

Masks 101 & Community Mask Guidance



ARIZONA ADVISORY
COUNCIL ON INDIAN
HEALTH CARE



Learning Objectives

- Explain the use of masks as a public health tool
- Explain **how** masks work, and **how** wearing a mask in the community can help curb the spread of respiratory illnesses, such as COVID-19 and the Flu
- Identify types of face masks commonly used by community members
- Explain **when** you, as a community member, may wish to use face masks, during a pandemic, such as COVID-19 and the Flu
- Understand the differences between mask wearing to help curb community transmission of respiratory illnesses (i.e. cloth masks), and mask wearing to prevent yourself from contracting an illness (i.e. N95)
- Explain which masks can be reuse and how to wash and dry them; explain which masks you *can't reuse*.
- Explain how to put on and take off a mask

How to Use This Training

- This training may be used as either an interactive lecture, or as a self-paced course.
- Materials within this PowerPoint have been written out with more details than a typical PowerPoint presentation. This has been done intentionally, so as to allow the learner the opportunity to read through it at a time that is convenient for them, while also providing enough detail to ensure all learning objectives are met.
- If there are any questions in regards to this presentation, please email Alison Lovell at alison.lovell@aacihc.az.gov
- This training is the second in a PPE series. Upcoming trainings will focus on How to Take On & Off PPE.

A desert landscape featuring several tall saguaro cacti in the foreground and a range of rugged mountains in the background under a blue sky with scattered white clouds. The scene is brightly lit, suggesting a sunny day.

Masks as a Public Health Tool



Masks as a Public Health Tool

Mask wearing is a **critical public health tool** for preventing spread of respiratory illnesses, such as COVID-19, the Flu, and RSV. It is important to remember that ***any mask is better than no mask***.

When we talk about masks, we talk about two central concepts:

1. Wearing a mask to **Protect Others**
2. Wearing a mask to **Protect Yourself**

Masking together protects us all individually. If you have 20 people in a shop wearing masks, and 5 additional people who are not, all it takes is one of the 5 who are *not wearing a mask* to be contagious for an illness, to potentially infect all 4 maskless individuals, and 5 of the people wearing masks.

Like any good sports team, it requires ***teamwork*** to make it happen!



Justifying Mask Wearing

The Most Common Reason for Not Wearing Masks

Many people decide to skip wearing a mask, even in the midst of a pandemic, (i.e. COVID-19) or a surge in hospitalizations or disease counts (i.e. the Flu or RSV) caused by an airborne virus, with one simple statement

“I’m not sick.”

The problem with using this as a justification, is that ***many people are contagious with a respiratory virus, prior to showing symptoms***, or “being sick”.

This means they may feel fine, and say, “I’m not sick,” but in reality they could be a virus carrier capable of making others sick.

- When this happens, even though it is unintentional, people can accidentally spread a disease that could quite literally kill complete strangers they encounter at the grocery store, hospitalize their coworkers, or hurt their family.



Justifying Mask Wearing

How is a person contagious, if they are asymptomatic, or have not yet shown symptoms of illness?

It all comes down to their viral load.

- Simplified, **viral load is the amount of virus circulating through a person's body**. The higher their viral load, the more contagious and the sicker they are.
- **People are often contagious immediately before they develop symptoms**, since the illness-causing virus has replicated to a high level within their body (a high “viral load”). It takes a day or two for some viruses to then make the person sick.
- Other people may have a viral load teetering on the brink of making them sick, but their immune system fights it off before they actually *get* sick. **These individuals are capable of spreading a virus, while remaining asymptomatic.**

This is why mask wearing, even when a person feels fine, can help prevent and slow community spread of an illness during a pandemic.

Justifying Mask Wearing

Quick Stats

- Over **30%** of people infected with COVID-19 and over **19%** of people with Influenza never develop symptoms (they remain asymptomatic).
- **43.4%** of people infected with Influenza were considered subclinical, which means they did not develop *enough* symptoms to realize it was the Flu (e.g. they thought it was allergies or a cold)
- Over **50%** of COVID-19 infections are thought to have been transmitted by asymptomatic individuals.
- Between **33% and 77%** (depending on the case study) of people infected with the Flu are asymptomatic.
- Studies in the U.K. suggest that between **1/3rd and 1/2th** of Flu cases are transmitted by asymptomatic individuals.

Additionally, *many* people who do go on to become ill (symptomatic) with COVID-19, the Flu, or RSV are ***contagious for a day or two prior to becoming ill.***

- During this time, they can spread viral illnesses without even realizing they are ill. They do not know they are transmitting a virus to others when they talk, sneeze, cough or raise their voice (e.g., singing or shouting).
- Wearing a mask helps to lower the spread of respiratory droplets to other people around you.



