Aerosol Mitigation Toolkit
What are aerosols?^3

**CREATED WITH THE USE OF HIGH-POWERED DENTAL INSTRUMENTS**

6.6 FEET CAN SPAN UP TO 6.6 FEET FROM THE GROUND

Can remain in the air for up to 6 hours

Diseases that aerosols can carry^2

**SPREAD THROUGH AIR**
- Chickenpox
- Measles
- Tuberculosis

**SPREAD THROUGH DROPLETS**
- COVID-19
- Influenza
- Meningitis
- Whooping cough

**AEROSOL GENERATION AND CONTENTS**

“Aerosols are generated when air, water spray and air turbine hand pieces are used; they may contain up to 100,000 bacteria per cubic foot of air and remain airborne for a long time. Aerosol and splatter composed of blood, bacteria, saliva and tissue fluid cause exposure to blood-borne pathogens.”^6

The Mojave Dry Vac from Air Techniques

Air Techniques’ dry vacuum, Mojave, uses technology to contain and safely evacuate aerosols, spray mist, fluid and debris before they leave the mouth. It is the next generation of dry vacuum systems that deliver the highest suction power of any system available today.

- Designed for high-flow applications, which help effectively reduce aerosols
- Highest flow system (measured in cubic foot per minute) – effective in removing liquids, while being a more important measurement for aerosol management
- Modular platform that allows for additional pumps and increased flow if needed

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What's your best protection against dental aerosols?

Click on the hyperlink to watch video

https://youtu.be/oWGEqLRr9JU
Hygiene Save Lives.

Why infection protection is so important.
Minimizing Infections is Critical in Dental Practices.

Daily infection prevention practices provide safe care.

Following proper infection control guidelines minimizes the risk of infections. We at Air Techniques want to help you in your efforts to implement reliable infection prevention measures to protect the health of your patients.

Various germs can lead to infection especially in the critical environment of the dental operatory. Infection Control needs to be more than a routine practice but rather a systematic approach to minimizing and preventing infections. We want to help you develop efficient systems that ensure the health of your patients.
In order to stay healthy, you first need to be aware of the main causes of illness:

Bacteria, fungi, and viruses. These are invisible to the human eye. But they’re all around us, including in your dental operatory! Many bacteria, fungi, and viruses are completely harmless to humans. But some can trigger dangerous infections. When infection occurs, various germs penetrate an organism, causing illnesses. They enter via broken skin, mucous membranes and the respiratory system. We would like to briefly present the three most important causes of illness.

**Bacteria**

Bacteria are the smallest existing single-cell microorganisms. They reproduce by dividing themselves. Bacteria have different shapes – such as spherical or rod-shaped – and different properties. For example, some require oxygen to survive, and others do not. Only a small percentage of bacteria are pathogenic for humans and thus cause disease. These include Mycobacterium tuberculosis, which attacks the lungs and causes tuberculosis.

**Fungi**

Like bacteria fungi are a form of life. And here, too, there are harmless types. However, there are some medically relevant fungi that can cause infectious diseases called mycoses. A distinction is made between dermatophytes – which trigger diseases, mold, fungi, and candida. The latter include Candida albicans, which affects the skin and mucous membranes and can result in septicaemia.

**Viruses**

In medicine, viruses are called infectious particles. Unlike bacteria and fungi, they aren’t usually considered to be living organisms. Among other reasons, this is because they do not have their own metabolism and are therefore dependent on cells (hosts) to multiply. They are between 10 and 1,000 nanometres in size and are classified as enveloped and non-enveloped viruses. Familiar examples are flu viruses, hepatitis, HIV, and noroviruses.
A Critical Environment.

Dental practices are places with an increased risk of infection. Due to regular contact with blood, saliva, and secretions, germs can enter the human body if protection measures are insufficient. There are various modes of transmission: Direct from one person to another, indirectly via contaminated instruments, surfaces, and devices, via droplets such as coughing or sneezing, and airborne (e.g. aerosols).
A Focus on Modes of Transmission.

During daily practice routine, there is an increased risk of infection.

We now know exactly where there is an increased infection risk. Here, you can find out details about what happens during transmission by the various different modes.

Direct Modes of Transmission

**Droplet Infections**
When droplets form when people sneeze, cough, or just speak, pathogens such as flu viruses can be transmitted in the air. If these pathogens penetrate the mucous membranes and multiply there, infection can occur.

**Hands**
The hands are the most frequent means of the transmission of pathogens, since they come into contact with patients, instruments, surfaces, and devices. Everyday actions such as shaking hands can result in infection.

