

Prevention of communicable diseases essay sample



**ASSIGN
BUSTER**

There are three levels of infection control (IC) measures: administrative (managerial), environmental, and personal respiratory protection.

Administrative controls are the most important since environmental controls and personal respiratory protection will not work in the absence of solid administrative control measures. Each level operates at a different point in the transmission process:

- Administrative controls reduce HCW and patient exposure

- Environmental controls reduce the concentration of infectious droplet nuclei
- Personal respiratory protection protects HCWs in areas where the concentration of droplet nuclei cannot be adequately reduced by administrative and environmental controls.

1st Priority Administrative Controls

2nd Priority Environmental Controls

3rd Priority Personal Respiratory Protection

Administrative (managerial) controls:

The first and most important level of control is the use of administrative controls to prevent droplet nuclei from being generated and thus reducing the exposure of HCWs and patients to *M. tuberculosis*. Ideally, if the risk of exposure can be eliminated, no further controls are needed. Unfortunately, the risk usually cannot be eliminated, but it can be significantly reduced with proper administrative measures. Important administrative measures include early diagnosis of potentially infectious TB patients, prompt separation or isolation of infectious TB patients, and the prompt initiation of appropriate anti-tuberculosis treatment. Other important measures include an

assessment of the risk of transmission in the facility, the development of an IC plan that details in writing the measures that should be taken in a given facility, and adequate training of HCWs to implement the plan. It is essential that one individual be assigned responsibility and accorded authority to monitor the implementation of the IC plan. Administrative measures for the district and referral levels are more thoroughly presented in Chapter 4.

Personal respiratory protection

The third recommended control measure is the protection of the HCW from inhaling infectious droplets through the use of personal respiratory protective devices which are designed to fit over the mouth and nose and filter out infectious TB particles. The type of surgical masks (cloth, paper) commonly used by HCWs do not filter out infectious droplet nuclei, although they may be of some use if placed on patients to prevent the generation of such nuclei. Personal respiratory protective devices for HCWs that are capable of adequately filtering out infectious particles are more expensive than surgical masks and are the least effective of the three IC measures.

They should not supplant more effective, less expensive, IC measures.

Therefore, they should only be used in specialized settings. ADMINISTRATIVE

CONTROL MEASURES

Administrative (Managerial) Control Measures

The development of administrative TB control measures should take precedence over all other interventions to reduce nosocomial *M. tuberculosis* transmission. Without effective administrative controls, environmental measures and personal respiratory protection are of limited value.

As mentioned in the introduction, these guidelines are written to address IC for two levels of health care facilities: district (aid posts, dispensaries, health centers, and hospitals) and referral (regional or national and university hospitals). In most situations, this categorization holds true, however, there may be some difficulties in classifying some health facilities. For example, a district hospital may actually be quite large, have specialized services and therefore more closely approximate a referral level health care facility. With this in mind, the critical elements of TB administrative controls for the two levels are presented. It should be noted, however, that each successive level of administrative control builds upon the level below (i. e., the referral level should implement the measures suggested for the district level in addition to referral level measures).

Infection control plan

The next step is to write an IC plan and obtain the approval of appropriate authorities. The IC plan should then be implemented and adherence with its recommendations should be monitored. Together, the district TB control officer and the health post HCW or clinic director should assume the responsibility for writing and obtaining approval as well as implementing and monitoring the IC plan. For larger facilities (e. g., district hospital), a small committee can be formed with the responsibility to write and implement the IC plan. In certain settings, having an IC plan for TB alone might be not feasible. Thus, if the facility already has an IC committee, measures appropriate for the control of TB could also be part of the more general IC measures.

In general, the IC plan should include:

- identification of risk areas
- assessment of TB among HCWs (where feasible)
- assessment of HIV prevalence in the patient population (where feasible) • assessment of HCW training needs
- area-specific infection control recommendations
- time-line and budget (e. g., material and personnel costs)

HCW training

Infection control is effective only if each person working in a facility understands the importance of IC policies and his/her role in implementing them. As part of the training, each HCW should receive instruction appropriate for his/her job category. Ideally, training should be conducted before initial assignment, and continuing education should be provided to all employees. All HCWs working at the district level should receive ongoing education. Viral Hepatitis and Human immunodeficiency virus (HIV)

Precautions To Prevent Transmission

Universal Precautions

1. All health-care workers should routinely use appropriate barrier precautions to prevent skin and mucous-membrane exposure when contact with blood or other body fluids of any patient is anticipated. Gloves should be worn for touching blood and body fluids, mucous membranes, or non-intact skin of all patients, for handling items or surfaces soiled with blood or body fluids, and for performing venipuncture and other vascular access procedures. Gloves should be changed after contact with each patient.

