

EXPANDED FUNCTIONS CERTIFICATION WEEKEND COURSE

Clinical Charting

Patient health records provide a means of communication between the members of the staff, as well as with their patients. The records serve as a basis for the evaluation of the quality of care for the patient. Comprehensive health histories, informed consent forms, and accurate documentation are essential to a safe, thorough, and caring practice. Complete and accurate examinations with proper documentation by records and charting are basic to all patient care. All findings of the diagnostic work-up are documented. Radiographs, study casts, and all other materials collected during the initial exam and all other appointments are official parts the patients permanent record. Each entry must be dated and initialed by the doctor and the assistant.

Dental charting includes existing conditions of the mouth, as well as any new dental work needing to be completed. Clarity in the markings of symbols, drawings, labeling, and documentation are essential in the accuracy of the examination.

An accurate, detailed, and carefully recorded charting is used for treatment planning, evaluation, and identification. Dental instruments, study casts, and radiographs are all materials used for charting. The use of a set routine is best to accomplish a complete and accurate charting.

Tooth Anatomy:

- > Mesial
- > Distal
- ➤ Facial
- ➤ Lingual
- Occlusal
- ➤ Incisal

Items to be charted are:

- ➢ Missing teeth
- Probing depths
- Areas of suspicion
- Furcation involvement
- > Mobility
- Open contacts
- Restorations
 - Crowns (gold, ss, pfm)
 - Amalgam fillings
 - Bonded fillings
 - Bridges



A. Mesial, B. Distal, C. Lingual, D. Occlusal, E. Mesial, F. Facial, G. Lingual, H. Incisal edge

Please use chart below to chart restorations.

- 1. Number all teeth
- 2. #1 Impacted
- 3. #3 PFM Crown
- 4. #14 MO Amalgam
- 5. #8 ML Bond
- 6. #10 Ling Bond
- 7. #15 DO Amalgam
 8. #19 Missing
 9. #18-20 PFM Bridge
- 10.#30 Gold Crown
- 11.#31 MODB Amalgam
- 12.#28 Cervical Amalgam
- 12.#20 Cervical / Intargani



Oral Hygiene Instruction

A toothbrush and dental floss are essential instruments in the use of removing bacterial plaque as a necessary part of disease control. Many different designs of toothbrushes and other devices have been designed for aiding in oral hygiene. Patients who have not previously received professional advice concerning the best brush for their individual oral condition have probably used tools based on availability, advertising, and cost.

- Toothbrush bristles (medium, soft, extra soft)
- Floss (C shaped, holders)
- Toothpaste (fluoride, whitening, tartar control)

Patients must be educated about how plaque is to be removed, as well as how it is formed.

Microorganisms in bacterial plaque cause decay and gingival and periodontal infections. Disease producing microorganisms attach to the tooth surface and colonize. They cause decay and inflammatory changes in the mouth that can lead to destruction and disease of the mouth.

Within minutes after all materials have been removed from the teeth plaque begins to form. It is composed mainly from saliva and bacteria. Colonies form in layers as the bacteria multiply and grow, when oral hygiene is not practiced. Calculus is bacterial plaque that has mineralized. It is hard masses that form on natural teeth, dentures, and other dental prosthesis.

If plaque is not removed within 12 - 24 hours it will harden into calculus.

Calculus removal can be categorized by different type of cleanings:

- Prophy
- Debridement
- Root Planning
- Periodontal Maintenance

Monitoring Nitrous Oxide

Nitrous oxide combined with oxygen is an antianxiety agent that helps reduce fear and relaxes the patient. Nitrous oxide produces a stage I anesthesia by using a combination of nitrous oxide and oxygen. The patient inhales these gases through a nosepiece and should feel the effects almost immediately. It produces a relaxing experience for the patient with easy onset, minimal side effects, and rapid recovery. Nitrous oxide can dull the perception of pain.

There are no definite medical contraindications to nitrous oxide, but there are conditions that make it a poor choice for certain patients.

- Pregnancy only given after the first trimester of pregnancy with permission from the OBGYN.
- ✤ Nasal obstruction can prevent the patient from obtaining the benefit of the drug.
- Emphysema causes breathing difficulties.
- Emotional stability can intensify as a result of altered perception.

The gases are dispensed in steel cylinders, and are always colored green for oxygen and blue for nitrous oxide. Nitrous machines are available as portable. Masks called nosepieces are the nasal inhalers through which the patient breathes the gases. Masks come with and without a scavenger system. Members of the dental team use a scavenger system to reduce the amount of nitrous oxide that escapes into the atmosphere and is thus breathed by the dental team.

Before administration begins, either the dentist or assistant should inform the patient as to what to expect. This includes:

- Describing the process of administering the gases.
- Describing the use of the mask and the importance of nasal breathing and the use of the mask.
- Describing the sensations of warmth and tingling that the patient will experience.
- Reassure the patient that he or she will remain conscious, aware, and in control of his or her actions.

The baseline is the ratio of nitrous oxide to oxygen that is most effective for each patient. At the baseline, the patient is conscious and cooperative but pleasantly relaxed. The dentist determines the volumes of nitrous oxide and oxygen and the time necessary for each individual to reach baseline. Once the baseline is reached it should be recorded in the patient chart so at the next visit, the patient can be placed at the level recorded in the chart.

Setup

- Nitrous oxide/oxygen system
- Tank of oxygen (green)
- Tank of nitrous oxide (blue)
- Scavenger-type mask
- Equipment for measuring vitals
- 1. Check all tanks for adequate supply.
- 2. Seat patient, explain procedure, take and record vital signs.
- 3. Place patient in supine position, place the on the mask, check for accurate fit.
- 4. At the dentists direction, the assistant will begin adjusting the flowmeter with the flow of oxygen only. The patient is given 100 % oxygen for at least 1 minute.
- 5. At the dentists direction, the assistant adjusts the flow of nitrous oxide in increments of .5 to 1 liter per min and reduces the oxygen by the same amount.
- 6. After 1 mininute intervals, the previous step is repeated until the dentist determines the patient is at his or her baseline.
- 7. Note in the chart the patient's level of baseline.
- 8. The patient is closely monitored throughout the procedure.
- 9. As directed by the dentist, toward the end of the procedure, the nitrous oxide is depleted, and 100% oxygen is administered. Oxygenation of patients for 5 minute will prevent diffusion hypoxia (headache, grogginess, and a hangover feeling).
- 10. After the 5 minute of oxygenation is complete remove the mask, and slowly place the patient upright.
- 11. After the dismissal of the patient, record the baseline, the patient's response during analgesia, and how the patient was dismissed.

