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W&H aims Advanced Infection prevention Management Solutions

The purpose **of disinfection**

The importance of disinfection in medicine can be traced back to Ignaz Semmelweis. As early as 1850, he proposed the hypothesis that puerperal fever is contagious and that the incidence of women falling ill could be greatly reduced by doctors and students disinfecting their hands with chlorinated lime water. J. Lister, one of the co-founders of aseptic surgery, introduced the chemical disinfectant phenol, which was used to disinfect surgical instruments.

Before sterilization takes place, reprocessed instruments and medical devices must be inspected for cleanliness and proper function, and assembled if necessary. Post-cleaning disinfection grants a sufficient level of infection protection to the staff member responsible for the inspection, assembly and functionality testing of instruments and devices.

The purpose of disinfection is to reduce disease-causing germs in such a way that any potential infection chain can be interrupted, and the germ count is kept as low as possible. With a **log reduction** of 5, no more than 10 out of 1,000,000 reproductive germs survive.

In EN ISO 15883-1 (2014), disinfection with respect to medical instruments is defined as follows:

Disinfection results in a reduction of the number of viable micro-organisms on a product or instrument to a level that has been specified beforehand. This level corresponds to the intended further handling or use of the product.

Important note: To protect medical products and instruments from potential damage and to ensure that their functionality is maintained, please ensure you always observe the manufacturer's instructions for processing (1).

A disinfection effect can be achieved by means of chemical or physical processes; some processes can be combined, such as in thermochemical processing.
As always, the following information applies: Devices or instruments that are going to be disinfected (or sterilized) must first be cleaned. This ensures that the disinfectant will be able to fully cover the device or instrument.

The mode of action of thermal disinfection entails the killing or destruction of germs by means of heat or moist heat. Where possible, preference should always be given to thermal processes over chemical processes. **Thermal processes** are easier to **validate** and monitor during the disinfection process. Staff exposure to adverse health and safety effects from chemical processes is substantially higher compared to thermal disinfection. The environmental impact with regard to chemical waste disposal is also of importance here. Compared with manual chemical disinfection, thermal disinfection distinguishes itself as the leading-edge process due to its stable performance and low error rate.

Preference should be given to thermal washer disinfectors offering automated cleaning and thermal disinfection processes. Indeed, the performance of both processes can be easily verified, validated and documented. This is not possible with manual processes. The risk of errors in the concentration of products, the contact/action times, etc. are virtually zero compared to manual methods. Finally, staff is much less exposed to the risk of infections due to handling that is kept to a minimum.

Chemical disinfection processes are carried out manually in general dental practice. Depending on the effectiveness of the disinfectant in question, and on the disinfectant resistance of particular germs, the level of germ reduction can vary (2).

Literature:
(1) ISO 17664
(2) WHO Library Cataloguing-in-Publication Data, Decontamination and reprocessing of medical devices for health-care facilities. World Health Organization. II. Pan American Health Organization. ISBN 978 92 4 154985 1