



Logbook for Junior Operative Dentistry

2nd Year BDS

STANDARD OPERATING PROCEDURES (SOPS) FOR JUNIOR OPERATIVE DENTISTRY

INTRODUCTION:

This logbook is designed for 2nd year BDS Students to document their progress in learning and practice of basic Operative Dentistry Procedures. It aligns with the objectives of the modular system to enhance preclinical skills and prepare students for clinical practice. The curriculum for junior operative dentistry is divided into two modules for effective learning and skill development.

OBJECTIVES

- Develop manual dexterity and understanding of basic operative procedures.
- Familiarize students with dental instruments, materials, and techniques.
- Provide hands-on cavity preparation, restoration, and finishing practice in a pre-clinical environment.
- Instill principles of infection control.

PRE-CLINICAL REQUIREMENTS

UNIFORM AND PERSONAL PROTECTIVE EQUIPMENT (PPE):

- White Clean lab coat.
- Protective eyewear or face shield.
- Disposable gloves and masks.
- Shoes (sleepers not allowed).

MATERIALS AND INSTRUMENTS:

Students must carry the following for all sessions:

- Basic instruments: Mouth mirror, probe, tweezers, and instrument tray.

- Restorative instruments: Excavators, amalgam carriers, pluggers, carvers, and burnishers.
- Rotary instruments: High-speed handpiece with appropriate burs.
- Materials: Amalgam, composite, glass ionomer cement, and cavity liners.
- Typodonts with mounted teeth.

GENERAL GUIDELINES

ATTENDANCE:

- 75% Mandatory for all pre-clinical sessions.

PREPARATION:

- Review theoretical knowledge relevant to the procedure before the session.
- Assemble all required instruments and materials before starting.

INFECTION CONTROL:

- Practice standard infection control protocols.
- Dispose of waste materials in designated bins.

GENERAL INSTRUCTIONS FOR LOGBOOK USE:

- Students must record all activities in the logbook on the same day they are performed.
- Supervisors must verify each task with their signature and provide feedback where necessary.
- The logbook should be submitted for review at the end of the module.
- The completion of tasks in this logbook is mandatory for module completion.

INSTRUCTIONS FOR WORKING POSITIONS:

During the operative procedure, each student will be examined for whether

- He/she sits with the spine in an upright position, with the back well supported, the feet firmly placed on the ground, the thighs parallel to the floor, and the shoulders relaxed.
- While working on the lower jaw, the phantom head's occlusal plane is at 45 degrees to the floor.

- While working on the upper jaw, the student's neck should not be unnecessarily bent.
- The student should hold the dental mirror in a non-working hand and reflect the light.

STUDENT INFORMATION

Name:

Roll Number:

Session:

Module Start Date: _____

Modules End Date: _____

TOPICS:

Infection Control: Infection Control Protocols

Isolation Techniques: Rubber Dam, Cotton Roll

Class I Amalgam: Cavity preparation involving all pits and fissures on,

- occlusal surfaces of premolars and molars
- occlusal two-thirds of facial and lingual surfaces of molars

Class II Amalgam: Cavity preparation involving the proximal surfaces of posterior teeth

Class I Composite: Cavity preparation involving all pits and fissures of posterior teeth.

Class II Composite: Cavity preparation involving the proximal surfaces of posterior teeth.

GENERAL LEARNING OBJECTIVES:

At the end of these modules, the students will be able to:

- Understand and implement infection control protocols.
- Recognize the importance of cross-infection control in dental practice.
- Properly use isolation methods for operative procedures.
- Understand the principles of cavity preparation for amalgam restoration.
- Understand the principles of cavity preparation for composite restoration.
- Perform standardized Class I, and Class II cavity preparations for amalgam and composite on preclinical models.
- Apply knowledge of cavity design and retention principles.
- Develop proper instrumentation and handling techniques for amalgam and composite restorations.

