

# Infection Control

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# Standard Precautions

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- A set of procedures based on the assumption that any client/person in dental office might carry a serious infection
- Treatment is conducted to minimize risk of cross-infection
- Assume that any client could be infected and act accordingly

# Continued

- Complete medical history should always be obtained
- The greatest risk of infection in the dental office comes from the undiagnosed carrier
- Treat everyone with standard precautions because clients are not always honest about their medical histories

# Occupational Health and Safety

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- Assures safe and healthy working conditions for all employees
- Regulates maintenance of these standards
- Inspects health care facilities in response to complaints

# Immunocompromised

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- Having a congenital or acquired condition (heart)
- Systemic disease – diabetes, cancer, etc.
- Drug therapy – steroids, NSAIDS
- Prostheses and Transplants – joint replacement

# Aerosols

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- **Aerosols** – are very small and invisible, remain in the air for long periods. These may be breathed into the lungs.
- **Spatter** – heavier and larger. Remains airborne for a very short period of time. Spatter may be visible, especially if lands on the skin.
- Aerosols and spatter are created during breathing, speaking, coughing or sneezing. High volume suction is important to minimize this risk.
- **Prevention** – by using a rubber dam, high volume suction, proper ventilation and filtration. The use of masks and eyewear can prevent direct contact of spatter and aerosols with the faces of the dental team.
- **It has been shown that using an antiseptic mouth rinse reduces the numbers of bacteria contained in aerosols.**

# HIV and AIDS

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## AIDS = Acquired Immunodeficiency Syndrome

- HIV infection in humans is considered a PANDEMIC by the World Health Organization (WHO)
- A condition in humans in which the immune system fails leading to life-threatening infections
- Mean incubation period 10-12 years
- According to ADA, refusal to treat an HIV-infected client is unethical and illegal

# Hepatitis

- Hepatitis is a general term that means **inflammation of the liver**
- Inflammation of the liver can result from:
  - Infection
  - Exposure to alcohol
  - Certain medications
  - Certain chemicals
  - Disorders of the immune system



# ORAL CANDIDIASIS

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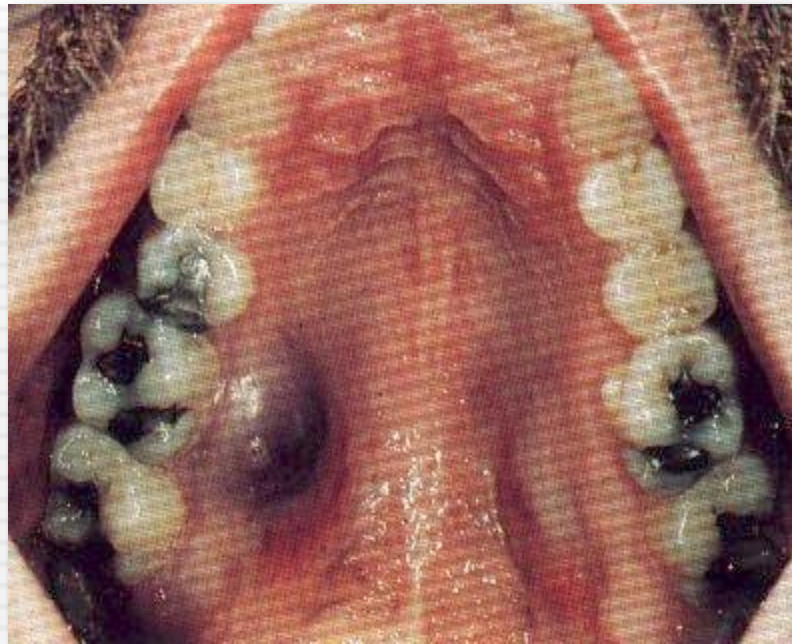
- Lesions are grey or white
- Lesions strip off leaving a raw, bleeding surface
- Common on buccal mucosa, tongue and soft palate
- Often complaints are present of a metallic taste in the mouth



# KAPOSI'S SARCOMA

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- Blue, purple or hyper pigmented brown papules : commonly seen on the palate
- If the client has advanced to AIDS you will see this!



# ORAL HAIRY LEUKOPLAKIA

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- White plaque-like lesions on the lateral borders of the tongue
- Wide variation in size, severity and surface characteristics
- Vertical strip-like pattern



# HERPES SIMPLEX TYPE I

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- 2-3 mm diameter with shallow, whitish center surrounded by a red halo
- Occurs predominantly on gingiva and palate
- Resolves within 2 weeks without intervention



# Hand washing

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- Use a liquid surgical scrub containing an antimicrobial agent. It is important to remember to wash your hands for at least 15 seconds
- Hands need to be washed at the beginning of the day, between clients, between changing gloves (before glove placement and after glove removal), and of course at the end of the day.
- You want to remove and destroy transient microorganisms but resident microorganisms can only be reduced, these will always remain on the skin.

