

# Infection Control in Dentistry

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**Abstract:** Infection control is necessitated for a good dental practice. Killing pathogens by various procedures of sterilization ensures a protective practice which saves lives of human. Proper infection control is must for safety of health care personnel.

**Keywords:** Infection control, microbes, sterilization, disinfection.

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## Introduction

Infection control is the set of methods used to control and prevent the spread of disease. A protective health component for dental health care personnel (DHCP) is an integral part of a dental practice infection-control program. The objectives are to educate DHCP regarding the principles of infection control, identify work-related infection risks, institute preventive measures, and ensure prompt exposure management and medical follow-up.

### How this infection occurs?

Infection to occur require following condition i.e. pathogens or disease causing organisms, having adequate no. and virulence when transferred to a susceptible host via some transmitting mode like air where they can grow and multiply easily are helpful in causing disease or spread of infection. These links provide chain of infection. Interrupting any of these links are effective infection control strategy.

### Why infection control is necessary?

During the provision of treatment health care personnel (HCP) and dental health care personnel (DHCP) come in contact with blood, contaminated instruments, and other body fluids which may harbour pathogen, of which patient is not aware of may cause infection to dental DHCP and HCP. To prevent such exposure and transmission of pathogen, infection control is necessary. Various broad range of guidelines are mandated time to time by CDC, ADA, OSHA and other public agencies, academia, and private and professional organizations. Most recommended CDC guidelines includes:

1. Universal precautions
2. Standard precautions

Initially CDC recommendations on infection control for dentistry was focused on to the prevention of transmission of blood born pathogens. In 1996 CDC replaced universal precautions with standard precautions which was not confined to blood born infection in fact expanded to include infection spread by various body secretions, non intact skin, and mucous membrane. Standard precautions are mainly focused on:

### 1- Hand Hygiene

Proper hand hygiene reduces 50% of chances of infection. It is needed when

- a- hands are visibly soiled
- b- before and after any treatment procedure
- c- touching contaminated instrument

Hand washing can be done by plain soap or antiseptic soap with running water. Examples of antiseptic hand wash are triclosam, chlorhexidine etc. Alcohol based hand rubs include 60% to 95% ethanol or isopropanol alcohol. Cut finger nail short, avoid artificial nail and jewellery out.



## **2- Personal Protective Equipments**

Wear a standard surgical mask to cover the mucous membrane of nose, mouth from the spatter, aerosol, mist generated during dental procedure. Eyes can be protected by solid side shields or face shields. Mask should be changed in between patient and when it is wet. Clean reusable face protection with soap and water. Wear gowns, lab coat or uniform that covers skin and personal clothing. Remove all the barrier before leaving the work area.



Gloves –Very effective barrier which minimizes infection from

Pt. ↔ DHCP  
Pt. ↔ Pt.

Gloves should be changed for

- a- every pt.
- b- gloves become wet, torn or worn

Do not wash, disinfect or sterilize gloves for reuse.

## **3- Proper Cleaning and Decontamination of Pt. Care Instruments**

Patient care instruments has been categorized into –

Critical  
Semi critical  
Non critical

Critical instruments penetrate mucous membrane or contact bone the blood stream or sterile tissues e.g. scalpel, blades, periodontal scalars and surgical burs. These instruments are heat sterilized or autoclaved.

Semi-critical instruments contact mucous membrane and non intact skin but do not penetrate soft tissues e.g. dental mouth mirror, dental hand piece, amalgam condenser. Heat sterilization is better for heat resistant instruments or use of disposable is another alternative.

Noncritical instruments contact intact skin, which itself is effective barrier to microorganism. Such instruments includes x-rays heads, face bows, articulators, metal trays, blood pressure cuff. For sterilization of these instruments low level disinfectants can be used labelled for killing HIV, HBV virus and TB.

If soiled by blood these are cleaned and disinfected by intermediate level of disinfectants.

Complete cycle of sterilization is done in a designated central processing area, this area is spatially divided into receiving, cleaning, and decontamination area, preparation and packaging area, sterilization and storage area. In receiving area instruments are sorted out cleaned manually or by ultrasonic cleaners. Packaging area is for inspecting assembling and packaging for final sterilization. Place a chemical indicator inside or outside. Sterilization and storage area contain the sterilizer and related supplies. Incubator for spore test, and enclosed storage which uses date or event related shelf life of instruments.

#### **4- Enviornmental Infection Control**

These have two categories.

- a- Clinical contact surfaces- have potential for direct contamination from patient materials, by spatter. These are light handle, counter top, door handle. They are disinfected by low to intermediate level disinfectants.
- b- House keeping surfaces- walls, sinks and floors use EPA registered intermediate level hospital disinfectants. Use sterile water for irrigation and cooling.



#### **Dental hand pieces**

Clean and heat sterilize intraoral devices that can be removed from air and waterlines. Follow manufacture's direction for cleaning and lubrication. Do not use liquid germicide or ethylene oxide. Those attached with unit are cleaned by intermediate level of disinfectants.

#### **Dental lab**

Before they are handled in the laboratory, clean, disinfect, and rinse all dental prostheses and prosthodontic materials (e.g., impressions, bite registrations, occlusal rims, and extracted teeth) by using an EPA-registered hospital disinfectant having at least an intermediate-level (i.e., tuberculocidal claim) activity.

#### **5- Work-Practice Controls**

For needles and other sharps include placing used disposable syringes and needles, scalpel blades, and other sharp items in appropriate puncture-resistant containers located as close as feasible to where the items were used using single hand capping for needles.

#### **Conclusion**

The goal of a dental infection-control program is to provide a safe working environment that will reduce the risk of healthcare-associated infections among patients and occupational exposures among DHCP. A successful infection-control program depends on developing standard operating procedures, evaluating practices, routinely documenting adverse outcomes (e.g., occupational exposures to blood) and work-related illnesses in DHCP.

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