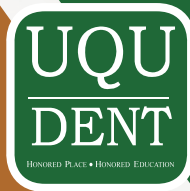


# UMM AL-QURA DENTAL TEACHING HOSPITAL



## INFECTION CONTROL POLICIES & PROCEDURES

May 2014

### **Preface:**

Infection control is of prime importance in dental practice due to continuous exposure of dental healthcare workers and patients to a wide variety of pathogenic microorganisms. The strategic goal of UQUDENT Infection Control Committee is to reduce the dental health care associated infection through a proper implementation of policies and procedures approved by the committee. The Infection Control Policies and Procedures are structured in a step by step guide to assist dental healthcare providers keeping track and adhere to the best practices of infection control in dentistry. This guide is available to every UQUDENT dental healthcare workers to serve as a practice resource ensuring uniformity of infection control practice. The guide will be updated based on the changes called for as a result of research and developments in the field of infection prevention and control.

UQUDENT Infection Control Committee  
May, 2014

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**Mission:**

The mission of Infection Control Unit at UQUDENT is to create a system that allows infection control procedures to be implemented effectively and make compliance with them easy through having clear procedural documentation. Comprehensive training of dental staff together with a process of regular monitoring of the application of these systems and procedures aiming to improve the quality of dental health care.

**Vision:**

The vision of IC unit, UQUDENT is to be a nationally and internationally recognized center of excellence in providing safe dental health care.

**Scope:**

UQUDENT infection control policies and procedure should be applied to all dental health care workers.

**Responsibilities:**

Infection control is the responsibility of administration and all health care workers and is an integral part of the day-to-day quality and safety operations.

**I. Hospital director is responsible for:**

1. Provide Infection Control Committee (ICC) by requirements for implementation of infection control standards.
2. Ensures that all clinic employees follow the policy and procedures.
3. Receives reports and take actions regarding to the violation of IC by clinic employees.

**II. Head of divisions/departments:**

Receives reports and take actions regarding to the violation of IC by faculty staff related to his/her division/department.

**III. ICC members are responsible for:**

1. Establishing policies, procedures, and checklists for implementation of IC.
2. Audit, monitor the implementation of IC policies, procedures and guidelines through IC nurses.
3. Train dental healthcare workers (DHCWs) on the application of evidence based practice in relation to infection control.
4. Review and update infection control policies, procedures as necessary.
5. Write reports about IC implementation by DHCWs which will be sent to the Clinic director and Vice Dean of clinical affairs.
6. Receive reports of sharp injuries and provide the necessary guidance for post exposure prophylaxis.
7. Report to the clinic director and relevant committees about any serious problems or hazards related to infection control.
8. Exchange knowledge and experience regarding infection control with different medical institutes.

#### IV. All DHCWs and students

Should follow the IC policy and should be in direct contact with members of the ICC.

##### General rules

- All new health care providers and dental assistants must be trained in infection control procedures prior to working.
- All DHCWs should receive the recommended immunizations.
- All personal belongings should be left outside the clinics.
- Socks, and closed toe shoes must be worn.
- Cuts and abrasions in hands should be always covered.
- Personal protective equipment (PPE) and clinic suits should not be worn outside the clinic
- All Patients should be considered potentially infectious.
- All blood and body fluids should be assumed contaminated with blood borne pathogens.
- All unsterile needles and other sharps should be assumed contaminated.

##### General instructions regarding to environment of the clinics:

- Doors should remain closed.
- Carpeting and cloth furnishings should not be used in patient treatment or instrument preparation areas as they are difficult to clean and cannot be reliably disinfected.
- Avoid overstaffing in the treatment area.
- Food and drink is strictly prohibited inside the clinics.
- No smoking is allowed.
- No children are allowed to accompany patients inside the clinics.

### Instructions regarding work restrictions:

- DHCWs who have an upper respiratory illness (e.g. common cold) should take the necessary precautions to prevent the transmission of micro-organisms to patients and other staff specially frequent hand hygiene.
- DHCWs who have one of the following diseases should seek medical advice and stay at home until their symptoms have subsided:
  1. Severe respiratory illness with fever.
  2. Acute gastroenteritis with vomiting and diarrhea.
  3. Acute purulent conjunctivitis.
- DHCWs who have oral and/or nasal herpes simplex infections (i.e. cold sores) should pay particular attention to hand hygiene, avoid touching the affected area and mask should be worn all the times.

### For Male DHCWs:

- Facial hair should be completely covered under face shields.
- Slippers are not allowed in the treatment areas.
- Neckties should be tucked inside clinic coat.

### For Female DHCWs:

- Hair should be covered.
- For those who wear long head covers, those covers should be tightly tucked inside the clinic coat.
- Clean short fingernails must be maintained.
- Nail polish, artificial nails and nail art are not permitted.
- Only plain wedding ring is acceptable, no wristwatches, necklaces, hand or wrist jewellery is accepted.



## Policies and Procedures of IC in Dental Clinics

### **I. Infection Control during pretreatment period:**

The process of infection control begins during the period of preparation for clinical treatment. This reduces the risk of transmission of infectious agents during patient care. Thinking ahead will make the treatment session more efficient and will also make the post treatment infection control process easier and more effective.

#### **a. Pretreatment procedures:**

1. Remove unnecessary items from the dental procedure area: The dental procedure area should be arranged to facilitate a thorough cleaning following each patient.
2. Follow manufacturer's instructions for care and maintenance of dental unit water lines (DUWL) (for full details refer to dental unit water lines policy and procedures).
3. Review patient records before initiating treatment and place radiographs on the view box: Do not leave the record on the countertop or handle it after beginning treatment. Place the record in a drawer or out of the dental procedure area, so that it doesn't become contaminated. Entries into the record should be done before and after the procedure.
4. Prepare the clinical contact surfaces (CCS) of dental chair and administrative equipment using intermediate level disinfectant approved by ICC. Disinfection should be done at the beginning of the working day, between patients, and at the end of the day work. After disinfection, disposable surface barriers should be applied to CCS.

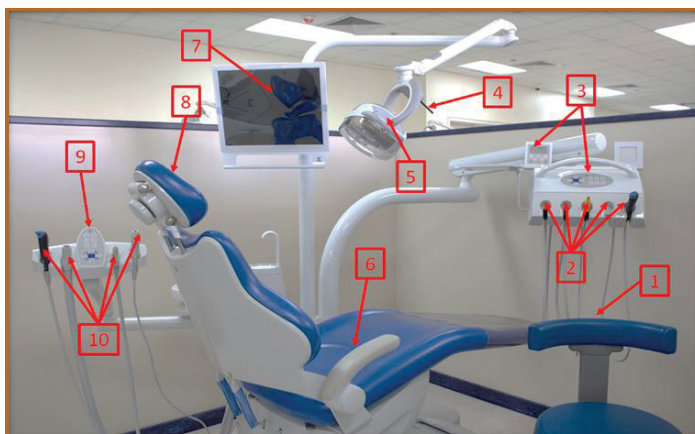


Figure 1: Dental chair clinical contact surfaces: 1) Stool arm, 2) Operator side nozzles, 3) Operator's side controllers, 4) Light switch, 5) Light handle, 6) Arm rest, 7) Screen, 8) Head rest, 9) Assistant's side controllers, 10) Assistant's side nozzles.

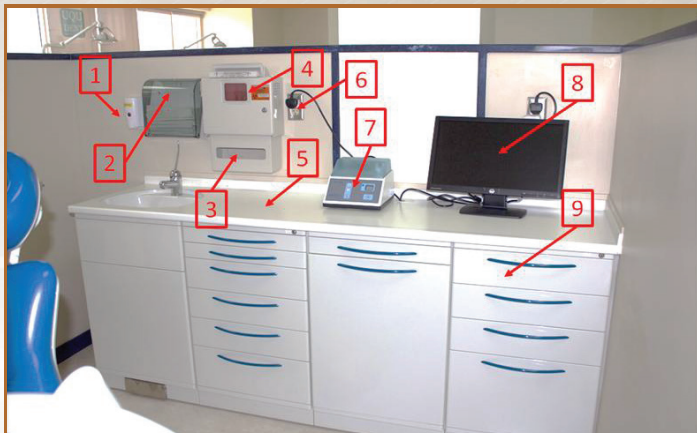


Figure 2: Administrative equipment: 1) hand sanitizer, 2) tissues holder, 3) gloves holder, 4) sharps container, 5) table, 6) socket, 7) amalgamator, 8) Monitor, 9) handles.

## b. Materials and instruments:

1. Preplan the materials needed during treatment: Set out all instruments, medications, impression materials, and other items that are needed for a procedure. Minimizes the need to search for additional items or to enter cabinets and drawers once gloves have become contaminated
2. Utilize disposable items whenever possible: This saves time during cleanup and decontamination.
3. Use prearranged tray set-ups for routine or frequently performed procedures: Helps to eliminate the need to go into drawers and cabinets once you have started a procedure.



Figure 3: Disposable dental instruments tray.

4. If indicated, have the rubber dam setup on the tray: When a rubber dam will be used during a clinical procedure, it also should be included on the tray setup.

Perform Hand hygiene as in the following figure (For full details refer to hand hygiene policy and procedures)

5. Use individualized, sterilized bur blocks for each procedure: this helps to eliminate the contamination of other, unneeded burs.



Figure 4:  
Individualized bur blocks.

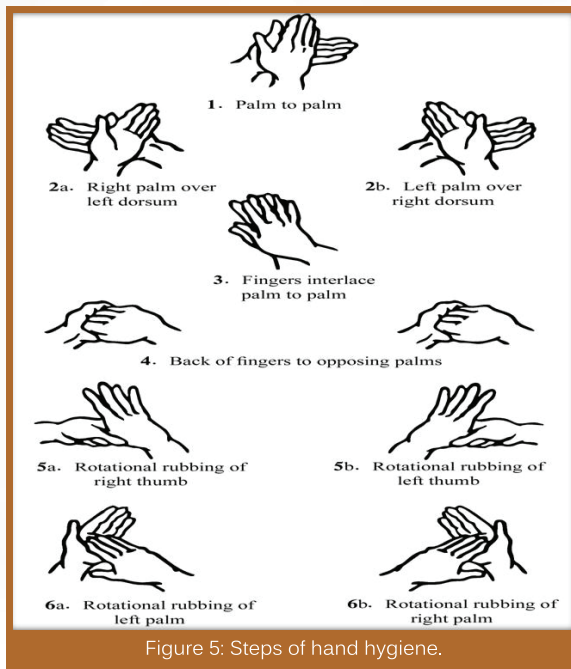


Figure 5: Steps of hand hygiene.