MODULE 1: FUNDAMENTALS OF OPERATIVE DENTISTRY

TOPICS COVERED:

1. Infection Control Protocols
2. Isolation Techniques
3. Class I Cavity Preparation for amalgam (Pits and Fissures on Occlusal Surface of Premolars and Molars)

LEARNING OBJECTIVES FOR MODULE 1:

At the end of this modules, the students will be able to:

- Understand and implement infection control protocols.
- Explain the importance of hand hygiene in preventing cross-contamination and infection transmission.
- Identify the different types of PPE, including gloves, masks, gowns, and protective eyewear, and their specific uses.
- Describe the principles and methods of sterilization, including autoclaving, dry heat sterilization, and chemical sterilization.
- Differentiate between sterilization and disinfection and their roles in infection control.
- Recognize the importance of cross-infection control in dental practice.
- Classify the different types of biomedical waste generated in a dental clinic (e.g., sharps, general waste, and infectious waste).
- Properly use isolation methods for operative procedures.
- Explain the importance of rubber dam application in ensuring infection control and improving visibility.
- Demonstrate the correct placement and removal of a rubber dam in clinical settings.
- Discuss the Advantages and Disadvantages associated of rubber dam.
- Demonstrate the correct placement and replacement of cotton rolls to ensure patient comfort and effectiveness.

- Understand the principles of cavity preparation for amalgam restoration.
- Define the concept of outline form in cavity preparation.
- Demonstrate how to establish the correct outline form for a Class I cavity based on the extent of caries.
- Identify the factors influencing the outline form, including anatomical considerations and caries spread.
- Define Resistance form.
- Explain the purpose of resistance form in cavity preparation to withstand masticatory forces.
- Demonstrate how to create flat pulpal and gingival floors for enhanced resistance.
- Define retention form and its role in preventing dislodgement of the restoration.
- Describe the use of liners and bases to protect the pulp from thermal, chemical, and mechanical insults.
- Describe the step-by-step procedure for placing and condensing amalgam into a Class I cavity.
- Demonstrate carving techniques to restore the anatomical contours and occlusal function.
- Demonstrate proper techniques for applying pulp-protective materials.
- Perform class I cavity preparation with precision.

STEPS IN INFECTION CONTROL

Date	Task	Details of step Followed	Student's Self Evaluation			Instructor Evaluation			Signature
			Poor (P)	Average (A)	Good (G)	Poor (P)	Average (A)	Good (G)	
	Hand hygiene before and after procedures								
	Proper use of Personal Protective Equipment (PPE)								
	Sterilization of Instruments								
	Disinfection of work Surface								
	Waste Disposal following protocol								

CHECKLIST:

- Hand hygiene is performed using proper technique.
- PPE is used correctly (mask, gloves, goggles, and gown).
- Instruments were sterilized using an autoclave.
- All surfaces were disinfected before and after the procedure.
- Biomedical waste is segregated and disposed of appropriately.

ISOLATION METHODS

Date	Task	Details of step Followed	Student's Self Evaluation			Instructor Evaluation			Signature
			Poor (P)	Average (A)	Good (G)	Poor (P)	Average (A)	Good (G)	
	Application of Rubber Dam								
	Use of Cotton Rolls for Moisture Control								
	High Volume suction used								

CHECKLIST:

- Rubber dam is applied with proper clamp selection.
- Cotton rolls are placed without compromising visibility.
- High-volume suction is used effectively for moisture control.

CLASS I CAVITY PREPARATION MANDIBULAR 1ST MOLAR

Date	Task	Details of step Followed	Student's Self Evaluation			Instructor Evaluation Poor(P), Average (A), Good (G)			Signature
			Poor (P)	Average (A)	Good (G)	Poor (P)	Average (A)	Good (G)	
	Outline Form	Removal Of Carious Lesion							
		Remove Unsupported Enamel							
	Resistance Form	Horizontal Floor							
		Rounded Line Angles							
		Depth (1.5-2mm)							
		Width (1-1.5mm)							
		Butt Joint/Cavo-Surface Angle							
	Retention Form	Parallel Walls/Occlusal Convergence							
		Occlusal Dove Tail							
	Protection of Pulp	Mixing And Manipulation							
		Location/ Placement							
	Restoration	Mixing And Manipulation							
		Condensation							

		Pre-Carve Burnishing							
		Carving (Under/Overfilled)							
		Post-Carve Burnishing							
		Occlusal Adjustment							

CHECKLIST:

- Proper outline form achieved.
- Adequate resistance
- Adequate retention
- Adequate lining/Base
- Smooth cavity margins and walls

DIAGRAM:

CLASS I CAVITY PREPARATION MAXILLARY 1ST MOLAR

Date	Task	Details of step Followed	Student's Self Evaluation			Instructor Evaluation Poor(P), Average (A), Good (G)			Signature
			Poor (P)	Average (A)	Good (G)	Poor (P)	Average (A)	Good (G)	
	Outline Form	Removal Of Carious Lesion							
		Remove Unsupported Enamel							
	Resistance Form	Horizontal Floor							
		Rounded Line Angles							
		Depth (1.5-2mm)							
		Width (1-1.5mm)							
		Butt Joint/Cavo-Surface Angle							
	Retention Form	Parallel Walls/Occlusal Convergence							
		Occlusal Dove Tail							
	Protection of Pulp	Mixing And Manipulation							
		Location/ Placement							
	Restoration	Mixing And Manipulation							
		Condensation							

		Pre-Carve Burnishing							
		Carving (Under/Overfilled)							
		Post-Carve Burnishing							
		Occlusal Adjustment							

CHECKLIST:

- Proper outline form achieved.
- Adequate resistance
- Adequate retention
- Adequate lining/Base
- Smooth cavity margins and walls

DIAGRAM:

CLASS I CAVITY PREPARATION MANDIBULAR 1ST PREMOLAR

Date	Task	Details of step Followed	Student's Self Evaluation			Instructor Evaluation Poor (P), Average (A), Good (G)			Signature
			Poor (P)	Average (A)	Good (G)	Poor (P)	Average (A)	Good (G)	
	Outline Form	Removal Of Carious Lesion							
		Remove Unsupported Enamel							
	Resistance Form	Horizontal Floor							
		Rounded Line Angles							
		Depth (1.5-2mm)							
		Width (1-1.5mm)							
		Butt Joint/Cavo-Surface Angle							
	Retention Form	Parallel Walls/Occlusal Convergence							
		Occlusal Dove Tail							
	Protection of Pulp	Mixing And Manipulation							
		Location/ Placement							
	Restoration	Mixing And Manipulation							

		Condensation							
		Pre-Carve Burnishing							
		Carving (Under/Overfilled)							
		Post-Carve Burnishing							
		Occlusal Adjustment							

CHECKLIST:

- Proper outline form achieved.
- Adequate resistance
- Adequate retention
- Adequate lining/Base
- Smooth cavity margins and walls

DIAGRAM:

CLASS I CAVITY PREPARATION MAXILLARY 1ST PREMOLAR

Date	Task	Details of step Followed	Student's Self Evaluation			Instructor Evaluation Poor(P), Average (A), Good (G)			Signature
			Poor (P)	Average (A)	Good (G)	Poor (P)	Average (A)	Good (G)	
	Outline Form	Removal Of Carious Lesion							
		Remove Unsupported Enamel							
	Resistance Form	Horizontal Floor							
		Rounded Line Angles							
		Depth (1.5-2mm)							
		Width (1-1.5mm)							
		Butt Joint/Cavo-Surface Angle							
	Retention Form	Parallel Walls/Occlusal Convergence							
		Occlusal Dove Tail							
	Protection of Pulp	Mixing And Manipulation							
		Location/ Placement							
	Restoration	Mixing And Manipulation							
		Condensation							

		Pre-Carve Burnishing							
		Carving (Under/Overfilled)							
		Post-Carve Burnishing							
		Occlusal Adjustment							

CHECKLIST:

- Proper outline form achieved.
- Adequate resistance
- Adequate retention
- Adequate lining/Base
- Smooth cavity margins and walls

DIAGRAM:

MODULE 2: ADVANCED OPERATIVE DENTISTRY

TOPICS COVERED:

Class I: Cavity preparation for composite restoration

Class II: Cavity Preparation for amalgam restoration (Proximal Surface of Posterior Teeth)

Class II: Cavity Preparation for composite restoration (Proximal Surface of Posterior Teeth)

LEARNING OBJECTIVES FOR MODULE 2

By the end of this module, students will be able to:

- Understand the principles of cavity preparation for composite restoration.
- Perform class I cavity preparation for composite restoration with precision.
- Demonstrate the preparation of a conservative cavity outline that preserves maximum tooth structure.
- Demonstrate proper etching, priming, and bonding protocols for optimal retention
- Describe the incremental layering technique to prevent polymerization shrinkage and ensure proper curing.
- Demonstrate the placement and shaping of composite material to restore anatomical contours.
- Explain the importance of proper light-curing techniques for optimal restoration strength.
- Discuss finishing and polishing procedures to achieve a smooth surface and enhance aesthetics.
- Perform class II cavity preparation for composite restoration with precision.
- Demonstrate proper adhesive techniques, including etching, priming, and bonding, to ensure micromechanical retention.
- Explain the role of beveling enamel margins to improve bonding and aesthetic outcomes

