

Mask Usage

How to wear a mask properly and its benefits against COVID-19

To be updated periodically: Updated 03/12/2021

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Over 90% of COVID-19 transmission is airborne

While handwashing is important, physical distancing and wearing a mask properly are the two most important things you can do to prevent COVID-19 transmission

In addition to increasing ventilation in the spaces you occupy



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Wearing a mask is effective in controlling COVID-19 transmission

- The preponderance of evidence indicates that mask wearing greatly reduces COVID-19 transmissibility.
- Public mask wearing is most effective at reducing spread of the virus when adherence is high and masks are worn correctly .
- Mask wearing is essential by both
 - Potentially infectious people who may be asymptomatic (even after vaccination). This has benefits at the population level by both reducing transmission and reducing the evolution of variants
 - Susceptible people who have no infection or vaccination generated immunity.















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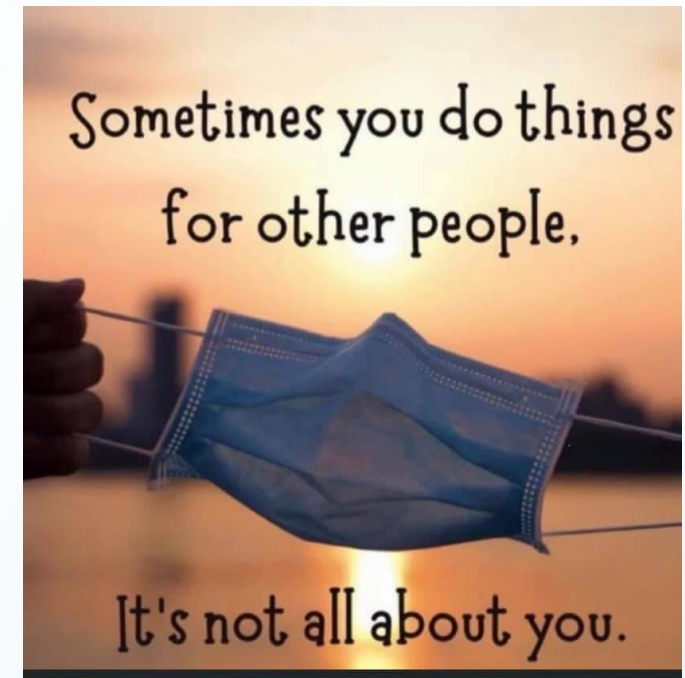
Mask wearing

- **Mask wearing is essential to reduce COVID-19 transmission in the population**
- **If you are asymptomatic and contagious, masks reduce the spread of disease.**



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Chance of Transmission	Asymptomatic COVID-19 Carrier	Uninfected Person
VERY HIGH		
HIGH		
MEDIUM		
LOW		
VERY LOW	 6+ feet 	
VIRTUALLY NONE		



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Face mask basics

- **The four most important things to remember**
- **1. Mask must have a snug fit around the face**
 - The material a mask is made from matters less than a snug fit
- **2. Mind the gap – a loose mask is not effective**
- **3. Mask must cover your nose mouth and chin**
- **4. More layers are better only when a mask is fit snugly**



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How do I know if the mask is snug enough

- If your mask is snug you should not be able to blow out a candle when you exhale vigorously
- Blow and see
- Tip if you wear glasses: if your mask fits improperly and your breath comes out from the sides



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If you do use a disposable surgical face

- The downside of surgical masks is that many of them fit loosely — and a mask's ability to filter out particles depends partly on how well it seals to your face

