

**Personal Protective Equipment (PPE)
Frequently Asked Questions (FAQ)**

v.9.2.2020

RUTGERS HEALTH

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PURPOSE

This document answers frequently asked questions (FAQs) about effective personal protective equipment (PPE) for SARS-CoV-2 to ensure the safety of the Rutgers workforce during the coronavirus (COVID-19) pandemic. The provided information is based on the latest scientific evidence but may change as our knowledge evolves.

For the purposes of this document, the following terms and definitions apply:

- **Personal protective equipment (PPE):** equipment worn to minimize exposure to hazards that cause workplace injuries and illnesses *when correctly used for the appropriate task and/or situation.*
- **Droplet protection:** PPE used to protect a wearer from larger droplets in the air.
- **Respiratory protection:** PPE used to prevent occupational illness from exposure to air contaminated with harmful biological agents (e.g. SARS-CoV-2), dusts, fogs, fumes, mists, gases, smokes, vapors, or sprays *when properly selected for compatibility with the identified hazard.*
- **Source control:** the use of cloth face coverings or facemasks to cover a person’s mouth and nose to prevent spread of respiratory secretions during conversation, sneezing, or coughing as currently recommended by the CDC.
 - *Note: Cloth face coverings are **not** considered PPE.*
- **Surge:** a sudden, unexpected increase in patients that severely challenges or exceeds the capacity of a healthcare facility or PPE supply chain.
- **Healthcare Personnel (HCP):** individuals who work directly with patients or who handle material that could spread infection.
 - This includes, but is not limited to: physicians, nurses, trainees/students, emergency medical staff, dental professionals, laboratory technicians, pharmacists, custodial/environmental services, volunteers in Patient Care Areas, and administrative staff.
- **Patient Care Area:** any space in which care is provided to patients, regardless of who the provider is.
 - These include, but are not limited to: outpatient offices and clinics, patient waiting rooms, patient rooms, and meeting rooms used for patient/family consults.
- **Organization abbreviations:**
 - CDC – Centers for Disease Control and Prevention
 - FDA – Food and Drug Administration
 - NIOSH – National Institute for Occupational Safety and Health
 - NPPTL – National Personal Protective Technology Laboratory
 - OSHA – Occupational Health and Safety Administration
 - PEOSH – Public Employee Occupational Health and Safety
 - NJDOH – New Jersey Department of Health
 - RBHS – Rutgers Biomedical and Health Sciences
 - REHS – Rutgers Environmental Health and Safety
 - WHO – World Health Organization

This document was last updated on September 2, 2020, and supersedes all older versions.

SPECIFIC PPE QUESTIONS

RESPIRATORS

What is a respirator?

The CDC defines a respirator as PPE worn on the face or head that covers at least the nose and mouth. It is used to reduce the wearer's risk of inhaling hazardous airborne particles, including infectious agents (e.g. bacteria, viruses, and spores), gases, or vapors with a minimum particle filtration efficiency of 95% or better (42 CFR Part 84). Respirators intended for use in Patient Care Areas are certified by the CDC/NIOSH and **must** be [fit-tested](#) to ensure a proper seal for the wearer. Respirators must be carefully selected and assessed to ensure suitable protection for the wearer from the identified hazard. Examples of respirators include [N95 respirators](#), [Powered Air Purifying Respirators \(PAPRs\)](#), and [elastomeric respirators](#).

What is not a respirator?

Any face covering that is not certified by the CDC/NIOSH, *or not appropriately fit-tested*, will **not** be considered a respirator for the purposes of this document. Examples include [surgical masks](#), [cloth face coverings](#), and [KN95s](#) as they are not certified.

What is a Respiratory Protection Program?

A respiratory protection program (RPP) is a written, cohesive collection of worksite-specific procedures and policies that addresses all respiratory protection elements as required by law. For example, it must contain specific procedures describing how respirators will be selected, fitted, used, maintained, and inspected in a workplace. OSHA requires that each **employer** must 1) establish and maintain a RPP compliant with OSHA's standards and 2) provide respirators to protect workers by preventing inhalation of hazardous materials during work that cannot be controlled by other measures, i.e. engineering or administrative controls.

The Rutgers University RPP can be found at: <https://ipo.rutgers.edu/rehs/ru-respiratory-safety>.

On which standards and laws is a Respiratory Protection Program based?

A respiratory protection program is required by OSHA's Respiratory Protection Standard (29 CFR 1910.134) and by its counterpart in New Jersey's PEOSH. NJDOH is the lead department that enforces the PEOSH Respiratory Protection Standard for public employers, which includes Rutgers University.

What do I need to know about wearing a respirator?

Prior to the use of a respirator, a medical questionnaire must be completed and reviewed because wearing one can make breathing more difficult. An initial and then annual [fit test](#) is needed to identify the right model, style, and size of respirator for each wearer. Additionally, tight-fitting respirators, including the N95, require a user seal check each time one is donned. Beards and other facial hair can prevent a tight face seal and reduce a respirator's effectiveness. Individuals with facial hair may instead need to use a hooded respirator, which does not require a tight fit.

What is a powered air-purifying respirator (PAPR)?

A PAPR is PPE with a mask/hood and a motorized fan that draws air through a filter to supply filtered air to the wearer. PAPRs may be used during [aerosol-generating situations](#) and in certain laboratories. They are designed to be repeatedly cleaned for re-use.



What is an elastomeric respirator?

An elastomeric respirator is a tight-fitting type of PPE with a half or full facepiece made of synthetic or natural rubber material that can be repeatedly cleaned/disinfected and reused. All elastomeric respirators require air-purification filters, cartridges, or canisters that must be carefully selected based on the environmental hazard identified.



Elastomeric respirators can provide adequate protection from infectious agents such as bacteria, viruses, and aerosols when properly [fit tested](#) and paired with the appropriate filtration cartridge(s), i.e. N95 or better. However, they are not suitable for everyone. The wearer must be enrolled in the Rutgers University [Respiratory Protection Program](#), meet all the requirements of wearing an N95, pass more stringent medical clearance criteria, and be trained in additional care and use requirements.

*Note: Elastomeric respirators do **not** provide source control (i.e. protection for others) due to the presence of an exhalation valve unless that valve is sealed with a cap with filter or adequately covered with a surgical or procedural mask (see below).*

What is an N95 respirator?

