



Reopening Our Practices: Some Things to Consider A Preparation Resource Document Addendum 1

More Information on the Use of UV Light

The previous source document stated the following with regards to UV light:

1. Be aware that there are misleading articles circulating about UV light, chlorine and high temperatures and other means to kill Covid-19. Many of these inaccurate articles are not only ineffective but may be harmful. Sunlight, cold temperatures and snow also are ineffective at killing coronavirus (see CDC and WHO website).

Part of the problem with UV Light is that it is both carcinogenic and cataractogenic, so regular **Ultraviolet-C (UVC) lights** would not be safe to use on humans. It should be noted that UVC can be used as a disinfectant. So, one could consider whether this would be useful to disinfect your space while people are not present. UVC light emission is noted for its germicidal abilities, but it's not clear whether using one of them actually prevents infections in people. Even if the device can kill, say, 99 percent of disease-causing bacteria, that may still leave enough microorganisms to cause infection.

There is more recent studies on something called Far UVC light for disinfection purposes. Far UVC is a specific wavelength of UV Light at the far end of the spectrum (207-222 nm). The advantage of using this wavelength is that it can't penetrate your skin or eyes, but still has germicidal activity. Continuous very low dose-rate far-UVC light in indoor public locations is a promising, safe and inexpensive tool to reduce the spread of airborne-mediated microbial diseases, but keep in mind that while it may reduce the presence of microbes there still may be microbes present to cause infection.

References:

Far UV

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5807439/pdf/41598_2018_Article_21058.pdf

The CDC also has very detailed advice of sterilization techniques here:

<https://www.cdc.gov/infectioncontrol/pdf/guidelines/disinfection-guidelines-H.pdf>

More on Personal Protection

There are a variety of surgical masks designated as N95 or N100 depending on their efficiency. In addition to these passive filtration masks, there are also battery powered masks which are essentially HEPA filtered positive air pressure. Here is one such example to consider:

<https://www.gasdetectorshop.com/CleanSpace2-PAPR-Respirator-HEPA-PAF-1034-p/paf-1034.htm>

HEPA Filtration

Speaking of HEPA filtration, there is some needed clarification around their efficiency for coronavirus. The virus that causes COVID-19 is [approximately 0.125 micron](#) (125 nanometers) in diameter. It falls squarely within the particle-size range that HEPA filters capture with extraordinary efficiency: 0.01 micron (10 nanometers) and above. Many media outlets have incorrectly stated that HEPA filters don't filter below 0.3 micron and therefore could not capture airborne coronaviruses. That is flat wrong says an article in Wirecutter. A NASA study of HEPA filtration is quite technical, but the graph on page 7 (link bellow) and the preceding paragraph do a good job of explaining why HEPA filters are actually most efficient—almost 100 percent at 0.01 micron—at capturing ultrafine particles below the 0.3-micron HEPA test standard.)

Here is the technical NASA document:

<https://ntrs.nasa.gov/search.jsp?R=20170005166>

Here is another more general discussion of safety that was published in the New York Times:

<https://www.nytimes.com/2020/04/17/well/live/coronavirus-contagion-spread-clothes-shoes-hair-newspaper-packages-mail-infectious.html>

Feel free to call or write if you have any questions.

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