### c. Wear personal protective equipment:

#### 1. Gowns:

- Disposable gowns should be worn during:
  - Procedures those are likely to cause spattering or splashing of blood.
  - Procedures that may contaminate uniforms with micro-organism or infected materials.
- Gowns must be changed as soon as possible when they become visibly soiled or after repeated exposure to contaminated aerosols.



#### 2. Masks:

- A surgical mask should be worn for treating every patient.
- A new mask should be used for every patient. This also applies if the mouth/nose mask gets wet.
- When not in use, masks must not be placed on the forehead or around the neck.

#### Steps for wearing the mask:

1. Remove the clean mask from the container with clean hands, and then wear it.
2. Ensure the mask is fitted properly.
3. Fit the upper edge of the mask securely to prevent fogging of prescription glass and/or goggles.

### 3. Protective eye wears:

- Protective eye wears should be worn for treating patient where there is a risk of splashes or aerosols of blood, saliva or rinsing water and when handling soiled equipment.
- The reusable protective eye wears should be cleaned and then disinfected with 70% alcohol after every treatment that involves contamination.

### 4. Gloves:

- Sterile disposable individually wrapped gloves:
  - It must be worn for surgical procedures.
  - Before sterile gloves are put on, hand rub should be done.
- Non-sterile disposable single use gloves (it is usually not singly wrapped).

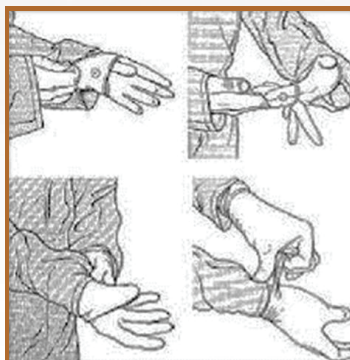


Figure 7:  
Correct method of gloves wearing.

N.B: PPE should be worn in sequence: gown, mask, goggles and lastly gloves.

### Auditing:

Auditing should be done regularly by IC Unit through checklist for implantation of IC measures before patient treatment (Appendix VI).

## II. Chair-side Infection Control measures

1. Be careful when receiving, handling, or passing sharp instruments: When passing a sharp the proper technique has to be followed (hand- free non-touch technique).

- Hand-free technique for safe handling of sharps: this technique aims at passing sharp instruments in such a way that the dentist and assistant are never touching the item at the same time. This way of passing sharps is known as the " " as follows:

- The assistant places the instrument in a sterile kidney basin or in a designated "safe zone" in the sterile field.
- The assistant informs the service provider that the instrument is in the kidney basin or safe zone.
- The service provider picks up the instrument, uses it, and returns it to the basin.

2. Take special precautions with syringes and needles: dispose it in sharps box.

3. Single hand technique or safe needle recappers should be used to recap anesthetic needles. Needles should not be recapped, bent or broken by hand, removed from disposable syringes or otherwise manipulated by hand.



Figure 8: Single hand technique for Needle recapping.

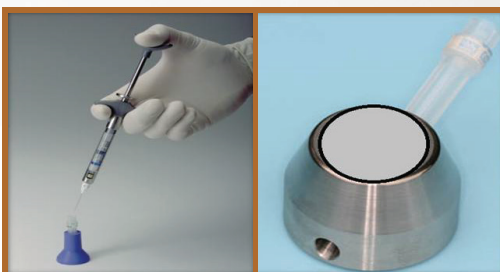


Figure 9: Safe needle recappers.

4. Disposal of sharps in special container (Sharps containers or Safety box).



Figure 10: Sharps containers or Safety box.

5. The person who has used the sharp is responsible for its immediate safe disposal following use.
6. Use a rubber dam whenever possible: It is an effective intraoral barrier for both dental health care personnel and patient.
7. Avoid touching unprotected switches, handles and other equipment once gloves have been contaminated: If objects are touched or handled, they should be carefully cleaned and disinfected at the end of the procedure.
8. Avoid opening drawers or cabinets once gloves have been contaminated:
  - You may simply ask another person for assistance.
  - You may use another barrier, such as plastic gloves, to grasp the cabinet of the drawer handle.
  - If these options are not available. You must remove the contaminated gloves, and wash hands before entering a drawer of a cabinet, and then re-glove before resuming patient treatment.
9. An instrument that is dropped must not be picked up and reused: If the instrument is essential for the procedure, a sterilized replacement instrument must be obtained.
10. Immediately manage exposure to blood by sharps injury, needle stick, or splash: (full details see safe handling of sharps policy and procedures).

### **Auditing:**

Auditing should be done regularly by IC Unit through checklist for implantation of IC measures during patient treatment (Appendix VI).

### **III. Infection Control measures during post-treatment Period**

1. Continue to wear personal protective equipment during clean-up: After patient care is completed, begin the cleaning and disinfection process by removing contaminated gloves used during treatment. Then, wash your hands and put on a pair of utility gloves before beginning the clean-up. Continue to wear protective eyewear, mask, and gown.
2. Remove all disposable barriers: These should be placed into a leak-proof waste bag inside a trash container.
3. Clean and disinfect all items not protected by barriers.
4. Used disposable items must be discarded immediately: to avoid contamination of other items.
5. Remove the tray with all instruments to a sterilization/clean-up area.
6. Waste that is contaminated with blood or saliva: should be placed in a leak proof clinical waste- bags.
7. Extracted teeth that are being discarded: is potentially infectious material that should be disposed in medical waste containers. , it can be returned to patients on request without precautions.
8. Handle sharps items carefully: Dispose in sharps box.



9. Remove personal protective equipment: should be done in the following sequence:

- Discarding and changing gloves: (Safe gloves removal method)

- Grasp the outside of one glove, near the cuff, with the thumb and forefinger of the other hand.
- Pull the glove off, turning it inside out while pulling and holding it in the hand that is still gloved.
- Hook the bare thumb or finger inside the remaining glove and pull it off by turning it inside out and over the already removed glove to prevent contamination of the ungloved hand.
- Roll the two gloves together taking care not to contaminate the hands.
- Discard appropriately.
- Wash hands or decontaminate with 70% alcohol hand rub/solution.

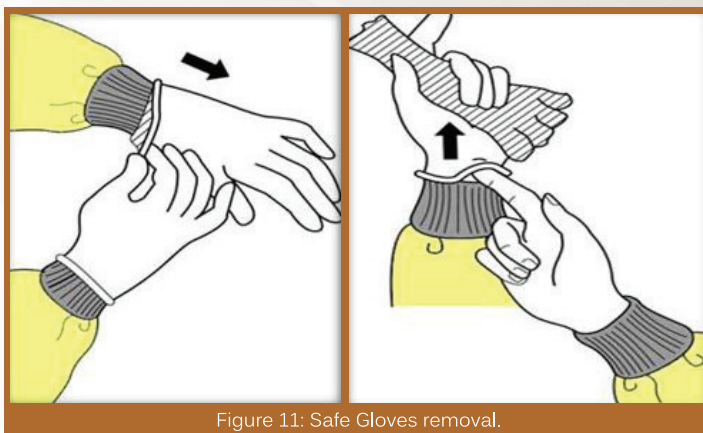



Figure 11: Safe Gloves removal.

- Removing the mask:

- Wash hands and remove mask keeping outside of the mask in, handle only the strings.
- Discard in general waste container.
- Wash hands.

- Disposal of gowns:

Disposable gown  unless visibly soiled with blood, should be disposed in a regular trash receptacle. If it has visible blood on it or had blood in it needs to be disposed in the yellow clinical waste container.

N.B. PPE should be removed in sequence: gloves, goggles, gown and lastly mask

### Auditing:

Auditing should be done regularly by IC Unit through checklist for implantation of IC measures after patient treatment (Appendix VI).

## Policy and Procedures of Safe Handling of Sharps

Sharp is any device having rigid corners or edges or projections capable of cutting or piercing.

### **I. The sharp items used in dentistry include:**

1. Dental anesthetic carpules with blood.
2. Suture needles, scalpel blades.
3. Dental wires and endodontic files.
4. Vacutainer tubes (both plastic and glass).
5. Phlebotomy needles with vacutainer tube holder attached.
6. Butterflies (both traditional and safety).
7. Capillary tubes (both plastic and glass).
8. IV catheters.
9. Other sharp objects contaminated with blood such as box cutters and broken glass.

### **II. Risks of sharps injury:**

Sharps injury may carry risk of transmitting blood borne pathogens e.g. Hepatitis B, Hepatitis C, HIV.

### **III. How can dental health care worker protect himself from sharps injuries?**

1. Follow infection control guidelines in the work place which include:
  - Consider all patients are potentially infectious.
  - Assume all blood, body fluids, secretions, excretions, non-intact skin and tissues are contaminated with blood borne pathogens.
  - Assume all unsterile needles and other sharps are similarly contaminated.
2. Wash hand regularly.
3. Cover cuts, abrasions, and wounds.
4. Using personal protective equipment (e.g. gloves, masks, gowns, goggles).
5. Safe handling of sharps.



### **IV. Instructions to use a safety box:**

1. Fingers should never be placed inside the box.
2. Put syringes in it as it is without recapping.
3. DO NOT save syringes for later removal of needles.
4. DO NOT hold the safety box while inserting needle into the opening.
5. DO NOT store in open place.
6. DO NOT overfill safety box.
7. Safely dispose when it is  $\frac{3}{4}$  full.
8. DO NOT transfer contents to other containers.
9. DO NOT empty or reuse the safety box.
10. Fill safety box only once and then send it to final disposal.

**V. Handling and storage of safety box till disposal:**

1. Keep boxes in a secure location.
2. Keep safety boxes dry.
3. Keep written record of number of safety boxes received and disposed.
4. Store safety boxes no more than one week.

**VI. Prohibited work practices to avoid sharps injuries:**

1. DO NOT break, shear, bend or recap needles.
2. DO NOT reach into used sharps containers.
3. DO NOT pick up contaminated items, such as broken glass with bare hands.
4. DO NOT open or empty sharps containers.
5. DO NOT eat, drink, smoke, apply cosmetics, or handle contact lenses in areas of potential occupational exposure.