Polishing Clinical Crowns

Coronal polishing is a procedure in which plaque and stains on the surface of the teeth are removed. Coronal polishing is often performed as part of a cleaning after all calculus has been removed from the tooth surfaces, by a dentist or hygienist. A polish is not a substitute for a cleaning. It is important to note that coronal polishing is strictly limited to the clinical crowns of the teeth. (the clinical crown is the portion of the teeth that is visible in the oral cavity.)

Contraindications for coronal polishing include:

- ✤ Lack of stain or plaque
- Patients at risk for transient bacteremia who require the prophylactic administration of antibiotics
- Sensitive teeth (because abrasive agents can increase sensitivity)
- Newly erupted teeth (because the mineralization of the surfaces may be incomplete)

Stains may occur on the outside surfaces of the teeth or the inside of the teeth. Stains vary in type and difficulty to remove. They are primarily esthetic problems (because of their appearance). Stains are caused by foods, chemicals, and chromogenic bacteria (bacteria give color to the stain). Before polishing is done it is important to distinguish between extrinsic and intrinsic stains. Extrinsic stains are those that occur on the external of the teeth and may be removed by scaling, polishing, or both (tobacco, coffee, tea stain). Intrinsic stains are found within the enamel and cannot be removed by polishing (tetracycline stain).

The most common technique for removing stains and plaque and for polishing the teeth is the use of an abrasive polishing agent in a rubber polishing cup that is rotated slowly by a prophy angle attached to the slowspeed handpiece.

Setup

- Basic setup
- Prophy angle
- Polishing cup
- Bristle brush
- Prophy paste
- Saliva ejector
- Dental floss

Soft, webbed polishing cups are placed at the end of a prophy angle (or a disposable angle with cup attached can be used).

- 1. Begin with the distal surface of the most posterior tooth in the quadrant and work forward toward the anterior.
- 2. The stroke should be from the gingival third toward the incisal third of the tooth.
- 3. Fill the polishing cup with the polishing agent, and spread it over several areas to be polished.
- 4. Establish a finger rest, and place the cup almost in contact with the tooth.
- 5. Use the slowest speed, and then apply the revolving cup lightly to the tooth surface for 1 to 2 seconds.

Rationale: Higher speeds produce frictional heat that can damage the tooth and burn the gingival.

- 6. Pressure should be light but sufficient to make the edges of the polishing cup flare slightly.
- 7. Move the cup to another area on the tooth, using a patting, wiping motion.
- 8. Reapply polishing agent frequently as needed.
- 9. Turn the handpiece to adapt the polishing cup to fit every area of the tooth.
- 10. Use the bristle brush to polish occlusal surfaces.
- 11. Floss each area.
- 12. Be sure all areas of each tooth are polished and rinse mouth thoroughly with water.

Alginate Impressions

In dental offices, many types of dental materials are used to obtain an impression of teeth and surrounding tissues. Impressions are a negative reproduction of these structures. Once an impression is taken, it is used to create a positive reproduction in either stone or plaster.

Impression trays can be either perforated or smooth and either plastic or metal. Perforated trays let the material ooze through the holes to create a mechanical lock to hold the material in place. Smooth trays must be painted with an adhesive to hold the material securely in place. Plastic impression trays are disposable and can be discarded after a single use. Metal trays are cleaned and sterilized for repeated use.

Impression trays are selected for size by trying the tray in the patient's mouth. The correct tray will:

- ✤ Be comfortable to the patient
- Extend slightly beyond the facial surfaces of the teeth
- Extend approximately 2 to 3 mm beyond the third molar, retromolar pad, or tuberosity area of the arch
- Be sufficiently deep to allow 2 to 3 mm of material between the tray and incisal or occlusal edges of the teeth

Before taking the impressions, the procedure should be explained to the patient to ensure his or her comfort.

Set up

- Alginate
- Powder measure
- ➢ Water measure
- Rubber bowl
- > Spatula
- Impression trays
- ➢ Wax for bite registration

Mixing

- 1. Try impression trays in patient's mouth.
- 2. Instruct patient to breath through nose.
- 3. If it properly fits remove carefully without hitting teeth (remove one side then the other).
- 4. Determine the amount of material to be used. Follow manufacturer's instruction for the powder/liquid ratio.
- 5. Before dispensing the powder into the mixing bowl, shake the container in order to fluff the material (material is fluffed because material tends to settle and pack down in the can so the measure will not be accurate).
- 6. Overfill the powder scoop and level it with spatula.
- 7. Measure the amount of water necessary, and place in the rubber bowl.
- 8. Add the powder to the water in the rubber bowl. Stir the material with the spatula to incorporate all the powder particles with the water.
- 9. Once the materials have been combined, "smear" the mixture against the side of the rubber mixing bowl, using one side of the spatula.
- 10. Mixing should be complete within <u>one minute</u>. Impression material should appear smooth, glossy, and free of air bubbles when mixing is complete.

Loading trays

- 1. To load mandibular tray gather one-half of the material onto the spatula. With a sweeping motion, load one side of the tray from the lingual border and press the material downward and forward. Gather remaining material and repeat the procedure on the opposing side of the tray.
- 2. Quickly spread small amount of remaining material on occlusal surfaces and palate where air bubbles are most likely to occur.
- 3. Place the loaded tray into the patient's mouth by turning the tray at a 45° angle to the mouth. Place one corner of the tray into the mouth while retracing opposing cheek with your finger. Then swing the other corner of the tray into the mouth.
- 4. Before placing the tray onto the teeth, center the tray with the midline of the arch.
- 5. Position the posterior portion of the tray onto the teeth first, allowing the impression material to flow evenly toward the anterior. Press the tray down firmly and evenly, keeping the base of the tray parallel with the occlusal plane.
- 6. Lift the patient's cheek and lips to allow the material to flow into the vestibule and ask the patient to lift his/her tongue to the roof of the mouth to allow seating of the tray.
- 7. To remove the tray, break the suction formed by the impression material. Place your finger at the posterior corner and press occlusally. Remove the tray with a quick downward snap, being sure to protect the opposing teeth.
- 8. Examine the impression for accuracy after rinsing it with water. Check for voids, air bubbles, and anatomy.