Masks and protective eyewear or face shields should be worn during
<https://assignbuster.com/prevention-of-communicable-diseases-essay-sample/>

procedures that are likely to generate droplets of blood or other body fluids to prevent exposure of mucous membranes of the mouth, nose, and eyes. Gowns or aprons should be worn during procedures that are likely to generate splashes of blood or other body fluids. 2. Hands and other skin surfaces should be washed immediately and thoroughly if contaminated with blood or other body fluids. Hands should be washed immediately after gloves are removed. 3. All health-care workers should take precautions to prevent injuries caused by needles, scalpels, and other sharp instruments or devices during procedures; when cleaning used instruments; during disposal of used needles; and when handling sharp instruments after procedures.

To prevent needlestick injuries, needles should not be recapped, purposely bent or broken by hand, removed from disposable syringes, or otherwise manipulated by hand. After they are used, disposable syringes and needles, scalpel blades, and other sharp items should be placed in puncture-resistant containers for disposal; the puncture-resistant containers should be located as close as practical to the use area. Large-bore reusable needles should be placed in a puncture-resistant container for transport to the reprocessing area. 4. Although saliva has not been implicated in HIV transmission, to minimize the need for emergency mouth-to-mouth resuscitation, mouthpieces, resuscitation bags, or other ventilation devices should be available for use in areas in which the need for resuscitation is predictable. 5. Health-care workers who have exudative lesions or weeping dermatitis should refrain from all direct patient care and from handling patient-care equipment until the condition resolves.

6. Pregnant health-care workers are not known to be at greater risk of contracting HIV infection than health-care workers who are not pregnant; however, if a health-care worker develops HIV infection during pregnancy, the infant is at risk of infection resulting from perinatal transmission. Because of this risk, pregnant health-care workers should be especially familiar with and strictly adhere to precautions to minimize the risk of HIV transmission. Implementation of universal blood and body-fluid precautions for ALL patients eliminates the need for use of the isolation category of “Blood and Body Fluid Precautions” previously recommended by CDC (7) for patients known or suspected to be infected with blood-borne pathogens. Isolation precautions (e. g., enteric, “ AFB” {7}) should be used as necessary if associated conditions, such as infectious diarrhea or tuberculosis, are diagnosed or suspected. Precautions for Invasive Procedures

In this document, an invasive procedure is defined as surgical entry into tissues, cavities, or organs or repair of major traumatic injuries 1) in an operating or delivery room, emergency department, or outpatient setting, including both physicians’ and dentists’ offices; 2) cardiac catheterization and angiographic procedures; 3) a vaginal or cesarean delivery or other invasive obstetric procedure during which bleeding may occur; or 4) the manipulation, cutting, or removal of any oral or perioral tissues, including tooth structure, during which bleeding occurs or the potential for bleeding exists. The universal blood and body-fluid precautions listed above, combined with the precautions listed below, should be the minimum precautions for ALL such invasive procedures. 1. All health-care workers who participate in invasive procedures must routinely use appropriate barrier

precautions to prevent skin and mucous-membrane contact with blood and other body fluids of all patients. Gloves and surgical masks must be worn for all invasive procedures.

Protective eyewear or face shields should be worn for procedures that commonly result in the generation of droplets, splashing of blood or other body fluids, or the generation of bone chips. Gowns or aprons made of materials that provide an effective barrier should be worn during invasive procedures that are likely to result in the splashing of blood or other body fluids. All health-care workers who perform or assist in vaginal or cesarean deliveries should wear gloves and gowns when handling the placenta or the infant until blood and amniotic fluid have been removed from the infant's skin and should wear gloves during post-delivery care of the umbilical cord.

2. If a glove is torn or a needlestick or other injury occurs, the glove should be removed and a new glove used as promptly as patient safety permits; the needle or instrument involved in the incident should also be removed from the sterile field.

Precautions for Dentistry *

Blood, saliva, and gingival fluid from ALL dental patients should be considered infective. Special emphasis should be placed on the following precautions for preventing transmission of blood-borne pathogens in dental practice in both institutional and non-institutional settings. 1. In addition to wearing gloves for contact with oral mucous membranes of all patients, all dental workers should wear surgical masks and protective eyewear or chin-length plastic face shields during dental procedures in which splashing or spattering of blood, saliva, or gingival fluids is likely. Rubber dams, high-

<https://assignbuster.com/prevention-of-communicable-diseases-essay-sample/>

speed evacuation and proper patient positioning, when appropriate, should be utilized to minimize generation of droplets and spatter. 2. Handpieces should be sterilized after use with each patient, since blood, saliva, or gingival fluid of patients may be aspirated into the handpiece or waterline. Handpieces that cannot be sterilized should at least be flushed, the outside surface cleaned and wiped with a suitable chemical germicide, and then rinsed. Handpieces should be flushed at the beginning of the day and after use with each patient. Manufacturers' recommendations should be followed for use and maintenance of waterlines and check valves and for flushing of handpieces. The same precautions should be used for ultrasonic scalers and air/water syringes.