**VII. Procedures done following splash of blood:**

1. If there is splash into eyes, irrigate with water.
2. Flush splashes of blood with water and wash thoroughly with soap and water.
3. Remove and change potentially contaminated clothing.
4. Place clothing in a sealed bag, wash and sterilize in designated facilities.
5. After undressing, wash your hands and parts of the body that were in contact with the potentially infectious clothing, then don fresh clothing.

**VIII. Procedures done following sharps injury:**

1. Immediately after the injury:
  - Encourage bleeding at the site of puncture gently by running cool water over the bleeding area for several minutes.
  - Bleeding should not be encouraged by squeezing or sucking the wound. This will increase the rate of dissemination of microorganism.
  - Gently cleanse the wound with soap and water. Do not scrub the wound while you're washing it.
  - Dry with sterile towel and cover the wound with a waterproof plaster or dressing.
  - Stop working.
  - Notify IC nurse about the injury.
2. Report to ICC: Prompt reporting of injuries is a necessary first step to enable appropriate and rapid prescribing of PEP.
3. Sharp injuries form should be full filled by infection control doctor ((Appendix V).
4. Both health care worker and the source patient should be referred to occupational health department for investigation of HBV, HCV and HIV to establish a base line record.

5. Post exposure prophylaxis (PEP) is given to health care worker according to the following schedule:

- For HBs Ag positive patients:

- HBV vaccine responder (anti-HBs more than 10 mIU/ml) no treatment is required.
- If the HCW is unvaccinated or non-responder to HBV vaccine (anti-HBs less than 10 mIU/ml) Hepatitis B vaccine combined with Hepatitis B immune globulin (HBIG) should be given
- Perform follow-up testing and provide counseling.

- For HCV positive patients:

- Immune globulin and antiviral agents are not recommended for PEP after exposure to HCV-positive blood.
- No vaccine against HCV exists.
- In the absence of PEP for HCV, recommendations for post-exposure management are intended to achieve early identification of infection and, if present, referral for evaluation of treatment options.
- No guidelines exist for administration of therapy during the acute phase of HCV infection. However, limited data indicate that antiviral therapy might be beneficial when started early in the course of HCV infection.
- For earlier diagnosis, PCR and HCV antibody level against HCV should be done at 4-6 weeks after exposure.

- For HIV positive patients:

- HIV sero-conversion following needle stick injuries is about 0.03% which is extremely low.
- Blood sample should be collected and HIV test results should be obtained within 8-24 hours and not more than 24 hours from the injury.
- If exposure is likely, PEP is most likely to be effective when initiated as soon as possible (within hours, and certainly within 48–72 hours of exposure), and continued for at least 28 days. PEP is not effective if given past 72 hours.
- Follow-up testing of health care workers to be performed at 12 and 24 weeks post-exposure.



## Policy and Procedures of Hand Hygiene

### Policy:

The aim of this policy is to ensure that all faculty, staff and students realize the importance of hand hygiene and are compliant with recommended practice in order to minimize the risk of cross infection via their hands.

### Background:

Hand hygiene is the cornerstone of IC practice and it is the single most important factor in the prevention and control of infection. It refers to the process for the physical removal of dirt, blood, body fluids and transient microorganisms from the hands that can persist for many hours unless they are removed.

### Training:

All faculty, staff and students are required to receive adequate and documented training regarding to:

1. When to perform hand hygiene?
2. What type of hand hygiene performed?
3. How to properly perform hand hygiene?

### Definitions:

**Hand hygiene:** A general term that applies to hand washing, antiseptic hand wash, antiseptic hand rubs, or surgical hand antisepsis.

**Hand washing:** Washing hands with plain or antimicrobial soap and water.

**Antiseptic hand wash:** Washing hands with water and soap or other detergents containing an antiseptic agent.

**Alcohol based hand rub:** Applying an antiseptic hand-rub product containing 70% alcohol to all surfaces of the hands to reduce the number of microorganisms present.

**Surgical hand antisepsis/surgical hand disinfection/surgical hand preparation:** Antiseptic hand wash or antiseptic hand rub performed pre-operatively by the surgical team to eliminate transient and reduce resident skin flora. Such antiseptics often have persistent antimicrobial activity.

## Procedures:

### I. Indications of hand hygiene:

1. At the beginning of the working day.
2. Before donning gloves.
3. Between each patient.
4. After glove removal.
5. After barehanded contact with contaminated equipment or surfaces
6. Before leaving treatment areas.
7. Before and after eating.
8. After using the toilet.
9. At the end of the working day

### II. Steps for hand hygiene

1. Remove all jewelry.
2. Turn on tap.
3. Wet hands with running water.
4. Apply soap agent and thoroughly distribute over hands in similar steps as in figure (5). Make sure to rub all parts of your hand.
5. Rinse your hands.
6. Turn off the tap with foot control, or with your elbow.
7. Dry your hand by disposable towels.

### III. Instructions to be considered on performing hand hygiene:

- Fingernails should be kept short, clear and free from nail polish.
- The hands must be rubbed together vigorously for a minimum of 10-15 seconds.
- Dry hands thoroughly.
- Throw paper towels in the domestic waste bin next to the washbasin.
- If hands are not visibly soiled, an alcohol-based hand rub is adequate.

### Alcohol handrub technique:

- Make sure that your hands are clean and have no visible dirt or blood.
- If hands are visibly dirty, wash your hands by routine hand wash.
- Pour 3-5 ml of an alcohol hand solution then rub into the palm in the same steps as Fig. (5).

### Auditing:

Auditing should be done regularly by IC Unit through hand hygiene checklist for every DHCW (Appendix VI).

## Policy and Procedures of Dental Unit Waterlines

### Policy:

The aim of this policy is regular maintenance of Dental unit water systems in order to deliver water of an optimal quality designed for general dental practice.

### Background:

DUWL must be maintained regularly to deliver water of an optimal microbiologic quality. Although infection associated with microbial contamination of waterlines appears to be rare, it has been shown that the level of microorganisms in untreated dental unit waterlines is greater than 500 CFU/mL, which exceeds the drinking water standard.

### Training:

All students and dental assistants are trained on regular maintenance of DUWL.

### Responsibilities:

- The dental assistant assigned to each clinic is responsible to clean and disinfect DUWLs of her clinic at the beginning, at the middle and at the end of the working day.
- Students are responsible for cleaning and disinfecting DUWL of their clinics after each treatment session.

### Definitions:

**Biofilm:** A biofilm is any group of microorganisms in which cells stick to each other on a surface. These adherent cells are frequently embedded within a self-produced matrix of extracellular polymeric substance.

### Procedures:

#### I. At the beginning of the working day:

1. The DUWLs are flushed for 3 minutes, to prevent biofilm formation.
2. Spittoon bowl is drained with running water after removing drain cap and basket strainer and cleaned by intermediate level disinfectant approved by ICC.

**II. After each patient:**

1. Water should be discharged for 20-30 seconds through the triple syringe, hand-pieces, and/or ultrasonic scalar handles. This is done to flush out contaminants of the air/water line system.
2. Spittoon bowl is drained with running water after removing drain cap and basket strainer and cleaned by intermediate level disinfectant approved by ICC.
3. All components of the suction hoses are wiped, disinfected, and then wrapped.

**III. At the end of working day:**

1. Spittoon bowl is drained with running water and mechanically cleaned using long handled brush, after removing drain cap and basket strainer.
2. Fit the drain cap and the basket strainer in the center of spittoon bowl again.
3. Non-foaming disinfecting agent approved by ICC is then sucked through the Dental unit water lines.
4. Filters are removed, rinsed under running water and disinfected.

**IV. General guidelines:**

1. Minimize aerosols through the use of high volume suction.
2. Use protective barriers like the rubber dam for patient and operator protection.
3. Monitor water quality (through commercial testing service or in-office testing).

## Policy and Procedures of Central Sterile Supply Department (CSSD)

### **Policy:**

CSSD aims to provide efficient and effective central sterilization service and supply sterile items required by the clinics in the hospital so as to efficiently prevent and control infection. It is responsible for the processing, sterilization and quality control of all sterile supplies and equipment used in the hospital.

### **Backgrounds:**

Dental equipment involved in dental treatment procedures always contaminated with a patient's blood, saliva, or mucous secretions. A major risk of all such procedures is the introduction of high risk blood born infections. Failure to properly disinfect or sterilize reusable dental equipment carries a risk cross contamination.

### **Training:**

1. All CSSD staff carrying out cleaning duties is properly trained in the performance of cleaning tasks, control of infection, and safely handling of contaminated items.
2. Where there is a change in cleaning products, materials or equipment, retraining of staff is brought forward and completed before the new products are deployed for the first time.
3. Training is completed before new staff members are allowed to work without direct supervision.

### **Responsibilities:**

1. Clinic nurse is responsible to deliver instruments to the cleaning CSSD nurses.
2. The cleaning CSSD nurses are responsible to probably clean and disinfect the contaminated instruments and deliver them to the sterilization CSSD nurses.
3. The sterilization CSSD nurses are responsible for packing instruments, operating autoclaves, processing monitoring, and deliver record for inspection.
4. The CSSD nurses notify the IC nurse and maintenance engineer of problems of existing autoclaves which need fixation.



## Definitions:

**Cleaning:** Cleaning is the physical removal of all foreign substances (such as dust and organic material) located on the surface of the tools; this is achieved by scrubbing and rinsing. It is the necessary first step of any disinfection or sterilization process.

**Disinfection:** It means any chemical or physical process reduces the dynamic load (number of microbes) to the extent that it becomes safe to deal with what has been cleaned.

**Sterilization:** Process achieving complete elimination of micro-organisms which can be achieved either through physical or chemical means.

**Critical items:** These items penetrate or contact soft tissue, bone, bloodstream and normally sterile tissue e.g. extraction forceps, and endodontic burs, elevators, periodontal scalars, flap retractors.

**Semi-critical items:** These items typically contact mucous membranes and non-intact skin. (e.g. mouth mirrors, restorative instruments, reusable impression trays, and amalgam condensers.

**Noncritical items:** These items come in contact with intact skin such as radiograph head, blood pressure cuff, or face-bow these items require.

