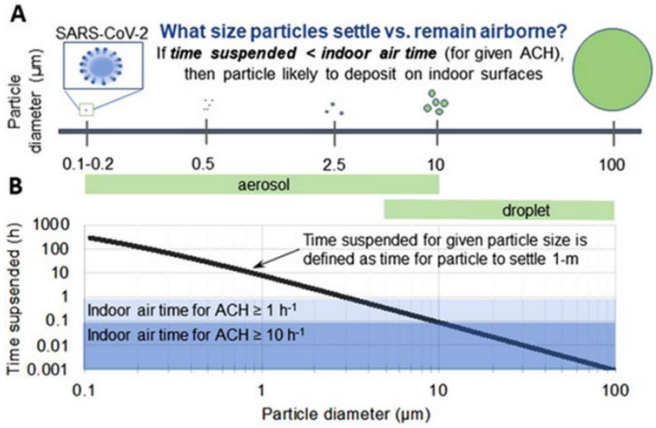
Question and Answers
CariFree Co-op Webinar
12-15-2020

1. How long do aerosols stay suspended in the air, especially the very small droplets?

Dr. Kutsch: The smaller they are, the longer they stay suspended. The very small particles the size of virus particles may stay suspended several hundred hours. The best article on aerosol suspension is: Kohanski MA, Lo LJ, Waring MS. Review of indoor aerosol generation, transport, and control in the context of COVID-19 [published online ahead of print, 2020 Jul 11]. Int Forum Allergy Rhinol. 2020;10.1002/alr.22661. doi:10.1002/alr.22661. This chart from the reference:



2. You are saying aerosols are the drivers, but I hear experts saying droplets. Can you clarify?

Dr. Kutsch: That was the early belief, that COVID was spread by fomites and droplets, but now the experts are all in agreement that not only is it droplets, but also aerosols. The CDC and WHO now believe aerosols play a major role in transmission. Fomites, in the form of contact transmission plays a smaller role. Here is a good article on that topic:

https://time.com/5883081/covid-19-transmitted-aerosols/

3. What about hypochlorous acid as a cleaner?

Dr. Kutsch: Hypochlorous acid is inexpensive and easy to make. Some dental practices are fogging their operatories between each patient visit with hypochlorous acid. This is great for surface disinfection, might remove some aerosol particles out of the air, but doesn't protect you from the next patient's aerosol during a procedure.

4. Can dentists with beards get adequate safety from masks?

Dr. Kutsch: This is a good question. The critical function of the mask is not only the filter capability but maybe even more important, the seal. A long beard may inhibit the facial seal from an N95 mask. You should be tested for fit and seal of the mask and then you will know if your beard is causing a issue with the seal or not. I know some dentists with closely cropped beards passed the seal test.

5. While there is no therapeutic benefit to polishing teeth, but we polish baby teeth to desensitize kids to having instruments in their mouth. What are your thoughts on kids?

Dr. Maples: I try very much to be an evidence-based practice. So I don't polish teeth because there is no efficacy and they certainly don't feel comfortable charging for it. Regarding desensitizing kids, I have never consider that important in this regard. What is important is helping kids learn how to clean their own teeth better and better and better each and every visit. That means we stain the plaque on kids teeth, let them try to detect everything and in a mentored approach to self-care monitor improving skills, behaviors and habits. Let me know if you're interested in learning more.

6. Could we get the studies that are being referenced today?

Dr. Kutsch: Yes, the PowerPoint slides will be provided, you can internet search the references and get a copy to read the articles in full is you wish.

7. So the covid 19 virus is .12 microns and the individual air filtration system only filters .3 microns, so these systems aren't effective at filtering COVID 19?

Dr. Kutsch: Actually the individual filtration system can effectively remove virus sized particles at 99.995% efficiency, but this requires a very specific window of air velocity going through the filter media, as determined by NASA research. That velocity is 3-5 lineal feet per minute which works out to about 0.06 mph. The Dental Safety First DAX unit was designed specifically around this concept. It has a high air velocity to capture the aerosol, and then a very specific slow velocity at the filter to capture the virus sized particles. These are the two most critical features of an extra oral vacuum.

8. How loud is "Horton"?

Dr. Kutsch: It's good to have a point of reference. Most dental operatories run about 50-55 decibels as just background noise. When you are running the high speed handpiece and HVE, that level goes to about 80-83 decibels. The DAX unit runs from 55 decibels on low to 74 decibels at maximum speed.

9. How big are air-polishing particulates?

Dr. Kutsch: The sodium bicarbonate abrasive used in air polishing is generally around 50 microns average size. However, this procedure also produces aerosols and they range in size from extremely small to relatively large, that is 0.01 microns to 100 microns or larger. Air abrasion uses 27 micron or 50 micron particles of aluminum oxide, but again also produces aerosols of varying sizes.

10. What pre-procedural rinse do you use?

Dr. Kutsch: I use and recommend Carifree CTx 4 Treatment Pre-Rinse. It contains 0.20% sodium hypochlorite. Sodium hypochlorite is one of the most effective antimicrobial agents studied against COVID-19 specifically. You can learn more about it at www.carifree.com. References:

Kampf G, Todt D, Pfaender S, Steinmann E. Persistence of coronaviruses on inanimate surfaces and their inactivation with biocidal agents. J Hosp Infect. 2020 Mar;104(3):246-251

Henwood AF. Coronavirus disinfection in histopathology. J Histotechnol. 2020 Mar 1:1-3.

Ma QX, Shan H, Zhang HL, Li GM, Yang RM, Chen JM. Potential utilities of mask-wearing and instant hand hygiene for fighting SARS-CoV-2. J Med Virol. 2020 Mar 31.

Dr. Maples: I'm using Carifree CTx 4 Treatment Pre-Rinse for the pre-treatment rinse. We use this for periodontal disinfection and therapy and dental caries reduction as well.

11. Does the high-velocity suction have a filter ability?

Dr. Kutsch: The HVE does not have any filter ability, it has a trap to capture large particles, 1mm or larger. The Dental Safety First extra-oral HEPA vacuum has a custom ASME, US DOE, IEST-RP-CC001 rating C Class 99.99% @ 0.3 micron tested and certified HEPA filter. And based on NASA research has the critical air velocity over the filter to capture up to 99.995% of particles 0.1 microns and smaller.