The N95 is one of seven classes of NIOSH-approved particulate filtering facepiece respirators. Its name comes from its performance capabilities; specifically, the “N” means that it is **not** resistant to oil, and the “95” means that it will filter at least 95% of airborne particles (≥ 0.3 microns) when properly fitted. The N95 is the most common respirator encountered in healthcare. Some are also approved by the FDA to be labeled “surgical N95” because they are resistant to contamination by bodily fluids. All N95 models have tight-fitting head straps and require [fit-testing](#) prior to use.



More information about the N95 and other NIOSH-approved respirators can be found at: https://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/default.html.

When do I need to wear a respirator?

A respirator should be worn when performing a task with the potential to expose the HCP to SARS-CoV-2, such as [aerosol-generating situations](#), or any other task identified as requiring an N95 via a hazard assessment.

Can I wear a respirator that has an exhalation valve?

Yes, **ONLY** if the exhalation valve is covered or filtered at all times. An exhalation valve allows unfiltered air to escape and therefore does not provide source control. For [elastomeric respirators](#), the valve must be sealed with a cap that is filtered, or completely and closely covered with a surgical or

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procedural mask. Similarly, all other respirators with exhalation valves cannot be used unless the valve is adequately covered with a surgical or procedural mask.

Can a student or employee HCP who has a serious chronic or underlying condition wear a respirator or request an N95 during a routine clinical rotation (no COVID-19 assignments)?

Respirator use may pose a significant health hazard in the setting of certain underlying medical conditions. An evaluation by Student Health and/or Occupational Health in compliance with the Rutgers University [Respiratory Protection Program](#) is necessary to determine if any underlying chronic medical conditions may preclude an individual from wearing a respirator.

FACEMASKS

What is a surgical mask?

A surgical mask is a form of PPE commonly used inside an operating room or other sterile procedure area to reduce environmental contamination from the wearer and to also protect the wearer from contaminated fluid or debris generated during a procedure. Surgical masks have adjustable ties for better fit and are typically tied over top of a surgical cap or a bouffant cap. In public spaces, surgical masks can be used as a face covering (see below).



What is a procedure mask?

A procedure mask is a form of PPE used by an HCP when performing non-aerosol-generating patient procedures or when treating certain immunocompromised patients. When worn by patients, an HCP, and visitors, procedure masks help to protect everyone from respiratory secretions, fluids, or other debris as a form of general “respiratory etiquette” by preventing the spread of germs during conversation, coughing, or sneezing. Procedure masks resemble surgical masks but instead have ear loops for quick donning. In public spaces, procedure masks can be used as a face covering (see below).



What is a face covering?

The term “face covering,” as used in this document, refers to a physical barrier device used to protect people around the wearer in public settings from respiratory secretions in areas of significant community-based transmission. Face coverings can be [made at home](#) from common household materials at low cost as per current CDC recommendations. Reusable cloth face coverings are suitable for use in general public spaces but are **not** considered PPE. For additional information, please see [the CDC’s guidance on face coverings](#).



FACE/EYE PROTECTION

What is face/eye protection?

Face/eye protection are PPE such as face shields, goggles, and safety glasses that are designed to prevent splashes, sprays, and droplets from reaching the user. These PPE are defined below from most protective to least protective:

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- Full face shields protect both the wearer’s eyes and face by covering the front and sides of the face. These are utilized during aerosol-generating situations and when droplet protections are deemed necessary. Additionally, face shields may facilitate extended use of face masks and respirators by reducing contamination from splashes, sprays, droplets, and inadvertent touching.
- Goggles protect the wearer’s eyes only. They should fit snugly from the corners of the eye across the brow. Goggles may be non-vented with a tight face seal or indirectly vented with no straight-line passage from the exterior to the goggles’ interior.
- Safety glasses also protect the wearer’s eyes but have limited splash protection as small gaps remain between them and the wearer’s face.



Note: Personal eyeglasses and contact lenses are not adequate eye protection.

When do I need to wear face/eye protection?

SARS-CoV-2 may be transmitted through contact with the mucous membranes of the eye. Full-face respirators cover the eyes, nose, and mouth, and therefore goggles or a face shield are not needed. However, with other respirators and masks, goggles (non-vented or indirectly vented only) or face shields must be worn in addition to other necessary PPE (e.g. gowns, gloves, etc.).

The CDC currently recommends that all HCP wear eye protection for all patient encounters when working in facilities located in communities with moderate or sustained SARS-CoV-2 transmission. Regardless of the level of community transmission, goggles or a face shield are needed when caring for any suspected or confirmed COVID-19 patient.

When SARS-CoV-2 infection is not suspected in a patient based on clinical protocols at your workplace, at a minimum safety glasses should be worn when there is a potential for exposure to respiratory secretions.

Note: Criteria for the severity of community transmission of SARS-CoV-2 vary by jurisdiction and governmental body. Incidence rate per 100,000 people is frequently used to define risk, such as by the CDC for travel abroad. NJDOH provides incidence rates by county at:

https://www.nj.gov/health/cd/topics/covid2019_dashboard.shtml.

What if I need to use equipment that interferes with my face/eye protection?

Generally, engineering controls such as a transparent barrier or a remote video camera should be used when PPE may interfere with patient care equipment. However, if essential visual-aid equipment incompatible with face/eye protection, such as a surgical microscope or indirect ophthalmoscope must be used, the HCP may, using best clinical discretion, defer face/eye protection for the minimum duration needed to accomplish relevant patient care.

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HAND PROTECTION

What is hand protection?

Hand protection is PPE that forms a barrier around the hands. For infectious diseases such as SARS-CoV-2, it protects the wearer from infection during patient care. Gloves are the most common form of hand protection. The two most common types of medical gloves are examination gloves and surgical gloves, both of which are disposable. Most gloves in healthcare are made of nitrile or vinyl and are latex-free.

Is hand protection required?

Any HCP in the same Patient Care Area as a patient with suspected or confirmed COVID-19 should wear disposable examination gloves before entering that Patient Care Area.

GOWNS

What are gowns?

Gowns are PPE that cover as much of the body as is appropriate for the intended use, but in general they cover the arms, torso, and upper legs of the wearer. In healthcare, they are usually disposable and made of lightweight nonwoven material such as polyester, polyethylene, or polypropylene. Gowns protect the wearer from splashes, sprays, and droplets.

What types of gowns are there?

