Face Coverings
Myths
Reality
Differences
Regulations

Contact Information

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Agenda

- Myths About Face Coverings
- N95’s and other things that go on your face
  - Differences Between N95’s and Surgical Masks
  - Other Certifications
  - Reuse/Disinfection of N95’s
  - Counterfeit N95’s
- Other Face Coverings
- Regulatory
  - Fit test exemption
  - Understanding what the FDA waiver
  - KN95’s

Myths about face coverings
Myths About Face Covering

- The CDC recommends everyone should shave to prevent COVID-19
- Surgical masks protect me against SARS-CoV-2
- I do not need to do fit testing
- If I mandate use of a N95, I can use Appendix D for voluntary use
- If an employee requests a N95 I need to provide it to them
- Bandanas, gaiters, etc. do not do any good
- You can wash N95’s
- You can disinfect N95’s
- You can reuse N95’s

N95’s

and other things that go on your face
Differences between N95’s and Surgical Masks

Example: N 95
All N95’s are not created equal

**FDA and NIOSH**

- NIOSH certifies respirators and require that Bacterial Filtration Efficiency be the standard test method for Medical Face Mask material (ASTM F2101–01). MOU 12/18/17

- NIOSH Standard: Neutralized NaCl aerosol: a median mass diameter of 0.26µ (0.075 ± 0.02µ)

- Liability waiver given for COVID–19 – for both expired and for “commercial” use in health care settings.

The efficiency both below and above that most penetrable particle size is better than 99.97%. This is because there are multiple capture mechanisms (interception, inertial impaction, diffusion, gravitational settling, electrostatic attraction) and each has its own capture efficiency. The sum of these produces a capture curve that has a shape like that in Figure 1 (Figure after Vincent(4)).
Surgical masks are not respirators. They are appropriate for cough etiquette & protection from droplets (not aerosols). They protect other people from the wearer.

Surgical Mask

- Does not fit tightly to the face
- Is not designed to filter air inhaled by the user
- User is not fit-tested
- ASTM has test methods for bacterial and submicron particle filtration, breathing resistance, penetration by synthetic blood, and flammability
- 2004 FDA document for 510(k) submittals, references ASTM for non-NIOSH masks
# Understanding the Difference

<table>
<thead>
<tr>
<th></th>
<th>Surgical Mask</th>
<th>N95 Respirator</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Testing and Approval</strong></td>
<td>Cleared by the U.S. Food and Drug Administration (FDA)</td>
<td>Evaluated, tested, and approved by NIOSH as per the requirements in 42 CFR Part 84</td>
</tr>
<tr>
<td><strong>Intended Use and Purpose</strong></td>
<td>Fluid resistant and provides the wearer protection against large droplets, splashes, or sprays of bodily or other hazardous fluids. Protects the patient from the wearer’s respiratory emissions.</td>
<td>Reduces wearer’s exposure to particles including small particle aerosols and large droplets (only non-ov aerosols).</td>
</tr>
<tr>
<td><strong>Face Seal Fit</strong></td>
<td>Loose-fitting</td>
<td>Tight-fitting</td>
</tr>
<tr>
<td><strong>Fit Testing Requirement</strong></td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>User Seal Check Requirement</strong></td>
<td>No</td>
<td>Yes, Required each time the respirator is donned (put on)</td>
</tr>
</tbody>
</table>
How are Surgical Masks Made?
Surgical face masks are made with non-woven fabric, which has better bacteria filtration and air permeability while remaining less slippery than woven cloth. The material most commonly used to make them is polypropylene, either 20 or 25 grams per square meter (gsm) in density. Masks can also be made of polystyrene, polycarbonate, polyethylene, or polyester.
20 gsm mask material is made in a spunbond process, which involves extruding the melted plastic onto a conveyor. The material is extruded in a web, in which strands bond with each other as they cool. 25 gsm fabric is made through meltblown technology, which is a similar process where plastic is extruded through a die with hundreds of small nozzles and blown by hot air to become tiny fibers, again cooling and binding on a conveyor.
Surgical masks are made up of a multi-layered structure, generally by covering a layer of textile with non-woven bonded fabric on both sides. Non-wovens, which are cheaper to make and cleaner thanks to their disposable nature, are made with three or four layers. These disposable masks are often made with two filter layers effective at filtering out particles such as bacteria above 1 micron. The filtration level of a mask, however, depends on the fiber, the way it’s manufactured, the web’s structure, and the fiber’s cross-sectional shape. Masks are made on a machine line that assembles the nonwovens from bobbins, ultrasonically welds the layers together, and stamps the masks with nose strips, ear loops, and other pieces.
Respirators also consist of multiple layers. The outer layer on both sides is a protective nonwoven fabric between 20 and 50 g/m² density to create a barrier both against the outside environment and, on the inside, against the wearer’s own exhalations. A pre-filtration layer follows which can be as dense as 250 g/m². This is usually a needled nonwoven which is produced through hot calendaring, in which plastic fibers are thermally bonded by running them through high pressure heated rolls. This makes the pre-filtration layer thicker and stiffer to form the desired shape and keep it as the mask is used. The last layer is a high efficiency meltblown electrct nonwoven material, which further increases the filtration efficiency.
Surgical Mask Tests