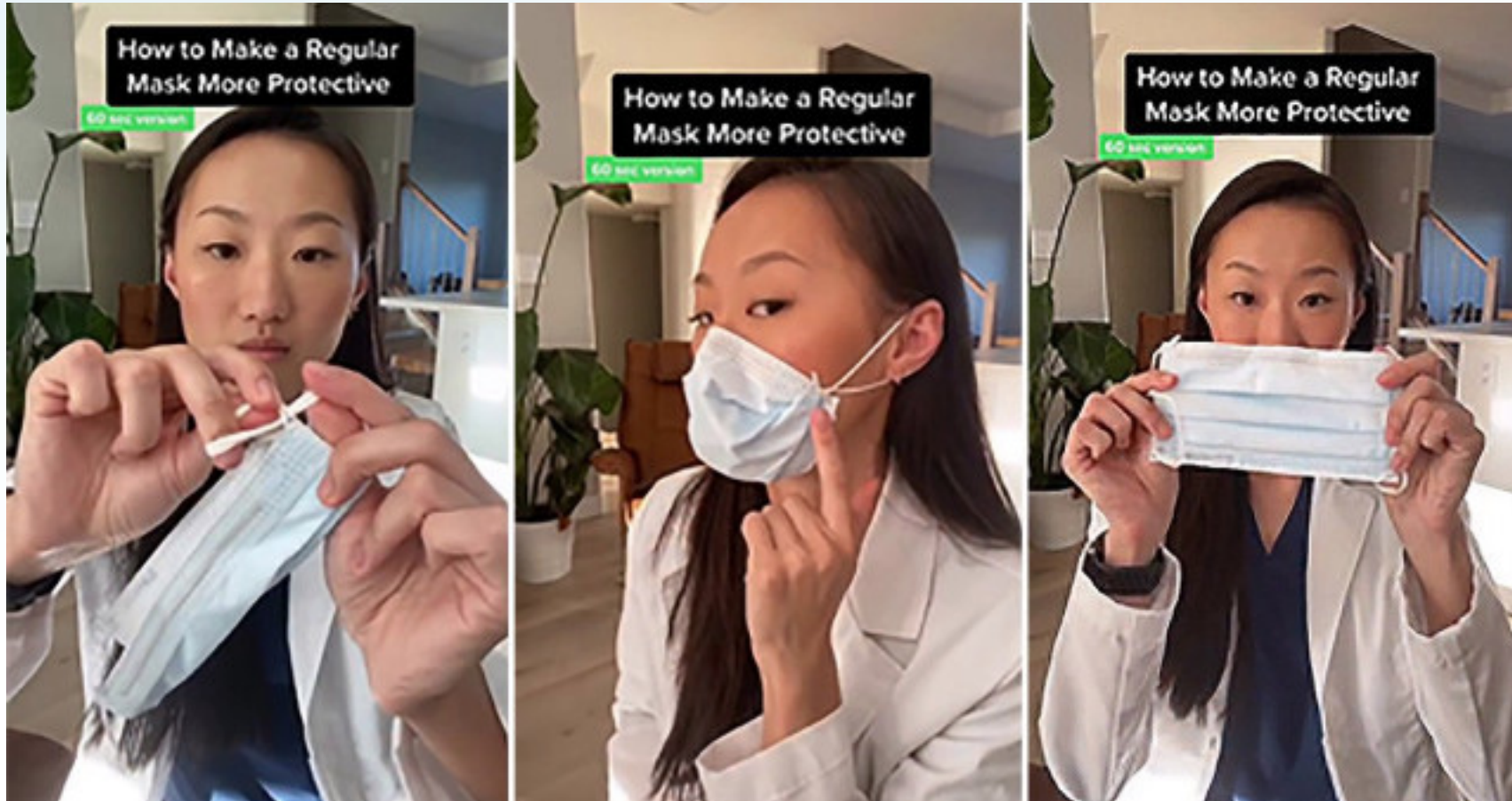
Make sure to knot and tuck the mask for a tighter fit.

By eliminating the gap where germs and other contaminants can slip in, a simple knot-and-tuck can reduce a person's exposure to particles by 64.5 %, the CDC reports.



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Ways to make a mask tighter-watch the video



>https://www.tiktok.com/@oliviacidmd/video/6841373365500955909?referer_url=https%3A%2F%2Fmetro.co.uk%2F&referer_video_id=6841373365500955909&is_copy_url=1&is_from_webapp=v1

