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Transmission of SARS-CoV-2 in dental offices very unlikely, study says

By Dental Tribune International

COLUMBUS, Ohio, U.S.: Researchers worldwide investigate COVID-19, and every week, new information about the illness is discovered or confirmed. A recent study from the Ohio State University has shown yet again that a SARS-CoV-2 infection risk at the dentist's office is low, despite the tenacious misconception that patients and treatment providers are at high risk of catching COVID-19 at the dentist's office.

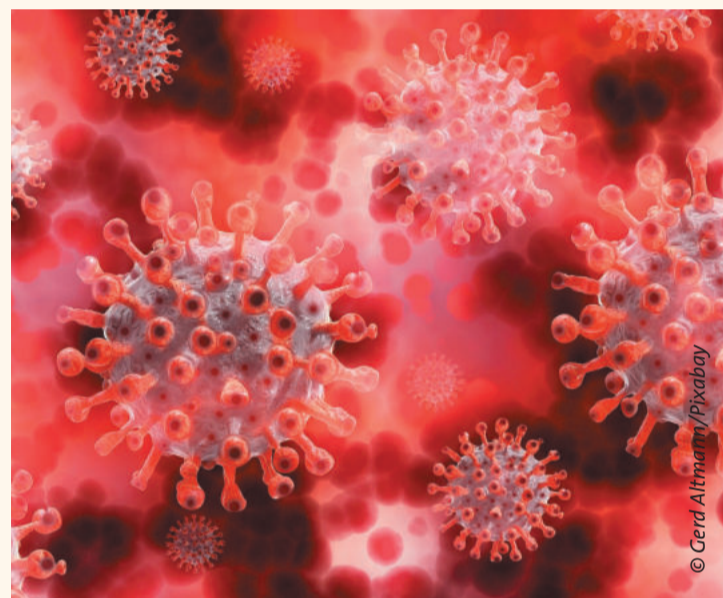
Dental procedures are known to produce a considerable amount of aerosol, and this leads to fears that saliva in the aerosols generated during dental treatments could make the dentist's chair a high-transmission location since SARS-CoV-2 spreads

mainly through respiratory droplets. In order to investigate whether saliva is the main source of the spray, the researchers collected samples from personnel, equipment and other surfaces reached by aerosols during a range of dental procedures.

By analysing the genetic makeup of the organisms detected in those samples, the researchers determined that dental irrigant, not saliva, was the main source of any bacteria or viruses present in the spatter and spurts from patients' mouths. Even when low levels of SARS-CoV-2 were detected in the saliva of asymptomatic patients, the aerosols generated during their procedures showed no signs of SARS-CoV-2.

"Getting your teeth cleaned does not increase your risk for COVID-19 infection any more than drinking a glass of water from the dentist's office does," said lead author Dr. Purnima Kumar, professor of periodontics at Ohio State. "These findings should help us open up our practices, make ourselves feel safe about our environment and, for patients, get their oral and dental problems treated—there is so much evidence emerging that if you have poor oral health, you are more susceptible to COVID," Kumar added.

The study, titled "Sources of SARS-CoV-2 and other microorganisms in dental aerosols," was published online on May 12, 2021, in the *Journal of Dental Research*, ahead of inclusion in an issue. **DT**



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Meet A-dec's new territory manager for the Middle East



© Nick Olive

By A-dec

As part of a continued focus on supporting customers globally, A-dec are pleased to welcome Nick Olive to the role of Territory Manager for the Middle East. Nick moves from A-dec's UK business, where he has been helping UK dentists to find ergonomic and reliable equipment for their practices since 2014.

Nick is currently based in the UK but plans to move to Dubai in the near future to work closely with the valued distribution partners A-dec has in the region. He will also be on hand for product demonstrations, trade shows and to assist A-dec customers. Please join us in congratulating Nick on his new role and reach out to him if you have any questions regarding A-dec equipment. [DT](#)



If you would like to contact Nick, you can reach him on +447824 021839 or at nick.olive@a-dec.com

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How PIEZOSURGERY has redefined bone surgery

20 years of PIEZOSURGERY technology

By mectron s.p.a.

