

University of the Pacific, Dugoni School of Dentistry

Restorative Policies and Protocols

Academic Year 2019-20

The policies and protocols listed in this document serve as the guidelines for clinic. The guidelines incorporate the disciplines of Operative Dentistry, Fixed Prosthodontics, Removable Prosthodontics and Implant dentistry.

Changes to this document will be made on an annual basis. Any exceptions to these guidelines will be at the discretion of the Chair of the Department.

Operative Dentistry Guidelines

The restorative material of choice for an initial carious lesion should be a composite resin placed in a preparation utilizing a minimally invasive approach. Student-dentists must pulp test teeth that will receive an indirect restoration, ideally during treatment planning and confirm at the day of treatment.

Isolation Protocols: Student-dentists must use rubber dam for ALL operative procedures including post placement except difficult to isolate class V restorations where a slot dam or Isolite/Isovac may be used. Cotton roll and/or Optragate isolation in combination with one another or alone is not considered adequate appropriate isolation. Rubber dam is mandated for all Direct competency examinations.

Preparation Design and Philosophy: The entire cavosurface of preparations being restored with composite resin needs to be completely clean and free of stain or decalcification. Stain or dentin color should not be the determining factor for the continued removal of tooth tissue. Rather, tactile senses should be used to determine the softness of dentinal staining. Decay should be removed with either a spoon excavator or a large round bur in a slow speed handpiece. High speed handpieces must NOT be employed for the removal of diseased dentin close to the pulp.

Bevels on Composites: Bevels should be reserved for the cavosurface preparations of anterior teeth and the enamel portion of all Class V preparations. Bevels should not be placed on any other posterior composite preparation.

Pins: The use of pins to retain direct restorative materials is no longer taught or recommended at Pacific.

Pulp Caps and Glass Ionomer Liners: In clinical situations involving a vital tooth with a bleeding pulpal exposure, a direct pulp cap utilizing MTA (Mineral Trioxide Aggregate) covered with either Activa (bioactive glass), Fuji II or Fuji IX Glass Ionomer should be utilized. If the tooth in question will receive a crown or be utilized as an abutment for a partial denture, endodontic therapy should be initiated. Activa is used as a liner when the preparation is very close to the pulp and/or blushing of the pulp is visible. MTA is not indicated as liner for indirect pulp cap.

Glass ionomer restorative materials should be reserved for the use in patients that are unable to manage the carious disease process or in non-load bearing surfaces or root caries. Glass ionomers should not be placed on the occlusal surfaces of posterior teeth. Glass ionomers should not be utilized in an open sandwich technique. Glass ionomers or resin modified glass ionomers may be placed over deep areas beneath a composite restoration.

Matrix Systems for Class II Composites: Sectional matrices should be used for all Class II composite restorations. Conventional matrix bands in a Tofflemire should not be utilized for posterior composite restorations.

Flowable Composites: Flowable can be placed in the proximal box form of posterior composite restorations. These materials should be placed at approximately .5mm thickness extending to the gingival and proximal cavosurface. Flowable composites should be utilized to block out sharp line angles under former amalgam restorations. This will increase the likelihood of intimate adaptation of restorative materials.

Fixed Prosthodontics Guidelines

Crown Block: Crown block is a highly structured initial fixed prosthodontics experience. It is designed to familiarize each student with the clinical protocols in fixed prosthodontics. This experience is closely supervised to ensure an optimal outcome for both the student-dentist and patient. Each student must identify a patient for crown block as their initial experience. Once the student-dentist has obtained a patient for crown block, he/she must select a maximum of two faculty members to work with throughout the entire crown block. Initial crown placement as well as Re-do crowns are acceptable for Crown Block. These faculty members will closely mentor each step of the procedure, demonstrate cord packing, and assist with the final impression and delivery of the definitive prosthesis. Each student-dentist must obtain and manage the "Crown Block Form". The white page of the completed Crown Block hard-copy should be delivered to Dr. Kenyon in 3B Clinic Room 318. The AxiUm Crown Block form (RSCRBL) should be completed and approved by the selected Faculty Member.