Sources: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4880086/#:~:text=The%20overall%20pooled%20prevalence%20for,Technical%20Appendix%20%20Figure%201;>
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2646474/>; He et al. 2002, Nat Med; 26(5):672-675 and 26(9):1491-1494. Moghadas et al. 2020, Proc Natl Acad Sci USA;117(30):17513-17515. Johansson et al. 2021. JAMA Network Open;4(1):e2035057. Oran and Topol 2021; Ann Intern Med. doi:10.7326/M20-6976

A desert landscape featuring several tall saguaro cacti in the foreground and a range of rugged mountains in the background under a blue sky with scattered white clouds. The text "How do Masks Work?" is centered in the middle of the image.

How do Masks Work?

How Do Saliva Droplets Travel?

First, it is important to understand how viruses or other pathogens get *into the air to begin with*.

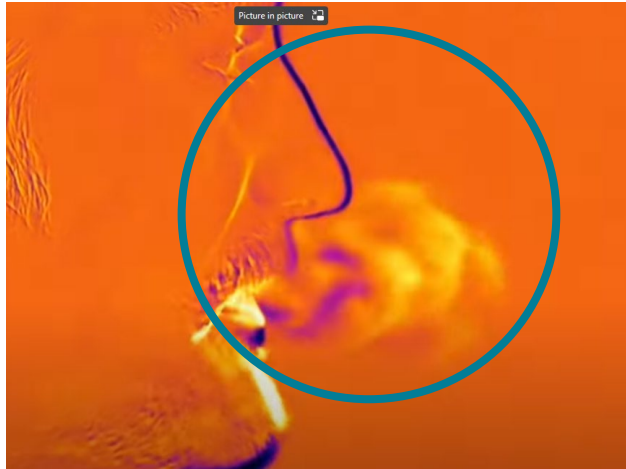
- Whenever a person breathes, talks, coughs, or sneezes, saliva droplets escape out into the air in front of their nose and mouth.
- This happens *every time* we breathe or talk, and happens on a more massive scale when we cough, sneeze, or forcefully exhale. **This happens even though you do not see it.**
- The below image shows particles expelling from a person's mouth.



How Do Saliva Droplets Travel?

The below two infrared images show saliva droplets leaving the mouth and nose. Both individuals are just breathing, not talking.

- These droplets can carry pathogens that can make others sick.



How Do Saliva Droplets Travel?

Physical distancing dramatically lowers risk of infection. Think of it this way:

- If you are farther from a fan, it's harder to feel the breeze.
- If you are farther from someone whispering, it's harder to hear what they are saying.

Physical Distancing Example 1

- Using COVID as an example, if there are two individuals...
 - Individual #1: Person with a high viral load (a large amount of virus circulating in their body, which correlates to being more symptomatic with the illness in question)
 - Individual #2: A Healthy Person
 - Distance Separated: 1 meter (3.28 feet)

More than 65% of saliva droplets, carrying the pathogen (SARS-CoV-2 virus in this example) land on Individual #2, exposing them to the virus.

Physical Distancing Example 2

- Using COVID as an example, if there are two individuals...
 - Individual #1: Person with a high viral load (a large amount of virus circulating in their body, which correlates to being more symptomatic with the illness in question)
 - Individual #2: A Healthy Person
 - Distance Separated: 2 meters (6.56 feet)

While droplets still get deposited on the listener at 2 meters, this amount decreases considerably!

How Do Saliva Droplets Travel?

When saliva particles escape, any pathogen we may be infected with hops on board for the ride.

Statistics from the American Institute of Physics:

- A single breath will release between 50 and 5,000 droplets.
- Within **90 seconds** of breathing without a mask, saliva particles will travel **over 7 feet**.
- When breathing **with** a non-medical face mask, within 90 seconds saliva particles travel **only 2 feet**.
- A single cough will release **3,000 droplets at up to 50 mph!** A sneeze moves even faster and can travel **up to 200 mph!** These travel across a room in **seconds**.

So, while standing 6 feet away does put distance between you and another person's saliva (and any infectious disease they may be infected with), and while it *does* help reduce your odds of breathing in a pathogen, it is not a sure thing. Saliva particles just from breathing can travel 7 feet if the person is unmasked. However, this gets cut to **2 feet** if the person is wearing a mask.

Bottom Line: Wearing a mask reduces the distance saliva particles travel.



Sources: American Institute of Physics and [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7462404/#:~:text=The%20slogan%20%E2%80%9CCoughs%20and%20Sneezes,40%2C000%20\(1%E2%80%9333\)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7462404/#:~:text=The%20slogan%20%E2%80%9CCoughs%20and%20Sneezes,40%2C000%20(1%E2%80%9333).).

How do Masks Work?

As you now have seen, saliva particles escape *all the time* and can travel far distances.

Masks help to limit this. By wearing a mask, your saliva droplets ‘hit a barrier’ before fully escaping into the air. The momentum they have is slowed.

