NC DHHS COVID-19 Guidance for Dental Professionals
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5:30-6:30pm

Presenters:

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David Goldstein, PE HVAC Engineer
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Hugh:
Good evening everyone thank you for participating in today's webinar, HVAC Overview and Update Respiratory Guidance . This is put on by the North Carolina Health and Human Services and North Carolina AHEC to provide an update to the state's activities and to respond to questions. My name is Hugh Tilson, and I will be moderating today's forum. The panelists are Jessica Scott, David Goldstein, Darlene Baker. We know you are busy and we appreciate your making time to present with us this evening. Before I turn it over I would like to take a brief moment to thank everyone for participating in this webinar and all you are doing for patients and communities. We hope the information presented this evening will help you with your important work and make navigating trying times a little easier.
After the presenters finished with the presentation we will turn to your questions. If you want to submit a question use the Q&A function on the black bar on the bottom right of the screen. It is the Q&A function on the black bar at the bottom of the screen. We will monitor those and ask questions upon completion of the presentation. We are recording the webinar we will make recording and transcript and slides available to the public as soon as possible, probably tomorrow morning on the NC AHEC website. I will turn it over to Darlene now.

Darlene:
Good evening. I will start with some good news this evening. The Cares Act has announced there is a Cares Act relief fund announced on June 8, 2020 from the Department of Health and Human Services through HRSA. It is going to apply to all eligible providers that participate in the state Medicaid or NC Health Choice which is our CHIP program here in North Carolina. Additional distributions of the funds from the provider relief fund who see Medicaid and Health Choice patients.
Eligible providers will receive at least 2% of their reported annual gross revenue from patient care. And they need to apply before July 20th 2020.
How providers qualify for this relief fund, I have that listed here, you have to bill directly to Medicaid for healthcare related services during the period of January 2018 through May 31,

2020 and continue to provide care after January 31st of this year. Providers also cannot have received a payment already from one of the other Cares Act allocations.

There was a special will attend sent out on Friday, June 19-- special bulletin 101 through NCTRACs. If you have not read the bulletin you can go back into the NCTRACs portal and look for the announcement dated June 19-- Bulletin 101. I have a link on the slides and it will be posted the day after. Probably tomorrow.

There is a web cast scheduled for tomorrow, June 25th, and it will be with us Health and Human Services and HRSA. They will provide this webcast to go over the application process for providers. I have the link for providers to register. The link is also included in the special bulletin on the NCTRACs portal submitted on Friday. I recommend that if you qualify to participate in the webcast, where you will hear how to complete an application as well as be allowed to ask questions. And you will get answers. Here at the state office for Medicaid and Health Choice we do not have the answers for you. But to get the answers needed you need to participate in the webcast that is scheduled for tomorrow at 2:00 P.M..

Now I will turn it over to Jessica Scott to give us CDC and FDA updates.

Jessica:

Thank you for having me. If you were on the webinar two weeks ago, there were quite a few updates from the CDC. And some from the FDA that gave some guidance. Today there have been a couple of more things that have changed within the last two weeks and I want to make sure everyone is aware. The FDA and CDC released additional guidance for emergency youth authorization, operatory cleaning, and engineering control which I will briefly describe.

This is a briefing that just came out. When there are known shortages of PPE, only after administrative and engineering controls have been implemented, the FDA authorizes emergency use of PPE. On June 7th the FDA reissued emergency use authorization that revised which type of respirators can be decontaminated for reuse. The FDA recently learned from the CDC and NIOSH that the respirators made in China that were previously authorized for decontamination, no longer meet testing requirements. This EUA also no longer authorizes the decontamination or reuse of respirators that have exhalation valves. What is important for you to understand is that there is a list of authorized emergency use respirators found on the FDA website. And any information regarding limited use, reuse, and decontamination respirators is found on the CDC website.

For the CDC updates, the initial guidelines released on May 18th said that dental health providers should wait 15 minutes after patient dismissal prior to reentry and cleaning the operatory. The most recent guidance released on June 17 has revised that recommendation. If a patient is not suspected or confirmed COVID-19 positive you do not need to wait prior to reentering and cleaning the laboratory. If the patient is suspected or confirmed COVID-19 positive the wait time is determined by the rate of air change per hour of the facilities of the HVAC system. For example if you look at this chart on the CDC website, if the facility rate of air change per hour is six, the time required for 99% removal is 46 minutes. If you want 99.9%

removal efficiency, you would need to wait 69 minutes prior to reentering and cleaning the operatory.

