

Masks

- Student
- Instruments
- Materials

Distance

- 6-foot CDC guidance
- Applies indoors and outdoors
- 9x6 for trombone

Time

- 30-minute rehearsal
- Clear room for minimum 1 air change before next rehearsal period

Air Flow

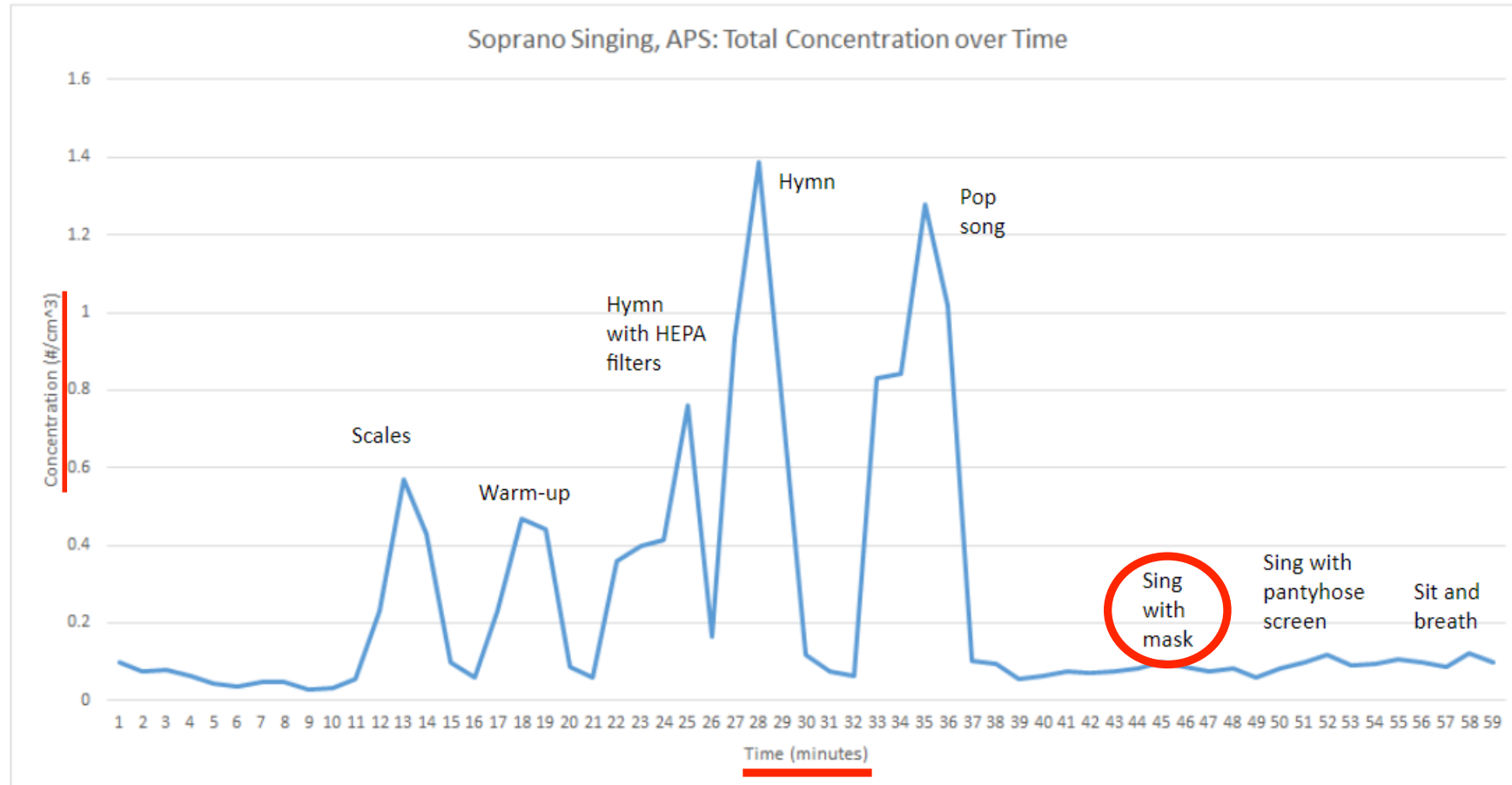
- Outdoors is best
- HEPA Filtration
- ACH Rates