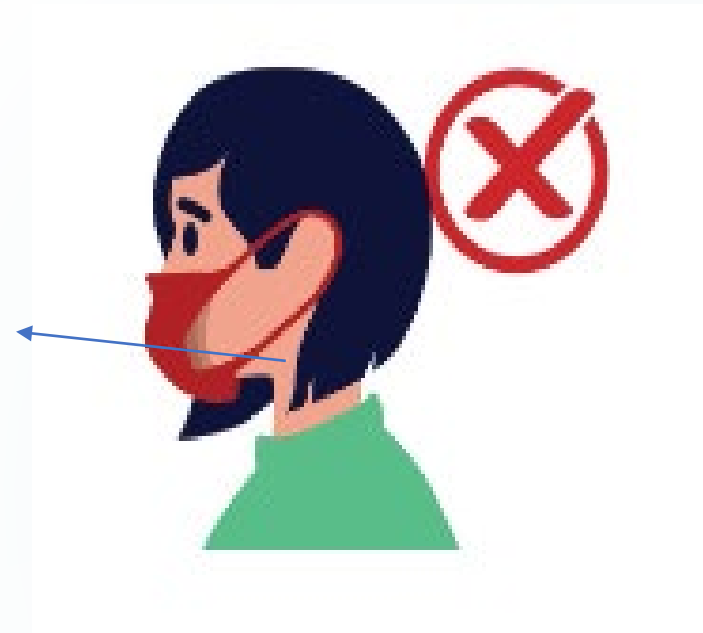
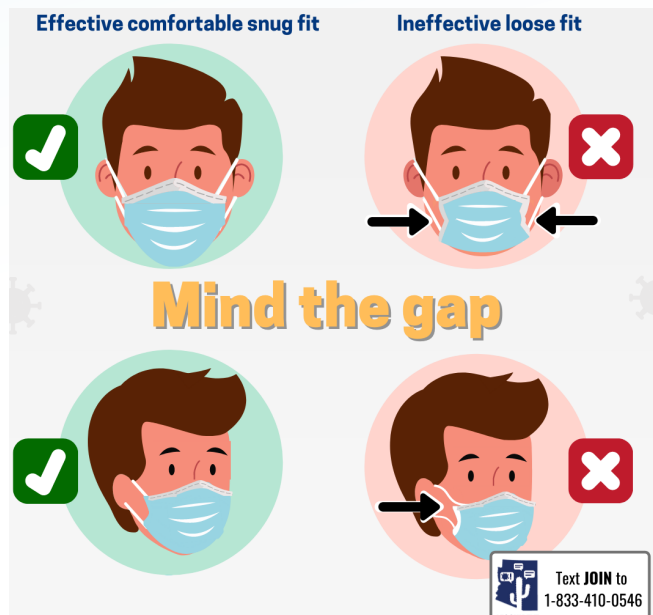
> See also: <https://www.nebraskamed.com/COVID/13-mask-hacks-to-make-your-mask-fit-better>



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Mind the gap

- Any gap in the mask will allow the virus in the forms of droplets and smaller aerosol particles to escape not just forward to people in front of you, but to people to the side and those in back of you



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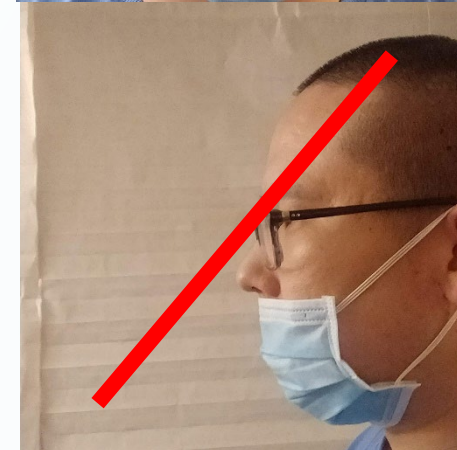
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It is essential to cover your nose with your mask

- The nasal passage is a common entryway for the virus to get into and out of the body
- The virus attaches to proteins found in the **nasal passage**. There are more of these proteins in the nose than in the lungs, making an exposed nose a serious threat.
- Its imperative that your mask cover your nose and have a snug fit



INCORRECT !!!!
Neither you nor
anyone else is
protected



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Mask Recommendations

- Ideal masks:
 - Have two or more layers
 - Are fitted to the face and snug without any gaps
 - Have a nose wire to prevent air from escaping through the top of the mask
- Overall, a 3-ply medical-grade surgical masks tends to offer the best protection for the average individual.
- For those opting for cloth masks, “two layers of high-quality cotton material with a relatively high thread count.”

If used properly :

- Unknotted surgical mask: **42% of particles blocked**
- Cloth face mask: **44.3% of particles blocked**
- Double mask: **92.5% of particles blocked**



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In lab tests with dummies, exposure to potentially infectious aerosols decreased by **about 95%** when they both wore tightly fitted masks



Cloth mask over
medical procedure mask



Medical procedure mask with
knotted ear loops and tucked-in sides



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Which masks offer little protection?