Example Scenario: Rambunctious Child with a Handful of Sand

- Compare this to a child holding a handful of sand.
- You are standing 3 feet away from the child, and they throw the handful of sand directly at your face while talking to you.
- If this were to happen, you would be hit with a LOT of sand!
- However, if you held up your beach towel JUST IN TIME, it would wind up acting as a barricade. It’d be placed between you and the sand-throwing child, and they would have to throw the sand *through the* beach towel for it to hit you!
- While not *all* the sand would be stopped (some would inevitably fly through tiny holes in the fabric) the vast majority of the sand *would* get stopped by the beach towel.
- This reduces your odds of getting hit in the face by the sand!
- If the sand represents viral particles (like COVID-19) and the blanket represents a mask, you can see exactly *how* wearing a mask can help reduce the spread of COVID-19 and other viruses in the community. Wearing a mask in public literally *lessens the amount of virus making it out into the air.*

How do Masks Work?

Example Scenario: Rambunctious Child with a Handful of Sand



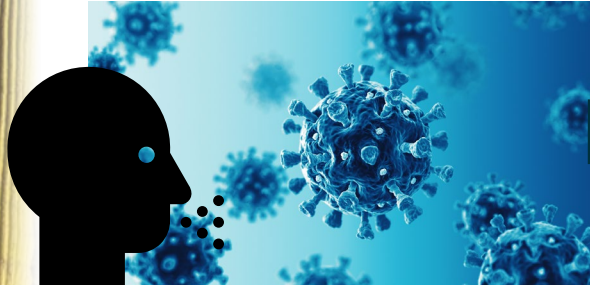
Grains of sand, are like saliva particles. How far they are thrown is how far aerosolized saliva droplets can go.



The Beach Towel forms a protective layer between you and thrown sand, not unlike a mask protecting you from saliva droplets.



Fewer grains of sand get through and around the beach towel, and fewer saliva particles carrying a virus get around and through a mask



Fewer pathogens make it through the mask, and the person stays healthy!

How do Masks Work?

Another Example: Chumming the Waters

- Let's say you happened to have two large, Olympic sized, saltwater swimming pools in your backyard.
- Let's also say that you somehow wound up with an unfortunate shark infestation in these swimming pools.
- Now let's say you are into extreme sports, and are being dropped into the middle of one of these pools, and have to swim to safety.
- Pool A has only 2 sharks. Pool B has 30 sharks.

Which pool would you want to be dropped into?

- We hope you said Pool A! Your chances of encountering a shark are far less in Pool A, than they are in Pool B, simply because there are ***fewer sharks in the water.***
- Is choosing Pool A an iron-clad guarantee that you *won't* run into either of the two sharks in the pool? Of course not. But your odds of running into a shark in Pool A are FAR lower than if you had chosen Pool B, with its 30 sharks.

Community mask working functions on a similar concept. If everyone in the community makes a habit of wearing a mask during a pandemic, or when there are surges in case counts of COVID or the Flu or RSV, then the amount of virus (sharks) getting out into the air (the saltwater) in public places (the Olympic-sized swimming pool) is greatly reduced. As a result, you are less likely to “encounter the virus” (the shark).

This is how community mask wearing helps lower rates of illness!!!

Relative Risk of Inhaling an Airborne Pathogen When Using a Mask

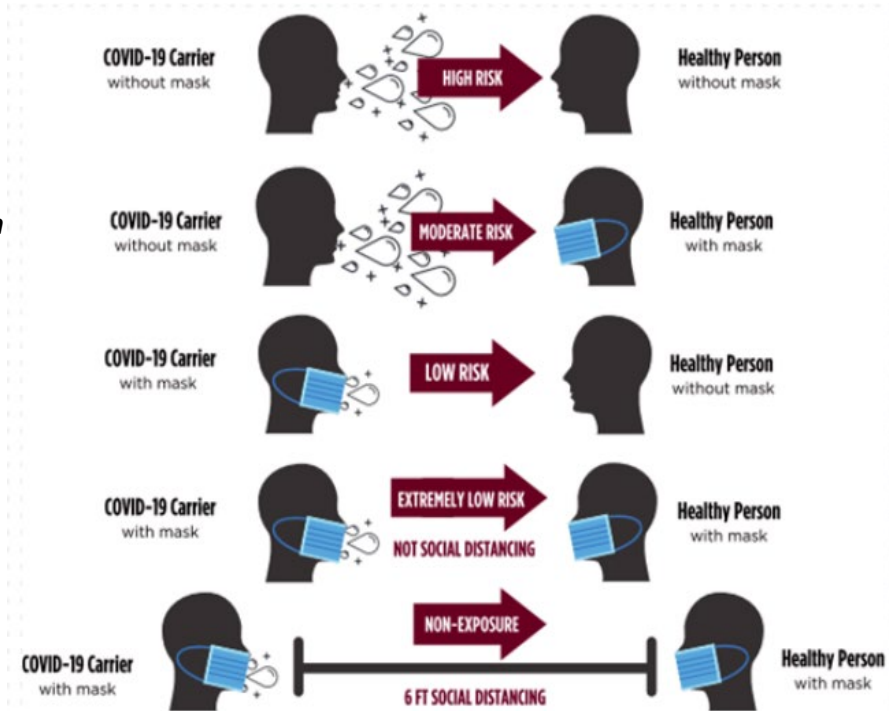
Another frequent complaint that came up during the recent COVID-19 pandemic was “why should I wear a mask, when it doesn’t protect me?”

