

In a hospital or clinic it is necessary that all equipment and materials used for treating patients are absolutely safe for use: the chance for spreading of diseases should be kept as small as possible. Cleaning, decontamination and sterilization are important methods in this battle against this ever present threat. Especially since the fatal disease *AIDS* became so powerful and spread world wide, the demand for proper procedures for infection control gained momentum enormously. Diseases such as Hepatitis B, known to be transmitted through contaminated surgical instruments, stimulated the need for stricter guidelines for disinfection and sterilization.

This book focuses on the most common and most safe method used for sterilization in the Central Sterile Service Departments in healthcare institutions: sterilization by pressurised high temperature steam.

A first major step to improvement of sterile supply is the training of all personnel involved (technicians, staff and users). Moreover, in the recently published European standards on sterilization, education is required of everybody involved in sterilization, whether it concerns the manufacturer of the sterilizing equipment or the technician maintaining or using it. This series of books provides a foundation needed to fulfil this requirement. Originally intended to educate technical service personnel in remote health institutions, it has grown into a textbook that can be used by anyone interested in sterilization.

The **International Federation for Sterile Supply (IFSS)** and the **European Forum for Hospital Sterile Supply (EFHSS)** are pleased to recommend the book to all their members and all others involved in sterilization practices.

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# Sterilization of Medical Supplies by Steam

Volume I – General Theory

Second Revised Edition

Jan Huys



**HEART** Consultancy

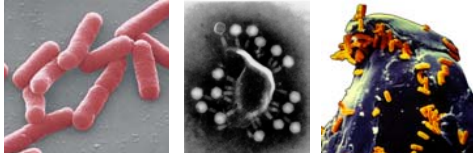


# Sterilization of Medical Supplies by Steam: *General Theory*

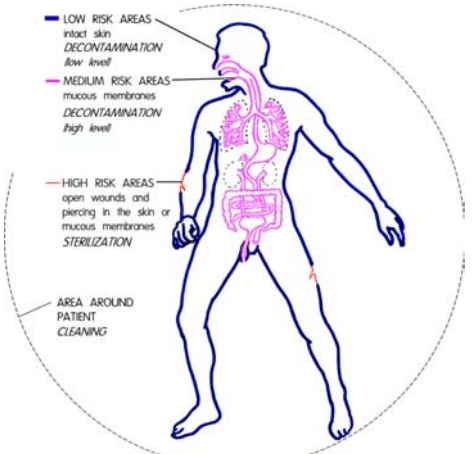
2<sup>nd</sup> Revised edition



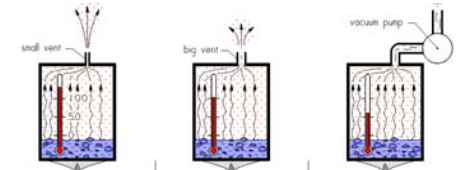
Sterile instruments and materials is a must



Threats: Bacteria and viruses. Contaminated needle



Risk areas of the body, basis for infection control



Explaining the physics of steam



Basic and advanced, small and large sterilizers

## Part I Invisible life

- Introduction: Increasing demand for infection control; importance of sterilization.
- Mystery of illness. Why do people get sick?
- Cells, building blocks of life.
- Microbiology: study of microorganisms worms, fungi, bacteria, viruses, prions.
- Battles of the body and spreading of diseases. Resident and transient flora. The body's first line of defence. Immune system, immunization, infection, Spread of disease. Risk areas of the body. Nosocomial infections.

## Part II Preventing spread of infections

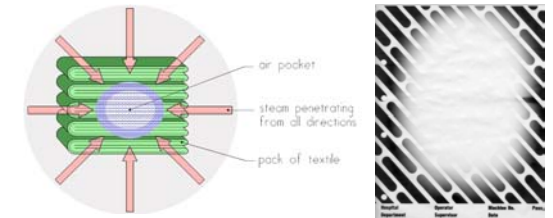
- Infection prevention by cleaning, decontamination, sterilization, hygiene and asepsis.
- The sterile supply cycle.
- Reducing the bioburden. Methods of inactivation. Coagulation and oxidation. When is something sterile? Testing sterilization performance.
- Methods of sterilization: flaming, incineration, moist heat (steam), dry hot air, steam/formaldehyde, ethylene oxide, irradiation gas plasma, filtration.