- Neck fleeces, also called gaiter masks often used by runners, are the least effective.
 - In fact, wearing a fleece mask resulted in a higher number of respiratory droplets because the material seemed to break down larger droplets into smaller particles that are more easily carried away with air.
 - ✓ **If you are going to wear a gaiter, double it to approximate the effectiveness of a cotton mask**
- Folded bandanas and knitted masks also performed poorly and did not offer much protection.

14 masks tested



DUKE HEALTH



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Masks with Valves are NOT RECOMMENDED for COVID-19

- One-way front valve industrial masks were designed for fire fighters and for those engaged in sanding, sweeping dust, and working on projects that dispense small particles into the air.
- **One-way valves filter air breathed in, however the air going out is unfiltered.**
- **If you wear such a mask you risk spreading the virus to others through infected droplets.**
 - Some masks with valves may actually propel your germs further
- Masks with valves may look more high-tech, but they do not protect others in the community.
 - Masks with valves may also give people you come in contact with a false sense of security if they think they are better than other kind of masks.
- **Cloth masks are recommended along with surgical masks**



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Do NOT use these kinds of masks with built in exhaust valves: you are placing others at risk



HOW WE STAY
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Mask Hygiene

- Wash hands when taking off mask by the loops
- Cotton Masks : wash daily
 - Rotate use : and expose to air and the sun
- **Surgical masks:** Avoid washing or sterilizing any part of surgical masks using water, alcohol, dish-washing solution, hand wash, soap or any kind of detergent.
 - If outer and inner layer of the surgical mask is damaged, it loses its filtration and water-resistant functions



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COVID-19 Variants

Masking is more important now than ever before



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You need to be using a Snug fitting face mask more now than ever before

- The discovery of highly transmissible [coronavirus variants](#) in the United States has public health experts urging Americans to upgrade the simple cloth masks that have become a staple shield during the pandemic.
 - The change can be as simple as putting on a second mask over the one you already wear or donning a fabric mask on top of a surgical mask.



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Mask Recommendations in Other Countries

- A number of European countries have announced new mask recommendations and requirements
 - Germany
 - France
 - Austria
- In those countries, a mandatory masking policy no longer allows the use of fabric masks in stores and on public transit
 - Only medical-grade surgical masks are permitted or government approved KN95 masks.



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The CDC recommends two ways to improve how well face masks can protect you

- **Knotting-and-tucking** the ear loops on a single surgical mask
- **Double masking**, or wearing a cloth mask atop a disposable surgical mask
- ✓ Do either of the above and exposure to viral particles is reduced by upwards of 95 % — more than double as efficient as the 42-to-44-% efficiency one gets from single surgical masks and single cloth masks.



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Double masking



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Who needs to double mask

- Double up on face coverings if you are
 - Spending time indoors in crowded spaces
 - In areas where transmission rates are high.
 - Around people who are medically vulnerable and immune compromised
 - In the company of those who are > 65



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Here is how doubling up works

- If you have 100 viruses that are flying toward your mask that is 50% effective, then 50 of them will be filtered out and 50 will pass through.
- When those 50 get to the second mask, 25 will be filtered out and 25 will pass through. Thus, the overall efficiency is 75%."



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Double masking : best ways to do it

- Layering a cloth mask on top of a surgical mask helps achieve a tighter fit while also adding an extra layer of filtration.
- Start with a surgical mask closest to your face, and then add a cloth one on top.
- You want a surgical mask made out of a nonwoven material like polypropylene, because that material holds an electrostatic charge that allows it to trap particles.
- The downside of surgical masks is that many of them fit loosely — and a mask's ability to filter out particles depends partly on how well it seals to your face.
 - By layering a cloth mask on top, you can achieve a tighter fit while also adding an extra layer of filtration



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Wear a mask with a filter inside if your mask has a filter pocket

- Wear a three-layer mask with tightly woven fabric outer layers sandwiching a middle layer made out of a “nonwoven high-efficiency filter material.”
- The filter material will act similarly to a surgical mask or other medical-grade covering
 - The downside of using a filter is that it doesn’t provide an extra layer of protection across the full mask.



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Don't simply pile on masks

- But don't keep piling on masks
- One additional mask is plenty.
- If your masks become too hard to breathe through, air will leak in and out through the sides instead
 - That defeats the purpose



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Things to watch out for when buying a mask



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Buyer Beware

- The Food and Drug Administration regulates masks, including cloth face coverings, but only when they are marketed specifically for "medical purposes."
 - Most companies do not explicitly advertise their products as such (in fact, many state that their masks are not for medical use), putting the onus on consumers to decide which might offer the most protection.
- The mask-making industry has exploded with little oversight.
- There is currently no standardized tool — such as one that's equivalent to a nutrition facts label on food — for consumers looking to gauge mask quality.