Product names for gowns are not standardized, so various names may be used for gowns worn in Patient Care Areas including; surgical, non-surgical, isolation, surgical isolation, procedural, and so on. Nevertheless, the FDA acknowledges four (4) levels of protection offered by gowns as defined by ANSI/AAMI PB70:2003 and ASTM F2407 consensus standards. In addition, the FDA regulates surgical gowns and surgical isolation gowns as Class II medical devices that must be clearly labeled as such. However, because gown manufacturers are not required to use the above protection levels and may instead use a custom system, a gown's intended-use labeling **must** be checked to assure that it provides the desired protection level based on the identified hazard.

More information about the technical performance capabilities of each FDA-recognized protection level may be found at: <https://www.fda.gov/medical-devices/personal-protective-equipment-infection-control/medical-gowns#g5>. Level 4 protection, for instance, will prevent all fluid penetration for up to 1 hour and *may* prevent virus penetration for the same duration.

What type of gown do I need?

Generally, the gown must cover every part of the wearer that may be exposed to splashes, sprays, and/or droplets and is not already covered by other PPE. At a minimum, a gown with **Level 3** protection is needed for Patient Care Areas designated for COVID-19 patients. Examples of situations warranting each protection level follow:

- Level 4: High risk, e.g. during surgery or any lengthy fluid-intense procedures
- Level 3: Moderate risk, e.g. during arterial blood draw or intravenous line insertion, for trauma cases, in the emergency room or designated COVID-19 units, etc.
- Level 2: Low risk, e.g. during venous blood draw or suturing, in non-COVID-19 critical/intensive care units, a pathology lab, etc.

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- Level 1: Minimal risk, e.g. during basic care for non-COVID-19 patients, for standard isolation, as a cover gown for visitors, etc.

Note: FDA-regulated surgical gowns should be reserved for only Level 4 usage unless all other gowns are unavailable.

Where are gowns required?

Any HCP who will be in a Patient Care Area with a patient with suspected or confirmed COVID-19 should wear a gown with at least **Level 3** protection (see above). Gowns should be donned prior to entering the Patient Care Area.

GENERAL PPE QUESTIONS

REQUIREMENT

Must I wear a face covering at all times while at Rutgers University?

You must wear a surgical/procedural mask or face covering that covers your mouth and nose at all times while in a shared workspace/room at Rutgers University.

- Face coverings or masks which incorporate an exhalation valve may **NOT** be worn because an exhalation valve allows unfiltered air to escape and therefore does not provide source control needed to prevent transmission of COVID-19 to those around you.
- If you work in an office, no more than one person should be in the same room unless the required six feet of distancing can be consistently maintained. If more than one person is in a room, masks/face coverings must be worn at all times.
- Masks/face coverings must be worn by any staff in a reception/receiving area.
- Masks/face coverings should be used when inside any area where others are present, including hallways, stairs, break rooms, conference rooms, and other meeting locations.

More information can be found in the “Returning to Rutgers” Guidelines:

<https://ipo.rutgers.edu/sites/default/files/2020%200618%20Returning%20to%20Rutgers.pdf>

Depending on the wearer’s situation and exposure risk, further protection may be needed.

What if I have an adverse medical reaction to wearing PPE?

If you develop any adverse effects from PPE, such as but not limited to skin reactions or difficulty breathing, immediately inform your supervisor and promptly seek medical attention. An evaluation by Student Health and/or Occupational Health is necessary to determine if you cannot use certain types of PPE and what alternatives and/or accommodations are available.

OBTAINING PPE

Where can I get a face covering, mask, or respirator?

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This will depend on where you are assigned to work. Your supervisor can advise you on how and where face coverings, masks, or respirators are acquired at your site.

I am at a Rutgers-affiliated work site; who is responsible for providing PPE?

The affiliated work site where you work is responsible for providing PPE to you as part of your employment or education at Rutgers. Rutgers does not provide PPE to its employees working at other institutions as Rutgers does not direct or control policy decisions for its affiliates. Rutgers employees are required to follow their host institution's PPE policies.

When the host institution requires respiratory protection as part of their PPE policy for identified patient care, Rutgers will provide the employee with the appropriate respiratory protection training, medical clearances, and respirator [fit-testing](#). The host institution will be asked to provide you with the exact make, model, and size of available respirators and make it available to you for fit testing.

PERSONALLY PROCURED PPE

What if I want to purchase my own respirator?

Any respirator not provided by the affiliated work site will need to be assessed and accepted by that affiliate before you may use it. If deemed acceptable, please contact REHS to arrange a [fit test](#) to ensure proper fit, regardless of who purchased the respirator.

PPE WITH EXHALATION VALVES

Are face coverings or any masks/respirators with an exhaust valve acceptable?

Face coverings or masks which incorporate an exhalation valve may **NOT** be worn as they do not provide source control, and therefore do not provide protection to those around you

Respirators (N95 or better) with an exhalation valve may be used if the exhalation valve is covered or filtered at all times. An exhalation valve allows unfiltered air to escape and therefore does not provide source control needed to prevent transmission of COVID-19 in Patient Care Areas. For [elastomeric respirators](#), the valve must be sealed with a cap or completely and closely covered with a surgical or procedural mask. Similarly, all other respirators with exhalation valves cannot be used unless the valve is adequately covered with a surgical or procedural mask.

ACCEPTABLE FORMS OF PPE

What are acceptable types of face coverings, masks, or respirators?

The type of face covering, mask, or respirator that is acceptable depends on the specific task or situation for which it will be worn. Currently, cloth face coverings are recommended for use in public settings such as stores, restaurants, and gatherings for source control, i.e. to prevent transmission among the general public by containing wearers' respiratory secretions. An appropriately constructed/manufactured face covering is preferred over an improvised covering such as a bandana, handkerchief, scarf, or towel; more details may be found in the [CDC's guide for face coverings](#). None of these coverings are considered PPE, and they should **not** be assumed to provide adequate protection for the wearer.

When protection of the **wearer** is indicated, appropriate PPE options include surgical masks, procedure masks, and respirators (e.g. N95, PAPR, etc.). The specific type of mask or respirator that is recommended will depend on the setting/task involved and the presence of any contingency/surge conditions. [Table 1](#) provides further guidance.

Can I wear a face shield instead of a face covering?

No. Research is currently ongoing to determine if face shields provide adequate source control. Therefore, the CDC does not currently recommend face shields instead of a mask, respirator, or cloth face covering.

Contingency/Surge Condition
Face shields may be worn over a mask or respirator to prolong the extended use or reuse of the mask or respirator. For reusable face shields, those with non-absorbent frames are preferred for ease of cleaning.