Diagnostic Casts: Student-dentist must have mounted diagnostic casts for any prosthodontic treatment.

Tooth Vitality/Apical conditions: Prior to any crown or bridge preparation the pulpal vitality must be determined. Ideally, an endo consult should be obtained for any root canal treated tooth prior to starting crown and bridge procedures. A root canal treatment, if present, must represent the standard of care and apical tissues must be normal. This assessment should be performed during the treatment planning phase of patient care.

Pressed Form Splints: Accurate pressed formed splints are required on all clinical fixed prosthodontic procedures. These should be fabricated from a duplicate cast of the diagnostic wax-up or pre-treatment cast. This splint can be used for fabricating the provisional as well as to check for adequate reduction. Instructors will verify the presence of a pressed formed splint prior to any preparation.

Putty Matrix: Accurate putty matrices are required on all fixed prosthodontic procedures. Instructors will verify the presence of a putty matrix prior to any preparation.

Digital Impressions: After a digital impression is taken, a digital laboratory prescription and a conventional paper laboratory prescription must be completed. The paper form must be turned into the PSL for case tracking purposes. For single unit posterior restorations with adjacent teeth in proper occlusal contact, a full arch scan must be taken. All single unit digital scans will be fast tracked. For multiple units and anterior cases, a full arch scan is required. All multiple units and anterior cases will require mounting by the student doctor. Digital impression should not substitute for conventional impressions. After student-dentist has successfully captured 4 full arch conventional impressions, digital impressions may be taken.

General Impression Protocols: Generally, stock trays are provided for all final impressions. In dental arches that do not fit stock trays instructor may advocate the use of a custom tray. Custom trays should be fabricated using Pacific protocol and be available at the preparation appointment. Full arch impressions must be taken for the first 4 final impressions.

Custom Trays: All custom trays must be perforated. PVS adhesive must be applied according to manufacturers' recommendations.

C.I.M.O.E: Prior to the appointment, restorations must be evaluated on the master cast. Prior to cementation of indirect restorations, Contacts Internal, Margins, Occlusion and Esthetics must be verified. Cementation and bonding protocols at Pacific must be followed.

Fast Track: After 4 full arch impressions of fixed prosthodontics have been submitted to the laboratory, all posterior unit restorations are eligible for the fast track process. No anterior teeth (including cuspids) are eligible for fast track process.

Triple tray: After a student-dentist has successfully captured 4 full arch conventional impressions, Triple tray can be used in conjunction with the fast track process; however anterior teeth, cuspids and the distal most tooth of the arch are not eligible for Triple tray impressions.

Custom Incisal Tables: Custom incisal tables are required for all cases including Crown Block and involving any canine preparation, 2 or more posterior teeth involved in group

function or any anterior preparations. All other cases do not require the fabrication of a custom incisal table.

Shade Selection and Confirmation: Shade selection must be performed at the beginning of the final impression appointment. All shades must be verified and signed by two instructors. Once the instructor has confirmed the shade, he/she will write their instructor number and initials next to the shade selection on the laboratory prescription form. For porcelain restorations located in the esthetic zone, a 1:2 ratio retracted photograph with selected shade tab(s) must be sent to the laboratory. For e.Max and Empress restorations, photographs of the stump shade must be taken as well. The images should be sent via e-mail to [Alex Benito \(abenito@pacific.edu\)](mailto:abenito@pacific.edu). The image should be labeled with the patient number and name.

Post Protocol for Endodontically Treated Teeth: Posts should not be routinely used on teeth that have been endodontically treated. Rather, posts should only be considered when additional retention of the core material is required due to inadequate coronal tooth structure. When endodontic treatment is completed, glass-ionomer should be used to temporarily fill the access cavity. The need for placing fiber posts should be determined only after all caries is removed. Generally, if less than 50% of tooth structure is remaining after caries removal, a post may be indicated. The need for additional accessory posts is only recommended with large flaring of the canal in the coronal 1/3. Posts should be placed under rubber dam isolation.