On June 17, the CDC updated language regarding engineering controls. Including a clarification stating that the CDC does not provide guidance on the decontamination of the building heating, ventilation and HVAC system. The CDC also stated that to date CDC has not identified confirmatory evidence to demonstrate that a viable virus is contaminating the systems. So I think with that update, it is a great segue into the second part of our presentation which is the big chunk of the presentation. David Goldstein will discuss HVAC systems for dental offices and HEPA filtration.

David:

Thank you, Jessica. And thank you all for giving me the opportunity to speak to you tonight about HVAC systems and how they can be used to mitigate the spread of aerosols in your dental facilities. My name is David Goldstein, I am a mechanical engineer specializing in the design of HVAC systems. I have been doing this for about 15 years and I design HVAC systems in everything from homes, office buildings and schools, to airports and hospitals.

The way that I ended up here speaking with you tonight, is that my wife is a dentist. And our professional lives have never really overlapped before. But all that changed a few months ago when the COVID-19 pandemic brought with it a new awareness about the risks of aerosol spread when performing dental procedures. And the important role that the HVAC system plays in either mitigating or exacerbating that spread. It became clear that there is a real lack of information available to dentists about how a HVAC system should be designed and operated in order to ensure a safe environment as possible for the dentists, as well as their staff and their patients.

My goal tonight here is to give you the basic information that you need in order to empower you to make the best decisions possible about the HVAC systems in your facilities. This will be a roughly 30 minute crash course. I will try to get a lot of information in. Let's jump right into it.

The term HVAC stands for heating, ventilation and air conditioning. The system is responsible for keeping a comfortable and healthy environment in our homes, in our offices, essentially any indoor space. The only time most people really give much thought to HVAC when they are too hot or cold or they see the energy bills because HVAC systems can consume a lot of energy. Today we will focus on the ventilation aspect because that is what affects the spread of aerosols.

We will start by looking at the basic anatomy of a HVAC system. We have a HVAC unit including a fan circulate the air, heating and cooling coils to control air temperature, and filter to clean air. The condition is supplied to the room and return air taken from the room and returned back to the HVAC unit. The system will usually mix some fresh outside air into the airstream. There are many different types of HVAC systems out there but they all share the same basic components.

This example is very similar except instead of a unit serving a single room, it shows how a single unit can serve multiple rooms. This is how many dental offices work, and it is important

because it means that the air in one room is being mixed with air in the other rooms. So aerosols generated in a patient room can easily be spread by the HVAC system to other rooms such as the corridor, reception area, or other patient rooms. This is why controlling the spread of aerosols in one room is important for keeping the entire facility safe.

In order to ensure that the HVAC system is mitigating the spread of aerosols is much as possible, there are four key concepts that you need to understand. These will be the focus of my talk tonight. These concepts are not rocket science and I am confident that you can come away from this with the basic understanding that you need this in order to make informed decisions going forward. Those concepts are air changes, air filtration, air distribution, and room pressurization.

We will start with air changes. What is an air change? It is exactly what it sounds like. It's when the complete air volume within a room has been replaced with new conditioned air. Air changes measured in air changes per hour and the air supply to the room is measured in cubic feet per minute. Let's take a quick look at an example of a room 10 feet wide, 10 feet long and 10 feet tall. The total volume is 1000 cubic feet. Let's assume we supply a hundred CFM of air to the room. We do some basic math and we see that we have 6 air changes per hour. Another way to look at 6 air changes is to look at the inverse which is one sixth of one hour, which is 10 minutes, meaning that we completely change out the entire air volume of the room every 10 minutes. If we were to double airflow to 200 CFM we would have 12 air changes per hour, meaning we replace the entire air volume every 5 minutes.

How many air changes do we need in a patient room in a dental office? Unfortunately that is not currently specified in any widely recognized code or standard. Although that may change at some point, now due to the awareness about COVID-19. But for now the best approach is to look at other healthcare room types which have prescribed air change requirements and to inform how many air changes would be appropriate for a dental space. These requirements are based on ASHRAE 170 standard. It is a widely used standard for ventilation of hospitals. A regular patient room requires 4-6 air changes. An airborne infection isolation room requires 12 air changes. At the highest end of the spectrum, an operating room, 15 to 20 air changes. Given that we are trying to control the spread of aerosols similar to an airborne infection isolation room, it probably makes the most sense to aim for 12 air changes in a dental room as well .

