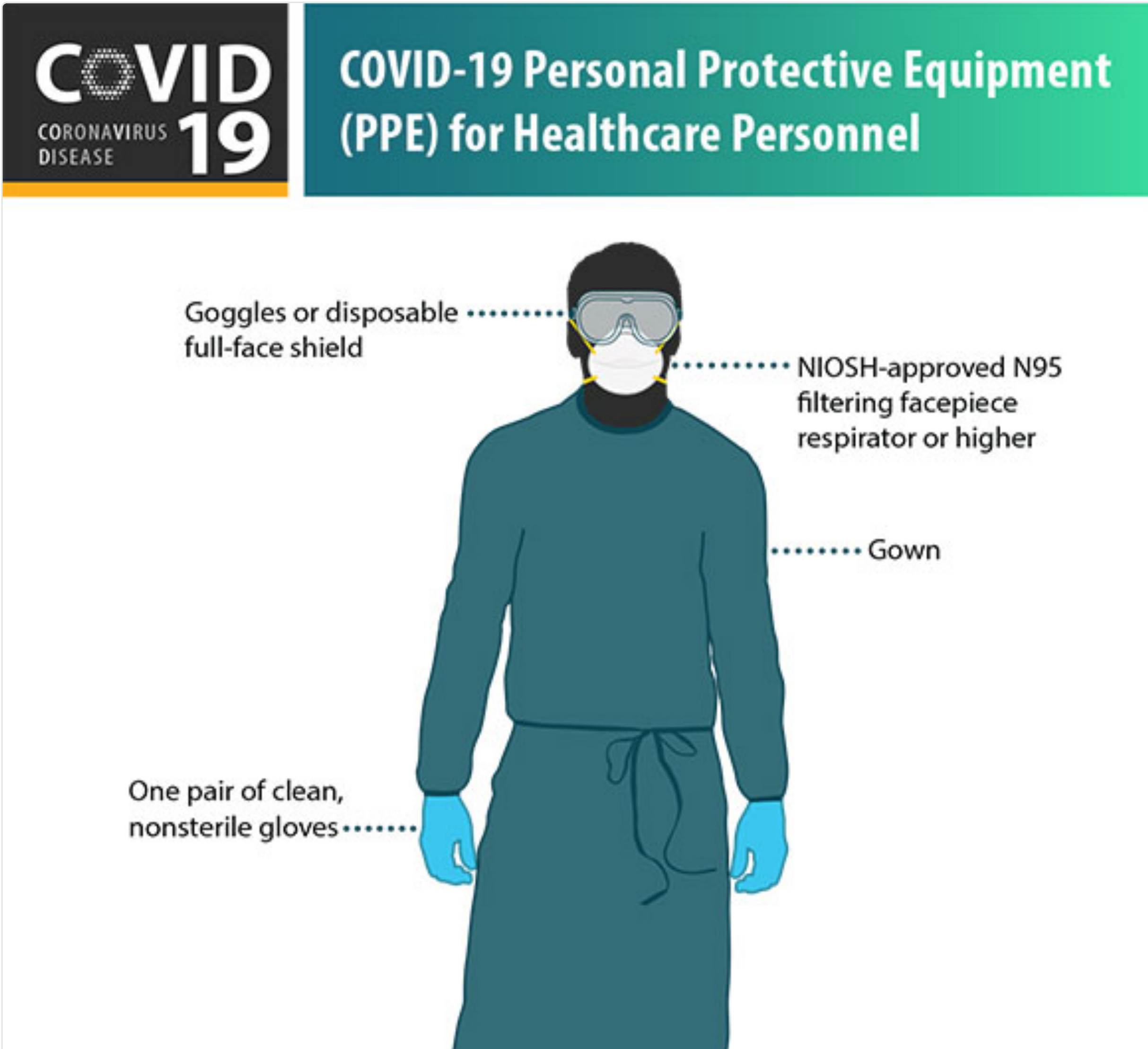
Centers for Disease Control and Prevention

Coronavirus Disease 2019 (COVID-19)

Frequently Asked Questions about Personal Protecti Equipment

This document is intended to address frequently asked questions about personal protective equipment (PPE).