Can I use a KN95 mask as a respirator?

No, KN95s have **not** received NIOSH approval. At this time, only respirators listed as NIOSH-Approved Particulate Filtering Facepiece Respirators at the N95 class or better will be accepted to meet the OSHA respiratory protection standard.

Contingency/Surge Condition
Per the CDC, “Non-NIOSH-approved products developed by manufacturers who are not NIOSH approval holders, including only products approved by and received from China, should only be used in crisis situations when no other NIOSH-approved N95 respirator (or a listed device from one of the other countries identified within the FDA EAU) is available; they should not be used during aerosol generating medical procedures unless the alternative is a loose-fitting surgical mask or improvised device.”

Can I use a KN95 as a face covering?

Yes, as long as they are **not** utilized for respiratory protection. KN95 masks are **not** acceptable for use as a respirator. Various counterfeit KN95 masks have been identified in the market, and some may pose a significant health hazard to the user.

FIT-TESTING

How can I get a fit test?

All respirator fit tests for Rutgers employees and students are arranged through REHS. Please email a request for fit testing to n95@rutgers.edu and/or contact REHS at **848-445-2550**. Other contact options are available at <https://ipo.rutgers.edu/contact-rehs>.

Why do I need a fit test?

According to OSHA, “a ‘fit test’ evaluates the seal between the N95 mask, or respirator's facepiece and your face.” The fit test assures that the mask fits and seals properly so that potentially contaminated air cannot leak into the user’s respiratory system. It typically takes 15-20 minutes to complete and must be performed when first used and then at least annually.

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The fit test must be conducted using the same make, model, and size of respirator that the HCP will use. Fit testing with a different type of respirator than the one that will be used does not assure proper protection.

If the respirator used for the fit test does not properly fit, then another make, model, style, or size of respirator must be tested until one that fits properly has been identified.

PUTTING ON AND TAKING OFF PPE

How do I put on (don) and take off (doff) PPE?

The CDC has general instructions, diagrams, and videos here: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/using-ppe.html>. Please consult your supervisor and any worksite-specific protocols for further guidance.

CLEANING AND DISINFECTING PPE

Can I clean or disinfect my N95 respirator?

Not on your own. Follow decontamination guidelines, if any, at your work site. The CDC has advised that ultraviolet germicidal irradiation, vaporous hydrogen peroxide, and moist heat are the most promising potential methods for respirator decontamination. The FDA has issued [Emergency Use Authorizations](#) for decontaminating systems, and this remains an area of active research and requires validation.

Can I clean or disinfect my elastomeric respirator?

Yes, with proper training. Elastomeric respirators may be cleaned, disinfected, and reused many times, but this must be done in accordance with protocols established by the Rutgers University [Respiratory Protection Program](#). Do **not** attempt to clean, disinfect, or otherwise service an elastomeric respirator without proper training, or the respirator may become damaged.

EXTENDING USE OR REUSE OF PPE

Can I reuse my face mask or N95 respirator?

Yes, face masks can be reused when they are in short supply, but ideally, they should be changed after each patient encounter after AGPs are performed. Regardless of usage, masks should always be replaced if visibly soiled, structurally damaged, or difficult to breathe through.

Contingency/Surge Condition
If needed, extended use or reuse of face masks and respirators is possible to preserve a limited supply. <ul style="list-style-type: none">• “Extended use” means wearing the same mask/respirator for repeated close contact encounters with several patients, without removing it between patient encounters.• “Reuse” means using the same mask/respirator for multiple encounters with patients but removing it after each encounter.

NON-REQUIRED USE OF PPE

Can I wear a respirator when not required?

Non-required use is discouraged as Rutgers is emphasizing conservation of PPE supplies for frontline HCP at clinical operations. Most HCP who wear respirators are required to do so by their employer to protect them from airborne hazards. However, in select circumstances, accommodations may be made by the Respiratory Protection Program (RPP) Administrator or their designee at REHS.

If you are permitted by the RPP Administrator or their designee at REHS to wear a respirator when not required, you must comply with the medical clearance, training, selection, and use requirements found in the RPP. You may also be responsible for purchasing your own respirator to wear in compliance with the program.

REFERENCES

1. 3M. (2020). *Get the facts: N95 respirator pricing*.
<https://multimedia.3m.com/mws/media/1862179O/get-the-facts-n95-respirator-pricing.pdf>.
2. 3M Personal Safety Division. (2020, July). *2019 Novel Coronavirus and COVID-19 Disease Outbreak*. <https://multimedia.3m.com/mws/media/1791123O/2019-novel-coronavirus-outbreak.pdf>.
3. 3M Personal Safety Division. (2020, June). *Respiratory protection for airborne exposures to biohazards: Technical data bulletin, release 5, June 2020, #174*.
<https://multimedia.3m.com/mws/media/409903O/respiratory-protection-against-biohazards.pdf>.
4. 3M Personal Safety Division. (2020, May). *Comparison of FFP2, KN95, and N95 and other filtering facepiece respirator classes: Technical bulletin, May 2020, revision 4*.
<https://multimedia.3m.com/mws/media/1791500O/comparison-ffp2-kn95-n95-filtering-facepiece-respirator-classes-tb.pdf>.
5. 3M Personal Safety Division. (2020, July). *2019 Novel coronavirus and COVID-19 disease outbreak: Technical bulletin, July 2020, revision 26*.
<https://multimedia.3m.com/mws/media/1791123O/2019-novel-coronavirus-outbreak.pdf>.
6. 3M Personal Safety Division. (2020, May). *Respirators and surgical Masks: A comparison: Technical bulletin, May 2020, revision 4*.
<http://multimedia.3m.com/mws/media/957730O/respirators-and-surgical-masks-contrast-technical-bulletin.pdf>.
7. 3M Personal Safety Division. (2020, June). *Surgical N95 vs. standard N95 – Which to consider?*
<https://multimedia.3m.com/mws/media/1794572O/surgical-n95-vs-standard-n95-which-to-consider.pdf>.

This document was last updated on September 2, 2020, and supersedes all older versions.