Bite registration

- 1. Before taking the wax bite, have the patient practice closing in centric occlusion (centric occlusion is closing the jaws in a position that produces maximum contact between the occluding surfaces of the maxillary and mandibular teeth).
- 2. Run warm water over wax to soften it. Slide wax into patient's mouth and instruct to bite down naturally about 1 minute.
- 3. Take out the wax bite and inspect it for closure.
- 4. Rinse impressions and wax bite, and spray with a disinfectant. Pour immediately, or store for no more than I hour in 100 % humidity (wrap in moist towel and place in plastic baggie).

Pouring an impression

Once you have successfully made impressions of a mouth, you will be required to make casts.

- 1. Use a scoop of alginate and construct a "tongue" to fill the large space in your mandibular impression.
- 2. Mix water and stone to manufacturer's suggestion.
- 3. Hold maxillary impression in hand and rest the edge of the tray on the vibrator platform
- 4. Use small spatula and transport stone to the molar area turning impression slightly to allow stone to flow into the indentations.

- 5. Continue adding stone to molar area until you have filled all tooth indentations. This is done by frequently transporting small increments of stone to the area while rotating impression to allow gravitational flow. All the way around the impression.
- 6. After all the teeth are invested with stone, use a large spatula to fill remaining impression. Continue to vibrate.
- 7. Set the filled impression on the counter and pour the remaining plaster into a rubber former or make a pile of stone on the counter to make the base.
- 8. Invert the impression and place on base.
- 9. Push gently and watch that the tray handle is parallel with the floor
- 10. CAUTION: Do not allow stone to cover margins of the impression tray, it will lock it in place and make impossible to separate the tray from the cast.
- 11. Repeat with the Mandibular impression.
- 12. Set aside for 60 minutes to set up.

Separate cast from impression

- 1. After final set (60 minutes) you will need to remove your impression from the cast.
- 2. Make sure the margins of the tray are free. If plaster covers margins, use lab knife to cut them free.
- 3. Use a firm, straight up tug on the tray handle and snap impression from the cast.
- 4. CAUTION: Don't rock impression from side to side. The teeth may break off the cast.
- 5. If you inadvertently snap off teeth- usually anteriors save them and use super glue after 24 hours to repair the damage.

Periodontal Surgical Dressing

A perio dressing serves much like a bandage over a surgical site. Perio dressing is used after periodontal surgery. Perio dressing, also known as periopacks, are used to:

- ✤ Hold the flaps in place
- Protect the newly forming tissue
- Minimize postoperative pain, infection, and bleeding
- Protect the surgical site from trauma during eating and drinking
- Support mobile teeth during healing process

Noneugenol dressing is the most widely used type of periodontal dressing (Coe Pak). This material is supplied in two tubes: one of base material and the other of the accelerator. This material is easy to mix and place and has a smooth surface for patient comfort. This material has a rapid setting time if exposed to warm temperatures, and it cannot be mixed in advance and stored.

Setup

- Paper mixing pad
- > Wooden tongue depressor
- Noneugenol dressing
- Cup filled with room temperature water
- Plastic-type filling instrument
- ➤ Vaseline

Mixing

- 1. Extrude equal lengths of the two pastes onto the paper pad.
- 2. Mix pastes with a wooden tongue depressor until a uniform color has been obtained (2 3 min).
- 3. When paste loses its tackiness, place it into the paper cup filled with room temperature water.
- 4. Lubricate gloved fingers with a tiny amount of vaseline (to prevent material from sticking to gloves).
- 5. Roll the paste into strips the length of the surgical site.

Placement

1. Adapt one end of the strip around the distal surface of the last tooth in the surgical site.

- 2. Bring the remainder of the strip forward along the facial surface, and gently press the strip along the incised gingival margin.
- 3. Gently press the strip into the interproximal areas.
- 4. Apply the second strip in the same manner from the lingual surface.
- 5. Join the facial and lingual strips at the distal surface of the last tooth at both ends of the surgical site.
- 6. Apply gentle pressure on the facial and lingual surfaces (to join strips interproximaly).
- 7. Remove any excess dressing, and adjust the new margins to remove any roughness.

Removing periodontal dressing

- 1. Gently insert a spoon excavator under the margin of the perio dressing.
- 2. Use lateral pressure to gently pry dressing away from the tissue
- 3. If sutures are embedded in the dressing material, cut the suture material free. Remove the sutures from the tissue.
- 4. Gently use dental floss to remove all fragments of dressing material from the interproximal surfaces.
- 5. Irrigate the entire area gently with water to remove any debris.

Fluoride

Fluoride is sometimes referred to as nature's cavity fighter. It is a mineral that occurs naturally in food and water. To achieve the maximum cavity prevention benefits of fluoride, an ongoing supply of both systemic and topical fluoride must be available throughout life.

Systemic fluoride is ingested in water, food, beverages, or supplements. The required amount of fluoride is absorbed through the intestine into the bloodstream and transported to the tissues where it is needed. The body through the skin, kidneys, and feces excretes any excess systemic fluoride.

Topical fluoride is applied in direct contact with the teeth through the use of fluoridated toothpaste, fluoride mouth rinses, and topical applications.

Fluoride acts to remineralize demineralized areas. Demineralization occurs as acid causes calcium and phosphorus to leave the enamel and pass into the saliva. Fluoride present in the outer layers of the enamel increases the resistance of the tooth to demineralize. Remineralization is able to reserve the damage of early damage caused by demineralization; however, if the lesion has progressed too far, remineralization cannot halt the process, and it is necessary to repair the tooth with a restoration.

Patients should be evaluated on an individual basis for all sources of fluoride and the frequency of ingestion. A child may have fluoridated drinking water, attend a preschool with a fluoridation program, and use a fluoride toothpaste. These multiple sources of fluoride must be considered before additional fluoride supplements are given. A particular area of concern involves young children who consume excessive fluoride, by swallowing fluoridated toothpaste, this may cause fluorosis.

