

## **Infection control through biocompatible aerosol disinfection**

**The infection protection in dental practices places ever-greater demands on dentists and their employees. As a result of the increasing number of infectiologically relevant pathogens the desire of low-germ environments comes into the focus of hygiene. A complementary method of scrubbing and wiping disinfection is now facing the responsibility of those involved.**

In our discipline, there are a variety of infection risks which can be minimized by careful anamnesis, basic principles of medical treatment and special hygiene measures. Especially in the predominantly surgically qualified dental practice special hygiene measures are of eminent importance. Despite high structural and technical expenses (separate operating theatre), improvements in surgical technique and antibiotic prophylaxis, postoperative infections in the surgical field are still an important complication of modern surgery. With a percentage of 15, 8 %, postoperative infections are the third most common nosocomial infections in Germany. Only urinary tract infections and pneumonia have a higher percentage. In order to protect patients, dental support personnel and dentists against infections certain hygiene requirements must be met. In this context the “Commission for Hospital Hygiene and Infection Prevention” at the Robert Koch Institute and the “Centers for Disease Control and Prevention” have formulated their standards of hygiene. Pathogens can be transmitted both directly and indirectly from the source of infection to humans. The disinfection treatment of contaminated items, equipment and surfaces is obligatory. The required result of a surface disinfection can only be achieved if the surface to be disinfected is completely wetted in compliance with the prescribed concentration and exposure time. Otherwise, the disinfection success is put at risk which leads to a multiplication of germs or a germ spreading of resistant bacteria. The risks of human infection by resistant bacteria are no longer just a problem of large hospitals. These deficiencies which often remain undetected for a long time are due to the application of traditional scrubbing and wiping disinfection methods. Such unnecessary deficiencies can be remedied by the additional use of an aerosol nebulization (Provider: DIOP disinfection, Germany). The principle of nebulization is that a use-dilution of special disinfectants is mechanically transformed into a fine aerosol using pressure and suitable nozzles. This gaseous nebulization is being accumulated in the air with the parameters of pressure, volume and time and finally settles on all surfaces. Thus, also hard to reach places in the room can be disinfected effectively. The ready-to-use disinfectant Diosol (DIOP disinfection, Germany) is a water-based solution containing peroxide and silver. Diosol is usually used in a concentration of 6 %, which corresponds to 3 % H<sub>2</sub>O<sub>2</sub>. This concentration has been used for decades to treat wounds, and can thus be classified as non-toxic. When used properly, the Diosol film evaporates without leaving any residues. In this case, the peroxide decomposes into water and oxygen. The application of a ready-to-use solution and the spreading via timer (no employees in the room) provides maximum safety. The disinfection system has been used in several field tests and studies e.g. in nursing homes and ambulances. Constant microbial reductions of 75-99 % were detected. Prerequisite for nebulizations was always a decent manual disinfection. In another study with over 60 dental practices the contamination level was determined after usual disinfection measures and again after additional nebulization. The investigations showed that after additional disinfection by nebulization, the proportion of practices with non-critical pathogens could be increased from previously 67 % to 90 %.

### **Conclusion**

Under appropriate conditions, the nebulization of hydrogen peroxide is a necessary and complementary measure to the usual wipe disinfection. With appropriate precleaning, even

high concentrations of bacteria, yeasts and viruses can safely be inactivated. The ease of use and the residue-free evaporation of the disinfection film exclude undesirable side effects for the support staff. The system provides a high level of security, taking economic considerations into account.

The nebulization done by the DiosolGenerator effectively disinfects all surfaces in the treatment room.

**Source:**

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