Microbiological methods for the monitoring of cleaning, disinfection and sterilisation of medical devices

Coordinator: R.M. Blázquez

Authors: R. M. Blázquez, E. Cuchi, C. Martín-Salas, P. Ruiz-Garbajosa

a Department of Microbiology, Hospital Universitario JM Morales Meseguer, Murcia, Spain
b Department of Microbiology, Microbiology Catlab, Terrassa, Barcelona, Spain
c Department of Microbiology, Complejo Hospitalario de Navarra, Pamplona, Spain
d Microbiology Department, Hospital Universitario Ramón y Cajal, Madrid, Spain

Corresponding author: rblazquezg@yahoo.es (R.M. Blázquez)

We have a large number of reusable semi-critical devices at our disposal in modern medical practice. Use of such devices extends to many specialist medical areas for both diagnostic and therapeutic purposes. Every year, millions of procedures are carried out which involve the use of this type of material. However, reuse of such instruments is not without risk.

Among these risks is the possibility of cross-transmission of microorganisms from one patient to another. The cleaning and disinfection process for reusable devices is complex, long, expensive and very susceptible to failure. Hence the importance of establishing periodic microbiological controls to serve as an indicator of the quality of the cleaning and disinfection process. These aspects are put into practice in this procedure.

The procedure includes a scientific document and a technical document.

The scientific document covers the epidemiological aspects of infections associated with the reuse of semi-critical devices, the type of microorganisms involved according to the devices and the role of the microbiology laboratory in monitoring the cleaning and disinfection processes. The recommendations of different scientific societies on the relevance of microbiological monitoring are reviewed and specific recommendations made for sampling, periodicity of sampling, sample processing, interpretation of the results based on the type and quantity of microorganisms detected and measures to be taken according to the results obtained. It also discusses other alternative procedures to microbiology that allow the presence of organic residue to be detected and so reveal deficiencies in the cleaning and disinfection processes.

The technical document provides a series of procedures that can be performed in any microbiology laboratory.

It includes details on how to take samples from endoscopes and the water from washers, as well as recommendations on how to properly process the samples. It also provides advice on interpreting the results obtained from the cultures, in terms of helping decide on measures required in each case.

More details on all these aspects can be consulted in the microbiological procedure SEIMC [Sociedad Española de Enfermedades Infecciosas y Microbiología Clínica [Spanish Society of Infectious Diseases and Clinical Microbiology]] No. 61: “Microbiological methods for the monitoring of cleaning, disinfection and sterilisation of medical devices” (2nd edition 2017) (www.seimc.org/protocolos/microbiologia).