## Procedures:

### a. Staff attire:

1. All staff of the CSSD is required to follow a strict dress policy.
2. No staff is allowed to enter the CSSD with the normal clothes.
3. Uniforms worn in sterilizing department are not worn outside the hospital.
4. Shoes designated for use in this area should be non-slip, enclosed footwear.
5. Hair is safely secured and covered while preparing items for sterilization.
6. PPE is worn when handling used/soiled items.
7. Hand and wrist jewelry are NOT worn.
8. Nail polish or acrylic nails are NOT worn, nails are kept short.
9. When leaving CSSD working personnel should remove and discard the gown and gloves, and wash their hands.

**b. General Cleaning of the Department:**

The general working area of the CSSD is mopped everyday including the following areas within the CSSD environment:

1. Decontamination area:

Wipe the trolleys daily with intermediate level disinfectant spray or wipes approved by ICC.

2. Packing area:

- Wipe working table, drawers and trolleys daily with the intermediate level disinfectant spray or wipes approved by ICC.
- Wipe the machines daily with disinfectant dampened towels.

3. Sterile packs storing and issuing (distribution) area:

- Wipe the drawers and walls weekly with intermediate level disinfectant spray or wipes approved by ICC
- Mop the floor twice daily and ensure that the mop that is used is only meant for the sterile store.

**c. Workflow pattern of contaminated instruments:**

The workflow of contaminated instruments should be from the highest contamination area to the lowest contamination one.

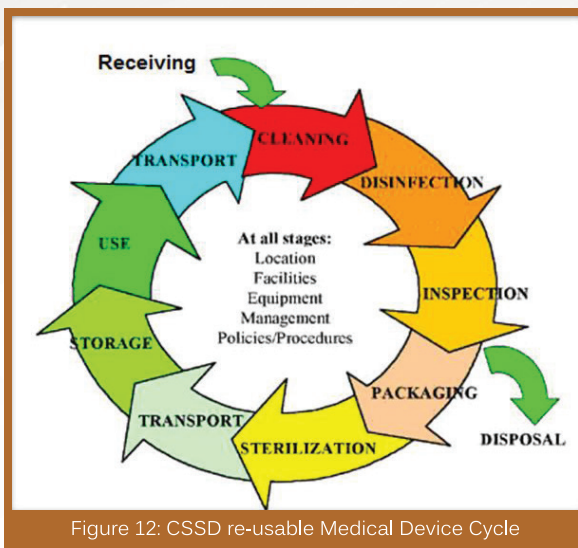
**d. Receipt of the contaminated and issuing of sterile instruments:**

Receipt and issuing items from/to students' clinics are done at assigned time intervals according to session schedules. However Emergency, specialized clinics are exempted from the assigned time dimensions since it is difficult to restrict their activity within specific time limit.

**e. Generation of items to sterilize:** according to the following cycle:

**CSSD re-usable Medical Device Cycle**

The cycle of reusable medical devices in CSSD includes the receiving, cleaning, disinfection, inspection, packaging, sterilization, transport and storage.



**I. Transport of contaminated instruments:**

Just after termination of treatment session at different clinics (students, Specialized and Emergency clinics)

1. Students (in student clinics) or faculty members (in specialized and emergency clinics) are responsible for:

- Sorting contaminated instruments
- Segregating re-usable instruments to be cleaned from items for disposal
- Getting rid of Single-use devices that are designed to be used once only
- Deliver contaminated instruments to dental assistants assigned for transporting them to CSSD.



2. Dental assistants assigned for transporting them to CSSD are responsible for:

- Receiving contaminated instruments from students or faculty members.
- Inspecting them to check the status of the item (torn, punctured, cracked).
- Count the number of received instruments.
- Registering date, time, source, type of instruments, name and signature of person handing over and name.



Transporting the contaminated instruments by trolley to CSSD from the cleaning room window.

## II. Cleaning and disinfection:

1. Before cleaning, entry is made in CSSD receipts register including date, time, type of instruments, count, name and signature of person handing over, and name and signature of person receiving according to CSSD received / return form.
2. CSSD nurses sort heat sensitive items (adaptor, clips of dental bibs, plastic x- ray holders.....) and disinfect them by disinfectant approved by ICC.
3. The cleaning of sterilizable items starts by rinsing the items with water to remove debris such as blood, mucous and tissue.
4. If instruments are not immediately processed they should be placed in water with detergent to prevent the drying of blood and debris.
5. The principal methods of cleaning reusable dental instruments are:
  - Manual cleaning.
  - Washer/disinfectant;
  - Ultrasonic Bath.

## Procedures for Manual Cleaning of Dental Instruments:

### Immersion method

1. Wash hands.
2. Wear personal protective equipments (gown, mask and heavy-duty utility gloves).
3. Prepare sinks and equipments.
4. Dismantle and open the instruments, as applicable, ready for immersion.
5. Fill the clean sink with the appropriate amount of water and detergent.
6. Fully immerse the instruments in the solution and keep under water during the cleaning process to prevent aerosols.
7. Scrub the instruments using long-handled brushes with plastic bristles.
8. Drain any excess cleaning solution prior to rinsing.
9. Rinse in a second sink with potable water.
10. After rinsing, drain water from the sink.
11. Dry instruments by a lint free cloth to be ready for wrapping.
12. Visually inspect all items under an illuminated light ensuring they are clean, functional and in good condition.
13. Put the clean dry instruments in a tray.
14. Deliver the instrument trays to wrapping area from the side window.



Figure 13: Steps of manual cleaning.

NB. Brushes Used for Cleaning in CSSD are soaked daily in disinfectant for decontamination. CSSD nurses discard brushes and organize replacements when required.

- Procedures for operating Washer/Disinfector of dental instruments

1. At the start of the session, before carrying out the daily tests:

- Check and clean the door seal with a clean, damp, non-lint cloth.
- Check the chamber and baskets for cleanliness and debris.
- Check the spray arms are freely rotating.
- Check the spray nozzles are not blocked.
- Ensure that there is sufficient quantity of detergent.
- Heavily soiled Instruments should be briefly immersed in cold water (with detergent) to remove some of the blood and other visible soil before being placed in the washer disinfector.

2. Follow the manufacturer's recommendations for the safe operating procedure of the washer/ disinfector.

3. Use the detergent recommended by the manufacturer

4. Open instrument hinges and joints fully.

5. DO NOT overload instrument carriers or overlap instruments;

6. After the cycle is completed allow instrument to cool.

7. Visually inspect all items ensuring they are clean, functional and in good condition.

N.B. Operators must never put their hands into the machine while it is in operation.



Figure 14: Washer/disinfector machine



## Procedure for using the Ultrasonic Bath:

1. Heavily soiled Instruments are briefly immersed in cold water (with detergent) to remove some of the blood and other visible soil before ultrasonic cleaning.
2. Low foaming enzymatic detergent recommended by the manufacturer is put in recommended dilution
3. Ensure that joints or hinges are opened fully and instruments that need taking apart are fully disassembled before they are immersed in the solution.
4. Place instruments in a suspended basket and fully immerse in the cleaning solution, ensuring that all surfaces are in contact with the solution.
5. DO NOT overload the basket or overlap instruments.
6. DO NOT place instruments on the floor of the ultrasonic cleaner.
7. Set the timer to the correct setting as per the ultrasonic cleaner manufacturer's instructions.
8. Close the lid and DO NOT open until the cycle is complete.
9. After the cycle is completed, drain the basket of instruments before rinsing.
10. Change the solution when it becomes heavily contaminated or otherwise at the end of every clinical session and rinse the tank.
11. Items are rinsed thoroughly with water to remove residual soiling and detergents
12. Visually inspect all items ensuring they are clean, functional and in good condition.
13. Monitoring of the machine should be carried out daily.

### Note

The ultrasonic cleaner should be emptied at the end of working day, cleaned and left dry.

- Following the cleaning process the equipment to be disinfected or sterilized should be dried prior to packaging/processing.

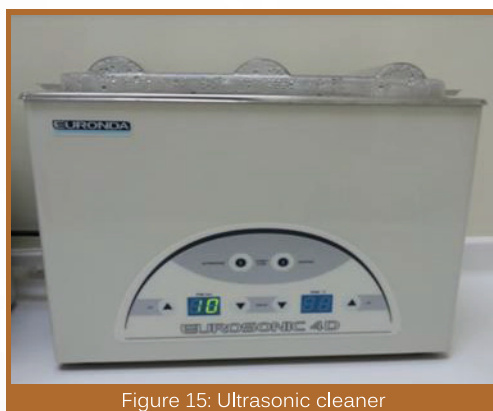


Figure 15: Ultrasonic cleaner

## Cleaning and disinfection of Hand pieces:

### External Cleaning:

1. Flush handpiece with water for 20 seconds prior to removal from the coupling.
2. Remove bur.
3. Wipe external body of handpiece with disinfectant approved by ICC.
4. DO NOT use chlorine based wipes.
5. DO NOT immerse in disinfectant.
6. DO NOT place in ultrasonic bath.

### Internal Cleaning:

1. Use oil recommended by Handpiece manufacturer.
2. Clean off excess oil with absorbent paper towel.
3. Seal inside the appropriate pouches then done.
4. Sterilize according to manufacturer's instructions.



Figure16: Machine for oiling of hand piece.



### III. Inspection:

1. All instruments that have been cleaned through any cleaning procedure, are inspected to ensure they are clean, functional and in good condition.
2. Instruments with any visible contamination undergo another cycle of the cleaning process.
3. Any instruments that are blunt, bent, rusted or damaged or show any signs of pitting or other corrosion are taken out of use and either repaired or replaced.
4. CSSD staff ensure that:
  - There is free movement of all parts and that joints do not stick.
  - The edges of clamping instruments meet with no overlap and that teeth mesh together.
  - Scissor edges meet to the tip and move freely across each other with no overlap or rough edges.
  - All screws on jointed instruments are tight and have not become loose during use.

### IV. Packing

1. Critical and semi-critical cleaned instruments should be assembled into sets or trays.
2. Instruments that are heat sterilized, are packaged and placed into paper/plastic pouches.
3. Appropriate size of pouches is selected according to number of instruments put in the tray without overload instruments to achieve desired sterilization (i.e. only slightly larger than the contents).
4. Instruments are put in the selected pouch size to allow steam penetration during sterilization cycle.
5. As much air as possible should be removed from the pouches before sealing because air acts as a barrier to heat and moisture.
6. Packages are sealed to maintain sterility.
7. Date the package sterilized is written on the outside of the pack.

