

D A 88: PIT & FISSURE SEALANTS

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2021
Units:	1.5
Hours:	1 lecture, 2 laboratory per week (36 total per quarter)
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	CSU
Grade Type:	Letter Grade Only
Repeatability:	Not Repeatable

Student Learning Outcomes

- Students will be able to use various isolation techniques to prevent saliva contamination when placing sealants
- The student will be able to differentiate between sound and carious enamel utilizing computerized caries detection equipment.
- The student will place a clinically acceptable dental sealant on a patient.

Description

Theory and practice for placement of sealants by the Registered Dental Assistant to prevent decay in the pit and fissure areas of the dentition. Intended for students in the Dental Assisting Program; enrollment is limited to students accepted in the program.

Course Objectives

The student will be able to:

A. Dental Assisting Theory and Practice Competency

- describe the anatomy and physiology of the tissues of the teeth.
- identify tooth morphology, occlusion and abnormalities related to sealant placement.
- from a list of salivary glands, identify the location of each gland, the location of the ducts, and the composition of the saliva for each gland.
- describe the demineralization and caries process.
- describe the criteria for selecting teeth for sealant placement.
- compare the effectiveness of sealants versus other preventive measures.
- describe the composition and characteristics of the sealant material, the acid etch, and the primer material.
- briefly describe the bonding process.
- prepare the patient for the sealant procedure.
- list armamentarium for placement of pit and fissure sealants.
- prepare the tooth/teeth for placement of sealant.
- isolate the tooth/teeth to achieve adequate saliva control.
- demonstrate the appropriate technique for the use of the acid etch, primer agent, sealant material and cure light on typodont teeth.
- apply pit and fissure sealants on a minimum of four patients.
- re-call re-evaluation of sealants at subsequent dental appointments.
- describe the cost-effectiveness of sealants.

B. Infection Control and Hazardous Waste Management

- describe and perform infection control protocols in accordance with state and federal regulations.

- describe and follow universal precaution guidelines for the placement of pit and fissure sealants.
- review the MSDS for the acid etch and sealant material.
- perform appropriate hazardous waste and sharps management for sealant procedures.

C. Ethical and Legal Principles

- state the licensure, course, and certification requirements for a Registered Dental Assistant to be able to place pit and fissure sealants.
 - cite the legal and ethical implications of performing duties that are not designated to the licensed RDA in the California State Practice Act.
 - prepare and/or evaluate complete and accurate patient procedure records.
- D. Foothill College Dental Assisting Program Competencies
- Dental Assisting Theory and Practice: dental assisting students must be competent in applying the theory and practice of dental assisting for persons of all ages and abilities.
 - Infection Control and Hazardous Waste Management: dental assistants must possess the knowledge and abilities to prevent the transmission of infectious diseases.
 - Ethical and Legal Principles: dental assisting students must be competent in understanding ethical/legal principles as applied to the dental office.

Course Content

Dental Assisting Theory and Practice Competency

A. Anatomy and physiology of the tissues of the teeth

1. Tooth tissues (histology review)

a. Enamel

- General characteristics
- Formation
- Composition

b. Dentin

- General characteristics
- Formation
- Composition

B. Tooth morphology

1. Normal anatomical and physiological descriptions

a. Tooth

- Grooves
- Pits
- Ridges (marginal, triangular, oblique)
- Fissures
- Inclined plane
- Cusp
- Fossa (circular, triangular)
- Lobe

b. Occlusion (review)

- Centric
- Occlusal stops
- Supplemental structures (review)

c. Supplemental structures (review)

- Contact area or point
- Embrasure
- Proximal contact
- Interproximal space
- Anatomical and clinical crown
- Free gingival line
- Height of contour
- Vestibule
- Oral cavity proper