8. 3M Personal Safety Division. (2020, July). *Possible alternative surgical filtering facepiece respirators: Healthcare: Technical bulletin, July 2020, revision 4.* <https://multimedia.3m.com/mws/media/1803705O/possible-alternatives-to-surgical-filtering-facepiece-respirators-healthcare.pdf>.
9. 3M Personal Safety Division. (2020, July). *Filtering facepiece respirators – Tips for use: Technical bulletin, July 2020, revision 4.* <https://multimedia.3m.com/mws/media/1796527O/3m-filtering-facepiece-respirators-tips-for-use.pdf>.
10. 3M Personal Safety Division. (2020, June). *Elastomeric facepiece respirators – Tips for use: Technical bulletin, June 2020, revision 2.* <https://multimedia.3m.com/mws/media/1830189O/3m-elastomeric-facepiece-respirators-tips-for-use-technical-bulletin.pdf>.
11. 3M Personal Safety Division. (2020, April). *Respirators in international packaging made available in US during COVID-19: Reference, April 2020.* <https://multimedia.3m.com/mws/media/1829340O/3m-respirators-in-international-packaging-made-available-in-us-during-covid-19.pdf>.
12. 3M Personal Safety Division. (2020, May). *Respirators from Asia imported and distributed by FEMA: Technical bulletin, May 2020, revision 3.* <https://multimedia.3m.com/mws/media/1831871O/respirators-from-asia-imported-and-distributed-by-fema-technical-bulletin.pdf>.
13. 3M Personal Safety Division. (2020, May). *Filtering facepiece respirators imported to U.S. from Asia by FEMA: Technical reference, May 2020.* <https://multimedia.3m.com/mws/media/1832150O/3m-filtering-facepiece-respirators-imported-to-u-s-from-asia-by-fema.pdf>.
14. 3M Personal Safety Division. (2020, April). *Evaluating the need for respirators during COVID-19 pandemic – Non-healthcare workplaces: Technical bulletin, April 2020.* <https://multimedia.3m.com/mws/media/1833462O/evaluating-the-need-for-respirators-during-covid-19-pandemic-non-healthcare-workplaces.pdf>.
15. 3M Personal Safety Division. (2020, May). *Surgical mask use with loose fitting headgear: Technical bulletin, May 2020.* <https://multimedia.3m.com/mws/media/1843293O/surgical-mask-use-with-loose-fitting-headgear.pdf>.
16. 3M Personal Safety Division. (2020, June). *Filtering facepiece respirators selection considerations for small faces: Technical bulletin, June 2020, revision 2.*

This document was last updated on September 2, 2020, and supersedes all older versions.

<https://multimedia.3m.com/mws/media/1834492O/respirator-selection-considerations-for-small-faces.pdf>.

17. 3M Personal Safety Division. (2020, June). *Optimizing supplies of filtering facepiece respirators: U.S. non-healthcare workplaces: Technical bulletin, June 2020.*
<https://multimedia.3m.com/mws/media/1854495O/optimizing-supplies-of-filtering-facepiece-respirators-u-s-non-healthcare-workplaces.pdf>.
18. 3M Personal Safety Division. (2020, June). *Selection of respiratory protection for surgical procedures in healthcare – United States: Technical bulletin, June 2020.*
<https://multimedia.3m.com/mws/media/1860070O/selection-of-respiratory-protection-for-surgical-procedures-in-healthcare-united-states.pdf>.
19. 3M Personal Safety Division. (2020, June). *Cleaning and disinfecting 3M reusable elastomeric half and full facepiece respirators following potential exposure to coronaviruses: Technical bulletin, June 2020, revision 5.* <https://multimedia.3m.com/mws/media/1793959O/cleaning-and-disinfecting-3m-reusable-respirators-following-potential-exposure-to-coronaviruses.pdf>.
20. 3M Personal Safety Division. (2020, June). *Coronavirus disease 2019 (COVID-19): Technical talk, June 2020, revision F.* <https://multimedia.3m.com/mws/media/1845355O/novel-coronavirus-2019-ncov-tech-talk.pdf>.
21. 3M Personal Safety Division. (2020, June). *Decontamination of 3M filtering facepiece respirators, such as N95 respirators, in the United States - Considerations: Technical bulletin, June 2020, revision 8.* <https://multimedia.3m.com/mws/media/1824869O/decontamination-methods-for-3m-n95-respirators-technical-bulletin.pdf>.
22. 3M Personal Safety Division. (2020, July). *Cleaning and disinfecting 3MTM head, eye and face protection products following potential exposure to coronavirus: Technical bulletin, July 2020, revision 2.* <https://multimedia.3m.com/mws/media/1849780O/cleaning-and-disinfecting-3m-head-eye-and-face-protection-products-following-potential-exposure.pdf>.
23. 3M Personal Safety Division. (2020, April). *Eye protection for infection control: Technical bulletin, April 2020, release 5.* <https://multimedia.3m.com/mws/media/576928O/tech-data-bulletin-192-eye-protection-for-infectious-disease.pdf>.
24. 3M Personal Safety Division. (2020, April). *3M protective coveralls for potential coronavirus exposure: Technical bulletin, April 2020, release 2.*
<https://multimedia.3m.com/mws/media/1795256O/3m-protective-coveralls-for-potential-coronavirus-exposure-technical-bulletin.pdf>.

This document was last updated on September 2, 2020, and supersedes all older versions.

25. 3M Personal Safety Division. (2020, April). *Healthcare eye protection supply optimization strategies during COVID-19 pandemic: United States: Technical bulletin, April 2020.* <https://multimedia.3m.com/mws/media/18334280/healthcare-eye-protection-supply-optimization-strategies-during-covid-19-pandemic-us.pdf>.
26. Bessesen M., Adams J. C., Radonovich L., & Anderson J. (2015, March 25). Disinfection of reusable elastomeric respirators by health care workers: A feasibility study and development of standard operating procedures. *American Journal of Infection Control*, 43(6):629-634. <https://doi.org/10.1016/j.ajic.2015.02.009>.
27. CDC. (2020, August 12). *How CDC determines the level of a destination's COVID-19 travel health notice.* <https://www.cdc.gov/coronavirus/2019-ncov/travelers/how-level-is-determined.html>.
28. CDC. (2020, July 22). *Personal protective equipment: Questions and answers.* <https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirator-use-faq.html>.
29. CDC. (2020, July 16). *Optimizing supply of PPE and other equipment during shortages.* <https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html>.
30. CDC. (2020, July 15). *Interim infection prevention and control recommendations for healthcare personnel during the coronavirus disease 2019 (COVID-19) pandemic.* <https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html>.
31. CDC. (2020, July 14). *Using personal protective equipment (PPE).* <https://www.cdc.gov/coronavirus/2019-ncov/hcp/using-ppe.html>.
32. CDC. (2020, June 30). *Framework for healthcare systems providing non-COVID-19 clinical care during the COVID-19 pandemic.* <https://www.cdc.gov/coronavirus/2019-ncov/hcp/framework-non-COVID-care.html>.
33. CDC. (2020, June 28). *Strategies for optimizing the supply of N95 respirators.* <https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy/index.html>.
34. CDC. (2020, July 16). *Considerations for wearing masks: Help slow the spread of COVID-19.* <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cloth-face-cover-guidance.html>.
35. CDC. (2020, July 6). *How to make masks.* <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-to-make-cloth-face-covering.html>.
36. CDC. (2020, June 3). *Infection control guidance for healthcare professionals about coronavirus (COVID-19).* <https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control.html>

This document was last updated on September 2, 2020, and supersedes all older versions.