Gowns



- **What testing and standards should I consider when looking for CDC-recommended protective clothi**
  - CDC's guidance for Considerations for Selecting Protective Clothing used in Healthcare for Protection again Microorganisms in Blood and Body Fluids outlines the scientific evidence and information on national and international standards, test methods, and specifications for fluid-resistant and impermeable gowns and coveralls used in healthcare.
  - Many organizations have published guidelines for the use of personal protective equipment (PPE) in medic settings. The American National Standards Institute (ANSI) and the Association of the Advancement of Med Instrumentation (AAMI): ANSI/AAMI PB70:2012 describes the liquid barrier performance and a classification of surgical and isolation gowns for use in health care facilities.
  - As with any type of PPE, the key to proper selection and use of protective clothing is to understand the haz and the risk of exposure. Some of the factors important to assessing the risk of exposure in health facilities include source, modes of transmission, pressures and types of contact, and duration and type of tasks to b performed by the user of the PPE. (Technical Information Report (TIR) 11 [AAMI 2005]).
  - For gowns, it is important to have sufficient overlap of the fabric so that it wraps around the body to cover back (ensuring that if the wearer squats or sits down, the gown still protects the back area of the body).
- **What type of gown is recommended for patients with suspected or confirmed COVID-19?**
  - Nonsterile, disposable patient isolation gowns, which are used for routine patient care in healthcare setting are appropriate for use by patients with suspected or confirmed COVID-19.
- **What types of gowns are available for healthcare personnel to protect from COVID-19?**
  - While the transmissibility of COVID-19 is not fully understood, gowns are available that protect against microorganisms. The choice of gown should be made based on the level of risk of contamination. Certain a of surgical and isolation gowns are defined as "critical zones" where direct contact with blood, body fluids, and/or other potentially infectious materials is most likely to occur. (ANSI/AAMI PB70).
  - If there is a medium to high risk of contamination and need for a large critical zone, **isolation gowns** that claim moderate to high barrier protection (ANSI/AAMI PB70 Level 3 or 4) can be used.
  - For healthcare activities with low, medium, or high risk of contamination, **surgical gowns** (ANSI/AAMI PB7 Levels 1-4), can be used. These gowns are intended to be worn by healthcare personnel during sur procedures.
  - If the risk of bodily fluid exposure is low or minimal, gowns that claim minimal or low levels of barrier

protection (ANSI/AAMI PB70 Level 1 or 2) can be used. These gowns should not be worn during sur or invasive procedures, or for medium to high risk contamination patient care activities.

- **What is the difference between gowns and coveralls?**
  - CDC's guidance for Considerations for Selecting Protective Clothing used in Healthcare for Protection again Microorganisms in Blood and Body Fluids provides additional comparisons between gowns and coveralls.
  - Gowns are easier to put on and, in particular, to take off. They are generally more familiar to healthcare workers and hence more likely to be used and removed correctly. These factors also facilitate training in th correct use.
  - Coveralls typically provide 360-degree protection because they are designed to cover the whole body, inclu the back and lower legs, and sometimes the head and feet as well. Surgical/isolation gowns do not provide continuous whole-body protection (e.g., they have possible openings in the back, and typically provide cove to the mid-calf only).
  - The level of heat stress generated due to the added layer of clothing is also expected to be less for gowns w compared to coveralls due to several factors, such as the openings in the design of gowns and total area covered by the fabric.
- **How do I put on (don) and take off (doff) my gown?**
  - Check to see if your facility has guidance on how to don and doff PPE. The procedure to don and doff shou be tailored to the specific type of PPE that you have available at your facility.
  - If your facility does not have specific guidance, the CDC has recommended sequences for donning and dof of PPE.
  - It is important for Health Care Providers (HCP) to perform hand hygiene before and after removing PPE. Ha hygiene should be performed by using alcohol-based hand sanitizer that contains 60-95% alcohol or washi hands with soap and water for at least 20 seconds. If hands are visibly soiled, soap and water should be us before returning to alcohol-based hand sanitizer.
- **Is it acceptable for emergency medical services to wear coveralls as an alternative to gowns when COVID-19 is suspected in a patient needing emergency transport?**
  - Unlike patient care in the controlled environment of a healthcare facility, care and transport by EMS preser unique challenges because of the nature of the setting. Coveralls are an acceptable alternative to gowns wh caring for and transporting suspect COVID-19 patients. While no clinical studies have been done to compa gowns and coveralls, both have been used effectively by healthcare workers in clinical settings during patie care. CDC's Considerations for Selecting Protective Clothing used in Healthcare for Protection against Microorganisms in Blood and Body Fluids guidance provides a comparison between gowns and coveralls, including test methods and performance requirements. Coveralls typically provide 360-degree protection because they are designed to cover the whole body, including the back and lower legs, and sometimes the head and feet as well. This added coverage may be necessary for some work tasks involved in medical transport. However, coveralls may lead to increased heat stress compared to gowns due to the total area covered by the fabric. Training on how to properly remove (doff) a coverall is important to prevent self-contamination. Comparatively, gowns are easier to put on and, in particular, to take off.

