

## Personal Protection Equipment--Gloves and Masks

Personal protective equipment is designed to minimize the hazards a care provider is exposed to while aiding a patient. It is not to protect the patient, though that also occurs at the same time. And it is not just for use in health care situations. These same masks and gloves can also be used in cleaning up after a disaster or for filtering out airborne contaminants. While you would also want heavier gloves for clean-up situations, the ones used in medicine provide an additional layer of protection.

First up for consideration is the gloves you want to get. They are the most commonly used means of protecting everyone from the surgeon down to the aides.

- **Latex gloves**, which were used for years, are not recommended for at least two reasons. The most important is the increasing number of people with allergies to latex. And the second is that latex gloves start to deteriorate pretty quickly and just become a sticky mess and tear easily within a relatively short period of time.
- **Vinyl gloves** also tear quite easily and become a bit porous and sticky as well.
- **Nitrile gloves** stand the test of time--several years--even when exposed to extremes in temperature. Nitrile gloves are the only way to go.

Naturally, gloves are wanted anytime any level of care is being offered to prevent contact with bodily fluids or contaminated materials. Protecting hands from any injury or infection is critical. Do not take a one-size-fits-all approach to buying your gloves. Buy them by the box in sizes to fit teen and adult family members. If they are not comfortable to wear, because they are too big or too small, people won't wear them.

- Reusable? While they are lightweight and can be purchased in large quantities, there aren't actually any instructions on how frequently they need to be changed, if at all. People who wear these to filter out allergens use them up to a month before replacing.
- In a situation where preventing the spread of disease is the goal, the mask should probably be changed at least every eight hours.

**N95 masks** are the next step up. These filters trap particulates before they can enter the lungs. According to the National Institute for Occupational Health and Safety (NIOSH) the N95 mask traps **95%** of **Non-oil** particles larger than 0.3 microns. They are used for preventing laborers from inhaling dust and to protect people from air pollution in large cities. A major exception to this is going to be people with asthma. Asthma sufferers should stockpile masks.

N95 masks are not all created equal. Some are better than others. The *filter* portion of the N95 mask does a phenomenal job removing particulates from the air you breathe before it

enters your lungs. Where the difference occurs among the various N95 filters is in how well it fits the face. When dirt accumulates on the inside of an N95 mask, it is due to a poor conformity around the outside of the mask, not dirt penetrating through the filter. Most respectable N95 masks feature elastic straps to hold the mask on and a nose clip that adjusts to create the best possible seal. The best masks, like the 8511V produced by 3M, have a rim that adjusts well to the contours of the face, so that there are no gaps in the seal.

- What they filter:
  - Bacteria
  - Viruses
  - Allergens
  - Pollution
  - Dust
- What they do not filter:
  - Oil-based substances
  - Gases

Other considerations for the N95 masks:

- Beards reduce the efficacy of any mask. It may not be a big deal to you if a little dust gets through, but it might be a huge deal if some viruses or bacteria penetrate.
- *Vented or non-vented? Vented masks are only a little more expensive than non-vented, so cost isn't an issue. The vent does not improve or diminish the filtering capacity of the filter. The vent itself is a one-way valve that makes wearing the mask more comfortable because it lets your breath exit without condensing inside the mask. If you are sick, a non-vented mask will help you keep that illness to yourself and reduce the risk to those around you. It's not actually designed to catch stuff coming out of your nose and mouth, but the air still gets filtered (as opposed to the exhaled air from a vented mask, which does not get filtered).*

**N99 masks** filter **99%** or more of particles 0.3 microns or larger that are **Non-oil** based. So they are a *little* more effective than N95 masks. The masks are denser, so your lungs have to work harder. In moderate levels of activity, like tending to a sick patient, this shouldn't be an issue. If doing a lot of physical activity, it will be noticeable. Like with the N95, odors due to gas and diesel still pass through. Amston makes an N99 mask that gets high reviews on Amazon.

- What they filter: same as N95
- What they do not filter: same as N95

**P100** masks filter 99.9% (or almost **100%**) of particles 0.3 microns or larger that are oil-based (oil-Proof) or not. Most of what we want to filter out as preppers are bacteria and viruses, and the N95 and N99 masks cover that. P100 masks protect you from diesel and gas fumes. These are permanent masks, not disposable, and are rather expensive. Most have filter replacements. They are not vented and can become stuffy, especially in strenuous activities.

- What they filter:
- Bacteria
- Viruses
- Allergens
- Pollution
- Dust
- Oil-based substances
- Gases

**RZ** masks were recommended by Dr. Steve in his classes--for someone who is a caregiver, not necessarily everyone in the group, as they are about \$40 each. Like all the other masks, they are not going to fit a small child, but at least these do come in three sizes and a few colors. The mask itself is washable and reusable. The replaceable filters are not washable. The filters have two layers. The outer layer filters particles down to 0.1 micron in size, so it is more effective than the other masks above that only filter to 0.3 microns. The inner layer is active carbon, so it filters out the fumes, like the P100 mask, as well as organic chemicals. Each filter lasts up to 60 hours.

I'm considering moving the RZ masks to keep them with the wildfire emergency bucket. While most people only think about the medical utility of masks, it would be well to remember that masks were more than just a nice thing to have for millions of people living in Northern California last year when the *Paradise fire* occurred. People over one hundred miles away, who weren't normally downwind of Paradise, were engulfed by smoke. Masks everywhere sold out quickly.

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