37. CDC. (2020, May 27). *Implementation of mitigation strategies for communities with local COVID-19 transmission*. <https://www.cdc.gov/coronavirus/2019-ncov/community/community-mitigation.html>.
38. CDC. (2020, May 1). *Ten ways healthcare systems can operate effectively during the COVID-19 pandemic*. <https://www.cdc.gov/coronavirus/2019-ncov/hcp/ways-operate-effectively.html>.
39. CDC. (2020, April 30). *Decontamination and reuse of filtering facepiece respirators*. <https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/decontamination-reuse-respirators.html>.
40. CDC. (2014, August 18). *Protecting healthcare personnel*. <https://www.cdc.gov/hai/prevent/ppe.html>.
41. CDC. (2004, June 29). *Guidance for the selection and use of personal protective equipment (PPE) in healthcare settings*. <https://www.cdc.gov/hai/ppt/ppe/PPEslides6-29-04.ppt>.
42. FDA. (2020, July 24). *Emergency use authorization: COVID-19 EUAs – Personal protective equipment and related medical devices*. <https://www.fda.gov/emergency-preparedness-and-response/mcm-legal-regulatory-and-policy-framework/emergency-use-authorization#covidppe>.
43. FDA. (2020, June 19). *FAQs on shortages of surgical masks and gowns during the COVID-19 pandemic*. <https://www.fda.gov/medical-devices/personal-protective-equipment-infection-control/faqs-shortages-surgical-masks-and-gowns-during-covid-19-pandemic>.
44. FDA. (2020, June 19). *Medical gloves for COVID-19*. <https://www.fda.gov/medical-devices/coronavirus-covid-19-and-medical-devices/medical-gloves-covid-19>.
45. FDA. (2020, June 7). *N95 respirators, surgical masks, and face masks*. <https://www.fda.gov/medical-devices/personal-protective-equipment-infection-control/n95-respirators-surgical-masks-and-face-masks>.
46. FDA. (2020, March 20). *Medical gloves*. <https://www.fda.gov/medical-devices/personal-protective-equipment-infection-control/medical-gloves>.
47. FDA. (2020, March 11). *Medical gowns*. <https://www.fda.gov/medical-devices/personal-protective-equipment-infection-control/medical-gowns>.
48. Hackensack Meridian Health. (2020, July 24). *HMH COVID-19 universal pandemic precautions (07-14-20) amendment to network respiratory protection plan* [Internal draft, Word document]. <https://hmhmaestro.org/covid-19-action-center/clinical-protocols-policies/>.
49. Hu, K., Fan, J., Li, X., Gou, X., Li, X., & Zhou, X. (2020, June 12). The adverse skin reactions of health care workers using personal protective equipment for COVID-19. *Medicine*, 99(24), e20603. <https://doi.org/10.1097/MD.00000000000020603>.

This document was last updated on September 2, 2020, and supersedes all older versions.

50. Juang, P., & Tsai, P. (2020, April 16). N95 respirator cleaning and reuse methods proposed by the inventor of the N95 mask material. *The Journal of Emergency Medicine*, 58(5), 817–820. <https://doi.org/10.1016/j.jemermed.2020.04.036>.
51. Lammers, M., Lea, J., & Westerberg, B. D. (2020, June 3). Guidance for otolaryngology health care workers performing aerosol generating medical procedures during the COVID-19 pandemic. *Journal of Otolaryngology - Head & Neck Surgery*, 49(1), 36. <https://doi.org/10.1186/s40463-020-00429-2>.
52. Lynch, J. B., Davitkov, P., Anderson, D. J., Bhimraj, A., Cheng, V. C., Guzman-Cottrill, J., Dhindsa, J., Duggal, A., Jain, M. K., Lee, G. M., Liang, S. Y., McGeer, A., Lavergne, V., Murad, M. H., Mustafa, R. A., Morgan, R. L., Falck-Ytter, Y., & Sultan, S. (2020, July 27). Infectious Diseases Society of America guidelines on infection prevention for health care personnel caring for patients with suspected or known COVID-19. *Clinical Infectious Diseases: An Official Publication of the Infectious Diseases Society of America*, ciaa1063. <https://doi.org/10.1093/cid/ciaa1063>.
53. Mick, P., & Murphy, R. (2020, May 11). Aerosol-generating otolaryngology procedures and the need for enhanced PPE during the COVID-19 pandemic: a literature review. *Journal of Otolaryngology - Head & Neck Surgery*, 49(1), 29. <https://doi.org/10.1186/s40463-020-00424-7>.
54. New Jersey Department of Health. (2020, April 8). *New Jersey COVID-19 Dashboard* [Interactive software updated daily]. https://www.nj.gov/health/cd/topics/covid2019_dashboard.shtml.
55. NIOSH. (2020, July 27). *Counterfeit respirators / misrepresentation of NIOSH-approval*. The National Personal Protective Technology Laboratory (NPPTL). <https://www.cdc.gov/niosh/npptl/usernotices/counterfeitResp.html>.
56. NIOSH. (2020, April 9). *Considerations for selecting protective clothing used in healthcare for protection against microorganisms in blood and body fluids*. The National Personal Protective Technology Laboratory (NPPTL). <https://www.cdc.gov/niosh/npptl/topics/protectiveclothing/default.html>.
57. NIOSH. (2020, April 9). *NIOSH-approved particulate filtering facepiece respirators*. The National Personal Protective Technology Laboratory (NPPTL). https://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/default.html.
58. NIOSH. (2019, September 3). *Respiratory protection infographics*. The National Personal Protective Technology Laboratory (NPPTL). <https://www.cdc.gov/niosh/npptl/RespiratorInfographics.html>.
59. NIOSH. (2018, April 9). *Filtering out confusion: frequently asked questions about respiratory protection*. The National Personal Protective Technology Laboratory (NPPTL). <https://www.cdc.gov/niosh/npptl/FilteringOutConfusion.html>.
60. NIOSH. (2018, January 16). *Healthcare respiratory protection resources*. The National Personal Protective Technology Laboratory (NPPTL). <https://www.cdc.gov/niosh/npptl/hospresptoolkit/default.html>.