Here are a few additional considerations regarding air changes. First, for air changes to achieve the desired effect, the supply air must be clean, and the way to bring in clean air is to use fresh, outdoor air which has not been contaminated, or adequately filtering air that's recirculating. We will talk about filtration next. Another thing is that the HVAC unit must be running continuously when the space is occupied. Some HVAC systems cycle on and off as needed to maintain space temperature. But that will not be acceptable if you are trying to maintain constant air changes. Other HVAC systems will vary the supplier volume depending on how much cooling the room needs. You might get full air volume on a hot summer day when the sun is shining, the system will reduce air flow during milder conditions. This is not acceptable when trying to maintain constant air changes. Lastly, most HVAC systems in dental offices are operated with primary

intent of controlling the room temperature. If you adjust the airflow in order to achieve the desired air changes, you also want to make sure that the temperature control is not compromised. If you increase the supply of cold air in order to achieve higher air changes, it may also make the room cold and uncomfortable. You want to make sure it is done in a way that does not sacrifice comfort.

Now we will move on to the second key concept which is air filtration. Looking at the basic HVAC diagram you can see the role that the filter plays in the air distribution system. Responsible for removing airborne contaminants from the return air, such that the supply air being sent back to the room is clean. The question is what level of performance do we need from the filter such that the air will be clean enough to keep the occupants of the room adequately protected?

The specific focus of this discussion is removing aerosol particles that could spread the COVID-19 virus. The size of the virus itself is approximately .125 microns. Although the virus travels within water droplets that start in the 100 micron range. As the droplets evaporate, they shrink in size and become aerosolized once they get below about 10 microns. The sizes of the aerosolized particles will vary, and for now there are no specific recommendations on exactly what size articles need to be filtered out in order to effectively prevent the spread of COVID-19. Although obviously the more effective the filter is at removing particles less than 10 microns, the better. And to remove the maximum number of particles possible, we would need to filter down to the size of the virus itself, which is 0.125 microns.

Filter performance typically rated by MERV value by a scale from 1 to 20. This chart shows the particle size by which each MERV value provides effective removal. MERV 1-4 does not provide any protective removal of aerosols. Once we get to the 5-8, we remove aerosols in the 3 to 10 micron range. You probably heard the term HEPA filter which is representative of MERV values in the 17 - 20 range, removing particles below 0.3 microns. And they will actually remove 99.97% of particles at .3 microns.

As we did with air changes we will look at other healthcare room types for guidance on appropriate MERV ratings, since there is no specific code or standard which specifies filter performance values for dental offices. A typical patient room requires MERV14. Airborne isolation infection room requires a HEPA filter. Operating room only requires MERV 14, although the ones I have seen being built today are always provided with HEPA filters. So what is appropriate for your dental office? Clearly a HEPA filter would be ideal. But if you're unable to incorporate HEPA filtration to your HVAC system, I would consider at least trying to achieve MERV 13 which can effectively remove particles down to the 0.3 micron range.

Now I will mention a few additional considerations with regard to filtration. First is that upgrading your HVAC filter is not as simple as removing the existing filter and replacing it with a better one. Higher MERV filters have a denser filtration media which results in higher resistance to airflow. Simply replacing a MERV 8 filter with the MERV 13 filter will reduce system airflow because of higher resistance. Unless the fan in your system is capable of speeding up to compensate. Which may or may not be the case in your facility. Also note that because the

higher rated filter is removing more particles, it will get dirty faster and needs to be replaced more often. Make sure that whoever is responsible for maintaining the system is aware of the requirement for more frequent replacement.

One thing typically done with higher rated filters is to provide a lower rated prefilter. The image on top shows how the prefilter acts to protect the higher rated filter from the larger particles. That way the higher rated filter is only removing the smaller particles and does not get clogged up and need to be replaced as often. And lastly, a filter needs to be installed in the HVAC unit with a tight seal around it. If not as shown on the bottom left image, the air will bypass through leaks around the filter and reduce its effectiveness. Many HVAC systems do not have tight seals around the filters because they were not intended to be used for high levels of filtration. The image on the right shows how a tight seal will force the air to flow through a system as intended.

That brings us to the next key concept which is air distribution. The quality of the air distribution within a room will depend on the placement of the supply and the return grills. There are two main concepts to consider when evaluating the air distribution strategy. One is to avoid stagnant zones. The other is to make sure you are moving the aerosols away from the occupants. I will illustrate these concepts with simple sketches.

