach the eyes.** Disposable face shields for medical personnel made of light weight films that are attached to a surgical mask or fit loosely around the face should not be relied upon as optimal protection.

Disposable Eye shields



SPEyes Eye ShieldZ by Deroyal

Manufacturer: Deroyal

- Wrap-around disposable lens with sealed mounting for complete protection
- UltraClear technology prevents glare, fog and static
- Frame fits completely against forehead for splash protection from above
- Clip-on/off design for quick and easy changing
- Colored top strip allows fingerprint-free handling

Safety Glasses



Although they're similar to standard spectacles, safety glasses are generally larger with stronger lenses designed to provide far more protection. They tend to cover more of the eyes and face than prescription or fashion eyewear and are designed to be tougher. Models with side shields or a wrap-around design can further limit the risk of exposure.

Safety glasses allow for plenty of airflow and tend to be more comfortable than safety goggles.

Safety glasses provide impact protection but do not provide the same level of splash or droplet protection as goggles and generally should not be used for infection control purposes.

Full-face Respirators



Full facepiece elastomeric respirators and powered air-purifying respirators (PAPRs) are designed and used for respiratory protection, but because of their design incidentally provide highly effective eye protection as well. Selection of this type of PPE should be based on an assessment of the respiratory hazard in an infection control situation, but will also **provide, as an additional benefit, optimal eye protection.**

Contact lenses, by themselves, offer no infection control protection. However, contact lenses may be worn with any of the recommended eye protection devices, including full-face respirators. Contact lens users should rigorously adhere to [hand washing guidelines](#) when inserting, adjusting, or removing contact lenses.

Eye protection should be selected in the context of other PPE use requirements. Safety goggles may not fit properly when used with certain half-face respirators, and similarly, face shields may not fit properly over some respirators. Once PPE requirements have been established for a specific infection control situation, the selected PPE should be pre-tested to assure suitable fit and protection when used as an ensemble. Elastomeric, full facepiece respirators and powered air-purifying respirators (PAPRs) have the advantage of incidentally providing optimal eye protection. In situations where all combinations of PPE may not be readily available to workers, judicious selection of complementary PPE is important to allow for appropriate protection.

Eye Protection

- Put on eye protection (i.e., goggles or a face shield that covers the front and sides of the face) upon entry to the patient room or care area, if not already wearing as part of extended use [strategies to optimize PPE supply](#).
 - Protective eyewear (e.g., safety glasses, trauma glasses) with gaps between glasses and the face likely do not protect eyes from all splashes and sprays.
- Ensure that eye protection is compatible with the respirator so there is not interference with proper positioning of the eye protection or with the fit or seal of the respirator.
- Remove eye protection after leaving the patient room or care area, unless implementing extended use.
- Reusable eye protection (e.g., goggles) must be cleaned and disinfected according to manufacturer's reprocessing instructions prior to re-use. Disposable eye protection should be discarded after use unless following protocols for extended use or reuse.

Implement extended use of eye protection.

Extended use of eye protection is the practice of wearing the same eye protection for repeated close contact encounters with several different patients, without removing eye protection between patient encounters. Extended use of eye protection can be applied to disposable and reusable devices.

- Eye protection should be removed and reprocessed if it becomes visibly soiled or difficult to see through.
 - If a disposable face shield is reprocessed, it should be dedicated to one HCP and reprocessed whenever it is visibly soiled or removed (e.g., when leaving the isolation area) prior to putting it back on. See protocol for removing and reprocessing eye protection below.
- Eye protection should be discarded if damaged (e.g., face shield can no longer fasten securely to the provider, if visibility is obscured and reprocessing does not restore visibility).
- HCP should take care not to touch their eye protection. If they touch or adjust their eye protection, they must immediately perform hand hygiene.
- HCP should leave patient care area if they need to remove their eye protection. See protocol for removing and reprocessing eye protection below.

Consider using safety glasses (e.g., trauma glasses) that have extensions to cover the side of the eyes.

However, protective eyewear (e.g., safety glasses, trauma glasses) with gaps between glasses and the face likely do not protect eyes from all splashes and sprays.

Selected Options for Reprocessing Eye Protection

Adhere to recommended manufacturer instructions for cleaning and disinfection.

When manufacturer instructions for cleaning and disinfection are unavailable, such as for single use disposable face shields, consider:

1. While wearing gloves, carefully wipe the *inside, followed by the outside* of the face shield or goggles using a clean cloth saturated with neutral detergent solution or cleaner wipe.
2. Carefully wipe the *outside* of the face shield or goggles using a wipe or clean cloth saturated with EPA-registered hospital disinfectant solution.
3. Wipe the outside of face shield or goggles with clean water or alcohol to remove residue.
4. Fully dry (air dry or use clean absorbent towels).
5. Remove gloves and perform hand hygiene.

Eye protection should be removed by handling only the portion of this equipment that secures the device to the head (i.e., plastic temples, elasticized band, ties), as this is considered relatively “clean.” The front and sides of the device (i.e., goggles, face shield) should not be touched, as these are the

surfaces most likely to become contaminated by sprays, splashes, or droplets during patient care. Non-disposable eye protection should be placed in a designated receptacle for subsequent cleaning and disinfection. The sequence of PPE removal should follow a defined regimen that should be developed by infection control staff and take into consideration the need to remove other PPE (see [donning and removing PPE](#)).

Healthcare setting-specific procedures for cleaning and disinfecting used patient care equipment should be followed for reprocessing reusable eye protection devices. Manufacturers may be consulted for their guidance and experience in disinfecting their respective products. Contaminated eye protection devices should be reprocessed in an area where other soiled equipment is handled. Eye protection should be physically cleaned and disinfected with the designated hospital disinfectant, rinsed, and allowed to air dry. Gloves should be worn when cleaning and disinfecting these devices.

References:

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