This document was last updated on September 2, 2020, and supersedes all older versions.

61. NIOSH. (1996, January). *NIOSH guide to the selection and use of particulate respirators (certified under 42 CFR 84)*. U.S. Department of Health and Human Services, CDC, DHHS (NIOSH) Publication, 96-101. <https://www.cdc.gov/niosh/docs/96-101/default.html>.
62. OSHA. (2020, March 14). *Temporary enforcement guidance – Healthcare respiratory protection annual fit-testing for N95 filtering facepieces during the COVID-19 outbreak*. <https://www.osha.gov/memos/2020-03-14/temporary-enforcement-guidance-healthcare-respiratory-protection-annual-fit>.
63. OSHA. (2011, June 8). *Standards – 29 CFR*. Occupational Safety and Health Standards. https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=12716&p_table=standards.
64. O'Sullivan E. D. (2020, April 17). PPE guidance for COVID-19: Be honest about resource shortages. *BMJ (Clinical research ed.)*, 369, m1507. <https://doi.org/10.1136/bmj.m1507>.
65. Pompei L. A., Kraft C. S., & Brownsword E. A. (2020, March 25). Training and fit testing of health care personnel for reusable elastomeric half-mask respirators compared with disposable N95 respirators. *JAMA*, 323(18):1849-1852. <https://doi.org/10.1001/jama.2020.4806>.
66. RBHS Chancellor. (2020, July 27). *Repopulating RBHS: Operating plan: Summer/Fall 2020*. Rutgers Biomedical and Health Sciences. <https://academichealth.rutgers.edu/messages/2020-07-27-repopulating-rbhs-summerfall-operating-plan>.
67. RBHS Chancellor. (2019, September 10). *Influenza immunization policy for covered individuals*. Rutgers University. <https://policies.rutgers.edu/view-policies/clinical-compliance-ethics-corporate-integrity-section-100#3>.
68. Rutgers COVID-19 Task Force. (2020, June 18). *Returning to Rutgers: A how-to guide to repopulating Rutgers spaces*. Rutgers Institutional Planning and Operations. <https://coronavirus.rutgers.edu/returning-to-rutgers-guidebook/>.
69. Rutgers Emergency Operations Committee Research Team. (2020, June 29). *Returning to research at Rutgers*. Rutgers Office of Research and Economic Development. [https://ored.rutgers.edu/sites/ored.rutgers.edu/files/06.29.2020-Returning to Research at Rutgers.pdf](https://ored.rutgers.edu/sites/ored.rutgers.edu/files/06.29.2020-Returning%20to%20Research%20at%20Rutgers.pdf).
70. Rutgers Environmental Health and Safety (REHS). (2020, May 1). *Respiratory Protection Program* [PDF document]. Rutgers Institutional Planning and Operations. <https://ipo.rutgers.edu/files/Respiratory-Protection-Program>.
71. Smereka, J., & Szarpak, L. (2020, April 15). The use of personal protective equipment in the COVID-19 pandemic era. *The American Journal of Emergency Medicine*, 38(7), 1529–1530. <https://doi.org/10.1016/j.ajem.2020.04.028>.

This document was last updated on September 2, 2020, and supersedes all older versions.

72. Sud S. R. (2020, May 8). COVID-19 and keeping clean: A narrative review to ascertain the efficacy of personal protective equipment to safeguard health care workers against SARS-CoV-2. *Hospital Pediatrics*, 10(7), 570–576. <https://doi.org/10.1542/hpeds.2020-0135>.
73. The Joint Commission. (2014, December). *Implementing hospital respiratory protection programs: Strategies from the field*. https://www.jointcommission.org/assets/1/18/Implementing_Hospital_RPP_2-19-15.pdf.
74. Tran, K., Cimon, K., Severn, M., Pessoa-Silva, C. L., & Conly, J. (2012, April 26). Aerosol generating procedures and risk of transmission of acute respiratory infections to healthcare workers: a systematic review. *PloS One*, 7(4), e35797. <https://doi.org/10.1371/journal.pone.0035797>.
75. Verbeek, J. H., Rajamaki, B., Ijaz, S., Sauni, R., Toomey, E., Blackwood, B., Tikka, C., Ruotsalainen, J. H., & Kilinc Balci, F. S. (2020, May 15). Personal protective equipment for preventing highly infectious diseases due to exposure to contaminated body fluids in healthcare staff. *The Cochrane Database of Systematic Reviews*, 5, CD011621. <https://doi.org/10.1002/14651858.CD011621.pub5>.
76. WHO. (2020, July 20). *Emergency Global Supply Chain System (COVID-19) catalogue*. [https://www.who.int/publications/i/item/emergency-global-supply-chain-system-\(covid-19\)-catalogue](https://www.who.int/publications/i/item/emergency-global-supply-chain-system-(covid-19)-catalogue).
77. WHO. (2020, July 10). *WHO Mass Gathering COVID-19 Risk Assessment Tool – Generic events, version 2* [Excel spreadsheet]. <https://apps.who.int/iris/handle/10665/333185>.
78. WHO. (2020, July 9). *Transmission of SARS-CoV-2: Implications for infection prevention precautions: Scientific brief, 09 July 2020*. <https://apps.who.int/iris/handle/10665/333114>.
79. WHO. (2020, July 6). *Investing in and building longer-term health emergency preparedness during COVID-19 pandemic: Interim guidance for WHO Member States*. <https://apps.who.int/iris/handle/10665/332973>.
80. WHO. (2020, June 29). *Infection prevention and control during health care when COVID-19 is suspected or confirmed: Interim guidance, 29 June 2020*. <https://apps.who.int/iris/handle/10665/332879>.
81. WHO. (2020, June 25). *Rapid hospital readiness checklist: Harmonized health service capacity assessments in the context of the COVID-19 pandemic: Interim guidance, 25 June 2020*. <https://apps.who.int/iris/handle/10665/332779>.
82. WHO. (2020, June 24). *Critical preparedness, readiness and response actions for COVID-19: Interim guidance, 24 June 2020*. <https://apps.who.int/iris/handle/10665/332665>.
83. WHO. (2020, June 5). *Advice on the use of masks in the context of COVID-19: Interim guidance, 5 June 2020*. <https://apps.who.int/iris/handle/10665/332293>.