As illustrated in previous slides, when everyone in a community participates in mask wearing, ***it protects the entire community by lowering the amount of pathogen that has gotten into the air.***

However, wearing a mask does not just help protect your community members. It also offers you, the wearer, some protection as well.

- Think of the Sand-Throwing Child example. If the child holds it (child wearing a mask), or if you hold it (you wearing a mask) either way, a significant amount of sand doesn’t hit you in the face.

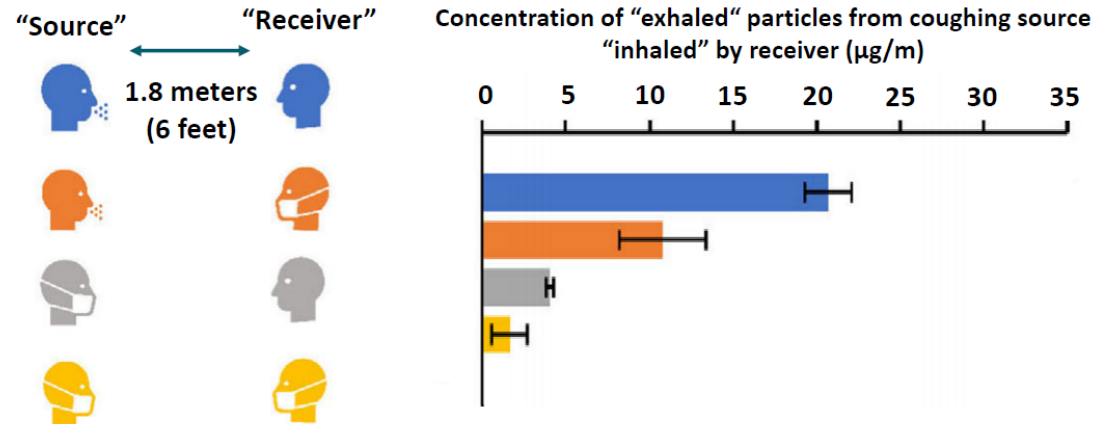
To the right is an illustrative guide showing your risk of contracting COVID-19, if you are standing within 6 feet of an individual *with an active and contagious COVID-19 infection*, based on whether or not you or the individual with COVID-19 is wearing a cloth or surgical mask.



Relative Risk of Inhaling an Airborne Pathogen When Using a Mask

In a study done to determine the efficacy of universal masking for reducing the spread of pathogens, such as COVID-19, the Flu, and RSV, that are carried on aerosolized respiratory droplets, it was found that in an enclosed space (3 meters by 3 meters; or 9.8 feet by 9.8 feet), when two individuals were situated face-to-face (at both a 3 foot and 6 foot distance) that the use of masks on the sick individual reduced the 15-min mean aerosol concentration of respiratory droplets breathed in by the recipient (the healthy individual in the enclosed space with the sick individual) by between **66% and 92%**.

- **Source** = Individual who is either sick with a contagious illness spread by respiratory secretions/droplets, or an asymptomatic individual who is a carrier for the illness.
- **Recipient** = Health individual, who is stuck in the enclosed space with the sick or asymptomatic individual for a time frame of 15 minutes.



How do Masks Work?

Key Takeaways

- Wearing a mask of *any kind* creates a barrier between a person's saliva and other people. It puts a blanket between you and the child throwing sand.
- Wearing a mask of *any kind* helps reduce the number of viral and bacterial pathogens breathed out into the air. It helps to “cut back” on adding extra sharks to the waters.
- Wearing a mask helps to reduce community transmission of illnesses that can be spread by respiratory droplets, like COVID-19, the Flu, and RSV.
- Wearing a mask is a way to show you care about your community members.



A desert landscape featuring several tall saguaro cacti in the foreground and a range of rugged mountains in the background under a blue sky with scattered white clouds. The text 'Mask Wearing Guidance' is centered in the middle of the image.

Mask Wearing Guidance

General Guidelines for Mask Wearing



When there is an outbreak of a contagious, respiratory illness, the following guidelines can help reduce the spread of disease in your community.

1. Wear the most protective mask you can, that fits well, and that ***you will wear consistently***.
 - If you don't wear it consistently, it won't help.
 - This means wearing a mask that covers your mouth and nose. Wearing a mask that slips down over your nose does not work.
2. Masks and respirators are effective at reducing transmission of things like SARS-CoV-2 (the virus that causes COVID-19), influenza (the Flu), and RSV, when worn consistently and correctly.
3. Some masks and respirators offer higher levels of protection than others, and some may be harder to tolerate or wear consistently than others.
 - It is most important to wear a well-fitting mask or respirator correctly that is comfortable for you and that provides good protection.
 - While all masks and respirators provide some level of protection, properly fitting respirators provide the highest level of protection. Wearing a highly protective mask or respirator may be most important for certain higher risk situations, or by some people at increased risk for severe disease.
4. CDC's mask recommendations provide information that people can use to improve how well their masks protect them.
5. Masks should **NOT** be worn by children under the age of 2 or anyone who has trouble breathing, is unconscious, incapacitated, or otherwise unable to remove the mask without assistance.

