













Face Coverings/Masks and N95 Respirators Understanding the Difference

During this time of the COVID-19 pandemic, there is a lot of confusion regarding differences between N95 respirators and face coverings or other masks worn to prevent the spread of COVID-19. Many of the various types, styles, and materials of cloth face coverings and masks available on the market can be effectively used for *source control* (i.e., capturing and/or slowing down respiratory droplet emissions from the wearer). Their intent is to protect others from the potentially infectious respiratory emissions of the wearer as part of a multi-pronged effort (i.e., physical distancing, practicing good hygiene, and staying home when sick, etc.) to reduce the spread of the virus.

N95 respirators, while they may look like other masks, are specialized devices that protect the wearer from airborne hazards. They are considered *personal protective equipment* (PPE) and must be properly selected, used, and fitted to be effective. When used in the workplace, they are subject to OSHA regulations which require employees to be medically cleared, trained, and fit-tested to a specific respirator model.

An overview of the various types of face coverings/masks and N95 respirators is provided in the table and descriptions below.

Type	Intended Uses		Intended Users	Limitations	How to Obtain
	PPE	Source Control			
Masks and respirators for unique applications/workers					
N95 Respirators 	 airborne hazards  splash/spray from fluid hazards (medical models only)		Healthcare personnel and other workers and researchers exposed to airborne hazards not effectively controlled by other means.	Medical/surgical N95s should be reserved for healthcare and clinical workers/researchers. Training, fit-testing and medical clearance required. Wearer must be clean shaven, no facial hair. Can be difficult to wear for extended periods. Cannot be cleaned.	Contact Amy Allen, Associate Director Supply Chain Management, at amy.allen@uconn.edu , to discuss options.
N95 Respirators with exhalation valves 	 airborne hazards  splash/spray from fluid hazards	 See Limitations	Healthcare personnel and other workers and researchers exposed to airborne hazards not effectively controlled by other means.	Same as above Exhalation valve can allow exposure to others. Procedure masks must be worn over exhalation valve.	Contact Amy Allen, Associate Director Supply Chain Management, at amy.allen@uconn.edu , to discuss options.
Medical Procedure or Surgical Masks 	 airborne hazards  splash/spray from fluid hazards		Healthcare personnel, medical use and other clinical/research use.	May not hold up to repeated use. Cannot be cleaned. Need to ensure snug fit to prevent leakage around edges.	Normal procurement process through HuskyBuy: https://ubs.uconn.edu/

Type	Intended Uses		Intended Users	Limitations	How to Obtain
	PPE	Source Control			
Recommended effective face coverings/masks to prevent the spread of COVID-19					
Non-medical Procedure Masks 	While not intended for respiratory protection, serves as a barrier to protect the wearer from respiratory droplets.	✓	General public	May not hold up to repeated use. Cannot be cleaned. Need to ensure snug fit to prevent leakage around edges.	UConn Warehouse utilizing a request form at https://warehouse.uconn.edu/face-mask-requests/
KN95 Masks 	While not intended for respiratory protection, serves as a barrier to protect the wearer from respiratory droplets.	✓	General public	Wide variation in sizing and quality control. Some manufacturers providing fraudulent information and labeling. Cannot be cleaned. Need to ensure snug fit to prevent leakage around edges.	Contact Amy Allen, Associate Director Supply Chain Management, at amy.allen@uconn.edu , to discuss options.
Cloth Masks 	While not intended for respiratory protection, serves as a barrier to protect the wearer from respiratory droplets.	✓	General public	Requires multiple layers of fabric. May need to try multiple styles to find appropriate fit. Fit may change with laundering. Need to ensure snug fit to prevent leakage around edges.	UConn Warehouse request form: https://warehouse.uconn.edu/face-mask-requests/
Neck Gaiters 	While not intended for respiratory protection, serves as a barrier to protect the wearer from respiratory droplets.	✓	General public	Must be layered and well sized. Need to ensure snug fit to prevent leakage around edges, without stretching out weave of fabric. Fit may change with laundering.	N/A
Not recommended					
Bandanas 	✗	 See Limitations	General public	May not be adequate even if layered and positioned tightly at the chin, Need to ensure snug fit to prevent leakage around edges. Material should be washed/dried to tighten the fabric weave.	N/A
Face coverings (cloth, KN95s, gaiters, etc.) with exhalation valves 	✗	✗	Do Not Use	Do Not Use	N/A

N95 Respirators:

These are tight-fitting filtering facepiece devices worn to protect the wearer from airborne hazards and considered personal protective equipment (PPE). They are designed to (1) filter out contaminants from the air breathed in by the wearer and (2) provide a tight seal on the face to prevent leakage of unfiltered air. They are certified by NIOSH to capture 95% of extremely small particles in the air like respiratory aerosols. Individuals who are required to wear an N95 respirator for their work must be medically cleared, trained, and fit-tested to a specific respirator model to ensure the respirator is providing the proper protection. Additionally, wearers must be clean shaven so no facial hair interferes with the respirator's seal to the face. Surgical/medical N95s should be restricted to healthcare and clinical personnel and researchers. Should individuals voluntarily wear N95s at work, OSHA standards still require that employees receive information on voluntary use of these respirators. For further information, see [Voluntary use of N95s as COVID-19 source control](#).