Professional topical fluorides may be recommended for children and some adults this treatment may be performed by the dentist, hygienist, or qualified assistant.

Setup

- Fluoride gel or foam
- Disposable tray
- Saliva ejector
- 1. A disposable tray is selected that is the correct size for the patient's mouth. The tray must be long enough to cover the distal surface of the most posterior teeth.
- 2. If any calculus is present it must be removed before fluoride application. Calculus prevents the fluoride from reaching the enamel of the teeth.
- 3. Seat the patient in an upright position and explain the procedure.
- 4. Instruct the patient not to swallow the fluoride.
- 5. Load the preselected tray with the minimal amount of fluoride following the guidelines according to the manufacturer's suggestion and the patient's age.
- 6. Dry the teeth using air from the air-water syringe.

- 7. Insert the tray and place the saliva ejector between the arches. Ask the patient to gently bite up and down and the saliva ejector. This helps to squeeze the fluoride over all tooth surfaces.
- 8. Have the patient tilt his/her head forward to help prevent the patient from swallowing any fluoride.
- 9. Set a timer for the correct amount of time based on the manufacturer's instructions. Never leave the patient unattended.
- 10. On completion, remove the tray but do not allow the patient to rinse or swallow. Have the patient use the saliva ejector to remove any excess saliva or fluoride.
- 11. Instruct the patient not to rinse, eat, or drink for at least 30 minutes after fluoride application.

Topical Anesthetics

Topical anesthetic agents provide a temporary numbing effect on nerve endings that are on the surface of the oral mucosa. These types of anesthetic agents are available in the form of ointments, liquids, and sprays and are placed directly on the area to be affected. The drugs in topical anesthetics are concentrated so they can penetrate the mucous membranes and affect nerve endings. Only small amounts of topical anesthetic should be applied to a limited area to avoid toxicity.

The primary use of topical anesthetic ointment is to provide a numbing effect in the area to be injected with local anesthetic. For the topical anesthetic to have a maximum benefit the ointment should remain on the site of injection for about 3-5 minutes. Liquid and spray anesthetic agents are applied to larger surface areas of oral tissues. They are useful on patients who have strong gag reflexes that are affected when impressions are taken or intraoral radiographs are taken.

Setup

- Cotton tipped applicator
- > Topical anesthetic ointment
- $\geq 2 \times 2$ gauze
- 1. Place cotton tipped applicator into the ointment, and place a small amount on the tip. Never go back into the jar of the ointment with a used applicator.
- 2. Explain the taste and procedure to the patient.
- 3. Determine the injection site and gently dry the site with a 2 x 2 gauze.
- 4. Place the ointment directly on the injection site.
- 5. Allow the applicator to remain on the site for 3-5 minutes.
- 6. Remove applicator just before the dentist is about to give the injection.

Sutures

As a rule, if a scalpel has been used, sutures are needed to control bleeding and promote healing. Sutures should always be placed on a surgical set up just in case. The most common used suture needles are supplied already threaded and in a sterile pack. Sutures are available in both absorbable and nonabsorbable varieties. The absorbable suture materials include gut, and collagen. These sutures are readily absorbed by the body and do not have to be removed. Nonabsorbable suture material includes silk, and nylon. Black silk suture material is popular because it is strong, durable, and easy to manipulate. Nonabsorbable sutures are usually removed 5 to 7 days after surgery.

Setup

- ➢ Suture material
- ➢ Hemostat
- Suture scissors
- ➤ 2 x 2 gauze
- Cotton pliers

Suture placement

- 1. The assistant locks the treaded suture needle in the needle holder and transfers it to the doctor. To allow proper access to the tissue, the needle is placed at a right angle to the hemostat.
- 2. The assistant retracts the tongue or cheek to provide a clear vision for the doctor.

- 3. After tying each suture, the assistant may be directed to use the suture scissors to cut the sutures, leaving 2 3 mm of suture material beyond the knot.
- 4. The number and type of sutures placed are recorded in the patient's chart.

Suture removal

- 1. The doctor examines the surgical site for healing. If healing is satisfactory, the sutures may be removed.
- 2. Swab the site to remove any debris.
- 3. Use cotton pliers to pull the suture gently away from the tissue to expose the knot.
- 4. Slip one blade of the suture scissors gently under the suture. Cut near the tissue. Be very careful not to cut tissue.
- 5. With the cotton pliers grasp the knot and gently pull the knot so the suture slides through the tissue. The knot is never pulled through the tissue.
- 6. Count the sutures that have been removed, and compare with the number indicated on the patient's record.
- 7. Rinse and wipe surgical site.

Surgical Dressing

After a tooth is extracted, healing begins immediately with blood filling the socket and forming a clot. The clot is important because it protects the wound and later is replaced by granulation tissue, and ultimately bone. Failure of the process can result in alveolitis, also known as dry socket. This is very painful and usually occurs 2 - 4 days after the removal of the tooth. The exact cause can be several factors, such as:

- ✤ Inadequate blood supply to the socket
- Trauma to the socket
- ✤ Infection within the socket
- Dislodgement of the clot from the socket (smoking or drinking through a straw).

Set up

- ➢ Basic setup
- Scissors
- Iodoform gauze
- Medicated dressing
- 1. The socket is gently rinsed with water to remove any debris.
- 2. A narrow strip of iodoform gauze is cut to a length to fill the socket. Iodoform gauze contains a topical anesthetic to prevent infections.
- 3. The gauze is dipped in the dry socket medication and gently packed into the socket. The medication soothes the nerve endings in the exposed bone. Packing the gauze in the socket prevents food from becoming lodged in the wound.
- 4. Prescription antibiotic or pain medication may be prescribed for infection.
- 5. The patient may be asked to return to the office every 1 2 days to repeat this procedure until the pain diminishes.

Gingival Retraction Cord

Gingival retraction takes place after the preparation of a crown or bridge prep is complete and just before the final impression is taken. The final impression must include detail of the preparation that extends slightly below the finish line. Obtaining detail is possible through the use of gingival retraction cord, which temporarily displaces the tissue and widens the sulcus so the impression material can flow around all parts of the preparation. A dental assistant can only place retraction cord that does not contain a vasoconstrictor.