Once surgical masks are made, they must be tested to ensure their safety in various situations. There are five tests they must be put through:

**Bacteria filtration efficiency in vitro (BFE).** This test works by shooting an aerosol with staphylococcus aureus bacteria at the mask at 28.3 liters per minute. This ensures the mask can catch the percentage of bacteria it’s supposed to.

**Particle Filtration Efficiency.** Also known as the latex particle challenge, this test involves spraying an aerosol of polystyrene microspheres to ensure the mask can filter the size of the particle it’s supposed to.

**Breathing resistance.** To ensure the mask will hold its shape and have proper ventilation while the wearer breathes, breathing resistance is tested by shooting a flow of air at it, then measuring the difference in air pressure on both sides of the mask.

**Splash resistance.** In splash resistance tests, surgical masks are splashed with simulated blood using forces similar to human blood pressure to ensure the liquid cannot penetrate and contaminate the wearer.

**Flammability.** Since several elements of an operating room can easily cause fire, surgical masks are tested for flammability by being set on fire to measure how slowly it catches and how long the material takes to burn. ASTM levels 1, 2, and 3 are all required to be Class 1 flame resistant.

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**FFP Certifications**

<table>
<thead>
<tr>
<th>Certification/Class (Standard)</th>
<th>N95 (NIOSH-2016)</th>
<th>FFP2 (EN-14382)</th>
<th>KN95 (GB2626-2016)</th>
<th>FFP3 (EN-14382)</th>
<th>Korea FFP Class (EMOEL-2017-64)</th>
<th>DS Japan (JIS:2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter performance - should be ≤ 5%</td>
<td>99%</td>
<td>99%</td>
<td>99%</td>
<td>99%</td>
<td>99%</td>
<td>99%</td>
</tr>
<tr>
<td>Test agent</td>
<td>NaCl</td>
<td>NaCl and paraffin oil</td>
<td>NaCl</td>
<td>NaCl</td>
<td>NaCl and paraffin oil</td>
<td>NaCl</td>
</tr>
<tr>
<td>Flow rate</td>
<td>89 L/min</td>
<td>89 L/min</td>
<td>89 L/min</td>
<td>89 L/min</td>
<td>89 L/min</td>
<td>89 L/min</td>
</tr>
<tr>
<td>Total inward leakage (TIL) - tested on human subjects and each performing exercise</td>
<td>≤ 343 Pa</td>
<td>≤ 70 Pa (at 30 L/min), ≤ 240 Pa (at 95 L/min)</td>
<td>≤ 150 Pa</td>
<td>≤ 70 Pa (at 30 L/min), ≤ 240 Pa (at 95 L/min)</td>
<td>≤ 70 Pa (at 30 L/min), ≤ 240 Pa (at 95 L/min)</td>
<td>≤ 70 Pa (at 30 L/min), ≤ 240 Pa (at 95 L/min)</td>
</tr>
<tr>
<td>Exhalation resistance - peak pressure drop</td>
<td>≤ 249 Pa</td>
<td>≤ 500 Pa</td>
<td>≤ 250 Pa</td>
<td>≤ 292 Pa</td>
<td>≤ 300 Pa</td>
<td>≤ 190 Pa (at 10 L/min), ≤ 50 Pa (at 30 L/min)</td>
</tr>
<tr>
<td>Flow rate</td>
<td>40 L/min</td>
<td>40 L/min</td>
<td>40 L/min</td>
<td>40 L/min</td>
<td>40 L/min</td>
<td>40 L/min</td>
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</tr>
<tr>
<td>Flow rate</td>
<td>40 L/min</td>
<td>40 L/min</td>
<td>40 L/min</td>
<td>40 L/min</td>
<td>40 L/min</td>
<td>40 L/min</td>
</tr>
<tr>
<td>Exhalation valve leakage requirement</td>
<td>3 mL/min</td>
<td>3 mL/min</td>
<td>3 mL/min</td>
<td>3 mL/min</td>
<td>3 mL/min</td>
<td>3 mL/min</td>
</tr>
<tr>
<td>Force applied</td>
<td>≤ 945 Pa</td>
<td>N/A</td>
<td>≤ 250 Pa</td>
<td>N/A</td>
<td>1,470 Pa</td>
<td>N/A</td>
</tr>
<tr>
<td>CO2 clearance equivalent</td>
<td>N/A</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
</tr>
</tbody>
</table>