Gloves

- **What type of glove is recommended to care for suspected or confirmed COVID-19 patients in health settings?**
  - Nonsterile disposable patient examination gloves, which are used for routine patient care in healthcare settings, are appropriate for the care of patients with suspected or confirmed COVID-19.
- **What standards should be considered when choosing gloves?**

- The American Society for Testing and Materials (ASTM) has developed standards for patient examinatio gloves.
- Standard specifications for nitrile gloves, natural rubber gloves, and polychloroprene gloves indicate highe minimum tensile strength and elongation requirements compared to vinyl gloves.[1,2,3,4]
- The ASTM has developed standards for patient examination gloves. Length requirements for patient exam gloves must be a minimum of 220mm-230mm depending on glove size and material type.[1,2,3,4]

- **Is double gloving necessary when caring for suspected or confirmed CoVID-19 patients in healthcare settings?**
  - CDC Guidance does not recommend double gloves when providing care to suspected or confirmed 2019-C patients.
- **Are extended length gloves necessary when caring for suspected or confirmed COVID-19 patients in healthcare settings?**
  - According to CDC Guidance, extended length gloves are not necessary when providing care to suspected o confirmed COVID-19 patients. Extended length gloves can be used, but CDC is not specifically recommendi them at this time.
- **How I do put on (don) and take off (doff) my gloves?**
  - Check to see if your facility has guidance on how to don and doff PPE. The procedure to don and doff shou tailored to the specific type of PPE that you have available at your facility.
  - If your facility does not have specific guidance, the CDC has recommended sequences for donning and dof of PPE .
  - It is important for HCP to perform hand hygiene after removing PPE. Hand hygiene should be performed b using an alcohol-based hand sanitizer that contains 60-95% alcohol or washing hands with soap and water at least 20 seconds. If hands are visibly soiled, soap and water should be used before returning to alcohol-based hand sanitizer.

Footnotes

[1]ASTM D6319-Standard Specification for Nitrile Examination Gloves for Medical Applications

[2]ASTM D3578 Standard Specification for Rubber Examination Gloves

[3]ASTM D5250 Standard Specification for Poly(vinyl chloride) Gloves for Medical Application

[4]ASTMD 6977 Standard Specification for Polychloroprene Examination Gloves for Medical Application

Respirators

- **Should I wear a respirator in public?**
  - CDC does not recommend the routine use of respirators outside of workplace settings (in the community). Most often, spread of respiratory viruses from person-to-person happens among close contacts (within 6 f CDC recommends everyday preventive actions to prevent the spread of respiratory viruses, such as avoidi people who are sick, avoiding touching your eyes or nose, and covering your cough or sneeze with a tissue People who are sick should stay home and not go into crowded public places or visit people in hospitals. Workers who are sick should follow CDC guidelines and stay home when they are sick.
- **What is a respirator?**
  - A respirator is a personal protective device that is worn on the face or head and covers at least the nose ar

mouth. A respirator is used to reduce the wearer's risk of inhaling hazardous airborne particles (including infectious agents), gases or vapors. Respirators, including those intended for use in healthcare settings, are certified by the CDC/NIOSH.