This is an example of air distribution that avoids any stagnant zones. The airflow is fully distributed throughout the entire volume of the room, so there are no portions of the room without good air circulation. Here if we make one simple change by moving the supply diffuser from the ceiling to the sidewall, we can see that we create a large stagnant zone in the lower portion of the room. Which in this case is the part of the room that needs airflow the most. We may have the flow rate that we need to achieve the required air changes, and we might have great filtration, but if we are not circulating the air in the space where needed, aerosols can linger and accumulate to dangerous levels.

In this example we see that a return grill in the center of the room, with the supply on one side creates a stagnant zone on one side the room, the side opposite the supply diffuser. There are many different ways the diffusers can be arranged within a room. The key is to make sure the air is evenly distributed throughout the room to eliminate any stagnant areas.

Next we need to look at the direction the airflow will pick up and move aerosols from their source. In this example, we do a good job of eliminating stagnant zones, but the problem is that air is picking up aerosols from the patient and moving them directly to the dentist.

Flipping this arrangement around obviously is a better scenario. Now moving the aerosols away from the dentist and toward the return air inlet. Achieving this can be done by rearranging your ductwork and diffusers, or by modifying the layout with the room.

In this example we see that moving the return air grill directly about the patient directly and supplying the air from both sides provides an even better airflow pattern, because it allows caregivers to be on both sides of the patient while avoiding the direct flow of aerosols. One flaw of this approach, as with the previous one, while it protects the dentist from aerosols from the patient, it does not protect the patient from aerosols from the dentist. So that is probably less of a concern because the dentist is not generating as many aerosols.

This last example is the most ideal scenario. And it is the way operating rooms and airborne isolation rooms are typically designed. The air is supplied from overhead such that all occupants are getting direct supply of clean air. The return air inlets close to the floor such that aerosols from any of the occupants is pulled down to the floor level and away from the breathing zone. This may not be practical for most dental facilities, but this is what you would do if you wanted to maintain the cleanest air environment possible.

There are many different ways to achieve good air distribution, and it gets more complicated because these simple sketches are two-dimensional. Whereas an actual room is three-dimensional. The main challenge with air distribution is that there is no numerical measurement to tell you how good or bad any particular arrangement is. It is more about judgment and common sense. And following some general criteria where appropriate, such as supplying from the ceiling, and returning near the floor in an operating room.

That brings us to the last key concept which is room pressurization. There are three main questions that I will cover with regard to room pressurization. First, what is room pressurization? What does it mean to have a positive or negative pressurized room? And we will go over the general reasons why you would want a pressurized room. And address how the HVAC system is configured to produce a pressurization that we want.

A room is considered positively pressurized when air pressure within the room is greater than the air pressure in the adjacent space. It is important to understand that the room pressurization is relative, and possible for a room to be positively pressurized relative to one space and negatively to another space. When the space is positively pressurized relative to an adjacent space, it means that air will leak from the positive space into the negative one. Air leaking from the patient room to the corridor helps to ensure that contaminants will not flow in the opposite direction from the corridor to the patient room. This is necessary if for example if you have a immunocompromised patient that needs protection from harmful pathogens leaking in, which probably would not be the case in a dental facility.

The air leakage will occur in the path of least resistance which is typically through cracks around the door, but can include any other cracks or openings in the room such as a leaky window to the outdoors. This is why it is important to have a well constructed room when utilizing pressurization to ensure that the airflow is leaking through the path that you expect to. In this example if you have a leaky window, most of the air will flow through the window and you will not achieve protection you are trying to achieve with respect to the corridor.

A simple way you achieve positive pressurization is by supplying more air to the room then you return back from the room. In this case, if you supply 200 CFM and only return 150 CFM, the additional 50 CML will pressurize space and be forced to leak out.

Negative pressurization is similar except that it’s exactly the opposite. The negative pressure in the room forces air to leak in from the adjacent space. This is desired when you have harmful contaminants being generated within the room that you want to prevent from spreading outside of the room.

The way we achieve negative pressurization by supplying less air to the room then you return from the room. The additional return air will negatively pressurize the space and be forced to leak inwards.

