BIOSAFETY AND INFECTION CONTROL
BIOSEGURANÇA E CONTROLE DE INFECÇÕES
BIOSEGURIDAD Y CONTROL DE INFECCIONES

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Hospital infection control represents one of the international goals of patient care quality and safety. As the infection is acquired, length of hospital stay increases as well as health institution social and economic costs. Therefore, everyone in the multiprofessional team is responsible for this control, through educational measures and good practices. The aim of this review was to present the main aspects related to biosafety practices and infection control for health professionals.

In 2004, author Sylvia Lemos Hinrichsen released the first edition of the book Biossegurança e Controle de Infecções (“Biosafety and Infection Control”) with seventy-one chapters published by Medsi. In 2014, the author released the expanded second edition published by Guanabara Koogan updated with seventy chapters and new graphics. She had the collaboration of nurses, physicians, biologists, engineers, assistants, biomedicals and managers, a total of 29 collaborators for the second edition.

This edition is separated in three parts: the first is related to biosafety and has forty-one chapters. The second part approaches infection control and has sixteen chapters. The last part presents a list of microorganisms and antimicrobials, with thirteen chapters.

The first chapter discusses the biosafety concept and its importance to healthcare professionals. The chapter approaches biosafety interfaces, law, symbols, assistance, the perception of professionals and its overall perceived image.

The second chapter provides basic guidelines for healthcare facilities in terms of hospital architecture, specific areas such as the Sterilized Material Center (SMC), clothes processing sector, nutrition, critical, semicritical and noncritical areas and risk map.

The third chapter describes the four levels of physical biosafety in health services, considering pathogenicity, virulence and endemicity to humans. It also approaches the modes of transmission and the existence or not of prophylaxis and effective therapies for this classification.

The fourth chapter approaches the risks related to work in laboratories conceptualizing the types of risks and preventive measures, individual risk level, biosafety levels, primary containment barriers and collective protection equipment. This chapter also makes general recommendations on sharps, biological and general waste.

The fifth chapter describes how bacteriological control of hospital water, hemodialysis water quality and water storage care for prevention of healthcare-associated infections (HAIs).
The sixth chapter indicates the importance and the right moment for hands hygiene, ideal antiseptic and soaps and the international goals for patient care safety and quality. The seventh chapter informs which antimicrobial spectra and antiseptic agents characteristics are used for hand hygiene, such as the use of alcohol and the reasons for low adherence to the technique.

The eighth chapter discusses the use and importance of Personal Protective Equipment (PPE) in standard and specific precautions, pathogen transmission mode, defining the physical area of isolation and which diseases require or not specific precautions. The chapter also approaches how patients should be transformed, visitors’ education and care in special situations, such as: placenta, immunocompromised patients and ornamental plants. It emphasizes the infectious processes control, the factors that contribute to the occurrence of nosocomial infection and what is done by the hospital to control it.

The ninth chapter approaches the personnel policy recommendations on NR-32, focusing on safety and risk types to which professionals are exposed during the work day. The tenth chapter informs biosafety measures in isolation units and the microorganisms transmission modes in these locations.

The 11th chapter guides the care of patients with AIDS and/or HIV and which microorganisms most affect them.

The 12th recommends biosafety in shared rooms with one bathroom because of the dissemination of infectious agents from one patient to another.

The 13th chapter proves the effectiveness of the epidemiological point of view on how to control HAIs using protocols and processes established by the institution.

The 14th chapter describes the handling of clothes in health services, where the wardrobes and the washing processes should be located.

The 15th chapter informs how prevention measures for infections in hospitals, home care, day-care centers and schools should be.

The 16th chapter classifies surgical wounds, discusses antibiotic prophylaxis, infection potential and prevention in surgical wounds.

The 17th chapter addresses concerns about hair removal, preoperative antiseptic bath recommended for skin and mucous membranes.

The 18th describes wound types, which procedures should be performed, and the covers to be used in healing process.

The 19th chapter reports the difficulties and how to perform the physical barrier in surgical settings. The 20th chapter indicates which surgical masks are used as a physical barrier.

The 21st approaches the vascular access, concept, types, indications and maintenance. The 22nd chapter discusses bloodstream infections and times for replacing vascular catheters.

The 23rd and 24th chapters discuss, respectively, how to control and prevent infections in delivery rooms and in neonatal units.

The 25th approaches the objectives of rooming and the 26th discusses the milk bank, human milk indications, microbiological control, milk donors and the transmission of infection through breastfeeding.

The 27th points out the differences of intensive unit models and activities and recommendations that promote infection control, approaching hand hygiene and the use of gloves. The 28th reports which risk factors patients have in this unit and which microorganisms most affect them.

From the 29th to the 33rd chapter, the book gives recommendations on the use of wax, curtains, cell phones in the hospital environment and medical products control, processing and storage.

The 34th highlights hospital cleaning. It approaches the prevention of sharps injuries, PPE and collective protective equipment, solutions, techniques and equipment used in hospital cleaning.

From chapter 35th to 39th there are recommendations on microorganisms control in the laboratory and in the SMC. It also describes the physical structure of the SMC, the hospital supplies and the supplies sterilization and disinfection process. The use of tape in sterilization and reprocessing of these items is also addressed.

The 40th chapter shows how to control pests and which microorganisms are spread by them.

The 41st and last chapter of this book approaches medical waste and solid waste management.

The second part of the book begins at the 42nd chapter and deals with the importance of HAIs control.

The 43rd and 44th chapter approach, respectively, infection in newborns and the definition of neonatal sepsis.

The 45th deals with the ethical and legal aspects of infectious hospital processes, relations with surveillance and care quality.
The 46th exposes the epidemiological surveillance, as well as data collection methods, and which diseases have compulsory notification. The 47th chapter discusses the investigation of microorganisms involved in outbreaks.

The 48th mentions quality and safety in the hospital health risk.

The 49th approaches the importance of microbiology related to nosocomial infections and the 50th mentions the laboratory role on infection control.

The 51st discusses the gram-negative microbial agents as the cause of infectious processes and mentions the predisposing factors. The 52nd approaches the importance of multiresistant agents in HAIs control. The 53rd gives recommendations to control Methicillin-resistant Staphylococcus aureus (MRSA/MARSA). The 54th discusses genotyping and phenotyping of HIV-1 to antiretroviral drugs.

The 55th reports infectious processes and Candida treatment.

The 56th discusses occupational diseases among workers and their prevention in health care units. The 57th approaches immunization indication types.

In the third and last part of this book, the 58th chapter narrates which microorganisms are associated with HAIs, where they remain located, how they are classified and how they can be prevented.

The 59th mentions the importance and control measures of HAIs. The 60th chapter lists the fungal pathogenic infections, from the most known to the less known.

The 61st traces prophylactic antibiotics most suitable for surgery and other situations of infections. The 62nd mentions the prophylaxis for contact with meningococcal meningitis and other infectious agents.

Chapters 63 to 68 list the indication, spectrum, toxicity, dosage and administration of antibiotics, topical antimicrobial, antituberculosis drugs, antifungals, antiparasitics and antivirals.

The 69th mentions penicillin, from the hypersensitive types, contraindications, desensitization of allergic patients and their anaphylaxis.

The 70th and final chapter describes the microorganisms, antimicrobials and their therapies.

Therefore, the referred book offers up-to-date literature and an excellent tool for acquiring knowledge on the subject, in a didactic, objective and comprehensive manner.