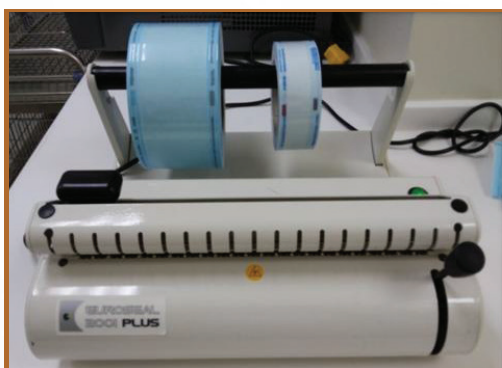


Figure 17: Sealer for sealing packs prior to sterilization

## V- Sterilization:

### 1. Protocol for using the Autoclave

At the start of the session, before carrying out the daily tests:

- The rubber door seal with a clean, damp, non-lint cloth.
- Check the chamber and shelves for cleanliness and debris
- Ensure that water pressure is enough for the operation of the autoclave.
- N.B. In case of bench mounted autoclave, fill the reservoir with freshly distilled water.

### 2. Procedures

- Items' container must be loaded according to manufacturers' instructions.
- Protective clothing and barriers must be worn.
- Instruments sets and individual should be loaded flat in a single layer.
- The packs of the instruments should not touch to the top, bottom or sides of the chamber walls, not to become wet.
- Packs of instruments should not be compressed or overloaded in the autoclave.
- Turn on the autoclave, wait till it reaches desired pressure and adjust timing.
- After completion, the cycle should be recorded according to policy. The packs should be allowed to cool before handling.
- The hot racks should not be touched without heat resistant gloves.
- Ensure that the selected sterilization cycle includes a drying stage.

### 3. Monitoring of autoclave:

Each sterilization cycle is verified as satisfactory in the following way:

- The records obtained from the cycle printout are examined to confirm that the cycle variables were within the limits established as satisfactory by the manufacturer including the temperature and duration of the sterilization plateau period, depth and duration of the drying vacuum.
- Color change of the chemical indicator printed on the pouch.
- Biological Indicators used in the sterilizer once a week to validate that the sterilizer is killing all microorganisms.

If any of the above conditions is not achieved, reprocess the instruments from the start of the decontamination cycle (cleaning, thermal disinfection and sterilization), notify the engineer in charge.



Figure 18: Autoclave. Notice arrows pointing to electronic printout for cycle monitoring

**Flash Sterilization:** Flash sterilization is a method for sterilizing unwrapped instruments for immediate use. This cycle operates at a higher temperature for a shorter period of time than the normal sterilization cycle. The CDC\* recommends that flash sterilization NOT be used routinely in the dental office to sterilize patient instruments. This process should only be used in unavoidable situations.

#### VI. Transport & Storage:

1. The sterilized instruments are transported to be stored in their packaging in clean, dry, dust-free storage and transport rooms inside the clinics.
2. Use a first-in, first-out stock rotation to minimize the duration of storage of sterile instruments.
3. The shelf life of packaged sterilized products is as long as the storage of the sterilized products is in closed drawers or cupboards.





Figure 19: Non-perfectly sterilized instrument with wet pack

4. Instrument packs should be inspected prior to use to ensure that:

- The packs are dry.
- The outer wrapping and seals are intact.
- The process indicator has changed color.
- Unwrapped Instruments are kept on covered trays in enclosed cupboards or boxes. They are not to be “stored” and must be used in the current treatment session. If unused at the end of the treatment session they are regarded as contaminated and sent for reprocessing.

If the above requirements are not met the contents of the pack should not be used and should be sent for further decontamination.

### Auditing:

Simple audit forms are available to monitor instrument processing, manual and ultrasonic cleaning and autoclave checklists by ICUUnit on daily basis(Appendix VI).

## Policy and Procedures of Blood Spillage

### Policy:

The purpose of this policy is to direct staff on the correct procedure when dealing with spillage of blood or other body fluids to minimize risk of infection.

### Background:

Blood and body fluid spillages should be considered potentially infectious as infectious agents can survive for long periods in spillages. Healthcare personnel dealing with blood and body fluid spills may be exposed to blood borne viruses and other pathogens.

### Responsibilities:

- Housekeeping workers are responsible for cleaning of the spillage.
- Dental assistants are responsible for ensuring adherence to policy guidance.

### Procedure:

- If blood is spilled, the spillage is to be dealt with as soon as possible:
- In case of availability of blood spill kit, follow the manufacture instructions to deal with spilled blood.
- In case of non-availability of blood spill kit, go after the following steps:
  1. Heavy duty gloves, protective eyewear and a disposable gown are worn.
  2. The spilled blood is to be completely covered by disposable towels, which are then treated with chorine solution producing 10,000 ppm free chlorine. Good ventilation is essential.
  3. Ten minutes must elapse before the towels are removed and disposed of as clinical waste.
  4. The cloths used for cleaning are to be disposed of as clinical waste.
  5. Mop the area with water and dry it carefully.

## Policy and Procedures of Environmental Cleaning

### **Policy:**

Effective environmental cleaning of healthcare facilities is an essential part of UQUDENT initiatives for the prevention and control of healthcare associated infections.

### **Background:**

High standards of cleanliness and hygiene are important for producing an environment which reduces the risk of infection being transmitted to patients. The transfer of microorganisms from environmental surfaces to patients/clients is largely considered to be via direct (hand) contact with these surfaces.

### **Training:**

As a minimum, training must be given in the performance of cleaning tasks, the use of cleaning equipment, control of infection, manual handling, health and safety and site orientation. Training in the performance of tasks includes the correct use of cleaning products and materials. Training should be consistent with the manufacturer's instructions.

### **Responsibilities:**

- ICC sets up a policy for environmental cleaning and reviews the results of the internal cleaning audits and recommend action to executive management as required.
- Dental assistant: Audit compliance with the environmental cleaning standards
- Cleaning staff: Undertake environmental cleaning in accordance with this Policy

### **Definitions:**

- The term „environment’ refers to any general horizontal surfaces in the patient’s environment (low and high level must be considered) or any frequently touched surfaces in the environment. This also includes rooms such as, store rooms, dental surgeries; Reception & waiting areas, trolleys, other furniture in the environment, such as tables and chairs, doors, door handles particularly those in the immediate environment frequently touched by patients & worker.
- Housekeeping Surfaces includes floors, walls and sinks that require regular removal of soil, dust, and debris.

## Procedures

### a. Daily cleaning activities include:

1. Clean and wipe switches, sockets, internal doors, and knobs.
2. Clean tissue and gloves holders, hand washer containers, as well as sharps holder.
3. Clean sinks.
4. Mop the floor.

### b. Weekly cleaning activities include:

1. Clean and wipe high surfaces.
2. Wipe ventilation grilles.
3. Remove dust on walls and ceilings as required.

N.B. Suitable detergent is used for wiping followed by complete dryness.

### c. General Rules during environmental cleaning:

1. Workers should always wear heavy utility gloves and shoes that cover the toes.
2. Cleaning towels should be used for walls, floors, and surfaces instead of dry dusting or sweeping.

- Cleaning is done in a way that minimizes the scattering of dust and dirt.
- Surfaces are washed from top to bottom so that debris falls to the floor and is cleaned up last (e.g. ceiling lamps, shelves, tables, and lastly, the floor).
- Cleaning should begin from the least soiled area to the most soiled area, which is usually the toilets and soiled storage areas.

5. Cleaning solutions should be changed frequently.
6. If a disinfectant is used, the disinfectant solution is less likely to kill infectious microorganisms if it is heavily soiled.
7. Cleaning of environmental surfaces in clinics is performed by using separate buckets.
8. The procedure starts by wiping or scrubbing with detergent, followed by rinsing with water, and drying at the end.

## Auditing:

Auditing is to be done by IC nurse through environmental cleaning checklist on daily basis(Appendix VI).

## Policy and Procedures of Proper Waste Disposal

### Policy:

This policy is put to ensure that all waste produced at the practice is disposed in a safe manner and to familiarize team members with the different types of waste produced by the practice and the correct methods of disposal. This safe disposal of waste is essential to minimize risk of infection to the team and community as well.

### Background:

When clinical waste is appropriately handled and contained through good work practice and the use of protective clothing, the risk of infection is minimized. The most significant risk associated with clinical waste is transmission of a blood borne virus from a needle stick injury. The harmful impacts on the environment of increased disposable items have included pollution and the depletion of non-renewable natural resources.

### Responsibilities:

- The housekeeping workers are responsible for collecting segregated waste from the clinics and student cubicles to the central storage areas at the end of the morning and afternoon sessions.
- IC nurse is responsible for ensuring correct use of personal protective clothing when collecting, handling waste and that the bags of collected wastes are appropriately sealed. Reporting any incidents relating to waste procedures to ICC.

### Training:

Suitable training is given at regular frequencies in order to ensure the safety of all staff involved in the waste disposal process. All staff who works in areas where waste arises must receive instruction in waste handling, segregation, storage, and disposal procedures, and the use of protective clothing as appropriate to their range of duties and other circumstances.

### Definitions:

**Clinical Waste:** Clinical waste is defined as 'any waste which consists wholly or partly of human or animal tissue, blood or other body fluids, excretions, drugs or other pharmaceutical products, swabs or dressings, syringes, needles or other sharp instruments. It may be anatomical (tissues) or Non-anatomical waste (i.e. sharps and blood-soaked materials).

**General office waste:** Means any garbage, refuse and discarded material and the majority of soiled items generated in dental offices, including plastic barriers used to cover clinical contact surfaces, pouches that were containing instruments, used cups, masks, gloves and gowns.



## Procedures

### a. Segregation of waste:

Waste should be segregated and placed into the appropriate waste container by the dental health care workers immediately after the waste is generated.

### b. Clinical waste disposal:

#### 1. Sharps disposal

- Sharps must be placed in red puncture-resistant, rigid containers labeled with universal biohazard symbol mounted on wall immediately after use.
- Containers must be considered full when 3/4 filled and must be securely closed and stored for final disposal at that time.
- Under no circumstance should needles or lancets be recapped or otherwise manipulated by hand and must not require transport to another room for disposal in a sharps container.