Build-up Guidelines for Endodontically Treated Teeth: An endo consult must be obtained prior to restoring a root canal treated tooth. In case the root canal treatment is below the standard of care, post may need to be removed under the supervision of endo faculty. Build-ups with or without posts that are sound and free of disease may be utilized and do not require replacement. All defective build-ups should be removed and replaced with new build-ups. Composite resin build-ups (Anchor) are advocated using rubber dam isolation. Glass ionomer should not be used as a build-up material due to its inferior mechanical properties. A 2mm 360° ferrule should be present or created with crown lengthening. Post removal must not be attempted on the clinic floor without endo consult. While removing core build ups, care must be exercised to preserve the existing post in its entirety.

Build-up Guidelines for Vital Teeth: All defective build-ups should be removed and replaced with new build-ups. Build-ups that are sound and free of disease may be utilized and do not require replacement. Composite resin build-ups (Anchor) are advocated. Glass ionomer should not be used as a build-up material due to its inferior mechanical properties. All build ups must be placed under rubber dam isolation.

Fixed Partial Denture Framework Try-in: At the clinical try-in appointment for any fixed partial denture framework, the internal fit and marginal adaptation will be verified. Composite or Vanilla Bite (Bite registration material) occlusal stops will then be placed on the framework. They should be fabricated intraorally and then removed and checked against the articulated mounting from which the framework was fabricated. These occlusal verification jigs will be utilized to confirm the accuracy of the initial mounting. If the verification jigs occlude in the patient's mouth in the same way as the mounted casts no further modifications are required. If the occlusal verification jigs do not match the

mounting, the framework with occlusal stops will then be used to remount the original master cast.

Nightguards (Occlusal Guards): Nightguards should be treatment planned for every patient receiving multiple crowns (especially anterior crowns). 1 nightguard counts towards 1 unit of Indirect Restorative expectations.

Removable Prosthodontics Guidelines

Abutment Protocol for Definitive Removable Partial Dentures: The periodontal condition of all abutment teeth must be stable with mobility no greater than 1. Abutment teeth should possess adequate crown to root ratio. With rare exceptions, abutments that are root canal treated should have crowns placed with adequate contours to retain a partial denture. Abutment teeth with existing restorations should be sound and not vulnerable to cuspal fracture. Large, defective, existing restorations should be replaced. Abutments with conservative restorations are acceptable. Extensive restorations (greater than ½ B- L width) should receive a crown. Patient has right to refuse these crown restorations but signed informed consent and adequate documentation is absolutely necessary.

Diagnostic Casts: For all partially dentate cases involving removable prostheses, *mounted* diagnostic casts are required. Block out materials should be utilized with excessively mobile teeth. Exceptions to this mounting protocol are as follows: cases involving 1 or more edentulous arch or cases that have an initial surgical phase prior to definitive treatment planning.

Partial Denture Rest Design: Rest preparations and guide planes need to be placed on the mounted diagnostic cast. This will allow for the student doctor to assess clearance and prepare for the impression appointment.

Final Impression Protocols: For partial and complete dentures, elastomeric impression material will be used in a custom tray. Custom trays are to be fabricated by the Laboratory or the student doctor. The laboratory will pour the final impressions. For immediate dentures, alginate impression material may be used in a stock tray with rope wax border molding. The student doctor will pour these cases.

Custom Trays: For complete denture cases, custom trays should not be perforated after border molding when using polysulfide rubber base impression material but should be perforated when using VPS (vinyl polysiloxane) impression material. For partial denture cases, custom trays should be perforated only in tooth borne areas and not soft tissue areas.

Partial Denture Framework Fabrication and Try-in: Master casts must be mounted prior to partial denture framework fabrication. The student-dentist should request the Laboratory fabricate a record base on the master casts so that they can be mounted when

there are inadequate numbers and distribution of teeth for hand, MI, mounting. This will greatly decrease clinical chair time at the try-in appointment. All partial denture frameworks must be approved by 2 attending faculty at the try-in appointment.