Retraction cord is placed with a blunt cord-packing instrument. This instrument has a straight handle with a broad, rounded working end that is used to gently place the cord in the sulcus. The retraction cord is removed just before the impression material is placed. Often the doctor removes the cord while the assistant mixes the impression material.

Setup

- Retraction cord
- Cotton pliers
- Blunt packing instrument
- 1. The preparation tooth is rinsed and gently dried.
- 2. Cut a piece of retraction cord 1 to 1 ¹/₂ inches long, depending on the size of the tooth. The circumference of the tooth determines the length.
- 3. Use cotton pliers to form a loose loop of the cord
- 4. The loop of the cord is slipped over the tooth and laid in the sulcus around the tooth.
- 5. Use the packing instrument, and work in a clockwise direction, pack the cord very gently into the sulcus so it will end in the facial (for easy removal).
- 6. Pack the cord gently into the sulcus by rocking the instrument slightly backward as the instrument is moved forward to the next loose section of cord. This action is repeated until the length of the cord is packed in place.
- 7. The cord is overlapped where it meets the first end of the cord. Leave a short length of the cord sticking out of the sulcus for easy removal.
- 8. The cord in left in place for a maximum of 5 7 minutes.
- 9. The cord is removed just before the impression material is placed.
- 10. The end of the cord is grasped with cotton pliers and removed in a counterclockwise direction.
- 11. The area is dried and the impression is taken immediately.

Dental Dam

Dental dam is a thin stretchable barrier that is applied to isolate the teeth during treatment. When the dam is in place, only selected teeth are visible through the dam. Dental dam is usually applied after local anesthetic has been administered. There are two methods for placing a dental dam, the one- step method, the dam and clamp are placed over the tooth at the same time and the two-step method, first the clamp is placed over the tooth then the dental dam is stretched over it. It is very important to check the patient's medical history to make sure the patient is not allergic to latex. A minimum of three teeth (1 distal, 1 mesial, and tooth being restored) need to be isolated.

Setup

- Dental dam material
- Dental dam frame
- Dental dam punch
- Dental dam stamp
- > Dental dam forceps
- Dental dam clamps
- ➤ Floss
- ➤ Lubricant

Placement

- 1. Mark the dental dam with the stamp of the teeth.
- 2. Each tooth to be isolated will be punched according to the correct whole sizes for the anchor tooth and the other teeth involved.
- 3. Lightly lubricate the holes on the tooth surface (undersurface) of the dam. For easy of placement of the dam over the contact area.
- 4. Select the appropriate clamp for the anchor tooth and tie a piece of floss around the bow of the clamp.
- 5. Place the clamp onto the dental dam forceps and slide the bar so the clamp is held securely on the forceps.
- 6. Place the lingual jaws of the clamp over the lingual side of the tooth then the facial jaws. Check the clamp for proper fit.
- 7. Ease the punched dam over the anchor tooth. Be sure the floss is out side the patient's mouth.
- 8. Position the frame so you can hook the dam onto the projections of the frame.
- 9. Place the hole of the punched dam over the tooth behind and in front of the tooth to be worked on.

- 10. Floss the interproximals of all teeth exposed through the dam, so the dam is through the contact area.
- 11. Invert (turn inward or to turn under) the dam by gently stretching it near the cervix of the tooth. Inverting the dam creates a seal to prevent leakage of saliva.
- 12. Place a saliva ejector under the dam.
- 13. A small hole may be cut around the patient's nose for comfort.

Removal

- 1. Place scissors in one hand and place the index finger and thumb of the other hand under the edge of the dam. Working from posterior to anterior, stretch and cut each septum (dam between each tooth). The finger placement guides the use of the scissors and protects the patient's tissues.
- 2. When all septa are cut, the dam is pulled lingually to free the rubber from the interproximal space.
- 3. Use the dental dam forceps to remove the clamp.
- 4. Remove both the dam and the frame.
- 5. Place the used dam under a light and inspect it to ensure that the entire pattern of the torn septa of the dental dam has been removed.
- 6. If a fragment of the dam is missing, use floss to check the interproximal areas from remaining pieces.

Matrix Bands and Wedges

After a tooth has been prepared for a restoration and at least one of the walls involved is a proximal surface, it is necessary to temporarily replace the walls while the restorative material is being placed. A matrix is a metal or plastic band used to replace the missing wall of a tooth during placement of a restorative material. A matrix and a wedge are necessary to create the proper anatomic contour of a restoration. The retainer firmly holds the matrix while the work is being done.

Matrix bands come in premolar, molar, and universal sizes and thickness. The wedge made of wood is placed in the embrasure to position the matrix band firmly against the gingival margin of the prep. This adapts the matrix band so the contour of the finished restoration matches that of the natural tooth structure it replaces. Improper wedge and band placement can result in an overhang (excess material) or cupping (a gap).

Setup

- > Tofflemire retainer
- Matrix band
- ➢ Wooden wedge
- Cotton pliers

Assemble the band

- 1. Hold the retainer, and turn the knob until the end of the spindle is visible and away from the diagonal slot in the vise.
- 2. Turn the inner knob until the vise moves next to the guide slots.
- 3. Bring together the ends of the band to identify the occlusal and gingival aspects of the matrix band. The occlusal edge has the larger circumference. The gingival edge has the smaller circumference.
- 4. With the diagonal slot facing toward you, slide the joined ends of the band, occlusal edge first, into the diagonal slot on the vise.
- 5. Guide the band between the correct guide slots. The position of the band in the guide slots depends on whether the tooth being restored is a maxillary or mandibular tooth on the right or left side.
- 6. Turn the outer knob clockwise to tighten the band in the vise.
- 7. Adjust the size of the loop by turning the inner knob.

Place the band

- 1. Position and seat the loop over the occlusal surface, with the retainer parallel to the buccal surface of the tooth.
- 2. Turn the inner knob of the retainer to tighten the band around the tooth.