## Part III Sterilization by saturated steam

- Steam as agent for sterilization. Pressure, temperature, heat, steam, steam curve
- Basic steam sterilizers.
- Sterilization of hollow instruments and porous loads. Air problem, vacuum systems, processes, sterilizer design.
- Process control. Manual control. Electro-magnetic control. Computer control.
- International standards for sterilization. Need for harmonization. Medical Device Directive. CE mark. Validation. Sterilizer requirements. Sterilization Unit.

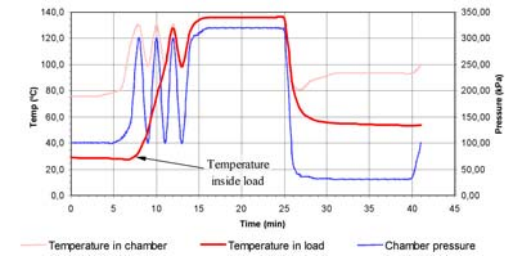
## Features

- Fully revised edition considering new developments and trends.
- A medical training is not required.
- All subjects related to physics and engineering required to understand the sterilization processes and equipment are explained.
- Easy to understand English.
- Extensive glossary of terms and index.
- 295 pages; more than 200 coloured illustrations, photos, graphs and tables.
- Can be used as textbook for a course as well as for studying on your own.
- Foreword by EFHSS and IFSS.

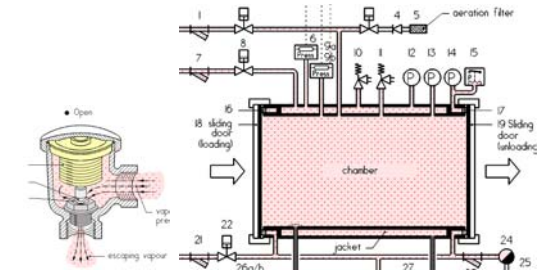


Air problem in porous loads

Steam penetration test



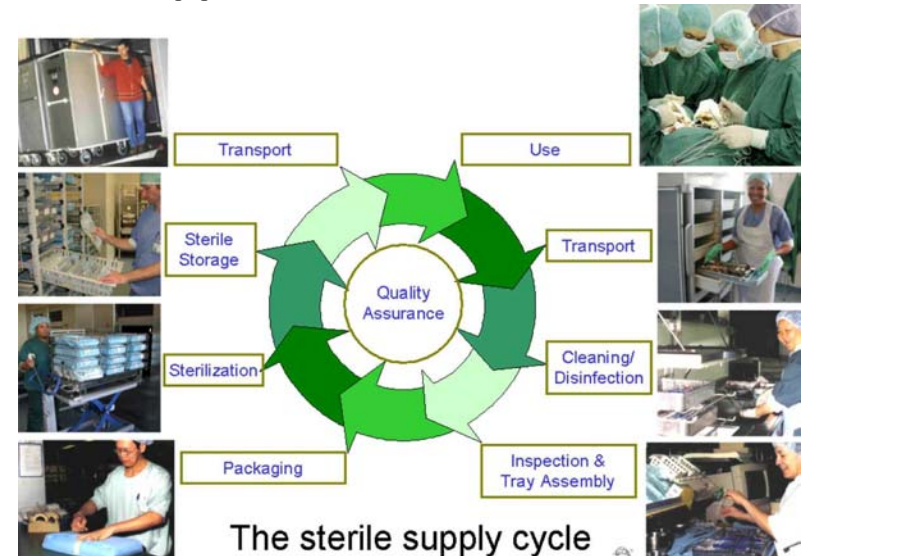
Understanding the steam sterilization process.



Explanation of sterilizer technology

## This book is aiming at

- Sterile services personnel.
- Technicians and supervisors in sterile supply departments.
- Engineers who are associated with projects for developing sterile services.
- Those engaged in promoting or developing sterile services.
- Anyone whose task it is to look after and operate sterilization equipment.



The sterile supply cycle