[Image 2]: This table shows the certification standards for different types of surgical masks, including N95, FFP2, KN95, FFP3, and Korea FFP Class. The table compares various performance metrics such as filter efficiency, pressure drop, and leakage rates, along with flow rates and force applied for CO2 clearance. The image also includes a note that indicates which tests are required for different certifications. 

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**FFP Certifications**

- N95 (United States NIOSH-42CFR84)
- FFP2 (Europe EN 149-2001)
- KN95 (China GB2626-2006)
- P2 (Australia/New Zealand AS/NZA 1716:2012)
- Korea 1st class (Korea KMOEL - 2017-64)
- DS (Japan JMHLW-Notification 214, 2018)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter performance – (must be ≥ 95% efficient)</td>
<td>≥ 95%</td>
<td>≥ 94%</td>
<td>≥ 95%</td>
<td>≥ 94%</td>
<td>≥ 94%</td>
<td>≥ 95%</td>
</tr>
<tr>
<td>Test agent</td>
<td>NaCl</td>
<td>NaCl and paraffin oil</td>
<td>NaCl</td>
<td>NaCl</td>
<td>NaCl and paraffin oil</td>
<td>NaCl</td>
</tr>
<tr>
<td>Flow rate</td>
<td>85 L/min</td>
<td>95 L/min</td>
<td>85 L/min</td>
<td>95 L/min</td>
<td>95 L/min</td>
<td>85 L/min</td>
</tr>
</tbody>
</table>

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**Counterfeit Respirators**

![Counterfeit Respirators Image]

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Reuse/Disinfecting N95’s

What is approved?
What makes sense?

Reuse and/or disinfecting

My favorite answer “it depends”.

Don’t forget manufacturer’s recommendations
Recommended Guidance for Extended Use and Limited Reuse of N95 Filtering Facepiece Respirators in Healthcare Settings

Background
This document recommends practices for extended use and limited reuse of NIOSH-certified N95 filtering facepiece respirators (commonly called “N95 respirators”). The recommendations are intended for use by professionals who manage respiratory protection programs in healthcare institutions to protect health care workers from job-related risks of exposure to infectious respiratory illnesses.

Definitions
**Extended** use refers to the practice of wearing the same N95 respirator for repeated close contact encounters with several patients, without removing the respirator between patient encounters. Extended use may be implemented when multiple patients are infected with the same respiratory pathogen and patients are placed together in dedicated waiting rooms or hospital wards. Extended use has been recommended as an option for conserving respirators during previous respiratory pathogen outbreaks and pandemics.\(^{(10, 11)}\)

**Reuse** refers to the practice of using the same N95 respirator for multiple encounters with patients but removing it (‘doffing’) after each encounter. The respirator is stored in between encounters to be put on again (‘donned’) prior to the next encounter with a patient. For pathogens in which contact transmission (e.g., fomites) is not a concern, non-emergency reuse has been practiced for decades.\(^{(7)}\) For example, for tuberculosis prevention, CDC recommends that a respirator classified as disposable can be reused by the same worker as long as it remains functional\(^{(8)}\) and is used in accordance with local infection control procedures.\(^{(9)}\) Even when N95 respirator reuse is practiced or recommended, restrictions are in place which limit the number of times the same FFR is reused. Thus, N95 respirator reuse is often referred to as “limited reuse”. Limited reuse has been recommended and widely used as an option for conserving respirators during previous respiratory pathogen outbreaks and pandemics.\(^{(2, 3, 10-12)}\)
• Discard N95 respirators following use during aerosol generating procedures.
• Discard N95 respirators contaminated with blood, respiratory or nasal secretions, or other bodily fluids from patients.
• Discard N95 respirators following close contact with any patient co-infected with an infectious disease requiring contact precautions.
• Use a cleanable face shield (preferred) or a surgical mask over an N95 respirator and/or other steps (e.g., masking patients, use of engineering controls), when feasible to reduce surface contamination of the respirator.