- 3. Use an explorer to check the adaptation of the band to determine whether it is stable and extends no more than 1.0 to 1.5 mm beyond the gingival margin of the cavity prep.
- 4. The proper wedge size is selected. The size of the embrasure will determine the size of the wedge for complete closure of the band and cavity prep.
- 5. The wedge is placed in the pliers so the flat, wider side of the wedge is toward the gingiva.
- 6. Insert the wedge into the lingual embrasure next to the prep and the band. If mesial and distal surfaces are being restored, a wedge is inserted in each contact.
- 7. The proximal contact is checked to make sure that the seal at the gingival margin of the prep is closed.

Removal of band

- 1. After the carving is complete, the retainer is loosened from the band by placing a finger over the occlusal surface and slowly turning the outer knob of the retainer.
- 2. Carefully slide the retainer toward the occlusal surface, leaving the band around the tooth.
- 3. With cotton pliers gently lift the matrix band in an occlusal direction, using a seesaw motion. This avoids fracturing the material.
- 4. Use cotton pliers to grasp the base of the wedge to remove it from the lingual embrasure. The wedge remains in to help prevent any fracture of the restoration when the matrix band is removed.
- 5. The restoration is ready for the final carving.

Cavity – Lining Agents

Cavity – lining agents, are cavity liners, desensitizers, and varnishes, are applied directly onto the prep tooth surface. The purpose of this lining agent is to protect the exposed tooth structure. The health and condition of the tooth being restored will determine what lining agents will be used.

Cavity liners are used to provide a barrier to protect the pulpal tissue from chemical irritation caused by cements and restorative materials. Calcium hydroxide (dycal) is one type of cavity liner because of its:

- Protective characteristics of the pulp
- ✤ Ability to stimulate the production of repairative dentin
- Compatibility with all types of restorative materials

Calcium hydroxide is available in a two-paste system (base and catalyst). The two pastes must be from the same manufacturer. The material is also available as a light cured formula, which is frequently selected under acid etch restorations because it is more resistant to acid etching.

Setup

- ➢ Mixing pad
- ➤ Small spatula
- > Applicator
- Base and catalyst
- Gauze
- 1. Place a very small and equal amounts of the catalyst and base onto the mixing pad.
- 2. Using a circular motion quickly (10 20 seconds) mix the materials over a small area of the pad with the spatula.
- 3. Use a gauze to wipe clean the spatula. Hold the material near the patient's chin for easy application.

Cavity varnish

Copal cavity varnish is a liquid consisting of one or more resins in an organic solvent. This is placed on the tooth to seal the dentin tubules, to reduce leakage around the restoration, and to act as a barrier to protect the tooth from highly acidic cements such as zinc phosphate. If calcium hydroxide (dycal) is being placed, the varnish would be placed after the calcium hydroxide. Because copal cavity varnish interferes with the bonding and setting of composites, resins, and glass ionomer restorations, it **cannot** be used under these materials.

Setup

- Cotton pellets
- Cotton pliers
- Cavity varnish
- 1. Place a new cotton pellet in the tip of the cotton pliers.
- 2. Open the bottle of varnish and place the cotton pellet in the liquid.
- 3. Replace the cap on the bottle immediately. When varnish is exposed to air, evaporation causes this liquid to thicken.
- 4. Place a thin coating of the varnish on the walls, floor, and margin of the cavity prep.

Bases

Before the placement of a permanent restoration, a base may be placed to protect the pulp. Protective bases are placed when it is necessary to protect the pulp before a restoration. Without this protection, there may be postoperative sensitivity and possible damage to the pulp.

Insulating bases are placed in a deep cavity prep to protect the tooth from thermal shock. An insulating base is placed over the protective base. Thermal shock occurs when there are sudden temperature changes within the tooth. Zinc phosphate cement is an excellent thermal insulator because it has a thermal conductivity rate similar to that of dentin, however, because of the phosphoric acid in the liquid it may irritate the pulp so it may be necessary to place a cavity liner under the zinc phosphate insulating base.

Zinc Phosphate (Base)

Setup

- ➢ Glass slab (cooled)
- Spatula
- Zinc phosphate powder and dispenser
- Zinc phosphate liquid and dropper
- Plastic instrument
- Condensing instrument
- 1. Dispense the powder and liquid onto the slab. Use the powder liquid ratio recommended to produce the desire thick, puttylike mix.
- 2. Mix to desired consistency.
- 3. Form the completed mix into a small ball.
- 4. Have excess powder on the slab to use when condensing he material into the tooth. The powder will prevent the instrument from sticking to the material.

Temporary Restorations

A temporary restoration is used as a short-term restoration that is expected to be in place only a few days or months. There are many reasons why this type of restoration may be necessary including;

- The condition of the tooth
- The patient's health, which does not permit more extensive dental treatment
- Financial reasons, for which more extensive treatment must be postponed.

IRM (intermediate restorative material), which is a reinforced ZOE composition, is frequently used as a short-term restoration. IRM is supplied as a powder and a liquid material and mixed manually, it also comes in capsules, which are activated and then triturated.

Setup

- > Paper pad
- > Spatula
- ▶ IRM powder and dispenser
- > IRM liquid and dropper
- Amalgam condenser
- Carving instrument

Mix

- 1. Shake the powder before dispensing, and then measure the powder onto the pad.
- 2. Dispense the liquid and recap the containers.
- 3. Quickly incorporate half of the powder into the liquid and mix.
- 4. Incorporate the remaining powder into the mix in two or three increments, and mix thoroughly with the spatula. The mix will be quite stiff.
- 5. Wipe the mix back and forth on the mixing pad for 5 to 10 seconds. The resulting mix should be smooth and adaptable. The mix must be completed within 1 minute.
- 6. Roll into a ball and condense into prep.
- 7. Once the initial setting has occurred, carve to correct bite.

Remove

- 1. Assemble a slow-speed handpiece, a contra angle, and a round bur (latch type).
- 2. With a slow intermittent motion, gently and in small increments, remove the IRM from the tooth.
- 3. Air dry the tooth to check for remaining IRM.

Temporary Crowns

A prosthesis is a replacement for a missing body part. Fixed prosthodontics, commonly known as crown and bridge, is the area of dentistry involved in the replacement of missing teeth with a cast prosthesis that is cemented in place and cannot be removed by the patient.

