

Dental germaphobics: When patients are not 'crazy'

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BY **ANNE NUGENT GUIGNON**, RDH, MPH

Before I get totally wrapped up with this month's conversation, please understand that I am not germaphobic. Yes, I understand the importance of working in a clean environment, but babies crawl on floors and make it to adulthood. Being exposed to microbes in the world allows our immune systems to mature and learn to fend off nasty ones.

Aerosols are a well-established environmental concern in the dental office.^{1,2} Air in a dental office is contaminated. Research demonstrates that fluid and particulate aerosols hang in the air for protracted periods of time.^{3,4} Aerosols don't just stay in your room or the operatory down the hall. They travel throughout the entire office. Like it or not, you and everyone else is breathing air contaminated by microbes, detergents, solvents, particulates, and metals.⁵⁻⁷ There are ways to reduce the bioburden in the air, but that is another discussion.⁸ Some very progressive offices have installed clean air systems, but that is certainly not the norm.⁹

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Microbiology is in its infancy. Twenty years ago, Dr. Bill Costerton coined the term biofilm to describe how microbes survive on the planet.¹⁰ Prior to that time, it was thought singular microbes infected the human body. This was based on the idea that individual, planktonic organisms caused disease, and, as microbial colonies increased in size, disease would manifest.

We now know that over 80% of all infectious diseases are caused by microbes encased in biofilm, a slimy protective mass that presents enormous challenges. Dental plaque is a

biofilm. While dentistry is decades ahead of medicine in understanding biofilm-based infections, there is still much to learn about how Mother Nature protects microbes.

A couple of weeks ago, an interesting discussion surfaced on the Internet. A hygienist commented that her patient taped gauze over her nostrils at every appointment to prevent a sinus infection.¹¹ The discussion started heating up, insinuating that the patient was nuts. I joined the discussion, commenting that oral microbes wreak havoc in other parts of the body and that sinus infections are classified as biofilm-based infections.¹²⁻¹⁵ I went on to say that, if it is important for clinicians to cover their nasal passages, why wouldn't it be important for patients to do so as well? Crosstex has even created a special mask to cover the patient's eyes and nose, without encroaching on clinical workspace.

The discussion got even more intense when another recounted a patient who covered her hair with a shower cap during dental hygiene visits. One clinician posed an interesting question: "I wouldn't think your own bacteria from your mouth would cause a sinus infection." On the surface, that might make sense, but consider what we currently know about microbes, biofilm and disease.¹⁶⁻¹⁸ Microbiologists are the first to admit that we are on the tip of the iceberg when it comes to understanding everything about that world. Remember, it's only been 20 years since the concept of biofilm was first introduced into the literature.

Essentially it is all about homeostasis vs. dysbiosis, a trending word that describes communities of self-supporting pathogens involved in the disease process. Every one of us has pathogens in and on our bodies. If there are enough good microbes and the host immune system is strong, we remain in homeostasis or health.

The right microbes in the wrong place spell trouble. If, for some reason, the pathogens start increasing in numbers to the point where the host's immune system can't fight back, then disease occurs. Microbes are smart genetically and can wreak havoc given the right conditions. Pneumonia is the number one killer in nursing homes and for those with implanted endotracheal tubes.^{12,14,16} The primary pathogens for these cases of pneumonia come from aspirating oral biofilm into the lungs or for these pathogens to attach to the surface of the tube.

Many of us have robust immune systems. Our patients may not be so lucky. We're creating aerosols all day long. The microbes hang in the air for a long time and set up housekeeping wherever they want. Just imagine how many microbes are in your hair at the end of the day. Do you want your toddler or your grandchild to run their fingers through your lovely locks after a long day at the dental office? So are these patients crazy? Maybe we're the ones who are too cavalier.

The ongoing discussion felt like a firestorm. Hygienists started making fun of patients and some even said the patients were crazy. The discussion was disheartening. My head was reeling. Why would one care if patients take personal protective measures that support their individual belief systems, measures that will never interfere with the delivery of clinical care? Outside of the world of oral health, are these hygienists infectious disease experts? What do most of us really know about either immune system functions or the complex world of infectious disease?

The thing that disturbed me the most was the disdainful clinician attitudes. We are here to provide care, even to the quirkiest souls. We don't have to believe in what they are doing, but they deserve respect. If these people, and every other patient, did not value the care we

provide, we'd be out of a job.

Cher Thomas, RDH, chimed in on the discussion. "For those of you who are skeptical and think patients are crazy, you lose your edge when you aren't open to a patient's observation. I am immunocompromised and didn't find this request unreasonable. I ended up with an antibiotic-resistant staph infection in my nasal passage and I'm not the only one. And I'm not crazy."¹⁵

If you saw Cher across the room, you would never know that she has spent the last 15 years of her life fighting an autoimmune disorder that caused her kidneys to fail. Cher was fortunate. Over a decade ago, her brother donated a kidney that allowed her to go on with life. After the transplant, she resumed clinical practice in a public health setting, treating many patients that had sketchy or complex health histories. Despite the fact that Cher was always very careful about proper use of a mask and other personal protective equipment, she still got a serious staph infection in her nose.

It took doctors six months and multiple diagnostic tests to locate and identify the infection, which did not respond to intravenous vancomycin. Her doctors finally determined that Bactrim, a sulfonamide antibiotic, was the best option. Cher was allergic to all sulfa drugs. All other antibiotics were nephrotoxic so the risk to her transplanted kidney was too high.

Cher was stuck. Getting desensitized to sulfa was now her new goal. Cher spent months working with an infectious disease specialist. She was finally able to tolerate Bactrim, and the staph infection cleared up. But due to her high risk, Cher had to remain on the Bactrim for an additional three months as a precautionary measure to avoid a potential recurrent infection.

Cher's story is dramatic, but it's one that should make us pause. She was finally able to resume clinical practice after a six-year hiatus and now practices one day a week.

I, too, am very sensitive to aerosols, pollens, particulate matter, and dust. In July 2010, I developed a biofilm-based upper respiratory sinus infection, as a result of an exposure to the particulate matter from air polisher.⁴ I'd never been sick in my life and within a few weeks I had pneumonia. Seven months of non-stop antibiotics, nasal inhalers, and steroids did not touch the problem. Saline/bicarbonate/xylitol nasal irrigation helped a bit, but I was still sick. Finally a CAT scan revealed fully blocked sinus cavities, and the treating ENT was moving the discussion towards surgery.

By January, I was desperate and convinced the pulmonologist to prescribe Flagyl, an antibiotic known to target anaerobes. At the same time I learned about a nasal adaptor that fit on the end of an oral irrigator tip, so began power irrigating my nose three times a day.¹⁶⁻¹⁷ It took close to five weeks to resolve the infection. Like Cher, I know my body tolerances and will go out of my way to avoid getting sick like that again. That's my comfort zone.

Many people use the Internet and social media platforms to blow off steam. I've had my share of unusual patients too. The world of biofilm is much more serious and complex than any of us can imagine. Microbes in biofilm can change their gene expression in less than 30 minutes. Microbes are survivors. Mother Nature is much smarter than the wackiest patient and if what your patients are doing does not interfere with clinical treatment procedures, just let it go.

RDH

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