

Notes from the webinar on Phase 3 of the CO State aerosol research study, May 20, 2021

<https://smt.d.colostate.edu/reducing-bioaerosol-emissions-and-exposures-in-the-performing-arts/>

Host: Dr. Daniel Goble, Director, School of Music, Theater, and Dance

Presenter: Dr. John Volckens, Professor, Mechanical Engineering

Dr. Volckens began by saying “you were right to apply the precautionary principle in 2020 and that choice saved lives. “

Context: The Covid-19 virus is tiny (.1 microns) but it can be encased in larger ones; it is carried by sneezing, talking, breathing, etc. Particles are dispersed through the room simply when we walk through the air. This shows the importance of ventilation inside (outside, aerosols are dispersed in the atmosphere).

Masks: The best are the N95 masks; no singers’ masks come close to their efficiency yet. Efficacy depends on fit, filtration, breathability, and compliance. (Mask needs to fit closely) The best masks keep particles from coming in or going out.

The combined effect of two people wearing a mask is better than one only.

Note: Screens are NOT helpful. (Think of a smoker; the smoke would go around the screen.)

Summary of findings with 99 subjects who play various instruments or sing:

- Brass instruments emit more aerosols than woodwinds.
- Singing emits more aerosol than speaking.
- Wide range of emissions for singing. Most children were in the lower range, but more adults were higher. (More power in the voices.)
- More male emissions than female -- Note: there is overlap in all categories, however.
- Particle emissions are correlated with voice volume.
 - Adults speak louder than children; men speak louder than women.
 - Men have larger lungs and exhale more air; adults’ lungs are bigger than children’s.
 - Acting likely has more emissions than speaking because of higher volume levels.

Recommendations: In the absence of herd immunity, or with a mix of vaccinated and unvaccinated people, a “layered intervention strategy” will be helpful:

- space between people (6 feet is good)
- high ventilation (cross ventilation is best inside); outside is always best
- well-fitted masks
- limited time together
- moderate volume

In addition: We need to learn to wear masks for things like colds and flu. The common cold is a Corona virus. Next fall? Dr. Volckens recommends masks for all non-vaccinated children. If Pfizer recommends vaccine for young children, they should take it.

Summary: “If we all get vaccinated, we do not need any of these precautions.” When in doubt, stay safe.