#### The 2020 Compendium of

## Emerging Infection Control Technology for Dental Practices

An introductory guide to a variety of recently popular IC technologies and how to best implement them into your practice.

A Publication of



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•Disclaimer: This eBook has been written by UVC Cleaning Systems, an American company that has been designing, manufacturing and selling UVC disinfection products since 2012.

## **INTRODUCTION**

#### COVID-19 and what it means for the future...

It's no secret, COVID-19 changed the "infection control" game for everyone. Not just medical and dental providers, but factories, restaurants, you name it. And when patients are walking around in N95 masks – you know they're conscious of the risks in an unprecedented way. Now more than ever, society is aware of the risks posed by invisible microbes, viruses and bacteria, and they want to know that the service providers they deal with have done everything possible to mitigate the risks of infection.

And dentistry has responded. Immediately after the outbreak, the industry started taking a collective look at what new and existing technologies might be suitable to take their infection control protocols to the next level. Specifically, dentists looked to their peers in the surgical suites and 'high risk' wards of hospitals for solutions and improvements. Because of this, a few key technologies have come to the forefront as possible solutions including; air suction & filtration, disinfectant foggers and, the subject of this eBook; UV-C lamps.

What is the best solution? Does one of these stand out as the ultimate superior solution; or is the best answer a mix of all three? In this e-book we will briefly discuss the pros and cons of each of these technologies, and then take a deeper dive into our area of expertise, UVC disinfection. Along the way, we will suggest methods of integrating these technologies into a dental practice. It is our hope that with this information, you and your team will have the facts needed to make the best decision for your practice.

Individuals working in dentistry using high-speed handpieces are at risk from aerosolization. Aerosolized particles are small enough to stay airborne for an extended period before they settle on environmental surfaces (or enter the respiratory tract). During a pandemic, this makes the dental operatory a particularly risky place to work. (Rather than go deeply into this, please refer to this JADA article HERE for more detail)

## THE DENTAL ENVIRONMENT

And how pathogens like COVID-19 are spread...

The bottom line is, aerosolized particles have the potential to spread not just throughout your operatory, *but throughout your entire practice*, depending on how the air is circulated. And virtually any surface could represent a landing spot for COVID or other infectious pathogens. The ideal adjunctive disinfection technology would have the ability to easily and definitively disinfect all surfaces within a reasonable amount time and with minimal staff effort.

With multiple patients using the same operatory throughout the day, it is difficult to ensure that the last patient's operatory environment is as antiseptic as the first patient of the day. "Spray and wipe" disinfectants cannot reliably reach every operatory surface in the time available between patients. The ideal disinfection technology should be one that can provide that last patient with the same peace of mind that the first one has.

Some solutions, such as air filtration, provide a constant, reassuring collection of these aerosols, which is excellent. But given the nature of aerosols and airflow, there is no way to ensure they capture all of the aerosolized pathogens all the time. Again, *the ideal infection control augmentation solution would ensure an identical baseline of cleanliness for each patient*, all day long.

Our staff quickly adapted to the SafeZone as part of their daily routine and they truly appreciate we have taken this measure with their occupational health and safety in mind.

Dr. Dave Huggett, Onalaska, WI



### **SECTION ONE**

## Three Emerging IC Technologies for Dental Practices in 2020



### 1. Air Filtration & Suction

#### ABOUT

Air filtration is not new and is certainly very familiar to most dental practices. It has many advantages. For example, it is a "passive" solution, and once turned on, does not require any additional time commitment throughout the day.

The concept is of air filtration is simple, grab the contaminated air before it can go anywhere – pass it through various cleaning and disinfection processes – often a mechanical filtration combined with UVC energy, and then recycle the now 'clean' air back into the practice.

#### PROS

- Passive
- Works all day
- Visible/audible to the patient
- Low tech solution no learning curve
- Prices affordable.

#### CONS

- No air filtration system can catch 100% of aerosols
- More powerful units not portable. multiple units will be needed for complete coverage.
- Price can escalate quickly if multiple units are required.
- Wide price range
- Invisible effects, and difficult to determine effectiveness ('kill rate')

#### SUMMARY

Air suction and filtration alone can not provide for comprehensive environment disinfection. By their very nature, air filtration systems move air around. As air is moved around, is it creating a 'knock on' effect of airflow throughout the practice? This must be considered, as it is important not to create a scenario where pathogens are being deposited on surfaces that don't typically get decontaminated.