• Hang used respirators in a designated storage area or keep them in a clean, breathable container such as a paper bag between uses. To minimize potential cross-contamination, store respirators so that they do not touch each other and the person using the respirator is clearly identified. Storage containers should be disposed of or cleaned regularly.
• Clean hands with soap and water or an alcohol-based hand sanitizer before and after touching or adjusting the respirator (if necessary for comfort or to maintain fit).
• Avoid touching the inside of the respirator. If inadvertent contact is made with the inside of the respirator, perform hand hygiene as described above.
• Use a pair of clean (non-sterile) gloves when donning a used N95 respirator and performing a user seal check. Discard gloves after the N95 respirator is donned and any adjustments are made to ensure the respirator is sitting comfortably on your face with a good seal.
Decontamination and Reuse of Filtering Facepiece Respirators

Disposable filtering facepiece respirators (FFRs) are not approved for routine decontamination and reuse as standard of care. However, FFR decontamination and reuse may need to be considered as a crisis capacity strategy to ensure continued availability. Based on the limited research available, ultraviolet germicidal irradiation, vaporous hydrogen peroxide, and moist heat showed the most promise as potential methods to decontaminate FFRs. This document summarizes research about decontamination of FFRs before reuse.

Decontamination and subsequent reuse of FFRs should only be practiced as a crisis capacity strategy. At present, FFRs are considered one time use and there are no manufacturer authorized methods for FFR decontamination prior to reuse. On March 28, 2020, FDA issued an Emergency Use Authorization (EUA) permitting the Battelle Decontamination System at Battelle Memorial Institute to be authorized for use in decontaminating “compatible N95 respirators.”

Table 1. Summary of crisis standards of care decontamination recommendations

<table>
<thead>
<tr>
<th>Method</th>
<th>Manufacturer or third-party guidance or procedures available</th>
<th>Recommendation for use after decontamination</th>
<th>Additional use considerations</th>
</tr>
</thead>
</table>
| Ultraviolet germicidal irradiation (UVGI)   | Yes                                                         | Can be worn for any patient care activities  | *Clean hands with soap and water or an alcohol-based hand sanitizer before and after touching or adjusting the FFR.  
*Avoid touching the inside of the FFR. |
Table 2. Summary of the decontamination method and effect on FFR performance

<table>
<thead>
<tr>
<th>Method</th>
<th>Treatment level</th>
<th>FFR filtration performance</th>
<th>FFR fit performance</th>
<th>Other observations</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaporous hydrogen peroxide (VHP)</td>
<td>Battelle report: Bioquell Clarus C HPV generator: The HPV cycle included a 10 min conditioning phase, 20 min gassing phase at 2 g/min, 150 min dwell phase at 0.5 g/min, and 300 min of aeration. Bergman et al.: Room Bio-Decontamination Service (RBDS™, BIOQUELL UK Ltd, Andover, UK), which utilizes four portable modules: the Clarus® R HPV generator (utilizing 30% H₂O₂), the Clarus R20 aeration unit, an instrumentation module and a control computer. Room concentration = 8 g/m³, 15 min dwell, 125 min total cycle time.</td>
<td>Passed</td>
<td>FFR fit was shown to be unaffected for up to 20 VHP treatments cycles using a head form</td>
<td>Degradation of straps after 30 cycles (Battelle report)</td>
<td>3, 4</td>
</tr>
</tbody>
</table>