#### 2. Non-anatomical waste disposal:

- Includes blood-soaked materials that release liquid or semi-liquid blood if compressed.
- It must be separated and collected in yellow colored clinical waste bag that is labeled with the universal biohazard symbol.
- At the end of each clinical session, clinical waste bags must be removed from its container.
- These bags must be securely closed, transported on waste collecting trolley, placed in a box and locked in a storage room, which has limited access



Figure 20: Clinical waste container

### 3. General waste disposal:

At the end of each clinical session, general waste bags must be removed from its container. These bags must be securely closed and transported to storage room.

### 4. General rules for waste disposal:

- Reusable secondary containers used in the transport of clinical waste must be routinely disinfected after transport is completed, and must be disinfected as soon as possible after visible contamination has occurred.
- In the event that clinical waste is spilled onto the roadside during transport, clean up and removal must be immediately and thoroughly disinfected.

### **Auditing:**

Auditing should be done by IC nurse through proper waste disposal checklist on daily basis(Appendix VI).

## Policy and Procedures of IC in Dental Radiology

### **I. Personal Protection**

1. Gloves should be worn when taking radiographs and handling contaminated intraoral equipment and changed after each patient.
2. Other PPE (e.g., mask, protective eyewear, and gowns) should be used if spattering of blood or other body fluids is likely.
3. Hand hygiene or alcohol based hand rub is done before donning and after removing gloves. (for further details see hand hygiene policy and procedures).

### **II. Periapical radiography**

1. The clinical contact surfaces e.g., radiograph tube head, control panel, Digital radiography sensors and other high-technology instruments that may become contaminated should be cleaned and disinfected by intermediate level disinfectants approved by ICC.
2. After disinfection, these surfaces should be protected with surface barriers that are changed after each patient.
3. The keyboard, screen and mouse are wrapped and disinfected regularly with disinfectant
4. To minimize the potential for device-associated infections, after removing the barrier, the device should be cleaned and disinfected again.
5. If barriers are not used, equipment that has come into contact with DHCP's gloved hands should be cleaned and then disinfected after each patient use.

### **Panoramic and cone-beam Radiography**

1. Bite blocks should be placed in covers.
2. The patient's chin rest, head rest and other parts of panoramic machine should be cleaned after each exposure.

## Policy and Procedures of IC in Laboratories

### I. Multipurpose and Research Laboratories

1. No food or drinks are permitted in the laboratory at any time.
2. Only closed-toe shoes are to be worn in the laboratory. Sandals or flip-flops are not permitted.
3. Keep hands and other objects away from your face, nose, eyes, ears, and mouth.
4. Work areas/surfaces must be disinfected before and after use.
5. Laboratory coats must be worn while in the laboratory.
6. Hands must be washed before leaving the laboratory.
7. All unnecessary books, briefcases or any personal items must be kept off the countertops.
8. Never pipette anything by mouth (including water). Always use pipette devices.
9. Return all chemicals, reagents, cultures, and glassware to their appropriate places.
10. Do not walk about the laboratory with bacteriological loops or pipettes containing infectious material.
11. Report any injuries, broken equipment, chemical or biological spills to infection control team immediately.
12. Clean up any spills or broken glass.
13. Always wipe and clean the lenses of your microscope before putting it away using the appropriate tissue paper and cleaning solution for this purpose.
14. When you use Bunsen burners:
  - Organize your bench to avoid crossing over the Bunsen burner.
  - Do not leave your Bunsen burner on if you are away from your bench.
  - Turn off Bunsen burners before leaving the laboratory.
15. When deal with sharps:
  - Wash your hands.
  - Cover hand cuts, abrasions and wound.
  - Wear gloves.
  - Be careful when handling sharps.
  - Do not recap needles.
  - Dispose the used sharps and needles in sharps box.
  - If there is blood spills on the bench or the floor, the contaminated area should be covered with paper towels and soaked with sodium-hypochlorite for at least 10 min., starting from the periphery and working towards the center.

## II. Policy and procedures of IC in Dental Laboratories:

### Policy:

The aim of this policy is to prevent exposure of DHCP, patients, or the office environment to infectious agents from improper handling of dental prostheses, appliances, and items used in their fabrication.

### Background:

Any item or equipment used in the mouth has the potential to be a source of cross infection. Dental impressions become contaminated with saliva, blood and oral bacteria. As appliances and impressions cannot withstand sterilization adequate cleaning and disinfection must be carried out.

### Training:

- All clinical staff should have adequate knowledge of the risks associated with laboratory work and impressions and the correct procedures to use for the decontamination of laboratory work and impressions, including the safe use of disinfectants.
- They should be provided with regular in-depth training so that they are properly updated on new developments in the decontamination of laboratory work and impressions Regular refresher training should be given, to ensure that staff are properly updated on new developments.

### Responsibilities:

- The dentist or student at the clinic is responsible for primary disinfecting and providing the lab with impressions packed.
- The dental laboratory technicians are responsible for safe handling and production of dentures according to the written policy.

### Procedures:

#### I. Preparing impressions for the Lab

After removing the tray from the oral cavity, all impressions must be cleaned and disinfected as follows:

1. Impressions and dental prosthesis are rinsed under running tap water.
2. The tray then immersed in / or sprayed by intermediate level disinfectant according to the manufacturers' recommendation and contact time (table 1).
3. The disinfected impressions are then thoroughly rinsed under tap water to remove any residual anti-microbial chemicals.
4. A wet gauze or paper towel is placed on the surface of the impression that handled carefully to prevent distortion.



5. The impressions are transported to the dental lab in sealed, disposable containers.
6. Details of the patient and disinfection procedure are written on the pack before sending to the lab as follows: "This case has been disinfected with \_\_\_\_\_ for \_\_\_\_\_ minutes"
7. Heat tolerant items used in the mouth (face bow forks, wax knives, carvers) and metal trays are transported to CSSD for autoclaving before using them for other patients.

## II. In the laboratory

A separate receiving and disinfecting area should be established to reduce contamination in the production area.

### a. Personal Protection in the lab:

1. Long hair should be tied back.
2. No eating, drinking or smoking in the lab.
3. Wash hands thoroughly before and after lab work.
4. Coat should be worn at all times while in the lab.
5. Masks and safety glasses should be worn when using rotary instruments.
6. Gloves should be worn when pouring an impression or when handling an intra-oral device.


### b. Work Area:

1. Ensure the room is well ventilated.
2. Work area should be wiped and disinfected then a clean counter top paper is laid down.
3. For lab work of each new patient: cleaned disinfected and/or sterilized instruments are used.
4. After finishing all work, clean work area of all debris, and disinfect the countertop by intermediate level disinfectant approved by ICC.


### c. Pumice / Lathe:

1. To polish acrylic appliances (trays, denture, provisional, crowns, etc.) sterilized pumice wheels, burs, abrasive stone, rags, wheels, etc. are used.
2. Fresh pumice is used for each use.
3. DO NOT use gloves when operating the lathe.
4. Before removing a soft reline from a denture or grinding to prepare a denture for a reline, it should be disinfected first by immersion in disinfectant for 10 minutes.

d. Impression syringes (not tips), hand piece, pens, pencils, rulers, shade guides-after second

 Should be disinfected after each use by the spray-wipe-spray technique with disinfectant

e. Laboratory burs, polishing rubber points and impressions syringes tips

 Should be sterilized by autoclaving.

f. Disposal of waste from dental laboratory

1. Unless waste generated in the dental laboratory (e.g., disposable trays or impression materials) falls under the category of regulated medical waste, it can be discarded with general waste.
2. Personnel should dispose of sharp items (e.g., burs, disposable blades, and orthodontic wires) in puncture-resistant sharp containers.

g. Items received from the lab:

1. Remove transport wrap and place in a work pan.
2. DO NOT assume that such items were disinfected before you receive them; therefore, disinfect them before insertion in the patient mouth.

N.B.

- The disinfectant must be compatible with the material and not damage or have a deleterious effect on its function. Always check first with the manufacturer before using a new disinfectant.
- Make up fresh disinfectant solution at the correct concentration according to manufacturer's instructions.

**Table (1):**

Guide for selection of appropriate disinfection methods for items transported to or from the dental laboratory.

Item	Method	Recommended Disinfectant(s)	Comments
Appliances	Immerse	Chlorine compounds or iodophors	Rinse thoroughly after disinfection
Metal/acrylic		Glutaraldehydes	
All metal		Iodophors or phenolics	Facebow forks should be heat-sterilized before reuse
Articulators, facebows	Spray, wipe, spray	Chlorine compounds or iodophors	Disinfectant can be prepared using slurry water (saturated calcium sulfate)
cast	spray until wet or immerse		Probably should not be disinfected until fully set (24 hours)
Custom impression trays (acrylic)	Immerse or spray until wet	Chlorine compounds, iodophors, or phenolics	Do not reuse, discard
Impressions	Immersion disinfection preferred		Heat-sterilized reusable impression tray Discard plastic trays after use
Irreversible hydrocolloid (alginate)	Disinfect by immersion with caution. Use only disinfectants with short-term exposure times (no more than 10 min for alginates)	Chlorine compounds or iodophors	Short-term immersion in glutaraldehydes has been shown to be acceptable, but the immersion time is inadequate for disinfection
Reversible hydrocolloid			Do not immerse in alkaline glutaraldehydes
Polysulfide rubber Silicone rubber	Disinfect by immersion	Glutaraldehydes, chlorine compounds, iodophors, phenolics	Disinfectants requiring more than 30 min exposures are not recommended
Polyether	Disinfect by immersion with caution. Use only disinfectants with short-term exposure times (no more than 10 min)	Chlorine compounds or iodophors	ADA recommends any of the disinfectant classes; however, short-term exposures are essential to avoid distortion
ZOE impression paste	Disinfection by immersion is preferred. Spraying can be used for bite registrations	Glutaraldehyde or iodophors	Not compatible with chlorine compounds, Phenolic sprays can be used
Impression compound		Iodophors or chlorine compounds	Phenolic sprays can be used

Item	Method	Recommended Disinfectant(s)	Comments
Prostheses	Immerse in disinfectant. Use caution to avoid corrosion of metal. Can also be sterilized by exposure to ethylene oxide gas	Rinse thoroughly after disinfection	Clean (old) prostheses by scrubbing with handwash antiseptic or sonification before disinfection
Removable (acrylic/porcelain)		Chlorine compounds or iodophors	Rinse thoroughly after disinfection; store in diluted mouthwash
Removable (metal/acrylic)		Chlorine compounds or iodophors	
Fixed (metal/acrylic)		Glutaraldehydes, chlorine compounds or iodophors	Rinse thoroughly after disinfection
Shade guides	Immerse or spray, wipe, spray	Iodophors or phenolics	Final wipe with water or alcohol to avoid discoloration
Wax rims, wax bites	Rinse, spray, wipe spray	Iodophors or phenolics	Rinse again after disinfection

## Policy and Procedures of Handling Extracted Teeth

### **I. Disposal of extracted teeth:**

1. Extracted teeth are potentially infectious material that should be disposed in medical waste containers.
2. Extracted teeth sent to a dental laboratory for shade or size comparisons should be cleaned, surface-disinfected before transportation to the lab by immersing in a solution of 1:10 Sodium hypochlorite for 30 minutes.
3. Extracted teeth can be returned to patients on request, at which time provisions of the standard no longer apply.
4. Extracted teeth containing dental amalgam should not be placed in a medical waste container that uses incineration for final disposal. However, it should be placed in separate container and hand over to commercial metal-recycling company.