Mask Wearing and COVID-19 Considerations

The CDC has established COVID-19 Community Levels to help people decide what preventative actions to take, based on case counts and the community spread (between people who are not in the same household) of COVID-19.

- [COVID-19 Community Levels](#) are based on hospitalization and case data.
- Using those data points, communities are classified as low, medium, or high.



At All COVID-19 Community Levels

- People may choose to mask at any time. Masks are recommended in indoor public transportation settings and may be required in other places by local or state authorities.



Medium or High

- If you are at [high risk for getting very sick](#), wear a high-quality mask or respirator.
- If you have household or social contact with someone at high risk getting very sick, consider self-testing to detect infection before contact and consider wearing a mask when indoors with them.



High

- Wear a high-quality mask or respirator.
- If you are [high risk for getting very sick](#), consider avoiding non-essential indoor activities in public where you could be exposed.

Source:
<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/about-face-coverings.html>

Mask Wearing and Special Considerations for Children

- **Children under 2 years of age should NOT wear a mask.** Not only will they be unable to wear it properly, but it can be dangerous for them and pose a suffocation hazard.
- **Children over 2 years of age** can typically wear a mask.
- **Sizing** - It may be more difficult to find a good sized mask for a child. Most masks are designed for adults. Choose a size that fits over the child's nose and under the chin, but does not impair vision.
- If your child has a medical condition, such as a heart or lung problem, ask their healthcare provider before they use methods to improve mask fit or use an ASTM F3502 mask or a respirator.
- If your child has a hard time breathing, gets dizzy, or has other symptoms while you are trying to get the mask to fit better or when using an ASTM F3502 mask or a respirator, choose a cloth or disposable mask. They should continue to protect themselves and others. Consult your healthcare provider if these symptoms do not resolve.



Mask Myths

MYTH: A mask will increase my level of Carbon Dioxide (CO₂)

FACT: Wearing a mask does NOT increase the level of carbon dioxide (CO₂) in the air you breathe. Many healthcare providers for *decades* have worn masks with no ill effects.

MYTH: I'm not sick, so I shouldn't wear a mask.

FACT: Over 30% of people never develop symptoms (they remain asymptomatic) for COVID-19. This is also true of other respiratory illnesses. Additionally, *many* people who do go on to become ill (symptomatic) with COVID-19, the Flu, or RSV are **contagious for a day or two prior to becoming ill**. During this time, they can spread COVID-19, the Flu, or RSV without even realizing they are ill. These people do not know they are transmitting the virus to others when they talk, sneeze, cough or raise their voice (e.g., singing or shouting). Wearing a mask helps to lower the transmission of respiratory droplets to other people around you.

- For instance, over 50% of COVID-19 infections are believed to be transmitted from people without symptoms

MYTH: I can just wear a gaiter.

FACT: If you wear a gaiter, this is NOT sufficient. Make sure it has at least two layers of cloth to catch as many respiratory droplets as possible.





Sources: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/about-face-coverings.html> and NIH Webinar on Community Mask Guidance



A desert landscape featuring several tall saguaro cacti in the foreground and a range of rugged mountains in the background under a blue sky with scattered white clouds. The scene is brightly lit, suggesting a sunny day.

Types of Face Masks

Types of Face Masks

Cloth Masks	Surgical Masks	KN95 Masks	N95 Masks
			
<p>Protects other people and offers you some minor protection.</p>	<p>Protects other people and offers you some protection.</p>	<p>Protects you and other people.</p>	<p>Protect you and other people.</p>
<p>All four mask types help to reduce the amount of respiratory particles that are released into the air, and the distance they travel. They all help to protect other people.</p>			
<p>Cloth masks act as a small barrier to protect you from inhaling respiratory droplets released by others. (Think of the Sand-Throwing Child example.)</p>	<p>Surgical masks offer <i>some</i> protection to the wearer, protecting them from direct contact with respiratory droplets and sprays that may contain infectious pathogens. They also filter out large particles when the wearer breathes in.</p>	<p>KN95 masks meet international standards, and filter out both large and small particles when the wearer inhales, and offer more protection than a medical mask.</p>	<p>N95 masks meet U.S. standards, and offer the highest level of protection. They filter out both large and small particles when the wearer inhales, and offer more protection than a medical mask.</p>

Cloth Masks

Cloth Masks can be made from a variety of fabrics, and there are many types available.

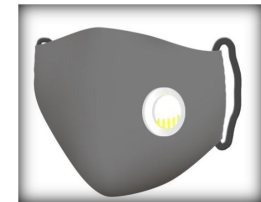
- Cloth masks are primarily to protect others. They trap respiratory droplets that are released when the wearer talks, coughs, or sneezes.
- Cloth masks act as a small barrier to protect you from inhaling respiratory droplets released by others. (Think of the Sand-Throwing Child example.)
- The most effective cloth masks are made of multiple layers of tightly woven fabric like cotton. A mask with more layers will stop more droplets from getting through the mask or escaping from it.

