

## Chapter 1 : Workplace safety - infection control - Better Health Channel

*Infection control prevents or stops the spread of infections in healthcare settings. This site includes an overview of how infections spread, ways to prevent the spread of infections, and more detailed recommendations by type of healthcare setting.*

Sterilization[ edit ] Sterilization is a process intended to kill all microorganisms and is the highest level of microbial kill that is possible. Sterilizers may be heat only, steam, or liquid chemical. Second heat sensitive indicators or tape on the sterilizing bags change color which indicate proper levels of heat or steam. And, third most importantly is biological testing in which a microorganism that is highly heat and chemical resistant often the bacterial endospore is selected as the standard challenge. If the process kills this microorganism, the sterilizer is considered to be effective. It should be used for the cleaning of the medical instruments or gloves , and basically any type of medical item that comes into contact with the blood stream and sterile tissues. There are four main ways in which such items can be sterilized: The first two are the most used methods of sterilizations mainly because of their accessibility and availability. Steam sterilization is one of the most effective types of sterilizations, if done correctly which is often hard to achieve. Instruments that are used in health care facilities are usually sterilized with this method. The general rule in this case is that in order to perform an effective sterilization, the steam must get into contact with all the surfaces that are meant to be disinfected. On the other hand, dry heat sterilization, which is performed with the help of an oven, is also an accessible type of sterilization, although it can only be used to disinfect instruments that are made of metal or glass. The very high temperatures needed to perform sterilization in this way are able to melt the instruments that are not made of glass or metal. In these conditions, rubber items must be sterilized for 20 minutes, and wrapped items C with pressure of kPa for 7 minutes. The time is counted once the temperature that is needed has been reached. Steam sterilization requires four conditions in order to be efficient: Dry heat sterilization is performed at C F for one hour or two hours at a temperature of C F. Dry heat sterilization can also be performed at C, for at least 16 hours. The items sterilized with cold sterilization are usually those that can be damaged by regular sterilization. Commonly, glutaraldehydes and formaldehyde are used in this process, but in different ways. Chemical sterilization is generally more expensive than steam sterilization and therefore it is used for instruments that cannot be disinfected otherwise. After the instruments have been soaked in the chemical solutions, they are mandatory to be rinsed with sterile water which will remove the residues from the disinfectants. This is the reason why needles and syringes are not sterilized in this way, as the residues left by the chemical solution that has been used to disinfect them cannot be washed off with water and they may interfere with the administered treatment. Although formaldehyde is less expensive than glutaraldehydes, it is also more irritating to the eyes , skin and respiratory tract and is classified as a potential carcinogen. These methods include gas , UV, gas plasma , and chemical sterilization with agents such as peroxyacetic acid or paraformaldehyde. Cleaning[ edit ] Infections can be prevented from occurring in homes as well. In order to reduce their chances to contract an infection, individuals are recommended to maintain a good hygiene by washing their hands after every contact with questionable areas or bodily fluids and by disposing of garbage at regular intervals to prevent germs from growing. Ultraviolet light has also been used to disinfect the rooms of patients infected with *Clostridium difficile* after discharge. The hazard in a health care setting is exposure to blood, saliva, or other bodily fluids or aerosols that may carry infectious materials such as Hepatitis C , HIV , or other blood borne or bodily fluid pathogen. PPE prevents contact with a potentially infectious material by creating a physical barrier between the potential infectious material and the healthcare worker. The United States Occupational Safety and Health Administration OSHA requires the use of Personal protective equipment PPE by workers to guard against blood borne pathogens if there is a reasonably anticipated exposure to blood or other potentially infectious materials. How many components are used and how the components are used is often determined by regulations or the infection control protocol of the facility in question. Many or most of these items are disposable to avoid carrying infectious materials from one patient to another patient and to avoid difficult or costly disinfection. Antimicrobial copper-alloy touch surfaces