Denture and Partial Denture Tooth Set-ups: Student-dentists are required to set 6 maxillary anterior most teeth on all full denture cases. The Removable Prosthodontic Lab will set all posterior teeth for full denture cases and all teeth on partial dentures. The lab will also set teeth for all stayplates. For immediate dentures, teeth to be extracted will be trimmed from the master cast by faculty and student doctor after a posterior try-in. It is essential to provide the Laboratory with specific guidance for the set-up of the prosthetic teeth being extracted. Leaving a “key” anterior tooth on the master cast or setting one or two “key” anterior teeth is suggested. Also, preservation of the midline position on the “land of the cast” is imperative. Prostheses for immediate placement must be adequately adjusted to remove undercuts and checked by a faculty member prior to the patient’s presentation to Oral Surgery. The prosthesis must be present in Oral Surgery before beginning the procedure. If there is an additional, non-immediate, prosthesis to be delivered to the patient receiving an immediate prosthesis, that is to be delivered in the main clinic before taking the patient to oral surgery.

Full Denture Clinical Remounts: All full denture cases will undergo a clinical remount procedure.

Altered Casts: Altered cast impressions may be required for distal extension partial dentures. A faculty member will make that determination.

Implant Guidelines

Case acceptance:

- Treatment that **can** be provided by student-dentist:
 - Single posterior and anterior implants, 2 implant overdentures with locator abutments
- Treatment that **may** be provided by student-dentist after consult with Implant Faculty (case by case evaluation – pending faculty review after student-dentist work up of case)
 - More than 2 posterior implants adjacent/in the same quadrant
 - 2 anterior implants
- Treatment that **cannot** be provided by student-dentist:
 - Multiple posterior implants (4+) in same quadrant, multiple anterior implants (3+), FICD, Overdentures with bar attachments
 - Patients with history of receiving IV Bisphosphonates for oncologic treatment are contraindicated for implant treatment

Management of Implant cases:

All implant treatment as well treatment planning is to be done in 3D Pros/Implant area (including restorative implant consults, single implant impressions, delivery)

- Student-dentist can provide care for patients needing single posterior implants – work with same implant faculty as much as possible. If faculty needs to be changed mid-treatment, student-dentist has to get approval from original implant faculty via email
- Student-dentist planning treatment consisting of multiple implants (2+) needs sign off on implant treatment plan by 2 implant faculty (to be documented in EHR).
- Treatment plans involving any anterior implant needs sign off by 2 implant faculty.
- Treatment plans involving more than 4 implants in each arch needs sign off by 2 implant faculty as well as GPL for each group
- CBCT is to be part of treatment plan – to be confirmed by attending surgeon.
- Surgical guide to be ready 1 week before the surgery and checked off by faculty
- If a patient has periodontal pocket 5mm or more, periodontal consult and clearance is required before proceeding to next step.
- Fast track process for implant crowns using a digital workflow will be available to those students who have completed/delivered at least one conventional implant restoration using an analog workflow (open tray or closed tray imp technique)

Clinical Protocol for Implant Impressions and Mounting:

1. All traditional impressions will be taken with PVS for both the implant arch and the opposing arch.
2. Use syringe PVS material for all the occlusal portions of the impression (both arches).
3. Mounting must be done using trimmed bite registration material (Vanilla Bite) or use a record base to record the centric contacts in case of missing posterior teeth.
4. All faculty before signing off the mounted casts for the laboratory use must check the shim stock contacts with the occlusal legend recorded in the mouth.

