

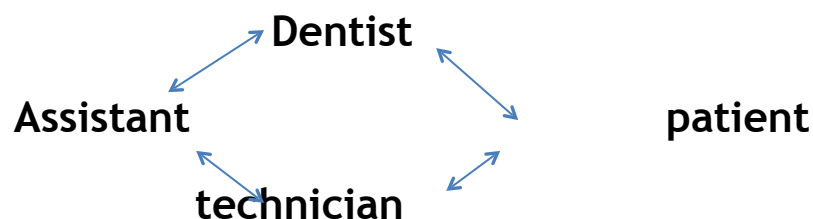
### Infection control in prosthodontics

**Infection**: it is the process of invasion of the tissue by organisms characterized by their multiplication in the body of the host to produce disease

**Infection control**:- is an essential part of dentistry , dentist have a duty to take appropriate precautions to protect their patients and their staff from the risk of cross .-infection

Dental work should be done in aseptic field , clean ,sterile, and disinfected materials should not contact contaminated .material and vice versa

To minimize the risk of transmission of infection between patients and between patients and health care workers a sensible and practical routine for the prevention of cross - contamination and cross -infection should followed. Dentists and auxiliary staff should additionally protect themselves by ensuring up -to date immunization against hepatitis B(HBV)and other infectious diseases such as tuberculosis , . poliomyelitis, rubella, tetanus and diphtheria



### :PROTECTION OF HEALTH CARE WORKERS

#### A-Immunization

Vaccination against hepatitis B virus(HBV)is strongly recommended for all clinical dental personal including

dentists, chair side assistants , dental hygienists and students. Protection is also advised against diseases such as tuberculosis, varicella, measles , mumps, diphtheria and .tetanus

### b-Hand Protection

hand washing is a primary disease prevention measure for Health care workers . Hand must be washed thoroughly with disinfectant liquid soap and dried prior to putting on and after removing gloves. Any cuts or abrasions to the hands or wrists should be covered with adhesive waterproof ,dressing

Remove all jewelers, rings that bacteria counts are higher .when rings are worn and nails should be kept short

### c-Eye Protection

operators and close support dental nurses should protect their eyes against foreign bodies which may arise during .dental work

Patient 's eyes should always be protected against possible .injury

Protective glasses with top and side shields are strongly .recommended and should be disinfected between patients

### d-FACE MASKS

A well- fitting surgical facemask should be worn by health care workers. The dome type facemask is preferable to the paper type which rapidly becomes permeable and .inefficient

### e-Protective Clothing

f-Ventilation: good ventilation should be used to decrease  
. the chance of contamination

## **METHODS TO ELIMINATE CROSS INFECTION**

Total elimination of cross infection in prosthodontics is presently not possible but steps can be taken to reduce it.

Education of dental personnel is vitally important in effective implementation of safety measures for cross infection control . Sterilization and disinfection are the most popular and widely used methods for control of infection. Since it is not possible to screen every patient for every infection .

Sterilization and disinfection are therefore on the top of this list. Cleaning prior to disinfection and sterilization is mandatory.

### **1-STERILIZATION OF INSTRUMENTS**

Sterilization is defined as the act of killing or removal of microorganisms including viruses and spores.

All instruments likely to be contaminated must be sterilized after use. Sterilization procedures must be effective against  
. all known pathogens

Dental instrument are classified into 3 categories (critical , semi -critical and non -critical) depending on their risk of transmitting infection and on the need to sterilize them  
.between uses

critical :surgical and other instrument that touch bone or-1  
.penetrate soft tissue should be sterilized after each uses

Ex: forceps , burs , implant drills and periodontal scalers

Semi critical : instruments that touch mucous membranes -2  
, but do not touch bone or penetrate tissue . If the  
sterilization is not feasible because the instrument will be  
. damaged by heat , use high level disinfection

Ex: impressions , prosthesis , impression tray , wax  
.knife ,polishing stones and rag wheel

non critical :contact intact skin and use intermediate or-3  
. low level disinfection for them

Ex: x-ray head , articulators and face bow , mixing bowl  
and spatulas , shade guide ---etc

## Types of sterilization

mechanical method or-1

chemical method-2

:Mechanical method include several types or methods

a-sun light

b-drying

c-dry heat (oven)

d-moist heat (auto clave)

e-filtration

f-radiation

g-ultra sonic and sonic vibration

## DRY HEAT(oven)

Effective method of sterilization require high temperature and long exposure time . Application by dry heat is cheap .and easy

170C<sup>0</sup> for at least one hour

160C<sup>0</sup> for at least two hour

180C<sup>0</sup> for at least 1/2 hour

### Moist heat (autoclave)

The method of choice for most instruments is by using an .autoclave

Autoclave is a device to sterilize equipment and supplies by subjecting them to high pressure steam at a certain temperature by using one of the following

Time-temperature combination

Steam at 134<sup>0</sup>C can achieve in 3minutes the same sterility .that hot air at 160<sup>0</sup>C takes two hours to achieve

The highest temperature compatible with the equipment to be sterilized should be used. Packs should be dry when .removed from the autoclave

Chemical method of sterilization-

Alcohol-

Aldehyde-

dyes-

halogens-

phenols-

gases-

## Decontamination of impression and prosthetic-2 -:appliances(Disinfection)

All impressions should be rinsed in running water to remove all visible signs of contamination and be disinfected with an appropriate disinfecting agent before being sent to . a dental laboratory

### DISINFECTING IMPRESSIONS

Many disinfectants has been used as Iodophors, sodium hypochlorite, chlorine dioxide , phenols and other approved .products

An acceptable disinfectant and widely used is sodium .hypochlorite.(Clorox)in a 1:10 dilution

: Methods of disinfecting impression

:a-hydrophobic impression materials as follows

rinse under running tap water to remove blood/saliva for-1 .15 seconds

.Immerse in disinfectant 10minutes-2

rinse thoroughly with tap water to remove residual-3 .disinfectant and casted

Most reports indicate dimensional stability is not significantly affected by immersion technique for .hydrophobic impression materials

b-hydrophilic impression materials that cannot be immersed in disinfectants due to potential for absorption and distortion :like alginate and polyether should be disinfected as follows

.rinse under water 15 seconds-1

dipped or sprayed-2

.covered with damp paper towel for 10 minutes-3

.rinse thoroughly and casted-4

Cast disinfection :if disinfection of a cast is indicated, immerse for 10minutes or spray until wet and leave for 10minutes. Cast should be fully set (at least 24hours)before .disinfecting

Bite registration , wax rims and Custom trays should be .disinfected by (Rinse-spray -rinse)technique

Prostheses which have been worn by the patient and have .gross deposits must be cleaned well before disinfection

Finished acrylic prosthesis should be clean and disinfect before delivery to patient , after disinfection rinse and .place in plastic bag with distilled water until insertion

Cr/Co prosthesis: do not exceed manufacturer, recommended contact time on metal components to minimize corrosion . There is little effect on Cr-Co alloy .with short-term exposures (10minutes)

Heat stable items like Face -bow forks, metal impression trays, metal spatulas should be autoclaved while unstable items like articulator. Wooden handled spatulas , torches, rubber mixing bowls and Shade-guides should be clean and .disinfect

Disposable plastic impression trays which cannot be .autoclaved should not be reused between patients