### **II. Disinfection and sterilization of extracted teeth used in educational settings**

1. Extracted teeth collected for use in preclinical educational training should be cleaned of visible blood and gross debris and maintained in a hydrated state in a well-constructed closed container containing water or saline during transport. The container should be labeled with the biohazard symbol.
2. Before being used in an educational setting, the teeth should be heat-sterilized to allow safe handling. Microbial growth can be eliminated by using an autoclave cycle for 40 minutes. Extracted teeth containing amalgam restorations should not be heat-sterilized because of the potential health hazard from mercury vaporization and exposure.
3. If extracted teeth containing amalgam restorations are to be used, immersion in 10% formalin solution for 2 weeks should be effective in disinfecting both the internal and external structures of the teeth.



## Policy and Procedures of Immunization

1. Immunizations are an essential part of prevention and infection-control programs for DHCP, and a comprehensive immunization policy should be implemented for all dental health-care facilities. Immunization of DHCP before they are placed at risk for exposure remains the most efficient and effective use of vaccines in health-care settings.
2. All DHCP including students to be vaccinated or have documented immunity to hepatitis B, influenza, measles, mumps, rubella, and varicella because of the substantial risk for acquiring or transmitting of these diseases. No vaccine exists for HCV or HIV.
3. Non-patient-care staff (e.g. administrative or housekeeping) might be included, depending on their potential risk of coming into contact with blood or other potentially infectious materials (OPIM).
4. New employees are requested to comply with medical checkup which include General medical checkup, Chest x-ray and screening for blood-borne viruses (HBV, HCV, HIV).
5. Students are required to receive HBV vaccination before starting their clinical training.
6. It is the responsibility of DHCWs to obtain recommended immunization prior to entry in the clinic.

### I. Personal Protection

1. Regularly updated immunization/ health records for dental staff should be developed and maintained.
2. Dental care providers should also maintain their own immunization and screening records.

**Table (2):**

Detailed recommendations for immunization.

Vaccine	Dose schedule	Indications	Precautions	Special Considerations
HBV	3-dose schedule at 0,1,6 months in deltoid	DHCP	Allergy to baker's yeast	should be tested 1-2 months post-vaccine to determine serologic status
Influenza	Annual single-dose	DHCP	Allergy to eggs	
MMR (measles, mumps; rubella)	2 dose regimen, a minimum of 28 days apart	No reliable history of infection or serologic evidence of immunity	Pregnancy, immuno-compromised status; allergy to gelatin or neomycin	
Varicella-zoster	2 doses 4-8 wks apart	No reliable history of infection or serologic evidence of immunity	As with MMR; avoid salicylate use (aspirin) for 6 weeks after vaccination	

## Hepatitis B vaccination

1. DHCP should be tested for the presence of adequate amounts of hepatitis B surface antibody approximately 1-2 months following completion of the 3-dose vaccination series. Serologic testing should produce antibody levels of anti-HBs  $\geq 10$  mIU/mL.
2. DHCP who do not develop an adequate antibody response (i.e., anti-HBs  $< 10$  mIU/mL) to the primary vaccine series should complete a second 3-dose vaccine series or be evaluated to determine if they are HBsAg-positive. Re-vaccinated persons should be re-tested for anti HBs at the completion of the second vaccine series.
3. If an inadequate antibody response occurs following the second series of immunizations, testing for HBsAg should be performed.
4. Persons who prove to be HBsAg-positive or HBeAg positive should be counseled regarding how to prevent HBV transmission to others and regarding the need for medical evaluation.
5. Non-responders to vaccination who are HBsAg-negative should be considered susceptible to HBV infection and should be counseled regarding precautions to prevent HBV infection and the need to obtain hepatitis B immunoglobulin (HBIG) prophylaxis for any known or probable parenteral exposure to HBsAg-positive blood.

## — Appendices —

## Appendix I: Latex allergy

Dental Health care workers who are using latex gloves are at risk of developing latex allergy.

### If definitively diagnosed with allergy to natural rubber latex protein:

1. Identify the symptoms of latex allergy that occur minutes or hours after exposure. Mild reactions involve skin redness, rash, or itching. More severe reactions may involve respiratory symptoms such as runny nose, sneezing, itchy eyes, scratchy throat, and asthma (difficult breathing, coughing spells, and wheezing).
2. Use non-latex (e.g., nitrile or vinyl) gloves.
3. Use only synthetic or powder-free rubber dams.

## Appendix II: General rules for using gloves:

- Properly fitting gloves protect DHCWs from exposure through cuts and abrasions often found on the hands.
- Change gloves between patients, between tasks and procedures on the same patient, and when they become soiled
- Any cuts or abrasions on the hands or wrists should be covered with adhesive waterproof dressings before wearing gloves.
- Do not use gloves if they are torn, as punctured gloves do not provide protection.
- Remove gloves promptly after touching contaminated items and environmental surfaces and before moving to another patient.
- Remove gloves before leaving the contaminated area and decontaminate hands immediately.
- After gloves removal hand washing should be done.
- DO NOT wear the same pair of gloves for the care of more than one patient
- DO NOT wash gloves.
- Wearing gloves does not replace the need for hand hygiene.

### Gloves must be changed and discarded in the following situations:

- As soon as they are torn or punctured or when the integrity has been altered
- After contact with a patient is complete and before care is provided to another patient
- When performing separate procedures on the same patient
- After completing a task not involving patients but requiring gloves
- Before touching environmental items and surfaces
- Before or on leaving the clinic.
- Before writing in the medical notes, answering the telephone, using the computer and moving or touching equipment.

**Heavy duty rubber gloves must be worn for:**

- Cleaning and disinfection of instruments and dental units
- Cleaning environmental surfaces.
- Cleaning up spills of blood.
- Handling medical waste.

**N.B. Heavy duty reusable rubber gloves should be disinfected and dried after each use**

**Appendix III: General Principles for using disinfectants:**

- Do not use disinfection as a substitute for sterilization.
- Only use chemical disinfectants if absolutely necessary.
- Read the relevant instructions when using disinfectants.
- Wear personal protective equipment.
- Ensure adequate ventilation.
- Check the expiry date of the disinfectant.
- Ensure that the correct dilution is used (check manufacturer's instructions).
- Never use two disinfectants together.
- Do not add anything to a disinfectant (including detergent).
- Clean thoroughly before disinfection.
- Ensure sufficient contact time between disinfectant and equipment being decontaminated.
- Rinse thoroughly after disinfection.
- Discard disinfectant solution after use.
- Ensure that containers used for disinfection are stored clean, dry and inverted between uses.



## Appendix IV: Preparation of different concentrations of Hypochlorite Solution:

- Different parts per millions of chlorine can be used for different purposes as cleaning, disinfection (low, intermediate, high) and sterilization as in the following table:
- Chlorine Concentrations used as disinfectants or sterilizer:

Cleaning	Disinfection			Sterilization *
	Low	Intermediate	High *	
100 PPM	200 PPM	500 PPM	1000 PPM	52000 PPM

**\* Chlorine in these concentrations is very corrosive and not practically used.**

Chlorine as a liquid is available in different concentrations.

Any concentrations can be used to make the desired dilutions, water added is calculated by applying the following formula:

Number of parts of water added to one part of chlorine=

$$[\% \text{ active chlorine in liquid bleach}] / [\text{ppm Chlorine desired}] - 1$$

**Example:** To make a 100 ppmChlorine solution from 5% active chlorine:

$[5\% / 100 \text{ ppm}] - 1 = (5 / 100) / (100 / 1000000) - 1 = 500 - 1 = 499$  parts of water for each part of bleach, so to prepare 100 ppm chlorine solution from 5% chlorine we should add 499 parts of water (499cc-or approximately  $\frac{1}{2}$  liter) to each part (1cc) of the concentrated (5%) chlorine.

## Appendix V: Needle stick and sharp object injury report form:

## NEEDLESTICK AND SHARP OBJECT INJURY REPORT FORM

NAME OF EXPOSED PERSON: .....

POSITION: ☐ Doctor ☐ Dental assistant ☐ Student ☐ Worker

AGE: .....

GENDER: .....

ID NUMBER: .....

**INJURY DATA**

DATE: .....

TIME: .....

LOCATION: ..... CUBICLE NO. ....

**The SHARP ITEM WAS:**

Contaminated (known exposure to patient or contaminated equipment)

Was there blood on the device?

☐ Yes ☐ No ☐ Unknown**If contaminated (known exposure to a patient)**

Name of Patient: .....

File Number: ..... Age: ..... Gender: .....

Medical History: .....

**What type of device caused the injury:**

- ☐ Disposable needles (cartridge syringes or hypodermic syringes, etc.)
- ☐ Suture needle
- ☐ Scalpel blade
- ☐ Lancet
- ☐ Burs
- ☐ Scissors
- ☐ Electro-cautery device tip
- ☐ Endodontic files, reamers, etc.
- ☐ Surgical burs, etc.
- ☐ Surgical instrument
- ☐ Other, describe.....

