Assessment of Clinical Skills

December 2017 Protocol

NDEB BNED
The National Dental Examining Board of Canada
Le Bureau national d'examen dentaire du Canada

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Content and Format

During the two day Assessment of Clinical Skills, participants will perform a series of dental procedures on simulated patients (manikins) in a clinical setting.

Each day participants will receive the following:

- typodont mounted in a manikin on a dental chair. The typodont will be labelled with the participant's ID number.
- list of teeth for practice preparations.
- detailed list of required procedures specifying tooth numbers and surfaces.
- scheduled time to perform the Rubber Dam Requirement (1/2 of participants).
- Participant Communication form which may be used to provide comments to Evaluators.

Schedule

Day 1	Time
Validation of registration	7:30 am
Orientation and instructions	8:00 am
Set up	8:30 am
Clinical procedures on simulated patients	9:00 am to 4:30 pm*

Day 2	Time
Validation of registration	7:30 am
Set up	8:00 am
Clinical procedures on simulated patients	8:30 am to 4:30 pm*

** Participants who are scheduled for their Rubber Dam requirement will finish one half hour later.*

Participants must exit the clinic and remove all of their equipment and supplies no later than 5:30 each day.

Validation of Registration

During validation of registration, participants will be issued an identification (ID) card. To receive the ID card, participants must show current government issued photo identification, (e.g. driver's licence, passport, or military identification) in English or French for comparison to the ID card. The photo identification must show the participant's name exactly as it appears in the participant's online profile. It must be issued by a federal, provincial, territorial, state, or municipal authority, and not be expired. If photo identification does not have an expiry date, it must have been issued within the last 10 years.

Participants who do not provide government photo identification will not be admitted.

Regulations

- Participants must be punctual both days. Participants arriving late for an assessment may be denied entry to the assessment.
- Family or friends must not accompany participants as space at the centre is provided only for participants and staff.
- Participants must have their ID card and ID badge visible at all times and must return them as directed at the end of the assessment.
- Participants must not use devices with recording abilities such as radios, cameras, cell phones, smart watches, computers, or other electronic aids/devices in the assessment room. Use of electronic aids or devices is strictly prohibited. Participants found to have a prohibited electronic aid or device on their person during an assessment will be immediately dismissed from the assessment room and will receive a zero score for the assessment.
- Participants are not permitted to bring any written notes regarding Record of Procedures into the clinic.
- The ability of a participant to read, interpret, and comply with instructions and other written material is part of the assessment. Assessment Supervisors and Invigilators will not answer questions involving assessment content.
- "Participant Communication" forms must be completed within the assessment session time. Additional time will not be allowed.
- Participants must stop working at the indicated ending time. Participants must exit the clinic when asked to by Invigilators.
- Participants must abide by the above Regulations. Participants who do not do so may be given an "E" for all requirements that day.

Assessment Integrity

- All assessment material is copyrighted. Any attempt to reproduce or assemble assessment material is strictly prohibited and will be prosecuted.
- Participants are prohibited from disrupting the conduct of the assessment.
- Participants are prohibited from removing assessment material from the clinic. Doing so will be considered as compromising the integrity of the assessment. The consequences of such actions are outlined in the NDEB By-laws. The NDEB will verify that all material is returned. Participants who fail to return material, including their ID card, may receive an "E" score for the assessment.
- Fraud, dishonesty, or other misconduct will not be tolerated. If during the conduct of the assessment a participant has compromised, in any manner whatsoever, the integrity of the process of the conduct of the assessment, as per NDEB By-laws, the NDEB may deny the participant the privilege of taking or repeating any further examinations or assessments.

Leaving and Re-entering the Assessment Room

Participants are encouraged to take breaks whenever needed. While food and beverages are not permitted in the clinic, participants may eat and drink outside of the clinic.

Participants may use the washroom facilities during an assessment. No extra time will be given.

Special Accommodation

Special accommodations are granted on an individual basis and are dependent on the nature and extent of the request, documentation provided, and requirements of the assessment.

Requesting accommodations and confidentially of requests

Individuals can request a special accommodation due to a documented disability, medical diagnosis, or for a religious reason. Requests for special accommodation are confidential. The Special Accommodations Coordinator will review the supporting documentation and may discuss submissions with the Director of Examinations and Credential Verification, In-House Legal Counsel and/or the Registrar as required.