Table 3. Summary of decontamination method antimicrobial efficacy

<table>
<thead>
<tr>
<th>Method</th>
<th>Treatment level</th>
<th>Microbe tested</th>
<th>Antimicrobial efficacy</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaporous hydrogen peroxide (VHP)</td>
<td>Battelle report: Bioquell Clarus C HPV generator: The HPV cycle included a 10 min conditioning phase, 20 min gassing phase at 2 g/min, 150 min dwell phase at 0.5 g/min, and 300 min of aeration. Bergman et al.: Room Bio-Decontamination Service (RBDS™, BIOQUELL UK Ltd, Andover, UK), which utilizes four portable modules: the Clarus® R HPV generator (utilizing 30% H₂O₂), the Clarus R20 aeration unit, an instrumentation module and a control computer. Room concentration = 8 g/m³, 15 min dwell, 125 min total cycle time. Kenney personal communication: Bioquell BQ-50 generator: The HPV cycle included a 10 minute conditioning phase, 30–40 min gassing phase at 16 g/min, 25 min dwell phase, and a 150 min aeration phase.</td>
<td>Geobacillus stearothermophilus spores T1, T7, and phi-6 bacteriophage</td>
<td>&gt;99.999%</td>
<td>3, 4, 6</td>
</tr>
</tbody>
</table>
Battelle deploys decontamination system for reusing N95 masks

Battelle received an emergency go-ahead from the FDA over the weekend to deploy its decontamination system for personal protective equipment (PPE), allowing healthcare workers to clean and reuse scarce N95 respirator masks. The system is currently operating at Battelle’s Ohio facility—capable of processing up to 80,000 masks per machine, per day, within what looks like a large metal shipping container—and has been working to help stretch supplies for the OhioHealth system based in Columbus.

Using concentrated hydrogen peroxide vapor, the filters are gassed for two and a half hours to destroy bacteria, viruses and other contaminants, including the novel coronavirus SARS-CoV-2. According to the company, the system can clean the same N95 mask up to 20 times without degrading its performance.

If reuse of N95 respirators is permitted, respiratory protection program administrators should ensure adherence to administrative and engineering controls to limit potential N95 respirator surface contamination (e.g., use of barriers to prevent droplet spray contamination) and consider additional training and/or reminders (e.g., posters) for staff to reinforce the need to minimize unnecessary contact with the respirator surface, strict adherence to hand hygiene practices, and proper PPE donning and doffing technique, including physical inspection and performing a user seal check.\(^1\) Healthcare facilities should develop clearly written procedures to advise staff to take the following steps to reduce contact transmission:
Other Face Coverings

Are they recommended?
Do they help?
Personal Protective Measures—Face Coverings

- “Recommendation Regarding the Use of Cloth Face Coverings, Especially in Areas of Significant Community-Based Transmission”

- Recent studies indicate that a significant portion of individuals with coronavirus lack symptoms (“asymptomatic”), and that even those who eventually develop symptoms (“pre-symptomatic”), can transmit the virus to others before showing symptoms.

- This means that the virus can spread between people interacting in close proximity—for example, coughing, or sneezing—even if those people are not exhibiting symptoms.

- In light of this new evidence, CDC recommends wearing cloth face coverings in public settings where other social distancing measures are difficult to maintain (e.g., grocery stores and pharmacies) especially in areas of significant community-based transmission.

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Personal Protective Measures—Face Coverings

- Sew and Non-sew Instructions

- Should cloth face coverings be washed or otherwise cleaned regularly? How regularly?
  - They should be routinely washed depending on the frequency of use.

- How does one safely sterilize/clean a cloth face covering?
  - A washing machine with soap should suffice in properly washing a face covering.

- How does one safely remove a used cloth face covering?
  - Individuals should be careful not to touch their eyes, nose, and mouth when removing their face covering and wash hands immediately after removing.
Use of Cloth Face Coverings to Help Slow the Spread of COVID-19

**How to Wear a Cloth Face Covering**

Cloth face coverings should—fit snugly but comfortably against the side of the face be secured with ties or ear loops include multiple layers of fabric allow for breathing without restriction be able to be laundered and machine dried without damage or change to shape
Does That Face Mask Really Protect You?

Larry E. Bowen
Southern Research Institute, Birmingham, Alabama

Abstract

Various types of face masks available to the general public are worn for protection against inhalation of dust, pollutants, allergens, and pathogenic organisms. Recent news stories have illustrated the widespread use of face masks for protection against Swine flu (H1N1), Severe Acute Respiratory Distress Syndrome (SARS), Highly Pathogenic Avian Influenza (HPAI) virus outbreaks in Asia, and dust from the collapse of the World Trade Center. However, the level of protection provided by face masks is unknown. The objective of this study was to determine how efficiently face masks prevent respiratory exposure to potentially harmful aerosols. Three types of commonly available face masks were tested: a surgical mask, a pre-shaped dust mask, and a bandana. An N95 respirator was tested as the positive control. Masks were fit onto a Simulog™ mannequin head modified equal to 2.5