2. Abnormal anatomical and physiological descriptions

- Irregularities on tooth structure

- 1) Fracture lines
- 2) Rough or exposed cementum
- 3) Erosion
- 4) Carious lesions
- 5) Hypoplastic enamel
- 6) Fissures
- 7) Caries
 - a) Treatment options
 - b) Incipient, recurrent, and rampant
 - c) Abnormal occlusion
3. Edward Angle's classifications of malocclusion
 - a. Class 1
 - b. Class 2
 - c. Class 3
 - d. Buccoversion, linguoversion, infraversion, torsoversion
- C. Salivary glands
 1. Saliva composition
 - a. Serous
 - b. Mucous
 2. Glands and their location
 - a. Parotid
 - b. Submandibular
 - c. Sublingual
 - d. Minor glands
 3. Ducts and their location
 - a. Stenson's
 - b. Wharton's
 - c. Ducts of Rivinus
- D. Demineralization and caries process
 1. Caries and sealants (review)
 - a. General production theory
 - 1) Anatomy and surface morphology of teeth
 - 2) Chewing forces and abrasion
 - 3) Eruption stages and their effect
 - 4) Patient age factors
 - 5) Familial factors
 - 6) Plaque formation and its relationship to pellicle
 2. Acquired pellicle's role in de-mineralization and re-mineralization
 - E. Criteria for selecting teeth for sealant placement
 1. Indications for sealant placement
 - a. Pit and fissure considerations
 - b. Newly erupted teeth
 - c. Conjunction with preventive program (i.e., fluoride)
 - d. Use with conservative preventive resin restoration
 2. Contraindications
 - a. Ideal pit and fissure anatomy
 - b. Caries
 - F. Compare the effectiveness of sealants versus other preventive measures
 1. Goal of sealant application
 2. Positive effects of sealant application
 3. History of sealants
 4. Time of inception
 5. Rationale for lack of acceptance
 - a. Retention
 - b. Failure rate factors
 - c. Cost factors (i.e., insurance and Medi-Cal reimbursement)
 - d. Sealing over caries
 6. Other considerations
 - a. School age caries rate
 - b. Statistics on untreated caries rate in children and adults
 7. Requisites for sealant retention
 - a. Surface area
 - b. Pit and fissure irregularities
 - c. Tooth cleanliness
 - d. Tooth dryness
 8. Preventive program overview as they relate to sealants
 - a. Fluoride
 - b. Flossing
 - c. Tooth brushing
 - d. Diet
 - e. Dental visits
- G. Composition and characteristics of the sealant material
 1. Characteristics of etchant materials
 - a. Composition
 - b. Process and effects
 - c. Indications and contraindications
 - d. Storage and handling protocol
 2. Characteristics of sealant materials
 - a. Composition
 - 1) Bisphenol A-glycidyl methacrylate resins
 - 2) Urethane-based resin
 - 3) Sealant with fluoride
 - 4) Filled versus unfilled sealant material
 - b. Accepted sealant materials ADA Council on Scientific Affairs
 - c. Photo cured versus self-cured sealants
 - 1) General concepts of polymerization
 - 2) Self-curing
 - 3) Light-cured
 - d. Form
 - 1) Self-curing two part system (base and catalyst)
 - 2) Light-cured single system (pre-mixed)
 - e. Shades
 - 1) Clear
 - 2) Tinted
 - 3) Opaque
 - f. Storage and handling protocol
 - H. Bonding process
 1. Mechanical versus chemical process
 2. Requirements for adhesion
 3. Strength and viscosity characteristics
 4. Air inhibition theory
 5. Problem-solving
 - a. Improperly etched surface
 - b. Contamination of application site
 - c. Non-adherence of sealant material
 - I. Patient preparation
 1. Patient pre-op instructions
 2. Review of medical health history
 - J. Armamentarium for pit and fissure sealants
 1. Equipment
 2. Materials
 3. Hand instruments
 4. Rotary instruments
 - K. Tooth/teeth preparation prior to etching
 1. Techniques (indications and contraindications)
 - a. Coronal polish with pumice
 - b. Explorer/water technique
 - c. Air polishing
 - d. Air abrasion
 - e. Rotary instrumentation
 - L. Moisture control
 1. Characteristics of dry field
 - a. Use of drying agent