Hygiene

- Spit Valves
- Handwashing
- Storage Areas

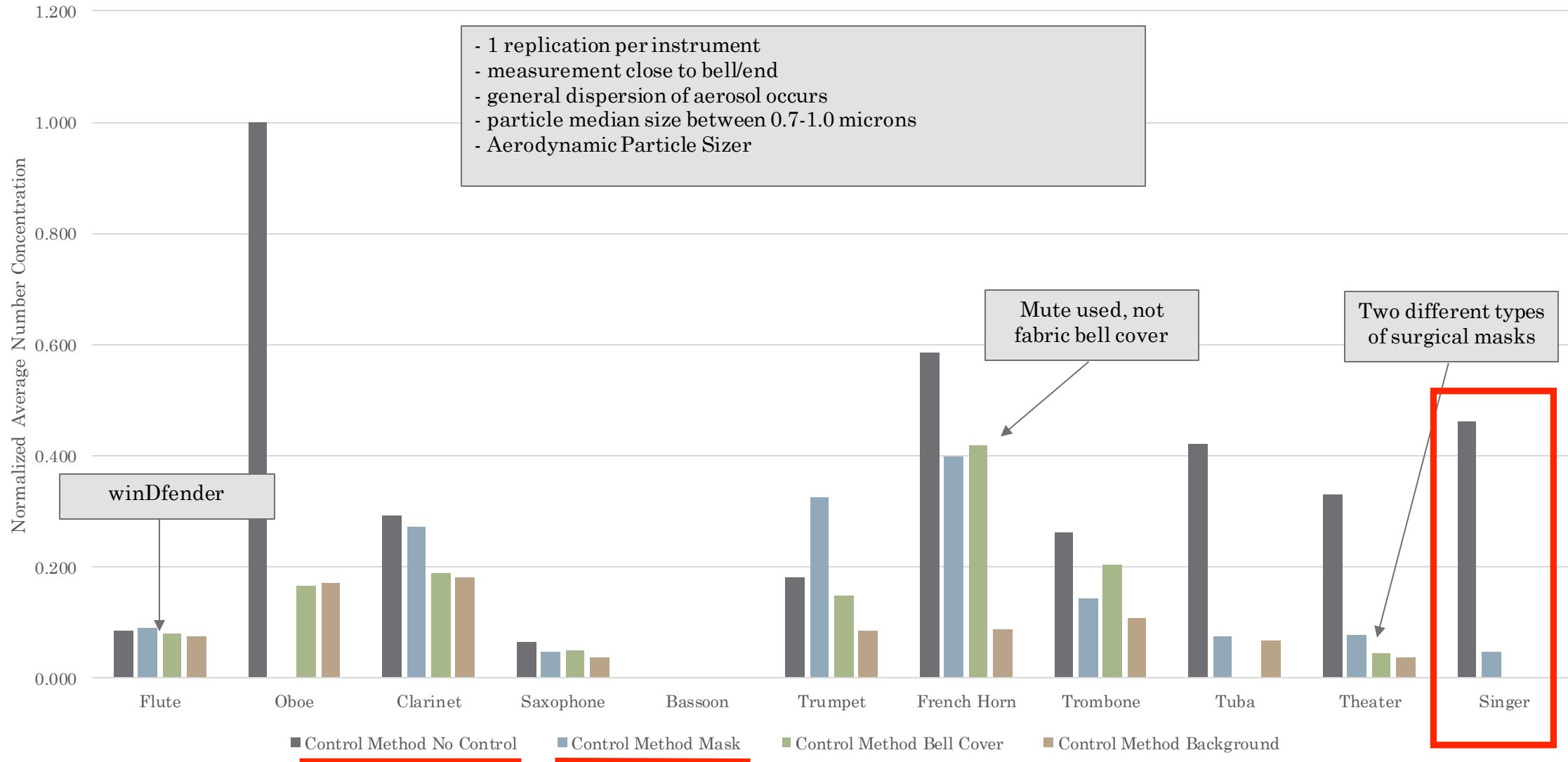
5 Principal Takeaways

Singing APS



Playing wind instruments, singing, and theatrical voice releases airborne particles (aerosol).
 These particles are of the size range that may transmit the COVID-19 virus.
 Performing with mask and bell cover reduces emissions.