- Describe the incremental layering technique to minimize polymerization shrinkage and ensure optimal curing.
- Demonstrate the placement and shaping of composite material to restore anatomical contours and occlusal function.
- Explain the importance of proper light-curing techniques to achieve adequate polymerization.
- Perform class II cavity preparation for amalgam restoration with precision.
- Identify anatomical landmarks to preserve during cavity preparation, such as marginal ridges
- Demonstrate how to create flat pulpal and gingival floors to withstand occlusal forces.
- Describe the importance of beveling and rounding internal angles to reduce stress concentration.
- Demonstrate techniques for creating retention grooves and undercuts to enhance amalgam stability
- Demonstrate correct placement of the matrix band and wedge to achieve tight proximal contact and minimize overhangs.
- Describe the components of a matrix band system, including the matrix band, retainer, and wedges.
- Identify different types of matrix bands and their clinical applications.
- Demonstrate the correct assembly of a Tofflemire matrix retainer with a matrix band.
- Practice the placement of a matrix band and retainer on typodont teeth for Class II cavities.
- Simulate the removal of the matrix band system without damaging the restoration or surrounding tissues.
- Describe the procedure for placing and condensing amalgam in a Class II cavity.
- Explain the importance of checking and adjusting occlusion after restoration placement.
- Discuss the finishing and polishing steps to ensure a smooth surface and enhance longevity.

CLASS I CAVITY PREPARATION FOR COMPOSITE RESTORATION MANDIBULAR 1ST MOLAR

Date	Task	Details of step Followed	Student's Self Evaluation			Instructor Evaluation Poor(P), Average (A), Good (G)			Signature
			Poor (P)	Average (A)	Good (G)	Poor (P)	Average (A)	Good (G)	
	Outline Form	Removal Of Carious Lesion							
		Remove Unsupported Enamel							
	Resistance Form	Horizontal Floor							
		Rounded Line Angles							
		Depth (1.5-2mm)							
		Width (1-1.5mm)							
		Butt Joint/Cavo-Surface Angle							
	Retention Form	Parallel Walls/Occlusal Convergence							
		Occlusal Dove Tail							
	Protection of Pulp	Mixing And Manipulation							
		Location/ Placement							

Restoration	Etching for 15-20 seconds						
	Wash for 15 seconds						
	Air dry						
	Bonding Applicator						
	Curing for 10 seconds						
	Increment Composite placement						
	Finishing and polishing						

CHECKLIST:

- Proper outline form achieved.
- Adequate resistance
- Adequate retention
- Adequate lining/Base
- Smooth cavity margins and walls

DIAGRAM:

CLASS II CAVITY PREPARATION FOR COMPOSITE RESTORATION MANDIBULAR 1ST MOLAR

Date	Task	Details of step Followed	Student's Self Evaluation			Instructor Evaluation Poor(P), Average (A), Good (G)			Signature
			Poor (P)	Average (A)	Good (G)	Poor (P)	Average (A)	Good (G)	
	Outline Form	Removal Of Carious Lesion							
		Remove Unsupported Enamel							
	Resistance Form	Horizontal Floor							
		Rounded Line Angles							
		Depth (1.5-2mm)							
		Width (1-1.5mm)							
		Butt Joint/Cavo-Surface Angle							
	Retention Form	Parallel Walls/Occlusal Convergence							
		Occlusal Dove Tail							
	Protection of Pulp	Mixing And Manipulation							
		Location/ Placement							

	Matrix Band and Wedge Placement practice	Matrix band placement						
		Wedge placement						
	Restoration	Etching for 15-20 seconds						
		Wash for 15 seconds						
		Air dry						
		Bonding Applicator						
		Curing for 10 seconds						
		Increment Composite placement						
		Finishing and polishing						

CHECKLIST:

- Proper outline form achieved.
- Adequate resistance.
- Adequate retention.
- Adequate lining/Base.
- Smooth cavity margins and walls.
- Correct use of matrix system.

