Infection Control Standards in Anesthetic Practice

An Essay

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List of Abbreviations

Abbr.	Full term
AHUs	: Air handling units
BCG	: Bacillus Calmette–Guérin
CAUTI	: Catheter associated-urinary tract infections
CVCs	: Central venous catheters
HAIs	: Healthcare-associated infections
HBsAg	: Hepatitis B surface antigen
HBV	: Hepatitis B virus
HCWs	: Health care workers
IC	: Infection control
ICC	: Infection Control Committee
ICN	: Infection control nurse
ICO	: Infection control officer
ICT	: Infection Control Team
OSHA	: Occupational Safety and Health Administration
OT	: Operating theatre
PHS	: Public Health Service
PPE	: Personal Protective Equipment
PVC	: Polyvinyl chloride
RSV	: Respiratory syncytial virus
SSI	: Surgical site infection

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Introduction

Health care-associated infections are defined as infections that occur as a result of health care interventions in any health care setting where care is delivered. Infection control (IC) refers to policies and procedures used to minimize the risk of those infections ***(Burke, 2003).***

Modern infection control ideas originated in Vienna, Austria in the mid-1800s when a physician, Ignaz Semmel Wies, discovered that hand washing in his hospital seemed to decrease the incidence of death due to infection following childbirth from 18% to 1%. At that time the concept of hand washing before and after medical procedures was not routinely practiced. During the same period, a Scottish surgeon, Joseph Lister used cotton wool and bandages treated with carbolic acid to cover surgical wounds. The efficacy of Lister's work was demonstrated by a post-surgical mortality rate decrease from 50% to 15% ***(Kennamer and Emily, 2006).***

Since the early 1980s when the first cases of AIDS were reported in USA, anesthesiologists have had an increased interest in and awareness of infection control practices. Much of this concern is focused on the blood borne diseases as AIDS and Hepatitis B. Although HIV is a fatal virus, it does not survive for minutes outside the human body. Conversely HBV can survive for days outside the

human body, posing a greater risk to health care providers. Investigators have studied the risk of infection transmission in the anesthesia environment either to the patient or to the anesthesia personnel. Anesthesia personnel are at risk for acquiring infection both from patients and from other personnel ***(Rowley and Dingwall, 2007).***

The purpose of infection control is to reduce the occurrence of infectious diseases. These diseases are usually caused by bacteria or viruses. There are different modes of disease transmission: contact with an infected surface, airborne transmission through droplets of an infectious agent suspended in the air, or blood borne transmission ***(Wenzel, 2003).***

Infection control activities have increased substantially during the last decade. Pressure to improve hospital care cost-effectiveness, the emergence of highly resistant microorganisms, the perception of healthcare occupational hazards, and public claims for improved health uality have been important factors responsible for this development. A major challenge for infection control personnel is to sustain this development ***(Pittet, 2004).***

Anesthetists must comply with local theatre infection control policies including the safe use and disposal of sharps. Anesthetic equipment is a potential vector for transmission of disease. Policies should be documented to ensure that

nationally recommended decontamination practices are followed and audited for all reusable anesthetic equipment. Single use equipment should be utilized where appropriate but a sterile supplies department should process reusable items ***(Burke, 2003).***

Precautions against the transmission of infection between patients and anesthetist or between patients or between patients and nurses should be a routine part of anesthetic practice. Health care organizations have a legal responsibility to implement changes to reduce health care associated infections and ensure that patients are cared for in a clean environment. Anesthetists should be in the forefront, ensuring the safest possible environment ***(McKibben et al., 2005).***

Aim of the Work

The aim of this essay was to review the sources of infection transmission and the policies of infection control in anesthetic practice.

Chapter (1):
Infection Control Team

Infection control is the responsibility of every individual in the healthcare facility. The hospital management should establish an infection control committee which will in turn appoint an infection control team; and provide adequate resources for effective functioning of the infection control program ***(Glynn, 1997).***

The infection control team can provide expertise, education and support to help staff maintain proper standards and minimize the risks of infection ***(Richard et al., 1999).***

The hospital manager is ultimately responsible for safety and quality within the hospital. He must ensure appropriate functioning of the Infection Control Team (ICT) and the Infection Control Committee (ICC). He must also ensure that arrangements are in place for effective infection control practices ***(Perencevich et al., 2007).***

The ICT should have a range of expertise covering knowledge of infection control, medical microbiology, infectious diseases and nursing procedures. The team should have a close liaison with the microbiology laboratory and ideally a microbiologist should be a member of the team ***(Perencevich et al., 2007).***

The team should consist of at least one physician, the infection control officer (ICO), and at least one nurse, the infection control nurse (ICN) ***(Mangram, 1999).***

The infection control team must have an appropriate authority to manage an effective infection control program. In large facilities, this will usually mean a direct reporting relationship with senior administration ***(Friedman, 2009).***

The composition and organization of the ICT should take into account the local social and religious culture in the country concerned and the hierarchical structure of the hospital ***(Friedman, 2009).***

The infection control committee (ICC) should be made up of representatives from various hospital departments. All the clinical departments should be represented, together with members of other key departments, such as occupational health, catering, cleaning, facilities/buildings and management ***(Jagger, 1996).***

The committee should hold regular meetings and the minutes should be recorded and sent to the Medical Director and the Hospital Management Board as well as to departments directly involved in the subjects discussed during the meeting. It should produce an annual report and an annual business plan for infection control ***(Haley, 1995).***

The infection control program will be effective so long as it is comprehensive and includes surveillance and prevention activities, as well as staff training. There must also be effective support at national and regional levels ***(Friedman, 2009).***

The important components of the infection control program are: basic measures for infection control (standard and additional precautions), education and training of health care workers, protection of health care workers, identification of hazards and minimizing risks, routine practices essential to infection control such as aseptic technique, effective work practices and procedures, surveillance, incident monitoring, outbreak investigation, infection control in specific situations, and finally research ***(O'Boyle et al., 2002).***

Responsibilities of the infection control team:

- Advise staff on all aspects of infection control and maintain a safe environment for patients and staff.
- Provide educational programs on the prevention of hospital infection for all hospital personnel.
- Provide a basic manual of policies and procedures and ensure that local written guidelines based on these are in existence.
- Establish systems of surveillance of hospital infection in order to identify at-risk patients and problem areas that need intervention. Methods for surveillance may include

case finding by ward rounds and chart reviews, reviews of laboratory reports, and targeted prevalence or incidence surveys.

- Advise management of patients requiring special isolation and control measures.
- Investigate and control outbreaks of infection in collaboration with medical and nursing staff.
- Ensure that an antibiotic policy is in existence.
- Liaise with the hospital doctors, nurses, and administration; community health doctors and nurses; and infection control staff in adjacent hospitals.
- Provide relevant information on infection problems to hospital management.
- Perform other duties as required, e.g., kitchen inspections, pest control, waste disposal.

(Richard et al., 1999)

A hospital-associated infection prevention manual containing instructions and practices for patient care is an important tool. The manual should be developed and updated by the infection control team and reviewed and approved by the committee. It must be made readily available for health care workers, and updated in a timely fashion ***(Smith and Coast, 2002).***