Wear cloth masks with:

- A proper fit over your nose, mouth, and chin to prevent leaks
- Multiple layers of tightly woven, breathable fabric
- Nose wire to allow a good fit
- Fabric that blocks light when held up to bright light source

Do **NOT** wear cloth masks with:

- Gaps around the sides of the face or nose
- Exhalation valves, vents, or other openings (see example) as these will allow your respiratory droplets to escape and ruin the point of the mask (render it ineffective)
- Single-layer fabric or those made of thin fabric that don't block light
- Wet or dirty material



Cloth Mask with Valve Example
(DO NOT USE MASKS WITH A VALVE)

Surgical / Medical Masks

- Surgical masks are regulated under 21 CFR 878.4040.
- Surgical masks are not to be shared and may be labeled as surgical, isolation, dental, or medical procedure masks.
- They may come with or without a face shield.
- These are sometimes referred to as face masks, although not all face masks are regulated as surgical masks.
- Surgical masks offer *some* protection to the wearer, protecting them from direct contact with respiratory droplets and sprays that may contain infectious pathogens. They also filter out large particles when the wearer breathes in.
- Like all other mask types, they also reduce the amount of respiratory particles that are released into the air by the wearer, and the distance those particles travel.



KN95 and N95 Masks

N95 respirators and surgical masks are examples of PPE that are used to offer a ***high level of protection for the wearer*** from particles.

The Centers for Disease Control and Prevention (CDC) National Institute for Occupational Safety and Health (NIOSH) regulates N95 respirators.



KN95 vs. N95 Masks

Similarities

- Both masks must filter out and capture 95% of tiny 0.3 micron particles in the air (hence the “95” in the names).

Differences

- Ear Straps
 - KN95 mask: Straps behind your ears help to hold the mask in place.
 - N95 mask: Typically has two straps — one that wraps around your head and another around the back of year head.
- Certification Agency
 - N95 is the U.S. standard. N95 masks must pass a rigorous inspection and certification process from the **National Institute for Occupational Safety and Health (NIOSH)**, which is part of the CDC.
 - KN95 is the China standard.

KN95

Some respirators are designed and tested to meet international standards.

- KN95 Mask are the standard for China and other nations internationally. These are the most widely available respirators that meet an international standard.
- However, the CDC warns that **up to 60% of KN95 masks on the market are counterfeit** and do not work as well as they claim.
 - [International Assessment Results | NPPTL | NIOSH | CDC](#)
- Non-counterfeit KN95 masks will filter out both large and small particles when the wearer inhales, and offer more protection than a surgical or medical mask.
- Like all other mask types, they also reduce the amount of respiratory particles that are released into the air by the wearer, and the distance those particles travel.



N95 Masks

N95 Masks are particulate respirators that filter out at least 95% of aerosols. They have a very close facial fit and when fitted properly around the nose and chin, are *very* efficient at filtering out respiratory droplets.

- N95 masks meet U.S. standards, and offer the highest level of protection.
- They filter out both large and small particles when the wearer inhales, and offer more protection than a surgical / medical mask.
- Like all other mask types, they also reduce the amount of respiratory particles that are released into the air by the wearer, and the distance those particles travel.
- Surgical N95 Respirators are commonly used in healthcare settings.
- Non-surgical N95 respirators can be used by community members.



Source: <https://www.fda.gov/medical-devices/personal-protective-equipment-infection-control/n95-respirators-surgical-masks-face-masks-and-barrier-face-coverings>.

Counterfeit Respirators/Masks

The CDC estimates that up to 60% of KN95 masks purporting to be safe, are counterfeit. There is also a significant counterfeit market for N95 masks.

How to tell if a mask is a counterfeit, and therefore safe?

- All NIOSH Approved respirators have a testing and certification (TC) approval number (e.g., TC 84A-XXXX). The NIOSH approval label, which you can find on or within the respirator packaging, includes the TC approval number. Additionally, an abbreviated approval label is on the filtering facepiece respirator (FFR) itself or straps.

Signs that a respirator may be counterfeit:

- No markings at all on the filtering facepiece respirator
- No approval (TC) number on filtering facepiece respirator or headband
- No NIOSH markings
- NIOSH spelled incorrectly
- Presence of decorative fabric or other decorative add-ons (e.g., sequins)
- Claims approval for children (NIOSH does not approve any type of respiratory protective device for children at this time)
- Filtering facepiece respirator has ear loops instead of headbands. At this time, NIOSH has not approved respirators that use ear loops without the use of an approved fastener. The fastener connects the loops behind the head.



**Counterfeit N95 Mask
Example**

**Note the lack of an
approval (TC) number**

A desert landscape featuring several tall saguaro cacti in the foreground and a range of rugged mountains in the background under a blue sky with scattered white clouds. The text "Reusing Face Masks" is centered in the middle of the image.