Twenty years ago, the International Dental Show (IDS) saw the premier of the PIEZOSURGERY unit, a first for piezoelectric bone surgery. Since then, mectron has not only succeeded in revolutionising clinical reality with PIEZOSURGERY, but also benefitted practitioners and patients worldwide with two decades of ease of use and minimal invasiveness.

"When I started developing piezoelectric bone surgery more than 20 years ago, I never expected that Piezosurgery would redefine all bone surgery," says Prof. Tomaso Vercellotti, the inventor of PIEZOSURGERY, today, 20 years after the first system was launched.

Yet the success story of the original PIEZOSURGERY method was already underway in 1997, when the peri-

odontist Vercellotti, in partnership with the company mectron, began working on the idea of ultrasonic bone surgery. Even then it was clear to them: an essential success factor for oral surgical treatment is reducing its invasiveness to a minimum, ensuring that the surrounding soft tissue is spared, therefore enabling rapid healing. Vercellotti and mectron saw a solution for this in the use of modulated ultrasonic vibra-

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tions. Shortly afterwards, mectron succeeded in building the first prototype and carrying out the first extraction treatments.

PIEZOSURGERY: A new paradigm in bone surgery

In 2001 the time had come: The world's first PIEZOSURGERY device was presented at IDS. In 2005, the first implant bed preparation using PIEZOSURGERY was successfully completed. Vercellotti: "2005 was also the year in which a grand master of periodontology from Harvard University defined PIEZOSURGERY as a new paradigm. Making us very happy, of course." And indeed, piezoelectric bone surgery became a clinical reality worldwide over the following years. This success is based not only on the exceptional intraoperative control PIEZOSURGERY offers its users, but also the reduction in the surgical trauma to the surrounding tissue, enabling faster healing than after more invasive cutting surgical procedures.

In 2011, the 4th generation of PIEZOSURGERY equipment was launched. Other groundbreaking milestones include in 2015, when the world's narrowest osteotomy instrument, OT12S, was introduced. With a width of only 0.25 mm, it is suitable for all osteotomy techniques where standard bone saws have access difficulties. In 2019, the REX PiezoImplant was launched on the market as the first implant with a minimally invasive implant bed prepared exclusively with PIEZOSURGERY. The innovative REX PiezoImplant wedge implants are suitable for use in the narrow ridge of the jawbone. This is because their unusual shape means that the bone does not have to be augmented before the implant is placed.

30,000 customers in over 80 countries have already been won over

Today, more than 250 scientific and clinical studies have proven the positive effects of using the PIEZOSURGERY method. The more than 90 different instruments for the PIEZOSURGERY equipment are exclusively produced in Italy and distributed worldwide in more than 80 countries. More than 30,000 customers have so far been convinced of the advantages of piezoelectric bone surgery. Vercellotti: "The commitment of all those involved in improving PIEZOSURGERY year on year has been rewarded with the confidence of an extraordinary number of surgeons and, above all, with the satisfaction of the patients treated."

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By Shofu

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Interview: “Attempting to make my own shield seemed like a productive use of time”

By Iveta Ramonaite, Dental Tribune International

The pandemic has caused professional and private challenges. However, some people managed to use this downtime to stimulate their creativity and to test their entrepreneurial skills. One of these people is Dr. Scott Yamaoka, who devoted his time and energy to creating a face shield that would protect his dental team and patients from SARS-CoV-2 infection in the workplace. In this interview, he and his son, Zach Yamaoka, tell Dental Tribune International how they turned their idea into a product—the next generation optical face shield that allows dentists to comfortably fit magnification loupes with fiber optic lighting.

First of all, congratulations on your invention! Could you start by telling our readers a bit about your creation and what led you to developing it at home in your garage, during the pandemic?