3. Blood and saliva should be thoroughly and carefully cleaned from material that has been used in the mouth (e. g., impression materials, bite registration), especially before polishing and grinding intra-oral devices. Contaminated materials, impressions, and intra-oral devices should also be cleaned and disinfected before being handled in the dental laboratory and before they are placed in the patient's mouth. Because of the increasing variety of dental materials used intra-orally, dental workers should consult with manufacturers as to the stability of specific materials when using disinfection procedures. 4. Dental equipment and surfaces that are difficult to disinfect (e. g., light handles or X-ray-unit heads) and that may become contaminated should be wrapped with impervious-backed paper, aluminum foil, or clear plastic wrap. The coverings should be removed and discarded, and clean coverings should be put in place after use with each patient.

Precautions for Laboratories **

Blood and other body fluids from ALL patients should be considered infective.

To supplement the universal blood and body-fluid precautions listed above,

the following precautions are recommended for health-care workers in

clinical laboratories. 1. All specimens of blood and body fluids should be put

in a well-constructed container with a secure lid to prevent leaking during

transport. Care should be taken when collecting each specimen to avoid

contaminating the outside of the container and of the laboratory form

accompanying the specimen. 2. All persons processing blood and body-fluid

specimens (e. g., removing tops from vacuum tubes) should wear gloves.

Masks and protective eyewear should be worn if mucous-membrane contact

with blood or body fluids is anticipated. Gloves should be changed and hands

washed after completion of specimen processing. 3. For routine procedures,

such as histologic and pathologic studies or microbiologic culturing, a

biological safety cabinet is not necessary. However, biological safety

cabinets (Class I or II) should be used whenever procedures are conducted

that have a high potential for generating droplets.

These include activities such as blending, sonicating, and vigorous mixing. 4.

Mechanical pipetting devices should be used for manipulating all liquids in

the laboratory. Mouth pipetting must not be done. 5. Use of needles and

syringes should be limited to situations in which there is no alternative, and

the recommendations for preventing injuries with needles outlined under

universal precautions should be followed. 6. Laboratory work surfaces should

be decontaminated with an appropriate chemical germicide after a spill of

blood or other body fluids and when work activities are completed.

7. Contaminated materials used in laboratory tests should be decontaminated before reprocessing or be placed in bags and disposed of in accordance with institutional policies for disposal of infective waste (24). 8. Scientific equipment that has been contaminated with blood or other body fluids should be decontaminated and cleaned before being repaired in the laboratory or transported to the manufacturer. 9. All persons should wash their hands after completing laboratory activities and should remove protective clothing before leaving the laboratory. Implementation of universal blood and body-fluid precautions for ALL patients eliminates the need for warning labels on specimens since blood and other body fluids from all patients should be considered infective.

Sterilization and Disinfection

Standard sterilization and disinfection procedures for patient-care equipment currently recommended for use (25, 26) in a variety of health-care settings — including hospitals, medical and dental clinics and offices, hemodialysis centers, emergency-care facilities, and long-term nursing-care facilities — are adequate to sterilize or disinfect instruments, devices, or other items contaminated with blood or other body fluids from persons infected with blood-borne pathogens including HIV (21, 23). Instruments or devices that enter sterile tissue or the vascular system of any patient or through which blood flows should be sterilized before reuse. Devices or items that contact intact mucous membranes should be sterilized or receive high-level disinfection, a procedure that kills vegetative organisms and viruses but not necessarily large numbers of bacterial spores. Chemical germicides that are registered with the U. S. Environmental Protection Agency (EPA) as “

sterilants” may be used either for sterilization or for high-level disinfection depending on contact time. Medical devices or instruments that require sterilization or disinfection should be thoroughly cleaned before being exposed to the germicide, and the manufacturer’s instructions for the use of the germicide should be followed.

Further, it is important that the manufacturer’s specifications for compatibility of the medical device with chemical germicides be closely followed. Information on specific label claims of commercial germicides can be obtained by writing to the Disinfectants Branch, Office of Pesticides, Environmental Protection Agency, 401 M Street, SW, Washington, D. C. 20460. Studies have shown that HIV is inactivated rapidly after being exposed to commonly used chemical germicides at concentrations that are much lower than used in practice (27-30). Embalming fluids are similar to the types of chemical germicides that have been tested and found to completely inactivate HIV. In addition to commercially available chemical germicides, a solution of sodium hypochlorite (household bleach) prepared daily is an inexpensive and effective germicide. Concentrations ranging from approximately 500 ppm (1: 100 dilution of household bleach) sodium hypochlorite to 5, 000 ppm (1: 10 dilution of household bleach) are effective depending on the amount of organic material (e. g., blood, mucus) present on the surface to be cleaned and disinfected. Commercially available chemical germicides may be more compatible with certain medical devices that might be corroded by repeated exposure to sodium hypochlorite, especially to the 1: 10 dilution.