**When did the injury occur?**

- ☐ Before use of item (item broke / slipped, assembling device).
- ☐ During use of item (item slipped, patient jarred item).
- ☐ Restraining patient
- ☐ Between steps of a multi-step procedure (between incremental injections, passing
  - o instruments).
- ☐ Disassembling device or equipment.
- ☐ In preparation for reuse of reusable instrument (sorting, disinfecting, sterilizing).
- ☐ While recapping used needle.
- ☐ Device left on the floor, table or other inappropriate place.
- ☐ After use-before disposal.
- ☐ While putting item into disposable container.
- ☐ After disposal, stuck by item protruding from opening of disposal container.
- ☐ Item pierced side of disposal container.
- ☐ After disposal, item protruded from trash bag or inappropriate waste container.
- ☐ Other, description of incident :

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 -----

**THE LOCATION OF THE INJURY** -----**EXPOSED PATIENT:**

Did the exposed person vaccinated against HBV?

☐ Yes

☐ No

Did the exposed person detect his immune state before?

☐ Yes

☐ No

If yes, what is his immune state?

☐ Responder

☐ Non responder
**SOURCE PATIENT:**

Does sero status of the source patient is known regarding:

HBs Ag

☐ Positive

☐ Negative

HCV antibodies

☐ Positive

☐ Negative

HIV antibodies

☐ Positive

☐ Negative
**ICC member completing the report:**

Name: -----

Signature:-----

Date:-----

## Appendix VI: Infection control audit forms for self-assessment

### 1. Hand hygiene checklist

Location: .....

Date of Assessment: .....

Criterion	Yes	No	Comments/Action taken/Progress to date
1. Do HCWs wash hands before donning gloves?			
2. Do HCWs wash hands after removing gloves?			
3. Is hand hygiene undertaken in dedicated "clean" sinks/hand basins?			
4. Is a liquid hand wash solution used?			
5. Are HCWs' nails short?			
6. Are HCW hands free from rings, hand jewelry and artificial nails before washing hands?			
7. Are cuts and open wounds covered with waterproof dressings (if present)?			
8. Are steps of hand hygiene followed correctly?			
9. Is the time of performing hand hygiene is adequate?			
10. Are disposable (e.g. paper) towels used to dry hands?			
11. Are disposable towels used for drying disposed in general waste container?			

Name of Assessor: .....

Position of Assessor: .....

## 2- Checklist for IC measures prior to patient treatment:

Location: .....

Date of Assessment: .....

Criterion	Yes	No	Comments/Action taken/Progress to date
1. Do unnecessary items are removed from the dental procedure area?			
2. Do the materials needed during treatment are prepared?			
3. Is tray required for treatment procedure prearranged?			
4. Are the following clinical contact surfaces cleaned and disinfected? <input type="checkbox"/> Bracket tables. <input type="checkbox"/> Curing lights handles. <input type="checkbox"/> Suction and handpiece tubing. <input type="checkbox"/> Light switch. <input type="checkbox"/> Dental chair hand. <input type="checkbox"/> Dental chair head.			
5. Are the following clinical contact surfaces wrapped? <input type="checkbox"/> Bracket tables. <input type="checkbox"/> Curing lights handles. <input type="checkbox"/> Suction and handpiece tubing. <input type="checkbox"/> Light switch. <input type="checkbox"/> Dental chair handle. <input type="checkbox"/> Dental chair head.			
6. Are hands washed before disinfection and wrapping?			
7. Are gloves worn before disinfection and wrapping?			
8. Are masks worn before disinfection and wrapping?			
9. Is a waste bag attached to an accessible area that will not interfere with patient treatment?			
10. Are hand pieces and air- water syringes flushed for at least 3 minutes I?			
11. Are PPE ready for working personnel?			
12. Are opened containers of gloves placed outside the contaminated zone and protected from aerosols?			

Name of Assessor: .....

Position of Assessor: .....



**3-Checklist for IC measures during patient treatment:**

Location: .....

Date of Assessment: .....

Criterion	Yes	No	Comments/Action taken/Progress to date
1. Are bench tops and work surfaces cleaned?			
2. Is working personnel wearing PPE?			
3. Are surgical masks worn with the both the nose and mouth covered and both top and bottom straps tied/secured?			
4. Are sterile instruments opened with non-touch technique?			
5. Are sharps instruments handed led with non-touch technique?			
6. Are needles capped with one hand technique?			
7. Are sharps disposed in sharps box?			
8. Are masks changed when wet?			
9. Are gloves changed when visibly soiled?			
10. Are drawers opened with contaminated gloves?			
11. Is patient file touched with contaminated gloves?			
12. Is dropped instrument picked up and reused?			
13. Are personal items put on working area?			
14. Are clinical wastes thrown in clinical waste container?			
15. Are single use cups used for patient mouthrinse?			

Name of Assessor: .....

Position of Assessor: .....

**4- Checklist for IC measures after patient treatment:**

Location: .....

Date of Assessment: .....

Criterion	Yes	No	Comments/Action taken/Progress to date
1. Are gloves removed first?			
2. Are masks removed by touching the strings or loops only?			
3. Are hands washed after glove removal?			
4. Are gloves worn before cleaning?			
5. Are wrapping removed after each patient?			
6. Are disposable items discarded immediately?			
7. Are contaminated items transferred to CSSD?			
8. Are water lines flushed for a minimum of 30 seconds between patients?			
9. Are bench tops and work surfaces cleaned and decontaminated?			

Name of Assessor: .....

Position of Assessor: .....

## 5. Instrument processing checklist

Location: .....

Date of Assessment: .....

Criterion	Yes	No	Comments/Action taken/Progress to date
1. Are disposable items reused?			
2. Are heavy duty gloves worn before cleaning?			
3. Are used instruments segregated before cleaning?			
4. Are instruments contaminated with blood cleaned immediately to prevent substances drying on surfaces?			
5. Are instruments which not able to withstand sterilization disinfected to a high level?			
6. Is the ultrasonic cleaner operated in accordance with Standard Operating Procedures? <input type="checkbox"/> Solution is changed daily. <input type="checkbox"/> Tank cleaned daily. <input type="checkbox"/> Lid is fully closed during use.			
7. Is the washer/disinfector operated in accordance with Standard Operating Procedures? <input type="checkbox"/> has a print-out function. <input type="checkbox"/> operated within correct temperature & time parameters.			
8. Are items dried using a low lint disposable cloth before sterilization?			
9. Are items visually inspected for damage/ contamination after cleaning?			
10. Are pouches for wrapping system overloaded?			
11. Is the autoclave packed correctly and according to the validated load?			
12. Are indicators checked for efficient sterilization?			
13. Are wrapped instruments marked for date of sterilization?			
14. Are Sterile packages stored in a closed or covered cabinet?			

Name of Assessor: .....

Position of Assessor: .....

## 6- Environmental cleaning checklist

Location: .....

Date of Assessment: .....

Criterion	Yes	No	Comments/Action taken/Progress to date
1. Are floors in clinical areas cleaned with detergent?			
2. Are cleaning hospital disinfecting products used correctly?			
3. Are PPE used when cleaning and disinfecting environmental surfaces?			
4. Are blood spills cleaned and decontaminated with hospital disinfectant with intermediate-level activity?			
5. Is the mop used specified for the clinic?			
6. Is the mop thoroughly cleaned and dried after use?			
7. Are mop heads laundered weekly or sooner if contaminated with blood?			
8. Are buckets clean, dry and inverted after use?			
9. Is cleaning equipment stored in non-clinical areas?			
10. Are heavy duty gloves cleaned in detergent daily?			

Name of Assessor: .....

Position of Assessor: .....

## 7- Waste disposal checklist

Location: .....

Date of Assessment: .....

Criterion	Yes	No	Comments/Action taken/Progress to date
1. Do the HCW segregate waste appropriately?			
2. Are waste disposed in correctly labeled and lined with the appropriate impervious bag?			
3. Is clinical waste disposed appropriately and not placed in general waste?			
4. Are disposed items inside the container and not hanging at the edge?			
5. Are waste containers overfilled?			
6. Is waste removed at the end of every shift?			
7. Are heavy duty gloves worn during handling waste?			
8. Are clinical waste sacks securely tied and labeled before disposal?			
9. Is waste transferred from treatment area in closed cart?			
10. Is waste stored in an area of controlled access that is minimally trafficked by staff?			
11. Is storage time exceed two days?			

Name of Assessor: .....

Position of Assessor: .....



### 8- Manual cleaning checklist

Location: .....

Date of Assessment: .....

Criterion	Yes	No	Comments/Action taken/Progress to date
1. Are PPE worn?			
2. Is appropriate detergent used?			
3. Are instruments fully immersed during cleaning?			
4. Is suitable non-metal brush used (and used solely for this purpose)?			
5. Are joints or hinges of instruments opened fully and instruments that need taking apart fully disassembled?			
6. Are instrument brushes washed with detergent and hot water after each use and stored in an upright position to allow to dry?			
7. Are instruments rinsed?			
8. Are instruments inspected after rinsing?			
9. Are instruments dried?			

Name of Assessor: .....

Position of Assessor: .....

### 9- Ultrasonic cleaning checklist

Location: .....

Date of Assessment: .....

Criterion	Yes	No	Comments/Action taken/Progress to date
1. Are PPE worn?			
2. Is appropriate solution used as per validation?			
3. Is cycle used as per manufacturer's instructions and validation?			
4. Does cycle complete without interruption?			
5. Are joints or hinges of instruments opened fully and instruments that need taking apart fully disassembled?			
6. Are instruments removed for rinsing within basket?			
7. Are instruments rinsed?			
8. Are instruments inspected after rinsing?			
9. Are instruments dried?			
10. Is the solution changed when it becomes heavily contaminated?			
11. Is the cleaner emptied each night, cleaned and left dry?			

Name of Assessor: .....

Position of Assessor: .....

### 10- PPE checklist

Location: .....

Date of Assessment: .....

Criterion	Yes	No	Comments/Action taken/Progress to date
1.Are powder free gloves used in the practice?			
2. Is hand hygiene performed before donning and following the removal of gloves?			
3. Are all single-use PPE disposed of after patientcare:gloves, masks&gowns?			
4. Are disposable gowns worn during clinical procedures where there is a risk of uniform becoming contaminated?			
5. Are uniforms changed at the end of each day (or sooner if visibly contaminated?			
6. Are uniforms removed before leaving the clinics?			
7. Is eye protection cleaned after patient care?			

Name of Assessor: .....

Position of Assessor: .....

[illegible][illegible][illegible][illegible]

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