Overview of Implant process:

Implant Checklist (To be filled by student and obtain necessary swipes at each step)

PRE-APPROVAL MEETING CHECKLIST

Patient Examination

- ☐ ODTP completed (patient must be CARIES FREE)
- ☐ Perio Exam completed and signed off (within last 6 months)
(Patients must NOT have active Perio disease or pockets >4mm)
- ☐ Axium forms completed –
 - Occlusal assessment form
 - ERA Risk assessment form
 - SAC Risk assessment form

Radiographs

- ☐ Appropriate BWs (if high caries risk, need to be within 6 months)
- ☐ Periapicals of teeth adjacent to edentulous site (within 1 year)
- ☐ Panoramic X-ray (taken no sooner than 3 months after extraction or has to be within 6 months for anticipated socket preservation)
- ☐ Measure panoramic for adequate vertical bone for 10mm implant. Inform patient if bone graft or sinus lift anticipated. (final confirmation after surgical consult)

Photographs

- ☐ Frontal view of face
- ☐ Profile view of face
- ☐ Smile (Discreet smile and extreme smile)
- ☐ Occlusal (full arch) both arches (using retractors)
- ☐ Buccal, both side sides with teeth in MI (using retractors)
- ☐ Photographs uploaded to MiPACS and properly mounted

Mounted Casts

- ☐ 1 set Mounted casts for case presentation
- ☐ Diagnostic wax up completed
- ☐ Second cast (not mounted) to make surgical guide.

Student Name & # _____ **Patient name & chart #** _____

Implant Faculty 1 Signature & # _____ Implant Faculty 2 Signature & # _____

Date _____

Protocols for Conversion of a Conventional Mandibular Denture to a 2-implant Locator Overdenture

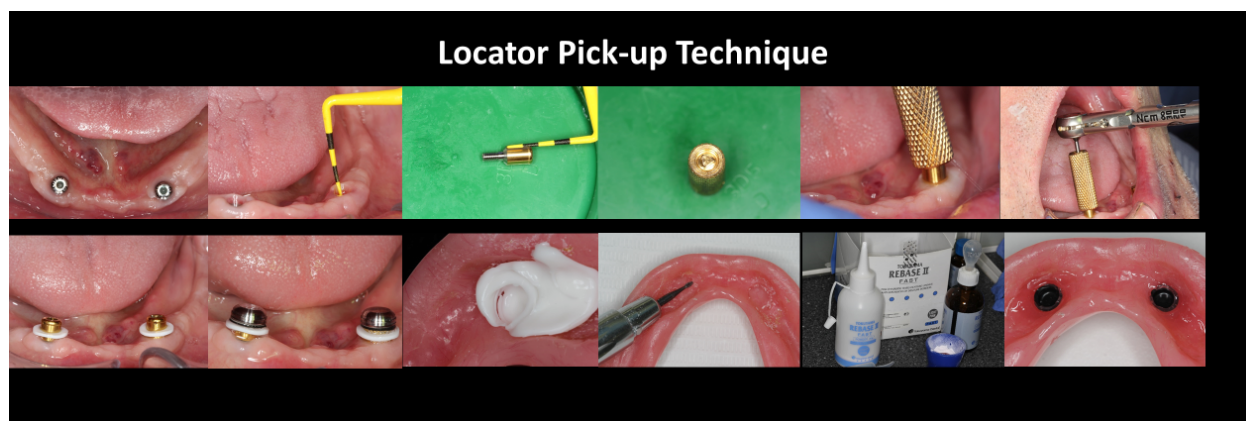
When the patient returns from surgery after placement of 2 implants, the patient should receive a Lynal Tissue Conditioner Reline. After verifying the appropriate vertical dimension of occlusion and centric, the reline procedure should capitalize on functional border molding procedures. After relieving 2 mm of the borders of the prosthesis, and in the areas of the implants, mix the Lynal material (10 powder to 4 liquid) place a smooth layer on the tissue side of the denture. Have the patient lick their upper lip, push out their tongue against the resistance of your thumb and have them lift their tongue up against the pressure of your index finger. Have the patient open wide and close against resistance. Muscle mold the anterior and posterior buccal flange regions. Use a dry gloved finger to remove all excess Lynal material from the polished and occluding surfaces. The setting time is 15 minutes. Remove and address any excess material on the polished side of the denture. Be sure to check any excess on the opposing prosthesis. Evaluate the prosthesis stability and occlusal harmony after setting. Instruct the patient to keep in water when not in the mouth. The patient will return the next week to assess the fit and comfort of the temporary liner and will be appointed as needed for the 2-3 month's healing time. After that time lapse, the patient should be appointed for an osseointegration check with an oral surgeon. If there were cover screws placed, a surgical procedure will be needed to expose the implants, otherwise the healing abutments are supragingival and the implants can be accessed by unscrewing the hand tightened abutments. At this appointment,