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Figure 1
Face Mask Test System
Conclusions

Three commonly available face masks—a surgical mask, a pre-shaped mask, and a bandana—were challenged with saline aerosols in concentrations and particle size distributions representing dust storm conditions to determine their protective efficiencies. A N95 respirator was used as the positive control and challenged under the same conditions. All three masks performed poorly, with protective efficiencies less than 34% as compared to the N95 respirator that had a protective efficiency of nearly 90%. Possible factors related to the protective efficiencies observed with face masks and the N95 respirator includes the penetration efficiency and particle load characteristics of the fabrication materials. Equally important is the fit of the face mask and respirator. This may account for the less than 95% efficiency observed for the N95.

Protection from dust, allergens, and infectious aerosols with face masks and respirators is dependent on the aerosol concentration of the compound and the infectious or inhaled dose. The results demonstrate that use of these types of face masks may not provide as much protection as desired against inhaled aerosols.
Aerosol penetration through surgical masks

Chih-Chieh Chen, PhD
Klaus Willeke, PhD
Cincinnati, Ohio

submicrometer-sized aerosols through the mask made of filter material ranged from 25% at a flow rate of 5 L/min to 70% at 100 L/min.

Conclusions: The mask that has the highest collection efficiency is not necessarily the best mask from the perspective of the filter-quality factor, which considers not only the capture efficiency but also the air resistance. Although surgical mask media may be adequate to remove bacteria exhaled or expelled by health care workers, they may not be sufficient to remove the submicrometer-sized aerosols containing pathogens to which these health care workers are potentially exposed. (AJIC AM J INFECT CONTROL 1992;20:177-84)

Face Coverings – effective?

- NIOSH approved respirators (including filtering face pieces – e.g. N95) that are properly fitted and fit tested and used properly are designed to provide adequate protection for their intended use.
- Various other certifications (next slide) shows effectiveness.
- Any other covering theoretically protects others from you.
References to homemade face coverings.

- The following slides are for reference and will not be discussed during the presentation.

How to make a Face Mask

What you will need
- Cotton fabric, a pretty print is best.
- Nose wire, black wire works well (you may also use 1/8" flat elastic)
- Cut the elastic 7" long and tie a knot at each end

You can make two classes: Adult or Child
1. Cut right sides of cotton fabric together
   - Cut 60" (Adult) or 72 x 5" (Child)
2. Starting at the center of the bottom edge, sew to the first corner, stop. Sew the elastic with the edges cut into the corner. A few stitches forward and back will hold this side.
3. Sew to the next corner, stop, and bring the other end of the elastic to the corner and sew a few stitches forward and back.
4. Fold over and sew a few stitches between the elastic to the next corner. Again put an elastic with the edge out.
5. Sew to the next corner and sew in the other end of the elastic.
6. Across the bottom leaving about 1.5" to 2" open. Strip out the thread. Turn inside out.
7. Pin 3 tucks on each side of the mask. Make sure the tucks are all in the same direction.
8. Sew around the edge of the mask twice.

It is easy to make this.

Be sure any fabric design is placed horizontally.

https://www.deaconess.com/How-to-make-a-Face-Mask

https://youtu.be/tPx1yqvJgf4
Home-Made Face Mask Design

Studies in 2008 by Public Health England evaluated a range of household materials that, in the event of a pandemic, could be used by members of the general public to make individual facemasks. These studies found that t-shirts and pillow cases made into a facemask using the design detailed below may act as a barrier against influenza, or to limit spread by a person with symptoms (we have no data on SARS-CoV-2 but it’s not unreasonable to assume similarity).

Should cloth face coverings be washed or otherwise cleaned regularly? How regularly

Yes. They should be routinely washed depending on the frequency of use. How does one safely sterilize/clean a cloth face covering? A washing machine should suffice in properly washing a face covering. How does one safely remove a used cloth face covering? Individuals should be careful not to touch their eyes, nose, and mouth when removing their face covering and wash hands immediately after removing.

Tutorial

1. Fold bandana in half.
2. Fold top down. Fold bottom up.
3. Place rubber bands or hair ties about 6 inches apart.
4. Fold side to the middle and tuck.
5.
Regulatory Requirements

OSHA's Respiratory Protection Standard

29CFR1910.134
COVID-19: OSHA Issues a Temporary Directive on Respirator Enforcement

On April 13, 2020, the Occupational Safety and Health Administration (OSHA) revised its temporary guidance regarding enforcement of annual respirator fit-testing requirements under the respiratory protection standard.