Products made with antimicrobial copper alloy brasses , bronzes , cupronickel , copper-nickel-zinc, and others surfaces destroy a wide range of microorganisms in a short period of time. H7, methicillin -resistant Staphylococcus aureus MRSA , Staphylococcus , Enterobacter aerogenes, and Pseudomonas aeruginosa in less than 2 hours of contact. Other investigations have demonstrated the efficacy of antimicrobial copper alloys to destroy Clostridium difficile , influenza A virus , adenovirus , and fungi. The synthetic hard surface is being installed in the United States as well as in Israel. Vaccines are available to provide some protection to workers in a healthcare setting. Depending on regulation, recommendation, the specific work function, or personal preference, healthcare workers or first responders may receive vaccinations for hepatitis B ; influenza ; measles, mumps and rubella ; Tetanus, diphtheria, pertussis ; N. Disease surveillance Surveillance is the act of infection investigation using the CDC definitions. Surveillance definitions exist for infections of the bloodstream, urinary tract, pneumonia,surgical sites and gastroenteritis. Surveillance traditionally involved significant manual data assessment and entry in order to assess preventative actions such as isolation of patients with an infectious disease. Increasingly, computerized software solutions are becoming available that assess incoming risk messages from microbiology and other online sources. By reducing the need for data entry, software can reduce the data workload of ICPs, freeing them to concentrate on clinical surveillance. As of , approximately one third of healthcare acquired infections were preventable. CDC found in the s that hospitals reduced their nosocomial infection rates by approximately 32 per cent by focusing on surveillance activities and prevention efforts. Isolation health care In the health care context, medical isolation refers to various physical measures taken to interrupt nosocomial spread of contagious diseases. Various forms of isolation exist, and are applied depending on the type of infection and agent involved, to address the likelihood of spread via airborne particles or droplets, by direct skin contact, or via contact with body fluids. In cases where infection is merely suspected, individuals may be quarantined until the incubation period has passed and the disease manifests itself or the person remains healthy. Groups may undergo quarantine, or in the case of communities, a cordon sanitaire may be imposed to prevent infection from spreading beyond the community, or in the case of protective sequestration , into a community. Public health authorities may implement other forms of social distancing , such as school closings, to control an epidemic. If a true outbreak is discovered, infection control practitioners try to determine what permitted the outbreak to occur, and to rearrange the conditions to prevent ongoing propagation of the infection. Often, breaches in good practice are responsible, although sometimes other factors such as construction may be the source of the problem. Outbreak investigations have more than a single purpose. These investigations are carried out in order to prevent additional cases in the current outbreak, prevent future outbreaks, learn about a new disease or learn something new about an old disease. Reassuring the public, minimizing the economic and social disruption as well as teaching epidemiology are some other obvious objectives of outbreak investigations. The results of outbreak investigations are always made public in the means of a report in which the findings are communicated to the authorities, media, scientific community and so on. These reports are commonly used as pedagogical tools. Training in infection control and health care epidemiology[ edit ] Practitioners can come from several different educational streams. Many begin as nurses, some as medical technologists particularly in clinical microbiology , and some as physicians typically infectious disease specialists. Specialized training in infection control and health care epidemiology are offered by the professional organizations described below. Physicians who desire to become infection control practitioners often are trained in the context of an infectious disease fellowship. In the United States, Certification Board of Infection Control and Epidemiology is a private company that certifies infection control practitioners based on their educational background and professional experience, in conjunction with testing their knowledge base with standardized exams. It is recommended that one has 2 years of Infection Control experience before applying for the exam. Certification must be renewed every five years.

**Chapter 2 : Infection Prevention and Control (IPAC)**

*According to the Centers for Disease Control and Prevention, one out of every 20 hospitalized patients will contract a healthcare-associated infection. The spread of these infections, however, can.*