# Gloves

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- Examination/Treatment – latex or non
- Utility – used for cleaning/disinfecting
- Over gloves – when writing in the chart, getting something from a cupboard, etc.
  
- Remember – gloves should be changed after every hour for long procedures

# Hypersensitivity

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- Minor to life threatening
- The most life threatening is when anaphylactic shock is present
- If anaphylactic shock – use epi pen
- Ask all clients if they have allergies, ask at every appointment in case new ones have developed
- Ask what happens when they get an allergic reaction: is it a rash, or more serious?
- Ask how long since they have had an allergic reaction or been hospitalized for one

# Infection Control Objectives

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- Reduction of available pathogenic microorganisms to a level at which normal resistance mechanisms of the body may prevent infection
- Elimination of cross contamination by breaking the chain of infection
- Application of standard precautions by treating each client as if they may have something



# Instrument Processing

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- **Ultrasonic**
- **Package**
- **Sterilize**
  
- Ultrasonic is preferred over manual cleaning
  
- If an office does not have an ultrasonic (although 99% will these days) manual cleaning is needed but BE CAREFUL not to cause injury
  
- In the sterilization area – all PPE is needed and utility gloves must be worn (not your regular examination gloves)

# Packaging

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- It is recommended to have all cassettes and loose instruments packaged BEFORE sterilization to avoid contact with airborne microorganisms
- The instruments must be rinsed and dried before placing in the package (air drying is preferred)
- Before removing after sterilizing, package must be dried so that handling of the sterilized package will not rip

# Methods of Sterilization

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- Moist heat, steam under pressure
- Dry heat
- Chemical vapor
- Ethylene oxide \*\*NOT used in dentistry

# Moist Heat



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- **Moist heat** – can be used except for those instruments that cannot be subjected to high temperature. Sterilization is achieved by action of heat and moisture; pressure serves to attain the high temperature. Penetration ability is very important; instruments must be laid out properly.
- This is the most economical method of sterilization and most often used however it may corrode carbon steel instruments if precautions are not taken.

# Dry Heat

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- **Dry Heat** – action of dry heat is oxidation. Primarily used for materials that cannot be sterilized with steam under pressure
- This is used because it does not corrode instruments but long exposure time is required (at least one hour).



# Chemical Vapour

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- **Chemical Vapor** – a combination of alcohols, formaldehyde, water, ketone and acetone are heated under pressure that produces a gas to sterilize. The correct temperature must be attained before sterilization can occur, takes 20 minutes after the correct temperature is reached in order to sterilize.
- Refilling is needed at least after every 30 cycles. Corrosion does not occur and able to sterilize in a short period of time. The disadvantage is that with chemicals a high ventilated area is needed, a slight odor but rarely objectionable.



# Chemical Disinfectants

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- **High level** - inactive spores and all forms of bacteria, fungi and viruses. Can also be a steriliant if enough time is given
- **Intermediate level** – inactivate all forms of microorganisms but do not destroy spores
- **Low level** – do not destroy spores, tubercle bacilli or nonlipid viruses
- **Glutaraldehydes (most common high level disinfectant used), chlorine compounds, iodophores and complex phenolics** are adequate to use in dentistry.

# Sterilization Unit

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# Classification

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- **Critical** – penetrate soft tissue or bone = sterilize or dispose
- **Semicritical** – touch intact mucous membrane, oral fluids = sterilize or high level disinfection
- **Noncritical** – does not touch mucous membranes = cleaning and intermediate level disinfection
- **Environment surfaces** – no contact with the client = cleaning and intermediate to low level disinfection

# Dental Unit

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- **Critical** – hand piece, instruments
- **Semicritical** – radiographic bite block
- **Noncritical** – light handles, eyewear
- **Environmental** – walls, floor

# Dental Water Lines

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- Flush the lines and water syringe for 2 minutes at the beginning and end of the day using a solution
- Studies have shown using only water is OK but solution is still recommended
- Flush for 30 seconds between clients and run the water syringe as well

# Occupational Exposure

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- If you get pricked with a needle, or injury from a contaminated instrument the **FIRST** step is to squeeze the area until the blood runs, and wash with soap and water.