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KN95 masks

- KN95 masks are approved in China for frontline use, N95 masks are approved in US for frontline use
 - Since the COVID-19 pandemic, **BOTH** have been approved by the CDC for frontline use
- Both are designed to filter out 95% of particles 0.3 microns and larger
 - Although the virus is 0.1 microns, the virus is spread through respiratory droplets, which are generally 50-100 times as large (5-10 microns).
- Though they may share several similarities, N95 masks have undergone testing through NIOSH (National Institute for Occupational Safety and Health) and may have better breathability than KN95 masks.



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Be careful if you choose to choose to wear a KN95 mask

- Many are not approved by the FDA, and many are counterfeit
- A device from a manufacturer that is registered with the FDA is **not** necessarily effective for the specific treatment applications claimed by the manufacturer.
- Registration simply means the FDA is aware of the manufacturer and their devices. The manufacturer **cannot claim** the device is “FDA Cleared” or “Approved,” and they **cannot** use the FDA logo in marketing or labeling the device.



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Fake K/N95 Masks

- Be aware of counterfeit K/N95 masks!
- Fake K/N95 masks may:
 - Have no markings at all on filtering facepiece respirator
 - No approval number
 - No NIOSH markings
 - Typos
 - Presence of decorations
 - Approvals for children (no masks have been approved by NIOSH for children to use)
 - Ear loops instead of headbands (mask loops should be horizontal and loop around the head, not the ears!)
- The FDA has a list of approved KN95 masks [here](#). CDC has a list of approved N95 masks [here](#).



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Face shields



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Masks are the safest bet, unless you are going to wear both

- At present the CDC recommends the wearing of masks and not face shields.
- Face shields are offered as additional protection and are **never recommended as a substitute for masks.**
- **Wearing a face shield with a mask is recommended for those working in environments of high risk**

EACH TYPE OF PPE HAS **PROS** AND **CONS**

Face Shields	Face Masks	Mask and Shield
		
<ul style="list-style-type: none">✓ Blocks large droplets✗ Doesn't block aerosols✓ Eye protection✗ Can NOT replace a mask	<ul style="list-style-type: none">✓ Blocks large droplets✓ Blocks small aerosols✗ Eye protection✓ Can be worn by itself	<ul style="list-style-type: none">✓ Blocks large droplets✓ Blocks small aerosols✓ Eye protection✓ More protective than masks alone

FACE SHIELDS CAN BE WORN WITH MASKS BUT CAN'T REPLACE MASKS

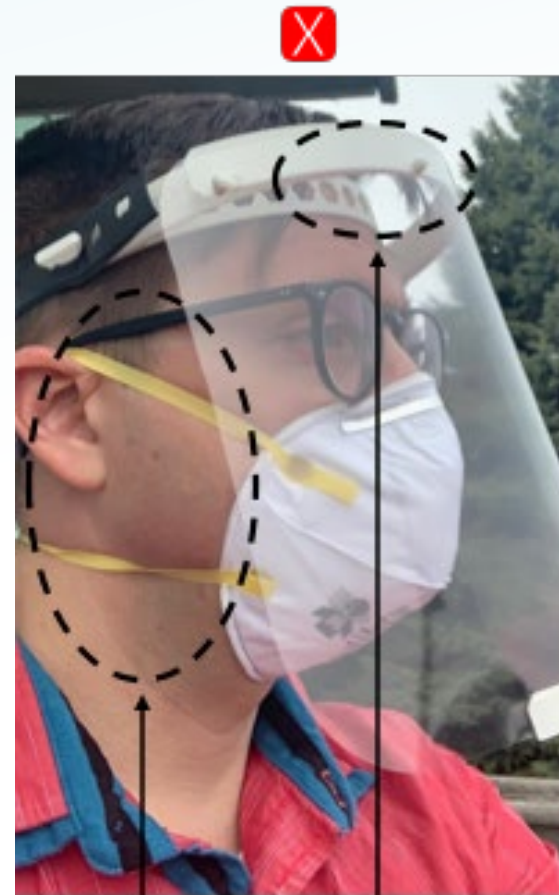
<https://doi.org/10.1080/15459624.2013.877591> WearingPPEIsCaring.org  Wearing Is Caring



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Face shields: how should they be worn?