KN95 Masks:

KN95's are a type of face covering often confused with an N95 respirator. They are manufactured in China and are designed to meet the Chinese standards of protection (though many have been found to be counterfeit and do not actually meet any standards). In most cases, they have been found to be effective as *source control* like other face coverings. While masks labeled as "KN95" may have a similar filtering media as N95 respirators and might be labeled as respirators, most have an ear loop design that does not allow for a tight seal to be formed around the face of the wearer, unlike true respirators. Regardless of how they are labeled, most KN95s do not meet respiratory protection standards and should only be used as *source control*.

Surgical and Medical Procedure Masks:

These are disposable paper-style masks with ear loops and are marketed as medical devices by the FDA. These masks are multi-layered and tested for fluid resistance for use by healthcare personnel as PPE to protect them against splashes/sprays of bodily fluids and also as *source control* to maintain sterile or clean environments. Like cloth face coverings/masks, this style of mask can be used to prevent the spread of COVID-19 as *source control* (i.e., worn to protect others). It is important to ensure a snug fit to limit leakage around the edges.

Non-medical procedure masks: These masks may be similar in construction to medical procedure masks in healthcare, but are not rated for fluid resistance and are not labeled as medical devices by FDA. They can be used by the general public as *source control* and also function best with a snug fit that limits leakage around the edges.

Cloth Face Coverings/Masks:

Effective cloth face coverings/masks include multiple layers of fabric, allow for breathing without restriction, produce a snug fit which limits leakage around the edges, and can be laundered and machine dried without damage or altering shape. Cloth face coverings are used for *source control* (i.e., worn to protect others).

Gaiters: These are generally accepted as effective when folded over to double or triple the number of fabric layers covering the nose and mouth. Individuals should choose neck gaiters that are neither so large that they tend to fall off the bridge of the nose nor so small that they require significant stretching of the fabric.

Bandanas: Due to the loose weave of cotton fibers in the material, as well as inability to achieve a snug fit these are less effective face coverings to prevent the spread of COVID-19.

Masks with Exhalation Valves:

Many of the styles of face coverings and masks described above, including N95 respirators, can be purchased with exhalation valves. These masks allow humid exhaled breath to be released through the valve, potentially allowing virus particles to escape when the wearer exhales. It is unknown to what extent the presence of an exhalation valve increases the risk of respiratory droplet exposure or subsequent COVID-19 infection. **CDC does not recommend masks with exhalation valves for use as a source control.** If these are worn, then a procedural mask or cloth face covering must be worn over the valve to limit the escape of virus particles.

More COVID-19 informational resources can be found on the [EHS COVID-19 Resources page](#).

Resources:

1. State of Connecticut: Addendum 11: <https://portal.ct.gov/-/media/SDE/COVID-19/Addendum11-Interim-Guidance-for-the-Use-of-Facemasks.pdf>
2. University of Oregon KN95 Fact Sheet: https://safety.uoregon.edu/sites/safety1.uoregon.edu/files/safety_sheet_-_kn95_mask.pdf
3. CDC: Guide to Masks: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/about-face-coverings.html>
4. University of Washington: Masks & Respirators – Understanding the Difference: <https://www.ehs.washington.edu/system/files/resources/masks-respirators-difference.pdf>

Image Sources:

1. Surgical N95: https://www.3m.com/3M/en_US/company-us/all-3m-products/~3M-Health-Care-Particulate-Respirator-and-Surgical-Mask-1860-N95-120-EA-Case/?N=5002385+3294795990&rt=rud
2. N95: https://images-na.ssl-images-amazon.com/images/I/81Jsk37ICL_SL1500.jpg
3. Medical Procedure/Surgical Mask: https://www.3m.com/3M/en_US/company-us/all-3m-products/~All-3M-Products/Health-Care/Medical/Surgical-Safety-Solutions/?N=5002385+8707795+8707798+8709953+8711017+8711100+3288748071+3288748122+3288748155+3294059225+3294857497&rt=r3
4. Non-medical Procedure Mask: <https://pristine-medical.com/products/face-masks-with-ear-loops>
5. KN95 : <https://www.amazon.com/SuppyAID-RRS-KN95-5PK-Protective-Protection-Haze-Proof/dp/B086JD7TKZ>
6. Cloth Face Mask: <https://www.amazon.com/Reusable-Anti-dust-Washable-Windproof-Pattern/dp/B086PVNFY8>
7. Neck Gaiter: <https://www.amazon.com/BLACKSTRAP-BS-T-ARMI-p-Neck-Warmer/dp/B08P3TZKL4?th=1>
8. Bandana: https://cdn.shopify.com/s/files/1/0297/8689/8525/products/BandanaLayflats-Red_1024x1024@2x.jpg?v=1604601784
9. Exhalation Valves: <https://multimedia.3m.com/mws/media/735025P/3mtm-particulate-respirator-8511-n95.jpg> and <https://www.wormsandgermsblog.com/files/2020/05/Screen-Shot-2020-05-28-at-12.23.44-PM.png>