Once again, codes do not specify pressurization requirements for dental facilities. We can look at other healthcare spaces as examples. A regular patient room does not have any pressurization requirement. They can be positive, negative or neutral. Airborne infection isolation room requires negative pressurization because the intent is to prevent harmful pathogens from leaking out. Operating room on the other hand is a very clean space, so they require positive pressurization to prevent contaminants from leaking in. Some operating rooms are kept negative when used for patients under airborne isolation. In a dental procedural room where the concern is stopping the spread of harmful aerosols generated during a dental procedure, it is clearly desirable for the room to be negatively pressurized.

The last thing I will mention about pressurization is monitoring and control. You can simply adjust the supply and return airflows in your patient room such that the space is negatively pressurized. But how do you know whether it is adequately pressurized and it will be maintained over time? An airborne infection isolation room requires a specific pressurization of at least 0.01 inch water column relative to the adjacent corridor. A monitoring device is required that measures the pressure on both sides of the door, to ensure that the differential is maintained. A visual display is required in the room so occupants can know that the room is being pressurized as needed. This kind of measurement and display is something you may want to consider as well. That covers the four key concepts. And, this table shows a quick summary of the requirements for a typical hospital room that you can refer to when deciding what levels of performance you would like to achieve for your dental facility.

Now I will take a few minutes to address an additional topic that is often asked about, which is the use of portable HEPA filters. And how they can be used to replace or to supplement the aerosol mitigation measures within the HVAC system. I will address what a portable HEPA filter is, how effective they are, how best to use them, and when they are an appropriate option.

Portable HEPA filters are quite simple devices. They consist of a casing with a fan to circulate the air. And a HEPA filter to remove contaminants. Often the speed control dial is included to adjust airflow rate. Sometimes a duct connection is provided at the inlet or at the discharge opening, or both.

Overall a portable HEPA filter will not provide the same aerosol mitigation performance as a HEPA filter which is integrated into a properly designed central HVAC system. However, a portable unit can definitely provide some benefits when integration into the HVAC system is not possible or not practical. I will give you a few tips on how to use them as effectively as possible.

One of the main challenges with a portable HEPA filter is getting even distribution of the filtered air throughout the entire room.

In this example of the unit without ducted connections, you can see that the portable unit will only effectively circulate the filtered air within a limited zone. The size of the effective zone will depend on the performance of the unit and the location within the room. In this case the closer

the unit is located to the patient chair the better. So that it can effectively remove particles directly from the source. The unit should also be positioned such that the contaminated air is pulled away from the other occupants in the room.

In this example you see how we can use ductwork to extend the discharge to a location that allows for more effective circulation of the filtered air. You typically see this done with flexible duct work which does not exactly look nice but it works for a quick and low cost insulation.

And another effective approach is to use flexible ductwork to position the inlet closer to the patient's mouth in order to more directly capture aerosols at the source.

This is another example of how you sometimes see these portable filters installed. In this case the filtered discharge ducted outdoors directly and it is important to understand that a filter unit used in this way is providing a completely different function from the previous examples. In this configuration the unit is exhausting air from the room, which will function to create a negative pressure within the room. That may be fine if that is your goal. But it is not actually filtering any of the air which is circulating within the room. The only purpose of the filter in this case, is to ensure that the air exhaustive to the outdoors is clean, so it is not to create a hazard outside of the building. It can be effective in removing particles at the source and exhausting them outdoors while creating a negative pressure in the room. Often the airflow rate from these doctored HEPA filters will be higher than you need to negatively pressurize the room. And it can lead to other unintended consequences within the HVAC system and the rest of the building. Be careful when using this approach that the flow rate is appropriate.

We can evaluate the performance of a portable HEPA filter based on the four key criteria that we discussed earlier. For air changes yes, a portable HEPA filter can provide the appropriate amount of air changes-- however you have to check airflow rate to see if a particular unit will provide air changes you want. Smaller residential type units will not provide adequate air changes whereas the more commercial grade units often well. Filtration yes-- the HEPA filter is exactly what we need to remove the smallest virus particles. For air distribution, no, it will not provide very good performance. Although it can be improved if ductwork is added. For room pressurization, no, a portable unit will not negatively pressurize the room when installed to recirculate the air. The unit can be ducted directly to the outdoors as we just discussed. Which will provide negative pressurization but the unit is no longer serving the purpose of filtering the air that is circulated within the room.