Reusing Face Masks

Can You Reuse Face Masks?

Cloth Masks: **Yes**



Surgical/Medical Masks: **No**



KN95: **No**



N95: **No**





Washing Face Masks

Cloth masks should be **washed between uses.**

Washing Face Masks

- **Washing Machine**

- You can include your face covering with your regular laundry
- Use regular laundry detergent and the warmest appropriate water setting for the material used to make the face covering
- Use the highest heat setting on your dryer and leave in the dryer until completely dry.

- **Hand Washing**

- You may also wash face masks by hand with tap water, using laundry detergent or soap, and the warmest water that is comfortable.
- Rinse with clean water to remove detergent or soap
- Lay flat to dry, and allow it to ***completely dry***. If possible, place the mask in direct sunlight. The UV light from the sun helps to kill any lingering pathogens.

A scenic desert landscape featuring several tall saguaro cacti in the foreground and a range of rugged mountains in the background under a clear blue sky with scattered white clouds. The text is centered over the middle of the image.

How to Put on and Wear a Face Mask

How to Put on a Face Mask

When putting on a Face Mask, you must first ensure that you are not contaminating your face *or* the mask in the process.

1. Wash your hands with soap and water for 20 seconds, or use an alcohol-based hand sanitizer of at least 60% alcohol, and let your hands dry.
2. Make sure your hands are washed and dried before touching the face covering
3. Pick up the face mask by the ear loops.
4. Make sure there are no obvious tears or holes in either side of the mask
5. Determine which side of the mask is the top. The side of the mask that has a stiff bendable edge is the top and is meant to mold to the shape of your nose.
6. Determine which side of the mask is the front. The colored side of the mask is usually the front and should face away from you, while the white side touches your face.
7. Place it over your nose and mouth and secure it under your chin
 - Adjust the metal nose piece for a tight fit around the bridge of your nose. Be careful not to touch your eyes or your nose mucus membranes when doing so. Touch only the outside of the mask, with clean hands, when doing this.
 - Make sure the mask fits snugly against the sides of your face
 - Make sure you can breathe easily

How to Wear a Face Mask

Ensure a snug fit over both your nose and mouth, as shown below.



Ensure the face mask fits with all other PPE being worn, and is not knocked askew by any other PPE.

(Mask use with other PPE shown above)

How to Wear a Face Mask

Cloth Mask – Correct Way



Medical/Surgical Mask – Correct Way



KN95 Mask – Correct Way



1. Cover the nose.
2. Cover the chin.
3. Fits well (is not loose).
4. Is not dirty!

How NOT to Wear a Face Mask

Don't wear or pull it beneath your nose!



Don't wear or pull your mask beneath your chin!

Cover your chin!

Stop touching the mask!



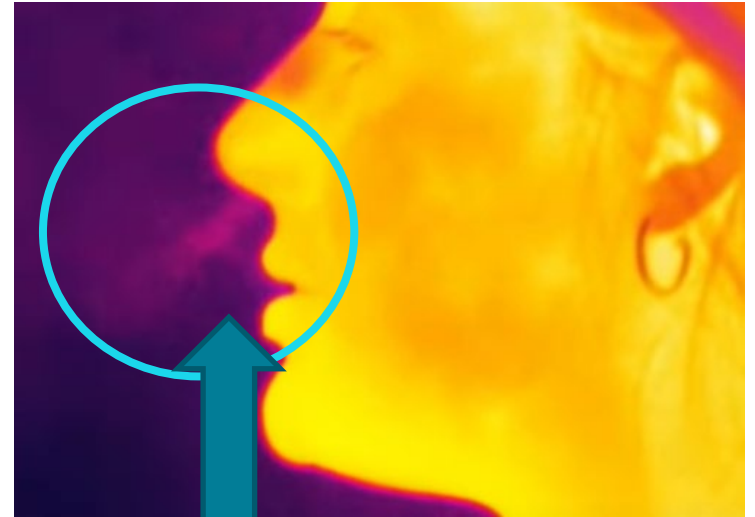
No. Dirty. Masks!!!

Does it wiggle and flop? It's too loose! Masks should fit well!

How to Wear a Face Mask

Masks should cover both your mouth *and* your nose, otherwise you might as well not be wearing one.

- The image to the right shows an infrared image, demonstrating how respiratory secretions/droplets leave the nose.
- If your mask does not cover your nose, then these respiratory droplets still escape into the air, removing any protection the mask may have given people you are around from breathing in your respiratory secretions.
- If your mask does not cover your nose, then you also have no protection from breathing in the respiratory secretions of others.



**Respiratory Secretions/Droplets
being exhaled**

Source: American Institute of Physics

A desert landscape featuring several tall saguaro cacti in the foreground and a range of rugged mountains in the background under a blue sky with scattered white clouds. The scene is brightly lit, suggesting a sunny day.

How to Take Off a Face Mask

How to Remove a Face Mask

When removing a Face Mask, you must first ensure that you are not contaminating your face in the process. The mask is already contaminated.