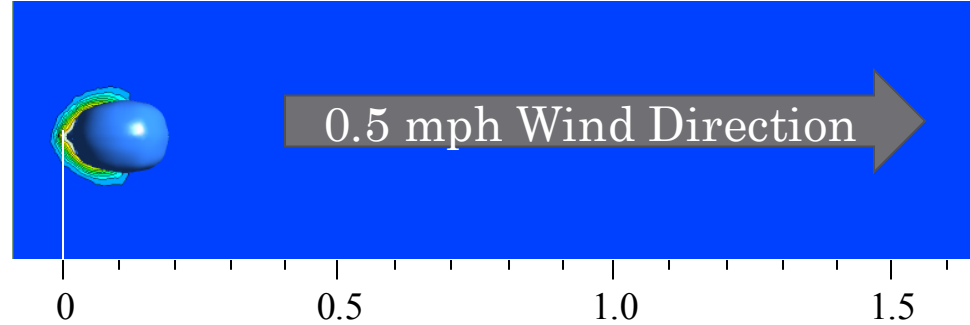
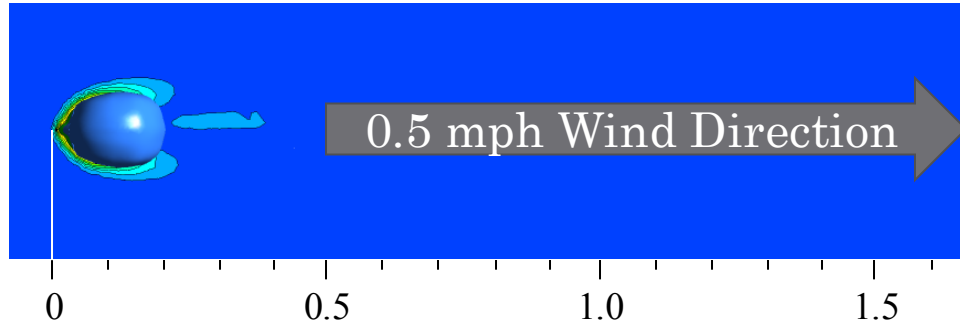
6- min average concentration normalized to max average



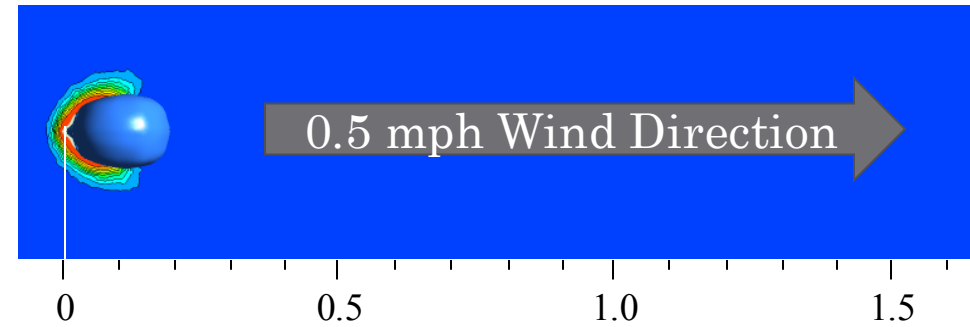
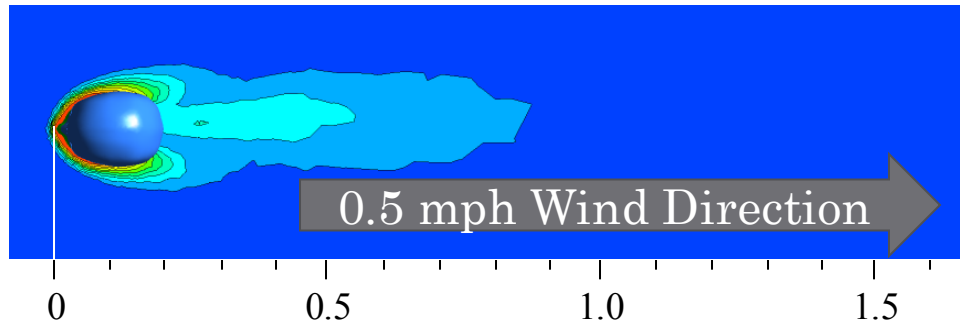
Outdoor Case: Impact of Tent/Masks on Infection

Risk Infection risk r by Wells-Riley equation at the height of mouth opening, with breathing rate of 8 L/min. Including 2.2 mph headwind at 10 meters, 0.5 mph at average head level.