This document was last updated on September 2, 2020, and supersedes all older versions.

84. WHO. (2020, June 1). *Maintaining essential health services: Operational guidance for the COVID-19 context: Interim guidance, 1 June 2020.* <https://apps.who.int/iris/handle/10665/332240>.
85. WHO. (2020, May 27). *Clinical management of COVID-19: Interim guidance, 27 May 2020.* <https://apps.who.int/iris/handle/10665/332196>.
86. WHO. (2020, May 18). *Overview of public health and social measures in the context of COVID-19: Interim guidance, 18 May 2020.* <https://apps.who.int/iris/handle/10665/332115>.
87. WHO. (2020, May 15). *Cleaning and disinfection of environmental surfaces in the context of COVID-19: Interim guidance, 15 May 2020.* <https://apps.who.int/iris/handle/10665/332096>.
88. WHO. (2020, May 13). *Laboratory biosafety guidance related to coronavirus disease (COVID-19): Interim guidance, 13 May 2020.* <https://apps.who.int/iris/handle/10665/332076>.
89. WHO. (2020, May 12). *Public health criteria to adjust public health and social measures in the context of COVID-19: Annex to considerations in adjusting public health and social measures in the context of COVID-19, 12 May 2020.* <https://apps.who.int/iris/handle/10665/332073>.
90. WHO. (2020, May 10). *Considerations for public health and social measures in the workplace in the context of COVID-19: Annex to considerations in adjusting public health and social measures in the context of COVID-19, 10 May 2020.* <https://apps.who.int/iris/handle/10665/332050>.
91. WHO. (2020, April 28). *Strengthening preparedness for COVID-19 in cities and urban settings: Interim guidance for local authorities.* <https://apps.who.int/iris/handle/10665/331896>.
92. WHO. (2020, April 6). *Rational use of personal protective equipment for coronavirus disease (COVID-19) and considerations during severe shortages: Interim guidance, 6 April 2020.* <https://apps.who.int/iris/handle/10665/331695>.
93. WHO. (2020, April 1). *Recommendations to Member States to improve hand hygiene practices to help prevent the transmission of the COVID-19 virus: Interim guidance, 1 April 2020.* <https://apps.who.int/iris/handle/10665/331661>.
94. WHO. (2020, March 26). *Origin of SARS-CoV-2, 26 March 2020.* <https://apps.who.int/iris/handle/10665/332197>.
95. WHO. (2019, October). *Infection prevention and control during health care for probable or confirmed cases of Middle East respiratory syndrome coronavirus (MERS-CoV) infection: Interim guidance: Updated October 2019.* <https://apps.who.int/iris/handle/10665/174652>.
96. WHO. (2014, April). *Infection prevention and control of epidemic-and pandemic prone acute respiratory infections in health care.* <https://apps.who.int/iris/handle/10665/112656>.

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APPENDIX

Table 1: Required PPE for Patient Care during the COVID-19 Pandemic

Patient Not Suspected for COVID-19	Patient with Suspected or Confirmed COVID-19	Certain <u>Situations</u> Regardless of COVID-19 Status
<p>When:</p> <ul style="list-style-type: none"> No COVID-19 symptoms Less than 6 feet from patient for greater than 10 minutes <p>PPE Required:</p> <ul style="list-style-type: none"> Surgical or procedural mask Eye protection (face shield or goggles) if moderate/substantial community transmission of SARS-CoV-2 	<p>When:</p> <ul style="list-style-type: none"> COVID symptoms present, <i>OR</i> COVID-19 test pending, <i>OR</i> COVID-19 test positive <p>PPE Required:</p> <ul style="list-style-type: none"> Face shield or goggles Fit-tested N95 respirator or powered air-purifying respirator (PAPR) Gown (Level 3 or higher) Gloves 	<p>When:</p> <ul style="list-style-type: none"> Aerosol-generating procedures Collection of nasopharyngeal swabs for SARS CoV-2 testing <p>PPE Required:</p> <ul style="list-style-type: none"> Fit-tested N95 respirator or powered air-purifying respirator (PAPR) Eye protection (face shield or goggles) Gown (Level 3 or higher) Gloves
<p align="center"><u>Note for all categories shown:</u></p> <ul style="list-style-type: none"> Hand hygiene is required upon entry and exit for any Patient Care Area. Universal source control with face coverings is required per institution-wide policy. PPE should be properly donned and doffed to prevent self-contamination. Respirators with exhalation valves cannot be used unless the valve is properly covered (see above). Extended use of N95 and/or reuse of PPE by guidelines is encouraged to conserve PPE supplies in contingency or crisis conditions. PPE guidance may be modified based on PPE supply and evolving changes in PPE recommendations. If eye protection interferes with the use of essential visual-aid equipment, such as a surgical microscope or indirect ophthalmoscope, the HCP may, under best clinical discretion, defer face/eye protection for the minimum duration needed to accomplish relevant patient care. 		

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Table 2: Aerosol-Generating Situations

Surgeries	Procedures	Other Activities
<ul style="list-style-type: none"> • Dental • ENT • Thoracic, including pneumonectomy (total or wedge), thoracotomy, and VATS • Transsphenoidal 	<p>Any procedure involving the aerodigestive tract including but not limited to:</p> <ul style="list-style-type: none"> • Bronchoscopy • Dental • Electrocautery • Intubation / Extubation • Laryngoscopy • Thoracoscopy • Transesophageal echocardiogram • Upper or lower endoscopy, including fiberoptic swallowing evaluation 	<ul style="list-style-type: none"> • Bag-mask ventilation • Chest compressions / CPR • Chest physical therapy • Disconnecting patient from ventilator • High-flow oxygen • Open suctioning of airway or tracheostomy • Nebulizer use • Non-invasive positive pressure ventilation (CPAP, BiPAP, etc.) • Sputum induction • Tracheostomy care or change • Ventilator circuit manipulation • Venturi mask with cool aerosol humidification
<p>Note: This list is not all-inclusive.</p>		