### 2. Foggers

#### ABOUT

There are two types of disinfection foggers on the market; those that use Vaporized Hydrogen Peroxide (VHP) and those that use Hypochlorous Acid (HOCl). Compared to HOCL, VHP is relatively labor intensive, has some added safety considerations, and a long turnover time of 90-180 minutes. We'll briefly explain the difference between the two, but *for the purposes of our guide, we will focus on HOCL*.

- **Vaporized Hydrogen Peroxide (VHP):** Uses a device that disperses a dry mist of vaporized hydrogen peroxide particles into the air and onto surfaces to be disinfected. It must then be fogged a second time to decompress into oxygen and water, which in a micro-condensation process inactivates biological pathogens.
- **Hypochlorous Acid(HOCl):** Uses a wand device that distributes electrolyzed sodium hypochlorous acid (a weak acid that forms when chlorine dissolves in water). This creates a powder coating on treated areas, which inhibits cell growth and division.

#### PROS

- Spray solution be made on-site by combining non-iodinated salt, water, and electrolysis.
- Room turnover of 30 minutes
- HOCL is non-toxic
- Fogger systems are said to be easy to learn and use

#### CONS

- HOCl solution strength and effectiveness can vary depending on time since creation, temperature, etc.
- Leaves a coating that is visible on glossy surfaces such as plastics and glass. Has been reported to make these surface look 'dirty'.
- Requires employee labor to implement
- Only disinfects areas covered, unless sprayed carefully, areas may be missed.
- Difficult to determine 'kill rate' after use

#### SUMMARY

While foggers may have a place in the dental office, they can do have some disadvantages that should be considered, particularly the fact that they may leave a residue. In addition, with a 30 minutes turnaround time, it may be difficult for the practice to implement this in the operatory between patients. Perhaps best used on soft surfaces, like waiting room upholstery and before or after the practice's day begins.

### 3. UV-C Light Disinfection

#### ABOUT

UVC light energy has been known to be an effective disinfectant since the 1800s. In fact, most hospital surgeries in the US use UVC disinfection to prepare the rooms between patients. In our opinion, UVC has many advantages, and very few disadvantages, regarding the dental environment.

#### PROS

- Available in many configurations size, power output, price
- Simple to operate
- Methods of measuring UVC 'kill level' easily available
- Visible to patients "The blue light is disinfecting the room"
- Fast effective kill and turnaround in as fast as 2 minutes
- Will disinfect the entire operatory, inc. areas difficult to manually clean
- UVC energy will reflect off surfaces and still be effective
- Proven useful for disinfection and reuse of PPE
- Portable, can be moved to the area needed

#### CONS

- Safety UVC energy can cause skin and eye irritation/damage
- Not recommended to disinfect soft surfaces (cloth, upholstery, drapes, etc.)
- Market confusion many low powered units make impossible claims of efficacy
- Odor caused by dead skin cells (diminishes quickly)
- Medical grade units can be expensive

#### SUMMARY

We feel strongly that UVC is an ideal method of disinfection for dentists to **use.** It has a high-tech visibility that will reassure patients, it is fast and easy enough to use between every patient and it covers every surface.

When the Covid-19 pandemic hit I purchased my Safe Zone UVC System, and it was the best investment I've made.

Dustin Rowe, DDS, OMS, Long Beach CA



### **SECTION TWO**

## An Implementation Guide

Integrating any new Infection Control Tech into the dental practice



#### Introduction

Expanded infection control protocols are now the norm, and that work should continue. And because this universal change has brought infection control to the 'top of mind' of the public, it is important that healthcare providers – including dentists - strive to go beyond what is expected and harness better and more efficient tools. In doing so, they may realize unexpected advantages.

#### **Boosting Infection Prevention Efforts**

If your dental practice is going to set itself apart, it is vital to research and implement technology that is easy to implement, comprehensive, and effective. **The first step is performing an infection control gap assessment.** With so many new technologies making so many claims, it is important to get the input of someone who can provide expertise.