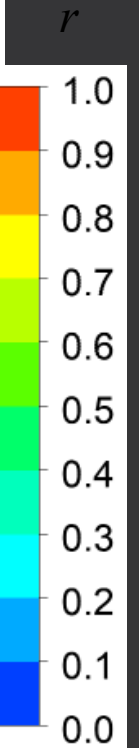
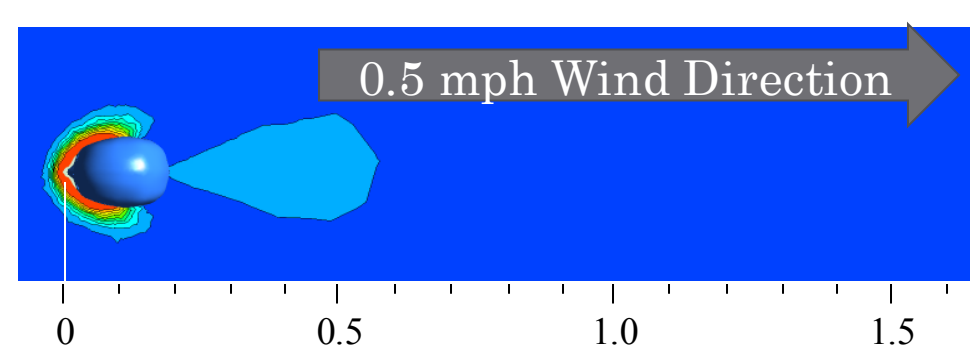
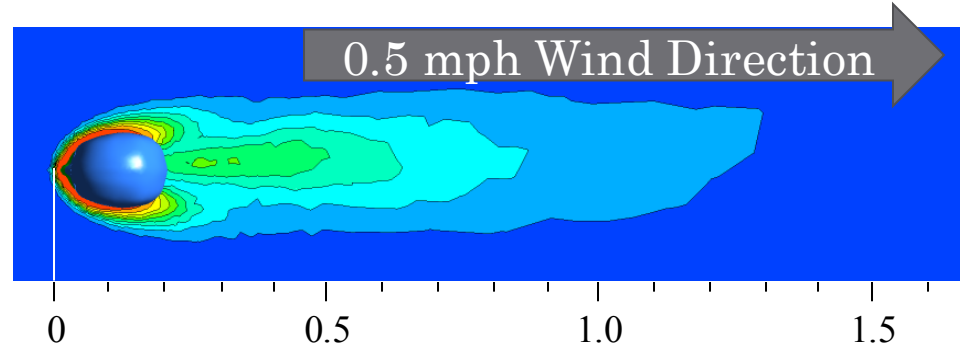
$t = 10$ min
Distance
in meters



$t = 30$ min



$t = 60$ min



Without Mask

Perfect Fit Medical Grade Mask in a Canopy Tent

Mask Fitting Importance

Poor fitting mask

- Gaps on the sides
- Nose not covered
- Loose around the edges
- All of the above are poor fitting in their own right

Better fitting mask

- No gaps on the sides
- Nose covered
- A fairly good fit around the edges

Well fitting mask

- No gaps
- Nose covered
- Tight around the edges
- Should leave a mask outline once removed

Masking – Fit Matters

- Wash your hands before putting on your mask
- Place it over your nose and mouth and secure it under your chin
- Try to fit it snugly against the sides of your face
- Make sure you can breathe easily
- Wear a mask correctly for maximum protection
- **Woodwinds and Brass** should use a mask while playing which includes a small straight slit in a surgical style mask
- Do not use the woodwind/brass mask outside of rehearsal

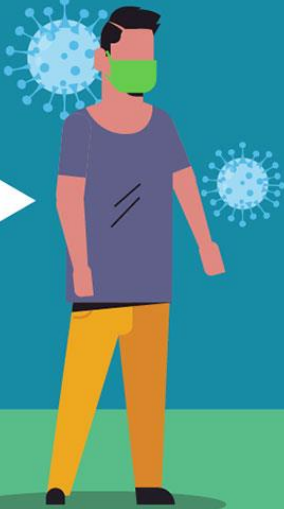


STOP THE SPREAD OF GERMS

Help prevent the spread of respiratory diseases like COVID-19.

Stay at least 6 feet (about 2 arms' length)
from other people.

6 ft



[cdc.gov/coronavirus](https://www.cdc.gov/coronavirus)

CS19178 May 12, 2020 4:01 PM

Distance – It Matters

- CDC Guidance currently is 6-foot distancing
- Indoors
 - 6x6 area
 - 9x6 for trombone
- Outdoors
 - 6x6 area
 - Masks strongly recommended
 - Instrument bell covers should still be used



Time

- 30-minute rehearsal times
 - **Indoor**
 - Allow a minimum of 1 air change prior to next use of the room, 3 would be better.
 - **Outdoor**
 - Playing should cease for approximately five minutes to allow the aerosol to disperse.
- More study is needed prior to any recommendations of time changes

Air Flow

Outdoor is best

- Open air
- Tenting from elements

Indoor air filtration

- HEPA – Size of Room
- Filtration Certification
 - CADR - Clean Air Delivery Rate
 - AHAM Certification - Association of Home Appliance Manufacturers

Air Change Rate Per Hour (ACH)

- 3 ACH is the standard used for the modeling presented
- Increased ACH recommended if possible

ASHRAE Guidelines - American Society of Heating, Refrigerating and Air-Conditioning Engineers