The benefits of a fixed prosthesis to replace missing teeth include:

- Prevention of drifting by adjacent teeth caused by missing teeth and provision of support to the remaining teeth in the arch.
- Prevention of the extrusion of teeth in the opposing arch.
- Provision of the dentition needed to properly masticate food.
- Provision of acceptable esthetics for the patient.

Provisional coverage, also known as temporary coverage, is a protective covering that is placed after a tooth has been prepared and the final impression has been obtained for a cast restoration. A temporary crown or bridge should maintain or restore function and keep the patient comfortable during the period from tooth preparation to final cementation. In most cases, this period may be several days to a few weeks. Occasionally, patients are required to wear temporaries for a longer period of time to accommodate a treatment plan that is more complex. This type of treatment typically involves implants or periodontal therapy. The purpose of the temporary coverage is to:

- Reduce sensitivity and discomfort in the prep tooth
- Maintain the function and esthetics of the tooth
- Protect the margins of the prep
- Prevent shifting of the adjacent or opposing teeth

Criteria for temporary coverage

- The temporary coverage must be esthetically acceptable to the patient.
- The contours of the temporary coverage are similar to those of the natural tooth, with adjacent interproximal contacts and appropriate alignment within the arch.
- The cervical margin is smooth and fits snugly, with no more than .5mm of space between the crown margin and the finish line of the preparation.
- Does not extend below the margin of the prep.
- The occlusal surface is aligned with the occlusal plane of the adjacent teeth.
- Alternative: To avoid trauma to the prep tooth, the crown may be taken out of occlusion by making the occlusal surface slightly lower than the adjacent teeth.
- When cemented, the temp should remain stable, stay in place, and is comfortable for the patient.
- Can be readily removed without damage to the tooth or adjacent tissue.

Several types of temporary coverage are available. The type selected is determined by the dentist on the basis of the patient's needs.

Aluminum crowns are usually placed on posterior teeth where strength is important and a match with the color is not a concern.

Preformed polycarbonate crowns match the tooth shade and are used primarily on anterior teeth.

Custom-formed temporary coverage is the most commonly placed when several teeth have been prepared for a bridge or single crowns

Laboratory-fabricated coverage is used when several teeth have been prepped or a long-span bridge is used. A cast of the teeth before they are prepared is sent to the lab in advance of the prep appointment.

Custom acrylic temporary coverage

Setup

- Basic setup
- Spoon excavator
- Alginate impression of tooth before prep
- Self curing acrylic resin (liquid and powder)
- Small spatula
- Mixing container
- ➢ Beavertail
- Straight handpiece and mandrel
- Finishing diamond, discs, or burs
- Polishing burs or discs
- Articulating paper
- > Pumice paste
- ➤ Lathe and sterile rag wheel
- Temp cement setup
- 1. Obtain an alginate impression of the arch before the teeth are prepared.
- 2. Check the impression to be sure it is free of debris and tears in the area of the teeth to be prepared.
- 3. Disinfect and keep moist until needed. If allowed to dry, the impression will distort and the temp won't fit.
- 4. Place liquid monomer in the mixing container. Dispense the shade of self-curing powder (polymer) into monomer until powder is saturated.
- 5. Use a small spatula to blend the powder and liquid to a homogeneous mix.
- 6. Mix material (2-3 min) until the resin reaches a doughy stage. Do not let resin cure beyond this point.
- 7. Unwrap the alginate impression, and gently dry the area of the teeth to receive temporary coverage. Some assistants will dispense the monomer and polymer directly into the impression, but the impression must be thoroughly dry.
- 8. Remove the resin dough from the mixing container with a spatula, and immediately place it in the initial alginate impression in the area of the prepared tooth.
- 9. Coat the prepared tooth with petroleum jelly for easy separation.
- 10. Place the acrylic loaded impression back in the mouth to the area of the prepared teeth.
- 11. Allow the material to reach an initial set (3 min), and remove the tray from the patient's mouth.
- 12. Carefully remove the temp from the alginate impression and replace it back onto the patient's teeth. This avoids shrinkage during the final curing.
- 13. Gross excess can be cut with scissors during the doughy stage. After final setting, fine adjustments are made with an acrylic bur or stone. The acrylic resin should be trimmed to within 1 mm of the gingival shoulder of the prep tooth.
- 14. The occlusion, accuracy, and completeness of the temp covering are checked and adjusted as needed.
- 15. The temp covering is removed and taken to the lab, where it is polished with a sterile, white rag wheel and pumice on the lathe.

Cementing

- 1. The occlusion is checked with articulating paper. If necessary remove the temp and marked areas are reduced with an acrylic bur.
- 2. The temp is seated with a temporary cement.
- 3. Excess cement is carefully removed with an explorer.

Preformed polycarbonate crown

Setup

- ➢ Basic setup
- Preformed polycarbonate crown
- Crown scissors
- > Acrylic bur
- > Pumice paste
- > Articulating paper
- Temporary cement setup
- 1. A crown of the appropriate shape and size is selected and checked for width, length, and adaptation at the margins.
- 2. If necessary crown scissors are used to reduce the height (length) of the crown by trimming the cervical margin.
- 3. Rough edges are smoothed with an acrylic bur and polished with pumice.
- 4. Temporary cement is used to hold the crown in place.
- 5. The crown is seated on the prepared tooth.
- 6. Excess cement is carefully removed with an explorer.
- 7. The occlusion is checked.

Removing Excess Cement

Once a cast restoration has been permanently cemented, it cannot be removed without damaging the casting. In special situations, such as when a tooth is sensitive, the dentist may choose to initially place the permanent casting with a temporary cement. The temporary placement makes it possible to remove the casting without damage if there is a problem with the tooth. If there are no problems, within a few weeks the crown is cemented in place with a permanent cement. After placing the permanent cast with cement the excess cement must be removed as to not irritate the gum tissue.

- 1. After the cement has set an explorer is used to carefully remove the excess cement from the crowns of the teeth. This is done carefully so the new crown is not scratched or the tissue is not injured.
- 2. A firm fulcrum is necessary for the hand holding the instrument. A fulcrum prevents the instrument from slipping.
- 3. The tip of the instrument is placed at the gingival edge of the cement, and overlapping vertical strokes are used to remove the bulk of the cement.
- 4. Slight lateral pressure is applied (toward the tooth surface) to remove the remaining cement.
- 5. Dental floss is passed between the teeth to remove excess cement from the interproximal areas.