#### Why Invest in These Technologies?

A study in the journal <u>Antimicrobial Resistance & Infection Control</u> reports that even after being subjected to four rounds of manual cleaning and getting disinfected with a bleach solution, 25% of hospital rooms were still contaminated with Acinetobacter baumanii. Clearly, manual cleaning is a good start, but the post-pandemic dental practice can do more.

Healthcare providers across the country have achieved impressive results by following manual cleaning with UVC light disinfection. For example, <u>Penn Medicine</u> implemented UVC disinfection systems at the Hospital of the University of Pennsylvania in 2013. They've since seen the number of patients with bacterial infections drop by about two-thirds; on cancer patient floors, the hospital achieved a 25% reduction in C. diff transmission through the use of UVC light disinfection.

#### Strategy

Manual cleaning, disinfection technology like UVC, staff education and other infection control actions are all important. For your COVID-19 strategy to be effective, it must have multiple components working together. If any piece is missing, your dental practice is missing opportunities to both reduce risk to patients and staff members, also to improve patient perception of your practice.

#### Marketing & Communication

In these unprecedented times, patients are more conscious of infection control than ever, and they are actively looking for signs that your practice is going 'above and beyond' to protect them and their family from COVID-19.

While some technologies have a visible quality - such as the reassuring blue light from UVC disinfection – other technologies, while effective, may remain unnoticed or unseen. It is important to market all upgraded protocols and new technologies to reassure patients, both current and potential, that your practice is the safest option.

UVC is unique in that because it gets used between patients and casts a energetic blue glow, it is highly probably that visitors to your practice will notice it. Its visual aspect has also proven popular with local television stations and can be a good way to get free, positive promotion for your practice.

This is not to imply that the main benefit of adding UVC to your practice is to impress your staff and patients. But... it does. So why not reap the benefits with a coordinated marketing push?

Click **HERE** to see the local news spots

Cleaning Systems In

This investment can get your practice on local news!

#### **Implementation Steps**

A dental office might invest significant funds in purchasing the latest UVC disinfection equipment, but to make the investment fully pay off requires the time and commitment of your staff. Just like every aspect of infection control, your protocols will have the most effective impact if you define and implement a plan. Here are some steps to help craft your strategy:

#### 1. Pinpoint the leader(s)

While all staff at every level contribute to infection control, people in strong leadership positions can help spread the word and set a solid example for others. Designate an employee willing to act as "owner" of the new technology.

#### 2. Craft a plan

Now that you've designated the staff member best equipped to lead the team in using the new technology, it is time to put together a plan and document it. This document should take into account the who, what, when, where or using the technology. When developing this document, look for potential problems, analyze current protocol, and determine what has and hasn't worked in the past. The team should also look at the costs and return on investment for the new solution(s) and put together a report that include all pertinent information, to share with stakeholders and decision makers.

#### 3. Share the plan

Informing all staff the importance of total buy-in across your entire staff ensures each employee knows what actions they need to take to support your infection prevention strategy. What's more, this knowledge helps staff at all level spot gaps in the system, so you can correct such risky errors. For example, if everyone knows the proper way to wash hands, disinfect equipment, handle linens, deal with biomedical waste, etc., they have the knowhow necessary to tell if a step is being missed and take whatever action is needed to set things right.

#### 4. Train on the technology

When your staff invests in high-tech equipment like UVC disinfection units, the staff responsible for handling such technology also should be trained on its use. This training helps increase the equipment's effectiveness, ensuring the correct UVC dosage is applied to effectively disinfect operatories, waiting rooms and other important areas, to help decrease exposure to COVID-19.



### **SECTION THREE**

## A Deeper Dive into UVC

How UVC Disinfection Works



#### Introduction

Our UVC disinfection systems administer the ultraviolet light needed to eradicate harmful pathogens in operatories, break rooms, reception and other areas of the dental practice. When bundled with manual cleaning and disinfection protocols, the technology significantly reduces the presence harmful pathogens.