**Surfaces**
During treatment, surfaces are contaminated through contact with people, instruments, or aerosols. Unprotected contact with these contaminated surfaces can therefore result in infection.

**Instruments**
Instruments come into contact with saliva and blood during treatment and are therefore contaminated with pathogens. For this reason, unprotected contact with used instruments that have not been disinfected or sterilized poses a huge risk of infection.

Indirect modes of transmission

**Spray Mist Cloud (aerosols)**
The spray mist cloud is a mixture of saliva, blood, secretions, tooth substances, dentifrice, and other particles. It is created in dental operatories when patients are treated using powerful rotating drills in conjunction with cooling water. As a result pathogens enter the environment, often contaminating the entire treatment room.
Protection Against Infection Starts With Prevention.

Regular preventative measures ensure that the risk of infection is kept as low as possible. This protects the dental team, patients, and equipment.
Detailed Prevention Measures.

Prevention is the first step in efficiently reducing the risk of infection in everyday practice. Here, we show you which measures are particularly efficient and can quickly become part of your everyday routine.

**Dental Team**
- Careful hand washing and sanitizing is absolutely vital. This is because your hands are the most frequent means of transmission of pathogens.
- Protective clothing, gloves, goggles, and masks reduce the risk of droplet infection and direct/indirect contact infection.
- Vaccinations effectively minimize the risk of specific infections.
- The training of the dental team regarding the importance and correct implementation of infection prevention protocols is an important part.

**Patient**
- Taking a detailed medical history of the patient’s state of health – can detect possible infection risks arising from the patient and allow appropriate measures to be implemented.
- Mucous membrane antiseptic rinses reduce the pathogens in the patient’s saliva, on the mucous membranes, and in the spray mist cloud significantly.

**Operatory**
- The correct reprocessing of used instruments – by means of disinfection, cleaning, packaging, steam sterilization and storage – considerably reduces the risk of infection.
- The regular maintenance of devices in accordance with the instructions of the manufacturer and the replacement of damaged parts enable safe treatment for both the dental team and the patient.
- The thorough but gentle cleaning and disinfection of surfaces eliminates risks and contributes to preserving the value of the equipment at the same time.
- The regular cleaning of the evacuation system lines ensures consistently good suction and prolongs the life of your valuable equipment.
Effective Elimination Of Contamination.

It is simply impossible to completely prevent contamination during daily practice.

Cleaning removes dirt but cannot kill or deactivate pathogens. This requires a disinfectant, which – by definition – eliminates 99.999% of pathogens. Mostly, chemical substances that destroy the structure of germs are used, thus killing them or deactivating them.

Broad spectrum of action

Because there are different types of pathogens, disinfectants must be able to address each one of them. A good disinfectant must be bacteriocidal, virucidal, fungicidal, and tuberculocidal.

Applications

The effectiveness of disinfection depends on the application. There is not one disinfectant that will serve in all areas. A variety of disinfectants are needed to address the various sources of infection. For example, specific products are needed for hands, surfaces, instruments and devices and need to be used according to manufacturers instructions for use.

Neutralizing Pathogens

• Broad-spectrum: Bactericidal, fungicidal, tuberculocidal, virucidal
• Fast kill time
• Proven, reliable effectiveness
• High disinfection and cleaning power

Protecting people and material

• Particularly gentle on the skin
• Good compatibility with surfaces, instruments, and devices
• Easy-to-use thanks to simple dosing and convenient container sizes
• Cost-effective
• Long shelf life
• Pleasant smell
• Fast, residue-free drying

Sterilization

In addition to disinfection and cleaning, reliable instrument reprocessing requires steam sterilization in accordance with a validated procedure. Heating in steam at 134°C kills or deactivates 99.9999% of pathogens.
Rules To Ensure Safe Disinfection.

Even the best disinfectant can only work if used correctly. You just need to observe four simple principles:

01 Be thorough: The agent cannot work on areas that it does not cover.

02 It's all in the numbers: Observe the recommended concentration.

03 Be patient: Do not dilute, rinse or dry off the agent before the end of the specified contact time.

04 Have a routine: Regular application is key.
Infection Prevention as a Functional System.

When it comes to infection protection adopting a functional system can help create a culture of safety. The color-coded Monarch family of infection prevention products provide that system. It makes it easier to make the right choice for the right application at the right time.

The products are for surfaces, instruments, skin & hands, and equipment and designed to exceed practitioner’s expectations in terms of staff and patient safety, effectiveness and efficiency.

Surfaces
Disinfection, cleaning, and care for surfaces.

Skin and Hands
Cleaning, and care for the skin and hands.

Equipment
Cleaning for suction systems, and dental unit waterlines.

Instruments
Cleaning for instruments.