1. If you are wearing gloves, remove your gloves.
2. Carefully remove the mask from behind your head or ears. Minimize what you touch.
3. Do **NOT** let the outside of the mask touch your eyes, nose, or mouth. Many masks work by trapping contaminants that you cannot visibly see, and you do not want to touch a contaminated surface directly to your mucus membranes.
4. Throw the mask in the trash.
5. Wash your hands in warm soapy water for 20 seconds, or use an alcohol-based hand sanitizer of at least 60% alcohol **immediately** after removing

A scenic view of a desert landscape. In the foreground, several tall, columnar saguaro cacti stand prominently. The middle ground shows a range of rugged, brownish mountains. The sky is a clear, pale blue with scattered, soft white clouds. The overall lighting is bright and even, suggesting a clear day.

Resources

Resources

- **N95 Respirators, Surgical Masks, Face Masks, and Barrier Face Covering**
 - <https://www.fda.gov/medical-devices/personal-protective-equipment-infection-control/n95-respirators-surgical-masks-face-masks-and-barrier-face-coverings>
- **NPPTL Respirator Assessments to Support the COVID-19 Response**
 - <https://www.cdc.gov/niosh/npptl/respirators/testing/NonNIOSHresults.html>
- **How well do face masks protect against COVID-19**
 - <https://www.mayoclinic.org/diseases-conditions/coronavirus/in-depth/coronavirus-mask/art-20485449#:~:text=A%20KN95%20mask%20is%20a,do%27t%20meet%20quality%20requirements.>
- **NIHB Webinar on Community Mask Guidance (contact NIHB for a copy)**
- **Community Respirators and Masks:**
 - <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/about-face-coverings.html>
- **Mask Wearing and Social Distancing**
 - <https://www.iop.org/explore-physics/physics-around-you/staying-safe-coronavirus/masks-distancing>
- **Infrared-based visualization of exhalation flows while wearing protective face masks**
 - <https://www.researchgate.net/publication/358235654> **Infrared-based visualization of exhalation flows while wearing protective face masks**

Resources

- **Mask Wearing and Social Distancing**
 - <https://www.iop.org/explore-physics/physics-around-you/staying-safe-coronavirus/masks-distancing>
- **On Coughing and Airborne Droplet Transmission to Humans:**
 - <https://pubs.aip.org/aip/pof/article/32/5/053310/1033618/On-coughing-and-airborne-droplet-transmission-to>
- **Normal Breathing Sends Saliva Droplets 7 Feet; Masks Shorten This:**
 - <https://publishing.aip.org/publications/latest-content/normal-breathing-sends-saliva-droplets-7-feet-masks-shorten-this/>
- **Coughs and Sneezes: Their Role in Transmission of Respiratory Viral Infections, Including SARS-CoV-2:**
 - [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7462404/#:~:text=The%20slogan%20%E2%80%9CCough%20and%20Sneezes,40%2C000%20\(1%E2%80%9333\)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7462404/#:~:text=The%20slogan%20%E2%80%9CCough%20and%20Sneezes,40%2C000%20(1%E2%80%9333))
- **Code of Federal Regulations: 21 CFR 878.4040**
 - <https://www.ecfr.gov/current/title-21/chapter-I/subchapter-H/part-878/subpart-E/section-878.4040>

Resources

- **Heterogeneous and Dynamic Prevalence of Asymptomatic Influenza Virus Infections:**
 - <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4880086/#:~:text=The%20overall%20pooled%20prevalence%20for,Technical%20Appendix%20%20Figure%201>)
- **The Science of Masking to Control COVID-19:**
 - He et al. 2002, Nat Med; 26(5):672-675 and 26(9):1491-1494
 - https://archive.cdc.gov/www_cdc_gov/coronavirus/2019-ncov/downloads/science-of-masking-full.pdf
- **The Implications of Silent Transmission for the Control of the COVID-19 Outbreak:**
 - Moghadas et al. 2020, Proc Natl Acad Sci USA;117(30):17513-17515
 - <https://pubmed.ncbi.nlm.nih.gov/32632012/>
- **SARS-CoV-2 Transmission From People Without COVID-19 Symptoms:**
 - Johansson et al. 2021. JAMA Network Open;4(1):e2035057
 - <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2774707>
- **The Proportion of SARS-CoV-2 Infections That Are Asymptomatic : A Systematic Review:**
 - Oran and Topol 2021; Ann Intern Med. doi:10.7326/M20-6976
 - <https://pubmed.ncbi.nlm.nih.gov/33481642/>
- **Does Influenza Transmission Occur from Asymptomatic Infection or Prior to Symptom Onset?:**
 - <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2646474/>

A scenic desert landscape featuring several tall saguaro cacti in the foreground. In the background, there are rugged mountains under a bright blue sky with scattered white clouds. The overall scene is bathed in a warm, golden light, suggesting late afternoon or early morning. The text "Thank you" is centered in the middle of the image.

Thank you