- **What is an N95 filtering facepiece respirator (FFR)?**
  - An N95 FFR is a type of respirator which removes particles from the air that are breathed through it. These respirators filter out at least 95% of very small (0.3 micron) particles. N95 FFRs are capable of filtering out a types of particles, including bacteria and viruses.
- **What makes N95 respirators different from facemasks (sometimes called a surgical mask)?**
  - Infographic: Understanding the difference between surgical masks and N95 respirators
  - N95 respirators reduce the wearer's exposure to airborne particles, from small particle aerosols to large droplets. N95 respirators are tight-fitting respirators that filter out at least 95% of particles in the air, includ large and small particles.
  - Not everyone is able to wear a respirator due to medical conditions that may be made worse when breathi through a respirator. Before using a respirator or getting fit-tested, workers must have a medical evaluatio make sure that they are able to wear a respirator safely.
  - Achieving an adequate seal to the face is essential. United States regulations require that workers undergo annual fit test and conduct a user seal check each time the respirator is used. Workers must pass a fit test t confirm a proper seal before using a respirator in the workplace.
  - When properly fitted and worn, minimal leakage occurs around edges of the respirator when the user inha This means almost all of the air is directed through the filter media.
  - Unlike NIOSH-approved N95s, facemasks are loose-fitting and provide only barrier protection against drop including large respiratory particles. No fit testing or seal check is necessary with facemasks. Most facemas do not effectively filter small particles from the air and do not prevent leakage around the edge of the mas when the user inhales.
  - The role of facemasks is for patient source control, to prevent contamination of the surrounding area when person coughs or sneezes. Patients with confirmed or suspected COVID-19 should wear a facemask until th are isolated in a hospital or at home. The patient does not need to wear a facemask while isolated.
- **What is a Surgical N95 respirator and who needs to wear it?**
  - A surgical N95 (also referred as a medical respirator) is recommended only for use by healthcare personne (HCP) who need protection from both airborne and fluid hazards (e.g., splashes, sprays). These respirators not used or needed outside of healthcare settings. In times of shortage, only HCP who are working in a ster field or who may be exposed to high velocity splashes, sprays, or splatters of blood or body fluids should w these respirators, such as in operative or procedural settings. Most HCP caring for confirmed or suspected COVID-19 patients should not need to use surgical N95 respirators and can use standard N95 respirators.
  - If a surgical N95 is not available for use in operative or procedural settings, then an unvalved N95 respirato may be used with a faceshield to help block high velocity streams of blood and body fluids.
- **My employees complain that Surgical N95 respirators are hot and uncomfortable – what can I do?**
  - The requirements for surgical N95 respirators that make them resistant to high velocity streams of body flu and help protect the sterile field can result in a design that has a higher breathing resistance (makes it mor difficult to breath) than a typical N95 respirator. Also, surgical N95 respirators are designed without exhala valves which are sometimes perceived as warmer inside the mask than typical N95 respirators. If you are receiving complaints, you may consider having employees who are not doing surgery, not working in a ster field, or not potentially exposed to high velocity streams of body fluids wear a standard N95 with an exhala valve.
- **My N95 respirator has an exhalation valve, is that okay?**

- An N95 respirator with an exhalation valve does provide the same level of protection to the wearer as one does not have a valve. The presence of an exhalation valve reduces exhalation resistance, which makes it e to breathe (exhale). Some users feel that a respirator with an exhalation valve keeps the face cooler and reduces moisture build up inside the facepiece. However, respirators with exhalation valves should not be in situations where a sterile field must be maintained (e.g., during an invasive procedure in an operating or procedure room) because the exhalation valve allows unfiltered exhaled air to escape into the sterile field.

- **How can I tell if a respirator is NIOSH-approved?**
  - The NIOSH approval number and approval label are key to identifying NIOSH-approved respirators. The N approval label can be found on or within the packaging of the respirator or sometimes on the respirator its The required labeling of NIOSH-Approved N95 filtering facepiece respirators includes the NIOSH name approval number, filter designations, lot number, and model number to be printed on the respirator. You c verify that your respirator approvals are valid by checking the NIOSH Certified Equipment List (CEL).
- **How do I know if my respirator is expired?**
  - NIOSH does not require approved N95 filtering facepiece respirators (FFRs) be marked with an expiration d If an FFR does not have an assigned expiration date, you should refer to the user instructions or seek guida from the specific manufacturer on whether time and storage conditions (such as temperature or humidity) expected to have an effect on the respirator's performance and if the respirators are nearing the end of th shelf life.
- **What do I do with an expired respirator?**
  - In times of increased demand and decreased supply, consideration can be made to use N95 respirators pa their intended shelf life. However, the potential exists that the respirator will not perform to the requireme for which it was certified. Over time, components such as the strap and nose bridge may degrade, which ca affect the quality of the fit and seal. Prior to use of N95 respirators, the HCP should inspect the respirator a perform a seal check. Additionally, expired respirators may potentially no longer meet the certification requirements set by NIOSH. For further guidance, visit *Release of Stockpiled N95 Filtering Facepiece Respirators Beyond the Manufacturer-Designated Shelf Life: Considerations for the COVID-19 Response*.
- **What methods should healthcare facilities consider in order to avoid unintentional loss of PPE durin COVID-19?**
  - Monitoring PPE supply inventory and maintaining control over PPE supplies may help prevent unintentiona product losses that may occur due to theft, damage, or accidental loss. Inventory systems should be emplo to track daily usage and identify areas of higher than expected use. This information can be used to imple additional conservation strategies tailored to specific patient care areas such as hospital units or outpatien facilities. Inventory tracking within a health system may also assist in confirming PPE deliveries and optimi distribution of PPE supplies to specific facilities.

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