

Recommendations by the Quality Task Group (76)

Reprocessing Transmission Instruments in Dentistry

Continuation of Recommendation 74 – Reprocessing Transmission Instruments

This recommendation on «Reprocessing Transmission Instruments in Dentistry» is a continuation of Part 1, which was published in Issue 1/2012. In the meantime a commentary was published in Issue 2/2012 of *Central Service* to clarify this area of use.

Attention is drawn to the fact that the operator of the dental practice is responsible for risk assessment and for classification of medical devices, i. e. of transmission instruments too.

The requirements applicable in Germany are set out in the recommendation jointly compiled by the Robert Koch Institute and the German Federal Association for Drugs and Medical Devices (RKI/BfArM). Additional information on classification of dental instruments is given in the RKI Recommendation «Infection prevention in dentistry – hygiene requirements» (2006).

Reprocessing of transmission instruments (hand and angled pieces and turbines) must be exercised with meticulous care because of the → **INTRICATE DESIGN** of these medical devices. They may be contaminated with blood, saliva, secretions and particles. Any residues of soils may harbour pathogenic microorganisms. Depending on the respective device, there may also be internal contamination due to backflow (German publication on this topic by Köhnlein, Werner: *Infektionsrisiko durch Übertragungsinstrumente in der Zahnarztpraxis, 2010 in Quintessenz* [Infection risk posed by transmission instruments in dental practice, 2010 in Quintessenz]).

Adequate hygienic safety is assured only by thorough cleaning and disinfection, as well as sterilization if needed. It must be borne in mind that there can also be microbial contamination of the operating water or cooling water.

Due to the design of the transmission instruments with their drives, channels, collets, boring socket, angles and other internal surfaces (see Figure 1), there is a risk of blockage, or of deposits, in particular of very narrow channel systems and this could lead to malfunctioning. This could be caused by e. g.:

- abrasion
- backflow effect
- corrosion
- deposits of water constituents e.g. salts or lime
- unsuitable process chemicals for cleaning and disinfection.

I Preconditions for reprocessing

Transmission instruments for general, restorative or orthodontic treatment which had been → **ASSIGNED** to the semi-critical B group can be cleaned and disinfected using either an automated or a manual method.

For transmission instruments assigned by the operator to the critical B group (e. g. for surgical procedures, periodontic or endodontic treatment procedures), the reprocessing instructions given in recommendation 74 published in Issue 1/2012 of *Central Service* apply in principle.

For all medical devices preference should be given to automated reprocessing

- with validated processes
- while taking account of the manufacturer's instructions
- while taking account of how the instrument had been used
- while taking account of the intended subsequent use.

→ **THE INTRICATE DESIGN OF TRANSMISSION INSTRUMENTS** calls for meticulous care in reprocessing.



Fig. 1: Cross section of a transmission instrument (Sirona)

→ **CLASSIFICATION OF TRANSMISSION INSTRUMENTS** is the responsibility of the operator/user.

→ **THE PROCEDURE USED FOR REPROCESSING TRANSMISSION INSTRUMENTS** must be set out in writing (standard operating procedures, quality management).



Fig. 2: Head unit of a transmission instrument. Deposits and corrosion in tongs due to unsuitable reprocessing methods (Photo: Sirona)

→ **CLEANING** is a precondition for successful disinfection.

→ **FOR AUTOMATED CLEANING** there are different systems available in Germany.

→ **MANUAL CLEANING** is carried out with special systems that permit cleaning of internal surfaces.

→ This is followed by **THERMAL DISINFECTION OF TRANSMISSION INSTRUMENTS**.

In addition to the permanent members of the Quality Task Group of the DGSV, other experts have contributed to the formulation of this recommendation. The members of the DGSV Quality Task Group thank them for their support.

I Reprocessing transmission instruments in dentistry

→ **REPROCESSING TRANSMISSION INSTRUMENTS** comprises all the steps outlined in the RKI/BfArM Recommendation. These must be set out in writing in standard operating procedures (SOPs), while taking account of the circumstances of the respective operator/reprocessing unit. Instructions for drafting SOPs and checklists can be consulted for example in the infection control policy of the German Working Group for Hygiene in Dental Practices or the German Dental Association (DAHZ-BZAEK).

Preclean immediately after use

Transmission instruments must be rinsed for at least 20 seconds already at the site of use and immediately after use (as specified in 4.2 accessory instruments; RKI Recommendation for Dentistry: 2006). External course soils must be wiped off. If chemical substances are used, avoid protein fixation. The instruments are then dispatched for reprocessing.

Cleaning and disinfection

For the purpose of clarification, the terms cleaning and disinfection are now explained as understood by DIN EN ISO 17664:

Cleaning

This means the removal of soils from an object to the extent needed for subsequent reprocessing or intended use.

Disinfection

Disinfection is a process used to reduce the number of viable microorganisms on an object to the extent needed for subsequent use.

→ **CLEANING** is ascribed particular importance since visual inspection of intricate internal regions for cleanliness is not possible.

Automated cleaning and disinfection

In the dentistry setting in Germany (in hospitals and dental practices) two types of machines, whose principle of operation is essentially different, are used in general for → **AUTOMATED REPROCESSING**:

- special machines for cleaning, care and thermal disinfection of transmission instruments
- washer-disinfectors for medical devices with suitable adapters for cleaning and thermal disinfection of transmission instruments

Disinfection is carried out in both types of machines using a thermal process with an A_0 value of 3000. This also assures inactivation of viruses (entire virucidal spectrum). Batch documentation is needed for all processes.

Manual cleaning followed by thermal disinfection

Special, non-fixing chemicals are used for → **MANUAL CLEANING**. These are dispensed from spray bottles via special adapters to clean internal surfaces, while applying appropriate pressure. An expert opinion must be available on efficacy and application. External surfaces must be cleaned by wiping them off with a suitable detergent/disinfectant detergent.

Analogous to validated automated cleaning, evidence must be provided of the success of manual (spray) cleaning. The process steps listed in the standard operating procedures must be carefully observed and verified.

Test methods for manual cleaning steps will be formulated in the course of drafting the guideline for validated manual cleaning and chemical disinfection.

This is followed by validated → **THERMAL DISINFECTION**. The RKI recommendation for dentistry describes a thermal disinfection method in a steam sterilizer. This is endowed with bactericidal, fungicidal and virus-inactivating activity.

Care and functional testing

Each time instruments are cleaned and disinfected in a washer-disinfector, a lubricant must be applied to them, as per the manufacturer's instructions, before steam sterilization/steam disinfection.

Functional testing must be carried out before the instruments are put to use.

Sterilization and storage

Following cleaning, disinfection and lubrication, transmission instruments used for invasive procedures (critical B) are packed and sterilized in a class B steam sterilizer. Class S steam sterilizers can also be used if they have been approved for sterilization of transmission instruments.

Please consult the valid standards as regards storage of instruments. ■