The inside of the tubing is hollow and opens to air through the ear piece ends.  So making sure the interior is sterilized would be a challenge. The risk of harboring microbes through the ear pieces is small but not negligible.

As for alcohol cleaning,  I’m not an expert on it, but we were taught that prolonged cleaning with alcohol will make the tubing more brittle. Also see ([https://www.yoursoundmatters.com/is-it-safe-to-clean-vinyl-records-with-alcohol/](https://nam01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.yoursoundmatters.com%2Fis-it-safe-to-clean-vinyl-records-with-alcohol%2F&data=02%7C01%7Ctws8%40psu.edu%7C8c5ecb38123d4e04299908d7e2db39d6%7C7cf48d453ddb4389a9c1c115526eb52e%7C0%7C0%7C637227303509392563&sdata=pzACYvig8NdJU%2FFHBw2TTsvD0JyRYY5cNN0eeoW4uj8%3D&reserved=0)).  However, it’s unknown how many cycles it takes for that to happen and given the function of the stethoscopes probably won’t be affected significantly by it, it’s more important to find a reliable way of sterilizing it than to ensure durability.

I do like the idea of cleaning with solutions in general as proposed below given that it will get into all the crevices. Bleach or other disinfectant solutions sound like good ideas.

Tim, I should be able to source a new student on this project for the facilitation and documentation part. I will know by the end of the day.

AT

Just seeing this tighter email trail, and Ali and Anthony’s input.  I’m adding back in Anthony Tsai.

Anthony, Ali is wondering if the interior of the stethoscopes are sealed versus open to the air.  Sterilizing the interior with UV light would be a challenge, but if all contamination is on the surface then pulsed UV might work.

Regarding ethanol, the catalogue suggests the tubing is vinyl, which should be compatible with ethanol. The brass is not compatible over the long term, but maybe a few dozen 5 minute soaks will not matter.

Ali can also make electrolyzed water, which might be more compatible and is expected to be very effective against coronavirus.

- Tom Richard

Hi Josh,

If the inside of the tubes are still conspired sterile and only outer surfaces need to be treated, pulsed UV might work. They can place each one in a clear ziplock bag and seal it. Then, we can pass it twice through the pulsed UV system with the highest possible doses. This way we will contain any hazardous microorganisms in the sealed bag for safety reason. I am not sure how it can affect the material. Also, we still need to check the sterility after the treatment. Of course, this won’t work if the internal parts are also contaminated.

If Soaking in disinfectant solution works, It can be done at Hershey as well just by using bleach (about 200ppm Free chorine solution) or H2O2 solution. EO water can be used, but they have access to bleach over there, there is no need to use EO water and bring them and do the treatment here. Also, it is always challenging to treat the contaminated materials here on campus.

When we know more about these stethoscopes, we can talk over the zoom sometime.

Ali

Ali:

I like Tom’s “what is simplest approach” strategy – I assume these things are all plastic and as such maybe this is a good opportunity for an aqueous based (EO or dilute H2O2) dunk/rinse/blow dry.

josh

**From:** Demirci, Ali <[axd29@psu.edu](mailto:axd29@psu.edu)>

We can certainly use the pulsed UV system we have in our lab. However, we didn’t do any validation study with that technology since HPV was the choice of sterilization so far. Can HPV be also used to sterilize these disposable stethoscopes? Just curious!

Having said that I am available for a zoom meeting if we still want to discuss the use of pulsed UV system for that purpose.

Let me know,

Ali