Polishing Amalgam Restorations

Polishing amalgams can increase the life of the restoration. Polishing removes the minute scratches to produce a smooth, homogeneous shiny surface. The primary reason for amalgam polishing is to reduce surface irregularities (reduce plaque retention) and not to change the occlusion. Polishing can also prevent tarnishing, corrosion, and discoloration.

Criteria for evaluation of restoration before polishing:

- 24 48 hours after placement of restoration.
- Proximal contact present check with floss
- No fractures, recurrent caries, or open margins present

Precautions

Avoid overheating amalgam by use of slow speed handpiece (reduces frictional heat), light intermittent pressure, compressed air directed at amalgam during polishing, moist abrasives, and rinse frequently. a) do not destroy anatomy

b) start rotary instrument before touching tooth (prevent ditching)

c) keep instrument moving at all times

Set up

- Basic setup
- Slow speed handpiece
- Rubber cup/bristle brush
- Pumice/tin oxide paste
- > Dental tape
- 1. Apply wet pumice with bristle brush using light intermittent strokes. Wash and dry area. At this point, amalgam should have a brushed appearance.
- 2. Polish amalgam with moist pumice and a rubber cup. Work pumice into interproximal surface with dental tape. (This step should produce a smooth satin look). Wash and dry area.
- 3. Change rubber cup and polish amalgam with wet tin oxide. Work tin oxide into interproximal surface with dental tape.
- 4. Polish with dry tin oxide to put a final luster.
- 5. Rinse the patient's mouth and evaluate the amalgam.
- 6. Use clean floss to remove any debris.
- 7. Apply fluoride.

Pit and Fissure Sealants

Pit and fissure sealants are a clear or an opaque plastic material that is applied to the pits and fissures of teeth. The pits and fissure areas of teeth, in both primary and permanent teeth, that are difficult to clean and most susceptible to caries. The purpose of the sealant is to provide a physical barrier to protect this area of the tooth from debris and bacteria.

Sealants are made from several types of resin materials. The major difference among materials is the method of polymerization (self-cured or light-cured). Both types are safe and effective.

Self-cured materials have a two-part system (base and catalyst). When these pastes are mixed together they quickly polymerize (harden), usually within 1 minute. Light-cured sealants do not require mixing. After the material is placed it hardens during exposure to a curing light.

For the placement of a sealant it is very important to follow each step accurately for successful sealant retention. Maintaining a dry field for sealant placement is essential and may be accomplished by cotton rolls or a dry angle. The teeth to be sealed must be clean and free of any debris. The teeth can be polished with a bristle brush and pumice. It is important not to use prophy paste to clean the teeth because fluoride (which is in prophy paste) will interfere with retention of the sealant. After cleaning they must be thoroughly rinsed and dried. Acid etching is the most critical step in the sealant application because the retention of the sealant relies on how the tooth is etched (conditioned). The teeth are conditioned with

30 - 50 % phosphoric acid. The acid should be placed only on the tooth surface that is receiving the sealant material. After etch, the tooth is rinsed and dried thoroughly. Sealant material is placed with a dispenser, a small brush, or a applicator. Use adequate amounts of the material to cover all fissures on the occlusal surface. Follow the manufacturer's directions for curing the material. If the material is not cured properly the sealants may be defective and will not wear well.

Contraindications to sealant placement:

- ✤ The pit and fissures are formed and self-cleansing.
- The occlusal surface is decayed (a restoration must be placed to repair).
- The proximal surfaces are decayed (the occlusal surface will need to be included in the restoration of the proximal surface).
- ✤ A restoration is already in place.

Setup

- Basic setup
- Cotton rolls or dry angles
- Conditioning agent (etch) liquid or gel
- > Sealant material applicator
- > Cotton pellets

- Prophy brush
- Pumice and water
- Saliva ejector
- ➢ Curing light
- > Articulating paper
- Low speed handpiece with contra angle attachment
- Round white stone (latch type)
- Dental floss
- 1. Isolate the teeth with either cotton rolls or dry angle.
- 2. Clean surface thoroughly with pumice and water on the bristle brush. Rinse for 30 seconds.
- 3. Follow the manufacturer's directions; apply the conditioning agent (etch) to the occlusal pits and fissures. Leave the etch on the tooth for the manufacturer's recommended time. Gel etch is usually 30 seconds and liquid etch is usually 60 seconds.
- 4. Rinse the tooth for 20 30 seconds and dry for 20 30 seconds.
- 5. Observe the appearance of the etched enamel. The etched tooth should appear dull and chalky.
- 6. If the enamel does not have this appearance, repeat the conditioning step.
- 7. Transfer the sealant material using the applicator supplied or recommended by the manufacturer.
- 8. Trace the fissures with an explorer tip to enable air bubbles to surface after material is placed.
- 9. Place the curing light over the sealant material, and cure for approximately 20 seconds.
- 10. Rinse the tooth with water to remove any bitter taste.
- 11. Dry the tooth and check occlusion with articulating paper. If the sealant has high spots, use the round stone in the low-speed handpiece to reduce the sealant.
- 12. Use dental floss to make certain the contact areas are free from sealant material,
- 13. Have the doctor check with an explorer to evaluate the sealant to ensure it is smooth, hard and there are no voids.

PRACTICE CHARTING - MUST BE ABLE TO DO THIS CHARTING TO PASS THE CLASS



****Number The Teeth**

- a. #2 MO Amalgam
- b. #3 MOB Bond
- c. #5 PFM Crown
- d. #7 ML Bond
- e. #1,16,17 Missing
- f. #14 Missing
- g. #13-15 3 Unit PFM Bridge
- h. #18 Sealant

- i. #19 MODB Amalgam
- j. #20 Gold Crown
- k. #22 Cervical Bond(facial/Gumline
- 1. #27 ML, DL Bond
- m. #28 MO Resin
- n. #29 Stainless Steel Crown
- o. #30 MO, B Bond
- p. #31 Sealant

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