When deciding if a portable HEPA filter is appropriate for your office, it is important to look at the pros and cons. The pros are mainly that they are quick, inexpensive and easy to install. These are obviously important factors. However the main con is that they will not be as effective as ensuring evenly distributed filtered airflow throughout the entire room. Not when compared to a HEPA filter integrated into a properly designed HVAC system. Some additional drawbacks are that they are noisy, can be easily blocked. For example by somebody placing a box in front of the inlet. They can be easily turned off. By someone who does not like the noise and does not realize the importance of the unit. Or someone can forget to turn on when they walk into the room and start a procedure. Also they take up space within the patient room which may or may not be easy

to accommodate. In summary these portable filter units are reasonably effective at removing aerosols when installed properly. But, are generally best used as a temporary measure. When planning for long-term upgrade to a facility, incorporating the filtration into the central HVAC system offers definite performance and operational advantages. With that being said, it is certainly not hurting to use these units to supplement whatever other measures you are taking with the HVAC system.

That covers the technical content of this talk. If you are wondering where to go from here, I would make the following recommendations. First is to get an evaluation of your existing HVAC system in terms of the four key criteria I have identified. You cannot really make a smart decision going forward unless you know what you have first. An HVAC engineer or contractor can help you.

The engineer or contractor can tell you what your options are for making upgrades. You want to know the cost, the timeline for each of the different options, as well as to understand the impact on your facility operations. For example, if a certain upgrade requires your office to be closed for two months while work is being done, it may not be viable financially. You want to figure out ways to do the work while work while keeping the office opened or at least only closing certain sections at a time. Once you understand your options, you can then make a decision about what to implement that is appropriate for you. Different people have different goals. Some will want to do the minimum possible to to achieve reasonable performance. While others may want to make a large investment so they can tell the staff and patients that they have done everything possible to create a safe environment that is similar to a hospital. You will need to decide where you want to want to be on that spectrum. Lastly, after you have made the modifications, you cannot just forget about the HVAC system. Maintenance of the system must be taken seriously and done often enough to ensure done often enough to ensure the system continues to operate as intended, year after year. There is no point going to the trouble and cost to upgrade your system if it is going to deteriorate in a few years due to inadequate maintenance.

That is the end of my presentation. I am happy to take any questions.

Hugh:

Thank you. That was an amazing presentation with really good information. If you have questions for either David, Jessica, orDarlene, please send them using the Q&A feature on the black bar at the bottom of your screen. So far we do not have any questions.

I will tell everyone that these slides will be on the website tomorrow and you can access them there. As well as a recording of this and a transcript of the presentation.

Any questions? Normally I can come up with a question, but David answered every question I came up with during the presentation. I really do not have anything else to add.

David:

Okay. You have my email if anything comes up.

Hugh:
Okay. Jessica, or Darlene? Anything you would like to ask about or comment on before we close out?

Jessica:
This is Jessica. I do not have any other comments other than as soon as things come down from the CDC, the FDA, and OSHA, we will be sure to update every couple of weeks.

Darlene:
David, thank you for participating. This is Darlene. I have learned so much. So many things that we do not think about.

David:
It has been my pleasure.
I am trying to get the word out as much as possible to get dentists the information needed because there is definitely a lot of important information out there that is not necessarily getting to the dentists who need it. I am just trying to help out a little bit.

Hugh:
I think other health professionals would benefit from this as well. **Is there a difference between a dentist office and a physician's office?**

David:
In general, the same principles would apply. I would imagine a physician's office, where they are not performing any specific procedures that are generating aerosols, it is probably a little less of a concern. But generally speaking, achieving good HVAC performance and doing what you can to mitigate the spread of aerosols would certainly still apply in a physician's office. Just maybe a little less urgent from an issue as compared to dentist.

Hugh:
I knew that if I talked long enough we would get some questions. **Shouldn't we treat every patient as if they are COVID-19 positive even if they are asymptomatic?**

Jessice:
It might be in regard to the CDC guidance. I guess if you get clarification on that, is it in regard to the 15 minute?

Hugh:
The CDC states it is not necessary to wait if the patient does not have COVID-19.

Jessica:
I am not familiar with the research that they made to make that recommendation. And I would think that you would treat everyone as if they did have it. But again you probably have to go to the CDC website to see why they actually removed it. I do not know the reasoning behind it.

Hugh:
Any other questions? This is where Mark Casey usually says you are amazing and you do important work within your communities. And we are so grateful. And so appreciative. We hope that the information we provided helps to do that even better. Thank you for all that you do. And please let us know if there's anything we can do to help you do the important work even better. Mark, I hope I did you justice in your closing comments.
Thank you so much for participating tonight. Thank you for awesome presentations. I have really learned a lot. Everyone take care.

[Event Concluded]