March 14th – applied to health care workers for N95’s
April 3rd – expanded to all N95’s

NOTE: Only for annual fit testing and only for N95’s.

OSHA field offices shall exercise enforcement discretion concerning the annual fit testing requirement, 29 CFR § 1910.134(f)(2), as long as employers:

- Make a good-faith effort to comply with 29 CFR § 1910.134;
- Use only NIOSH-certified respirators;
- Implement CDC and OSHA strategies for optimizing the supply of N95 filtering facepiece respirators and prioritizing their use, as discussed above;
- Perform initial fit tests for each HCP with the same model, style, and size respirator that the worker will be required to wear for protection against COVID-19 (initial fit testing is essential to determine if the respirator properly fits the worker and is capable of providing the expected level of protection);
- Inform workers that the employer is temporarily suspending the annual fit testing of N95 filtering facepiece respirators to preserve and prioritize the supply of respirators for use in situations where they are required to be worn;
• Explain to workers the importance of performing a user seal check (i.e., a fit check) at each donning to make sure they are getting an adequate seal from their respirator, in accordance with the procedures outlined in 29 CFR § 1910.134, Appendix B-1, User Seal Check Procedures. See also, OSHA tutorial videos (English, Spanish).

• Conduct a fit test if they observe visual changes in the employee’s physical condition that could affect respirator fit (e.g., facial scarring, dental changes, cosmetic surgery, or obvious changes in body weight) and explain to workers that, if their face shape has changed since their last fit test, they may no longer be getting a good facial seal with the respirator and, thus, are not being adequately protected; and,

• Remind workers that they should inform their supervisor or their respirator program administrator if the integrity and/or fit of their N95 filtering facepiece respirator is compromised.

If respiratory protection must be used, employers may consider use of alternative classes of respirators that provide equal or greater protection compared to an N95 FFR, such as National Institute for Occupational Safety and Health (NIOSH)-approved, non-disposable, elastomeric respirators or powered, air-purifying respirators.

When these alternatives are not available, or where their use creates additional safety or health hazards, employers may consider the extended use or reuse of N95 FFRs, or use of N95 FFRs that were approved but have since passed the manufacturer’s recommended shelf life, under specified conditions.
Required use of face coverings

- May trigger the respiratory protection standard.
- Are you requiring because of a known hazard?
- If so 1910.134 may be invoked
- Consider using a HR related reason
  - Wearing face coverings are now part of our company’s uniform policy to show comradery during the pandemic.
- Be aware of heat related issues
  - Consider future use of cooling bandanas

FDA and KN95’s

FDA concluded based on the totality of scientific evidence available that certain product classifications for imported disposable FFRs that are manufactured in China and not NIOSH–approved and for which data exists that supports the respirators’ authenticity, are appropriate to protect the public health or safety (as described under section II Scope of Authorization) under section 564 of the Federal Food, Drug, and Cosmetic Act (Act) (21 U.S.C. § 360bbb–3). Under this EUA, authorized respirators listed in Appendix A are authorized for use in healthcare settings by healthcare personnel (HCP) when used in accordance with CDC recommendations to prevent wearer exposure to pathogenic biological airborne particulates during FFR shortages resulting from the COVID–19 outbreak.
Myths About Face Covering

- The CDC recommends everyone should shave to prevent COVID-19  **NO!**
- Surgical masks protect me against SARS-CoV-2  **NO!** They protect others from you
- I do not need to do fit testing  **It depends!** N95 only, same size, model, and not for initial use.
- If I mandate use of a N95, I can use Appendix D for voluntary use  **NO!** If you mandate it for safety reasons, it is no longer voluntary.

- If an employee requests a N95 I need to provide it to them  **NO!**
- Bandanas, gaiters, etc. do not do any good  **A definite maybe!** Common sense indicates it can reduce transmission from you to someone else.
- You can wash N95’s  **NO!** You may be able to reuse or disinfect
- You can disinfect N95’s  **It depends!** NIOSH has only approved one method, however if it does not require NIOSH certification other methods may be considered.
- You can reuse N95’s  **It depends!** There are limited times when they can be reused if NIOSH certification is required.
Questions/Discussion
Contact Information

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