measurement of the highest crest of the gingival crest to the implant platform with a periodontal probe should be completed on both implants. Then the Locator abutments can each be ordered based on the implant manufacturer and the height from this measurement.

If there was a surgical procedure to uncover the implants and replace the cover screw with healing abutments, a new Lunal tissue conditioner should be completed after removing Lunal and denture acrylic over the healing abutments so that the denture seats. The patient will return the next week to assess if the denture can be hard relined in the laboratory BEFORE the Locator abutments are placed in and torqued. It is best to have the patient wear the denture for a couple of weeks and to verify a comfortable and functional outcome. At this juncture, the patient is ready for conversion to an implant overdenture. The brass knurled end of the Locator tool is used to place in the preselected Locator abutments after removal of the healing abutments. The retention indentation on the coronal aspect of the Locator abutment should be supragingival. Once hand tightened, the abutments must be torqued into place, especially because they are nonengaging abutments. This is done in one of two ways: 1) use Zimmer torque wrench with the 0.050 hex driver placed inside the brass Locator placement tool or 2) use the Locator contra-angle driver in the Nobel torque wrench (either one of these techniques can be used with multiple implant systems). If it is a Zimmer implant system, use 30Ncm, if it is a Straumann, use 35Ncm to torque to manufacturer's recommendation.

Once completely torqued, air abrade the metal housings and place them on the Locator abutments with the plastic washer/s around the housing to prevent locking in the denture when bonded to the housings. Use pressure sensitive paste to adjust the intaglio of the denture to confirm carefully that the denture is seating exactly as it was before the housings were seated. Inspect the flanges for increased space and verify that the VDO has

not changed. Once verified, use EZ Pick-up or Tokuyama Rebase Material in a Monoject syringe (following manufacturer's instructions) to connect the metal housings to the denture. There should have been at least 8-9 mm of space available from the crest of the mandibular soft tissue to the opposing dentition, in order to prevent fatigue failure of the materials. Once polymerized, remove the implant overdenture and inspect the intaglio surface for any excess resin or voids. Rectify this and use pressure sensitive paste to confirm good even seating and smooth the polished surface. Check the vertical dimension of occlusion and the occlusal harmony again. Leaving the black processing jigs in place is acceptable until the follow-up visits to assess the retention. At that point the option for a 1.5 lb., 3 lb., or 5 lb. retention can be selected with the blue, pink or white nylon attachments, respectively. If the patient is prone to food impaction in the well of the Locator abutment, use the extended range attachments (red or green).



Laboratory Protocols

Impression Protocols

Full Arch stock trays (no more than 2 materials) for first 4 final impressions

Full Arch for ALL multiple units cases

Full Arch for ALL Indirect Competency Impressions

If Stock tray does not fit / Perforated custom tray (1 material / light body only)

Triple Tray Protocol

Triple Tray possible **Only** after 4 Full Arch Cases Completed

Only single posterior units / adjacent teeth / proper occlusion

Must capture the Canine

No terminal arch teeth preparations

Last tooth in arch must maintain a stop

Stable occlusion with multiple stops even after preparation

Prep index required / Opposing tooth required

No RPD involved abutment tooth

Fast Track Protocol

Eligible **Only** after 4 Full Arch cases completed

Only posterior single units restorations

No anterior teeth (including Cuspids)

Prep index required / Opposing tooth required / No terminal tooth

No RPD involved abutment tooth

Mounting plate should be submitted

Custom Incisal Guide Table

Cases involving Canine Preps

Cases with 2 or more teeth

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