#### Usage

UVC dosing works to reach all areas within a treated room, including those in shadowed or hard-to-reach places. By penetrating areas that manual cleaning and other technology cannot, The UVC system ensures disinfection is as complete as possible. Single use UVC does cards help provide confirmation that the precise amount of UVC light needed to eradicate bacteria, viruses and spores is administered for optimal effectiveness. Treatment data can be tracked on clipboard or a mobile device to determine which rooms

Treatment data can be tracked on clipboard or a mobile device to determine which rooms have been treated, by whom and how often, to assure proper treatment.

#### Efficiency

Our SafeZone<sup>™</sup> UVC disinfection equipment is engineered to operate as efficiently as possible to reduce treatment time and return operatories to service quickly. A timer and remote activation switch helps operators streamline use of the technology. The technology helps staff quickly disinfect crucial areas and return rooms to service; the accelerated turnaround time makes it possible to treat more patients in any given day.

#### Safety

UVC light is harmful to both the eyes and the skin, so it is vital that exposure to the light is avoided. However, many dental offices use 'open bay' operatories, with no doors. This can be mitigated by using portable or ceiling mounted curtains to prevent direct exposure. Our experienced Dental UVC consultants have worked with virtually every kind of practice layout and are happy to provide free advice for the creation of a streamlined, yet safe, method for your practice.



## "

When COVID first hit, I did a lot of research and looked at all the options available to mitigate the COVID virus. As part of my practice strategy, I decided that I wanted to include hospital-grade UVC technology to enhance my comprehensive approach to disinfection.

I looked at the available UVC systems and decided on the SafeZone <sup>™</sup> from UVC Cleaning Systems... because it is powerful and has the efficacy & technology to do the job effectively. My staff is very confident in the technology and they feel very safe that we are using this in our practice. We explain to patients our protocols, show them our UVC unit during their visit and we are receiving lots of positive feedback. Patients truly appreciate the enhanced level of protection we are providing to them. Our SafeZone<sup>™</sup> UVC system is a key component of our disinfection strategy and I would recommend this unit to any dentist."

#### Truvella Reese DMD

Private Practice General Dentist

**Infection Control Inspector** Nevada State Board of Dental Examiners

#### Lower Costs and Increased Efficiency

Dental leaders are often charged with maintaining a balance between conserving costs wherever possible and increasing the efficiency and profitability of the practice. Any technique or technology that enables them to achieve both at once offers significant appeal.

The SafeZone<sup>™</sup> UVC system is one solution that makes it possible for dental practices to mitigate expenses while also offering improved performance and efficiency. The American Journal of Infection Control also reports using the UVC technology to disinfect and recycle PPE could save a practice more than the purchase price of the unit each year. Additionally, the effective and efficient disinfection performance of SafeZone UVC system enables dental practice to boost their throughput with no risk to patient safety.

The technology enables staff to reduce the presence of deadly pathogens – including COVID-19 - and return the operatory to service in a relatively short amount of time, especially compared to other technologies. For example, a lower powered 'consumer-grade' UVC light system would take approximately 57 minutes to treat an operatory and return it to service. By contrast, the SafeZone<sup>™</sup> UVC system would take approximately 5 minutes to perform the same task

And while disinfection and reuse of PPE makes the technology worth your investment, faster room turnover means greater efficiency for your practice. Add these features to the potential marketing impact, and you can see why more dental practices are quickly adopting out technology.



## Breathe Easy, Your Practice Is A <mark>Safe Zone</mark>

High energy, medical-grade UV-C Light can be used to decontaminate the air and all surfaces in your practice.

Adding UV-C takes your infection control protocols to the next level.



FOR MORE INFORMATION

Our SafeZone<sup>™</sup> line is ideal for your dental environment. Portable, powerful & capable of **killing 99.999% of COVID in just 2 minutes**. Simple to use & fast enough to run a cycle between each patient.

Better still, our sales consultants have decades of dental industry experience. Let us help you integrate UV-C into your Infection Control protocols in a way that makes sense; **saving you time, money and frustration**.

www.uvccleaningsystems.com/dental contact us: 810.358.7202



## The 2020 Compendium of *Emerging Infection Control Technologies*

We hope you have benefitted from this guide, and we look forward to answer any questions you may have about our technology!

### **LEARN MORE**