2. Rubber dam
 - a. Advantages
 - b. Disadvantages
 3. Cotton products isolation
 4. Evacuation system isolation
 5. Supplemental aids: dri-aids, dri-tips, cotton roll holders, rolled gauze, lingua-fix
 - M. Acid etch, primer agent, sealant material and cure light technique
 1. Tooth/teeth isolation
 2. Air dried surface protocol
 - a. Technique for use of drying agent
 3. Acid etching
 - a. Application (indications and contraindications)
 - 1) Pits and fissure coverage
 - 2) Cusp coverage
 - 3) Characteristics of application armamentaria
 - 4) Liquid etch cotton pledget/ball
 - 5) Gel etch brush or syringe
 - 6) Exposure time
 - 7) Rinsing techniques
 - 8) Etchant evaluation after placement
 - 9) Surface texture and color
 - 10) Reconditioning when indicated
 4. Application of sealant material
 - a. Application (indications and contraindications)
 - b. Pits and fissure coverage
 - c. Cusp coverage
 - d. Applicator device(s)
 - 1) Brush
 - e. Polymerization time
 - f. Sealant placement evaluation
 - g. Surface texture and color
 5. Occlusal check and adjustment
 - N. Apply pit and fissure sealants on a minimum of four patients
 1. Patient qualifications
 2. Tooth requirements
 3. Prescription for sealant
 - O. Re-call re-evaluation of sealants at subsequent dental appointments
 1. Re-evaluation of sealant at exam or prophylaxis appointments
 - P. Describe the cost-effectiveness of sealants
 1. Cost-effectiveness of sealants
 - a. Comparison versus amalgam restorations
 - b. Operator factors
 - 1) Dentists
 - 2) Dental hygienist
 - 3) Dental assistant
 - c. Sealants as a preventive dentistry restoration
- Infection Control and Hazardous Waste Management**
- A. Infection control protocol and regulation review
 1. Dental Board infection control guidelines
 - a. Unprofessional conduct regulations related to infection control
 - b. Cite fines related to infection control regulations
 - B. Universal precautions guidelines-pit and fissure sealant
 1. Training facility policies
 2. Handwashing protocol
 3. Protocol prior to patient treatment
 4. Protocol during patient treatment
 5. Protocol after patient treatment
 6. Operator disinfection and clean-up
 7. Sterilization protocol
 - C. MSDS for etchant and sealant material
 1. Composition

2. Hazard
 3. Treatment
 4. Protection
 5. Toxicity
 6. Storage
 7. Disposal considerations
 - D. Perform appropriate hazardous waste and sharps management for sealant procedures
 1. Regulated and unregulated waste
- Ethical and Legal Principles**
- A. Legal requirements for application
 1. Licensure requirements
 2. Course requirements
 3. Certification process
 - B. Legal and ethical implications of duties
 1. Dental Practice Act
 2. Dental Board of California
 3. Scope of practice
 4. Consequences of violations
 - C. Patient records
 1. Documentation
 2. Confidentiality
 3. Obtaining prescription
 4. Informed consent
 5. Treatment notice

Lab Content

- A. Practice isolation techniques on student-partners.
- B. Place sealants on typodont teeth, extracted teeth and student-partners.
- C. Place sealants on clinical patients.

Special Facilities and/or Equipment

- A. Lab coat/gown, uniform, clinic shoes, and safety glasses, gloves and masks.
- B. Dental operatories sufficient in number to allow a ratio of at least one operator for every three students at any one time.
- C. Laboratory facilities with individual student work areas.
- D. Clinical supplies to support demonstration and student practices activities.
- E. Equipment and materials for disinfection, processing of contaminated instruments and sterilization.
- F. Emergency materials/basic life support equipment.

Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

- Final written exam
- Peer and instructor laboratory evaluations
- Clinical evaluations (four patient experiences)

Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

- Lecture
- Cooperative learning exercises
- Laboratory
- Demonstration

Clinical practice on student partners

Representative Text(s) and Other Materials

Bird, DL, and DS Robinson. Modern Dental Assisting, 12th ed.. 2018.

Bird, DL, and DS Robinson. Student Workbook to Accompany Modern Dental Assisting, 12th ed.. 2018.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

- A. Documentation in the treatment record following clinical procedures.
- B. Read lecture and lab course manual.
- C. Read 1 chapter in textbook.

Discipline(s)

Dental Technology