The spread of these infections, however, can be controlled. There are several simple and cost-effective strategies that can help prevent infections, from the basic tenet of hand hygiene to the team-oriented approach of Comprehensive Unit-based Safety Programs. Four infection prevention and process improvement experts weigh-in on the 10 best strategies for prevention of infections. According to the CDC, this is the simplest approach to preventing the spread of infections and needs to be incorporated into the culture of the organization. Surgical team personnel should wash their arms and forearms before a procedure and put on sterile gloves, according to CDC guidelines for infection control. Certain types of microbial bacteria are capable of surviving on environmental surfaces for months at a time, according to Mr. When healthcare providers or patients touch these surfaces with their skin, the bacteria can be transmitted, causing infection. Thus, it is essential that the environment be kept clean and disinfected. Patients and their families are now the biggest advocates of medical safety, and Mr. Garrett suggests including them in infection prevention protocols, especially with respect to maintaining a clean and sanitary environment. It is also important to involve multidisciplinary environmental hygiene teams in meetings regarding adherence to infection prevention protocols. Kenneley, PhD, APRN-BC, assistant professor at the Frances Payne Bolton School of Nursing at Case Western Reserve University in Cleveland and member of the Association for Professionals in Infection Control and Prevention, says that meeting with environmental services and sharing in-house surveillance data helps them relate housekeeping tasks with the spread of infection and helps ensure optimal environmental hygiene. Screening and cohorting patients. These patients must then be treated prior to surgery or any other procedure. However, it is essential that patients who are suffering from the same disease or infection should be kept together in a designated area. Infections can spread easily from one patient to another if they are being treated in the same area, with the same staff and shared patient care equipment. Some infectious agents are even airborne, says the CDC. Organizations must also evaluate whether the staff is adhering to specific protocols for specific infections, Dr. The staff at a healthcare organization may sometimes be the cause of the spread of infections. They come into contact with patients with different types of diseases and may contract infections, according to the CDC. As a result, organizations must make sure that recommended vaccinations are being administered to their staff as recommended. It results in decreased transmission risk to co-workers and patients. Through surveillance, organizations should gather data regarding infection patterns at their facility. They should also regularly assess current infection prevention protocols. Having a robust infection surveillance program helps organizations measure outcomes, assess processes of care and promote patient safety, says Mr. Sharing the data that the infection surveillance program gathers is the next step. The misuse and overuse of antibiotics can put patients at a risk of contracting infections, according to the Association for Professionals in Infection Control and Epidemiology. Inappropriate antibiotic use may also result in patients becoming resistant to some drugs. If those patients contract an infection, it becomes harder to treat them and the risk of it spreading increases. Schweon suggests establishing a program to assist with appropriate antibiotic selection and dosing. This helps optimize patient outcomes and minimize adverse events like C. Breakdown of communication in the surgical preparation, planning and postoperative care management among various care providers during the care transition process can lead to surgical site infections that could otherwise be avoided, says Ms. Often, the concept of "stopping the line" is not practiced, which is when care providers are doubtful if certain necessary infection prevention or surgical preparation activities have been completed by the previous care providers, and they halt the care transition process until the matter is resolved. Organizations must avoid situations where a certain process is overlooked by a department that assumes another department has already completed that it. There needs to be coordination of care and communication within the surgical team as well. There is a risk of breaking the sterile field in the surgery room particularly around the portion of the surgical procedure when multiple, critical activities are

taking place at the same time that require staff to multitask, she says. Care coordination goes a long way in preventing surgical site infections. Keeping abreast of the latest findings regarding the spread of infections and strategies for prevention is essential for a successful infection prevention program. What is new in the infection prevention field may not necessarily be the best fit for your organization, says Ms. Appreciating all the departments that support the infection prevention program. All caregivers are accountable, and to encourage infection prevention protocols, healthcare professionals should show appreciation for all the people who help keep infections at bay, from the people who prepare surgical instruments for the operating room to those preparing the food safely for patients, staff and visitors, says Mr. Comprehensive Unit-based Safety Programs. The Comprehensive Unit-based Safety Program is a structured strategic framework for patient safety improvement that integrates communication, teamwork and leadership, according to the Agency for Healthcare Research and Quality. Each unit should have its own infection prevention champions, with these individuals becoming an extension of the infection prevention and control department, adds Mr. Each of these strategies helps organizations keep the spread of infections at bay. When implemented, supported and carried out together, these 10 strategies are instrumental in ensuring the success of an infection prevention program at an organization. More Articles on Infection Prevention:

### Chapter 3 : Bug Control Infection Prevention and Control Services

*Infection prevention and control demands a basic understanding of the epidemiology of diseases; risk factors that increase patient susceptibility to infection; and the practices, procedures and treatments that may result in infections.*

### Chapter 4 : Infection Prevention Control

*Goals. The mission of the WHO Infection Prevention and Control in Health Care initiative is to assist Member States in reducing dissemination of infections associated with healthcare, by assisting with the assessment, planning, implementation and evaluation of national infection control policies.*

### Chapter 5 : Infection Prevention and Control

*Nursing Infection Control Education Network. ANA and the Centers for Disease Control and Prevention (CDC) have partnered with 20 NICE Network members to develop the Nursing Infection Control Education Network (NICE Network).*

### Chapter 6 : AAOHN : Infection Prevention & Control

*Infection Prevention and You (Association for Professionals in Infection Control and Epidemiology) - PDF Patient Safety: What You Can Do to Be a Safe Patient (Centers for Disease Control and Prevention).*

### Chapter 7 : APIC | Certification

*Infection Prevention and Control Facebook Twitter LinkedIn Email Policymakers increasingly are focused on identifying policy mechanisms to reduce the numbers of infections that may result from patients' stays in hospitals and other health care facilities.*

### Chapter 8 : Infection control - Wikipedia

*Infection Prevention and Control - helping you meet CQC requirements. An innovative IPC website developed by a NHS Community IPC Team to help you reduce healthcare associated infection and hospital admissions.*

### Chapter 9 : Infection Prevention and Control Guidelines - Minnesota Dept. of Health

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