Dr. Scott Yamaoka: As the pandemic set in and dental offices shut down, I began thinking about how we could get back to work safely. It became clear that, moving forward, face shields would be necessary to protect our dental team and patients. Images of hospital workers helping COVID-19 patients were circulating in the news, and that really drove this message home.

At the outset of the pandemic, it was nearly impossible to get one of these shields, which were sold out everywhere. And even if you could somehow get one, I realized that the shields that were made of foam and plastic film and used by hospital workers would be ineffective in the dental environment, in which dental professionals require clarity, the accommodation of magnification loupes and fiber optic lighting. The only other options available were construction shields from the hard-



Vancouver-based periodontist Dr. Scott Yamaoka (left) and his son Zach Yamaoka, design engineer at Dyson.

ware store. But even those had sold out, and again, would not accommodate magnification and lighting.

Attempting to make my own shield seemed like a productive use of time and mental energy during the shutdown and gave me solace in that I could control a small part of my destiny and the outcome of the pandemic.

It is not easy to create a face shield that not only is pleasing to the eye but also has a protective function. Could you take our readers through the creation process and talk about some of the materials you used?

Dr. Scott Yamaoka: Creating the prototype was a matter of searching for available products that I could use to construct the basic components of the face shield: a head harness, a plastic attachment system and the plastic itself.

While looking at industrial shields for welding and researching the construction industry, I had the idea to use a safety construction helmet. We had one at home. The benefits of the secure head harness provided the foundation, and the brim allowed space for optics and lights. Removing the top part of the helmet with a Dremel reduced the weight and also allowed the plastic material to adapt to the rim of the brim to secure the magnets.

Using magnets meant that dentists could efficiently change the sheets of visor plastic in between patient visits and replace them when they became damaged or scratched. Seeing magnets on our fridge for holding paper notes gave me the idea that they could be used to secure the plastic, provided they were strong enough to hold it. We have used rare-earth magnets to surgically move teeth, and similar products were available at the hardware store.

Visor plastic was not available anywhere at the time, so I thought that we could use acetate plastic from the overhead projectors we once used when I was in grade school. Fortunately, they were still on sale, but their clarity was not ideal. The plastic we are using now is imported from the U.K. and incorporates the latest advances in clarity, including proprietary nanosurface technology. One of the comments we receive the most is that people forget that they are wearing the shield!

Zach Yamaoka: As the shield developed, we incorporated more Aesthetic aspects. However, the function of the face shield has always been important, since things are only beautiful if they work. The thinness of the rim on the final product is the result of a desire to reduce weight. The square shape reduces glare from ambient light. The appearance of each component on the shield is tied to a functional aspect.

The face shield we see now required 58 prototypes. What did you learn in the process, and when did you know that the product was ready to be sold on the market?

Zach Yamaoka: The story of the Loupe Shield engineering is the story of three discoveries made while making 58 prototypes.

The first one was that dentists really liked the full head harness. The users of the safety helmet prototype commented that, compared with their current face shield with an elastic band, the full safety harness was more comfortable, secure during long operations and caused fewer headaches. When analyzing this feedback, we realized that the key is the top strap. It supports the weight of the face shield and alleviates pressure on the sides of the head.

The second discovery was that a square rim has better optical properties. Searching online, I came upon an image of a face shield where the visor was gently curved in the field of view. We wondered what would happen if we extended that principle further, so we adjusted the shape of our rim from a semicircle (curved at the front) to a square (flat at the front). From testing, we realized that this reduced optical distortion and minimized glare from ambient light. As optical clarity is paramount to dental professionals, we thought this would be a great feature.

The third discovery was of an optical plastic technology initially developed for iPhone screen protectors. It turns out that the functional requirements of screen protectors, which are ultraclear and scratch-resistant, are similar to those of dental face shields. Combining this optical plastic with our square rim has resulted in a face shield that is virtually invisible and incredibly durable.

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