- For optimal protection, the shield should extend below the chin anteriorly, to the ears laterally, and there should be no exposed gap between the forehead and the shield's headpiece
- It is important that the shield wrap around the face to the ear
 - This reduces the likelihood that a splash could go around the edge of the shield and reach the eyes



potential exposures



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Bottom line



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Protection against COVID-19 entails doing several things in concert.

- **Mask wearing must be used in combination with other forms of protection and not be seen as a panacea**
- **An apt analogy may be drawn from road safety**
 - Air bags reduce the risk of dying by about 30-40%.
 - When added together with seatbelts, they are synergistic and reduce risk together by 65-70%.
 - We add licensing, speed limits, anti-lock brakes, police enforcement, and other things to achieve very good risk reduction (well into the upper 90s).
 - We need to be even more careful when we drive in more dangerous situations, such as in a snowstorm.
 - Proper ventilation is like keeping traffic on the road reasonable so there is movement at a safe speed
- **Protecting yourself (and society) from COVID-19 works exactly the same way: mask + physical distance + good ventilation + lockdown during the surge**



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Wearing a mask identifies you as a good health citizen

- **Civic responsibility:** Wearing a mask is not just seen as a means of protecting yourself from getting infected, but also seen as an act that minimizes the chance of infecting others with a potential infection harboring in your body
- **If all people wear a mask there is no stigma associated with people wearing masks**
 - In this case, it does not signal that you are a “**dangerous other**”
 - It rather indicates you are a **responsible citizen performing your civic duty**
- **Turning mask wearing into a political statement is dangerous and fool hearty. We are all in this together and wearing a mask does not just save lives it allows us to keep our economy open.**
- **Practice health citizenship**



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Questions and answers



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- **Can I leave my nose exposed : No....** The nose is also one of the prime entry points for the novel coronavirus
 - A key protein, called the [ACE2 receptor](#), which the coronavirus uses to enter and infect cells, is [found in higher densities](#) in the nasal membrane than the trachea, or windpipe
- **Will covering my nose and mouth affect my ability to breathe?** it may feel like it's harder to breathe when wearing a face covering on a regular basis, common surgical and cloth masks have “zero impact” on oxygenation and quality of breathing, Gandhi says.
 - Oxygen and carbon dioxide molecules are “so tiny ... they absolutely can happily and freely go through” a mas



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- **Why do my glasses fog up**

- One of the simplest fixes for both problems is to make sure your mask is properly fitted.
- For [glasses wearers](#), it may also be helpful to rinse your glasses with a bit of soap and water or apply other appropriate anti-fogging solutions before putting on a mask.



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- **Can I use a mask with an exhalation valve?**

- **NO**

- The CDC recommends against using such masks, which were originally created for “hot and dusty construction work
- According to the CDC, “masks with one-way valves or vents allow air to be exhaled through a hole in the material, which can result in expelled respiratory droplets that can reach others.
- This type of mask does not prevent the person wearing the mask from transmitting COVID-19 to others.”



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Is wearing face shields *alone* enough

- **NO**
- The CDC states that face shields are “primarily used for eye protection for the person wearing it
- If you only wear a face shield, you are allowing unfiltered air to flow in and escape from the large gaps between the edges of the shield and your face
- Face shields should be worn in addition to a mask in the event that another layer of protection is needed or wanted.



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Do I have to wear my mask even when I'm physically distancing?

- It is believed that the novel coronavirus primarily spreads through [person-to-person contact](#) within six feet, leading public health experts to widely recommend that people at least maintain that distance between themselves and others.
- But [emerging research suggests](#) that it may be possible for virus droplets to travel farther than six feet, especially in poorly ventilated areas
- Wear a mask and be safe especially in an area with poor ventilation



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Do I have to wear a mask even after I have been vaccinated

- Yes!!
- Vaccinations protect you from symptomatic COVID-19 and are very effective protecting you from serious COVID-19 and death due to COVID-19
- They reduce the chances of getting asymptomatic infection
- However, they do not completely protect you from COVID-19 infection which you may pass onto others even though you feel fine
- To protect others as a civic duty, wear a mask when in public and around others who have yet to be vaccinated



For more information visit AZCOVIDTXT.ORG



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