DIAGRAM:

CLASS II CAVITY PREPARATION MANDIBULAR 1ST MOLAR

Date	Task	Details of step Followed	Student's Self Evaluation			Instructor Evaluation Poor(P), Average (A), Good (G)			Signature
			Poor (P)	Average (A)	Good (G)	Poor (P)	Average (A)	Good (G)	
	Outline Form	Removal Of Carious Lesion							
		Remove Unsupported Enamel							
	Resistance Form	Horizontal Floor							
		Rounded Line Angles							
		Depth (1.5-2mm)							
		Width (1-1.5mm)							
		Butt Joint/Cavo-Surface Angle							
	Retention Form	Parallel Walls/Occlusal Convergence							
		Occlusal Dove Tail							
	Protection of Pulp	Mixing And Manipulation							
		Location/ Placement							
	Restoration	Mixing And Manipulation							
		Condensation							

		Pre-Carve Burnishing							
		Carving (Under/Overfilled)							
		Post-Carve Burnishing							
		Occlusal Adjustment							
	Matrix Band and Wedge Placement practice	Matrix band placement							
		Wedge placement							

CHECKLIST:

- Proper proximal box design with adequate clearance.
- Proper outline form achieved.
- Adequate retention.
- Adequate resistance.
- Adequate lining/Base.
- Smooth cavity margins and walls.
- Correct use of matrix system.

DIAGRAM:

CLASS II CAVITY PREPARATION MAXILLARY 1ST MOLAR

Date	Task	Details of step Followed	Student's Self Evaluation			Instructor Evaluation Poor(P), Average (A), Good (G)			Signature
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		Location/ Placement							
	Restoration	Mixing And Manipulation							
		Condensation							

		Pre-Carve Burnishing							
		Carving (Under/Overfilled)							
		Post-Carve Burnishing							
		Occlusal Adjustment							
	Matrix Band and Wedge Placement practice	Matrix band placement							
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CHECKLIST:

- Proper proximal box design with adequate clearance.
- Proper outline form achieved.
- Adequate retention.
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- Smooth cavity margins and walls.
- Correct use of matrix system.

DIAGRAM:

CLASS II CAVITY PREPARATION MANDIBULAR 1ST PREMOLAR

Date	Task	Details of step Followed	Student's Self Evaluation			Instructor Evaluation Poor (P), Average (A), Good (G)			Signature
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	Resistance Form	Horizontal Floor							
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		Width (1-1.5mm)							
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	Retention Form	Parallel Walls/Occlusal Convergence							
		Occlusal Dove Tail							
	Protection of Pulp	Mixing And Manipulation							
		Location/ Placement							
	Restoration	Mixing And Manipulation							

		Condensation							
		Pre-Carve Burnishing							
		Carving (Under/Overfilled)							
		Post-Carve Burnishing							
		Occlusal Adjustment							
	Matrix Band and Wedge Placement practice	Matrix band placement							
		Wedge placement							

CHECKLIST:

- Proper proximal box design with adequate clearance.
- Proper outline form achieved.
- Adequate retention.
- Adequate resistance.
- Adequate lining/Base.
- Smooth cavity margins and walls.
- Correct use of matrix system.

DIAGRAM:

CLASS II CAVITY PREPARATION MAXILLARY 1ST PREMOLAR

Date	Task	Details of step Followed	Student's Self Evaluation			Instructor Evaluation Poor(P), Average (A), Good (G)			Signature
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	Resistance Form	Horizontal Floor							
		Rounded Line Angles							
		Depth (1.5-2mm)							
		Width (1-1.5mm)							
		Butt Joint/Cavo-Surface Angle							
	Retention Form	Parallel Walls/Occlusal Convergence							
		Occlusal Dove Tail							
	Protection of Pulp	Mixing And Manipulation							
		Location/ Placement							
	Restoration	Mixing And Manipulation							
		Condensation							

		Pre-Carve Burnishing							
		Carving (Under/Overfilled)							
		Post-Carve Burnishing							
		Occlusal Adjustment							
	Matrix Band and Wedge Placement practice	Matrix band placement							
		Wedge placement							

CHECKLIST:

- Proper proximal box design with adequate clearance.
- Proper outline form achieved.
- Adequate retention.
- Adequate resistance.
- Adequate lining/Base.
- Smooth cavity margins and walls.
- Correct use of matrix system.

DIAGRAM:

FINAL REMARKS BY MODULE COORDINATOR

Coordinator Name: _____

Signature: _____

Date: _____

Note: Submission of completed logbook is mandatory for eligibility to appear in the module assessment.