Requests for special accommodation must be submitted by email to accommodations@ndeb-bned.ca and must include a detailed outline of the requested accommodation(s) and attachments of all supporting documentation. Email attachments must be PDF or jpeg format. Submissions must be received by the registration deadline date.

Supporting documentation cannot be older than one year and must include:

- a detailed report or official letter from a qualified professional appropriate for evaluating the accommodation
- a detailed diagnosis
- a description of the participant's/candidate's condition and specific recommendations for accommodation(s)

The NDEB reserves the right to request further documentation. Last minute requests are difficult to arrange and cannot be guaranteed.

Granting special accommodations

The NDEB will determine the date, location, and accommodation conditions that can be offered.

Accommodation(s) are valid for one assessment session and are not transferrable to subsequent sessions.

Details can be found on the NDEB website.

Assessment Requirements

Participants will be required to perform the following procedures:

- Class II amalgam preparation
- Class III composite resin preparation
- Full metal crown preparation
- Metal-ceramic (porcelain fused to metal) crown preparation for an anterior tooth
- Endodontic access preparation on a molar tooth
- Direct Class II composite resin restoration on a supplied pre-prepared tooth
- Direct Class IV composite resin restoration on a supplied pre-prepared tooth
- Class II amalgam restoration on a supplied pre-prepared tooth
- Provisional crown restoration for a supplied pre-prepared metal-ceramic (porcelain fused to metal) crown preparation on Day 2 of the assessment. A study model with the unprepared tooth will be provided on Day 2.
- Rubber dam application

Participants will also be evaluated on the following:

- Record keeping
- Infection control and material hygiene

Equipment, Instruments and Supplies

The dental clinic at the centre will provide the following items:

- A typodont mounted in a manikin on a dental chair
- An overhead dental operating light
- An operator stool
- Amalgamators
- Saliva ejectors
- Air/water syringe tips
- High volume suction tips
- Amalgam waste and sharps disposal containers

Participants must supply **all other** equipment, instruments and supplies needed to complete the required procedures, including but not limited to:

- Handpieces and burs
- Curing lights
- All restorative materials including amalgam, composite resin and provisional crown materials
- Gloves, masks, and protective eyewear
- Dental hand instruments
- Rubber dam, frames, clamps, forceps, and dental floss
- Materials to place and finish restorative materials (matrix bands, matrix holders, wedges polishing supplies, etc.)

Participants are responsible for their own instruments and supplies. The NDEB assessment centre will not be held responsible for instruments or personal supplies left unattended.

If a problem occurs with the supplied equipment (including the typodonts and heads), an invigilator **must** be informed immediately. Short time delays will be noted on participant ID cards posted in each operatory. The assessment includes 30 minutes of extra time to compensate for short time delays. A time extension will be given only if time delays total over 30 minutes. A granted time extension will be indicated by a blue form posted in the operatory.

Information regarding handpiece configuration (connectors) at each centre will be forwarded to participants prior to the assessment.

The dental clinic at the assessment centre will not be accessible prior to the assessment.

Instructions

- At the beginning of each day, the list of requirements for that day will be distributed. Participants may perform the requirements for the day in any order, except for the application of the rubber dam and the completion of the provisional crown. Each participant will have an assigned time to apply the rubber dam. It is not necessary to use the rubber dam to perform any of the other requirements.
- The Record of Procedures requirement must be completed on the morning of Day 2. The Record of Procedures must be submitted by 9:00 a.m.
- The provisional crown requirement must be completed on the morning of day two. The provisional crown must be submitted by 11:30 a.m. except for participants who have a rubber dam application time on the morning of day two. Those participants must submit the provisional crown by 12:15 p.m.
- Participants are not permitted to remove teeth from typodonts, nor are they permitted to remove typodonts from the manikins.
- Participants are not permitted to have extra typodont teeth in the assessment area.
- Interocclusal distance on the typodonts is pre-set to a standardized amount. Participants must not increase the pre-set interocclusal distance. Instructions will be given on occluding the typodonts without altering the pre-set distance.
- Participants must wear appropriate clinic attire but this will not be assessed for grading. Open toed shoes are not allowed in clinics for safety reasons.
- Participants may use magnification aids.
- Participants may not use cheek retractors.
- Participants will receive an "E" grade for any requirement in which:
    - a procedure is started on a tooth other than one identified for that requirement or identified as a practice tooth.
    - a restorative requirement is completed using an inappropriate material.
    - a provisional crown cannot be removed from its preparation or is cracked or broken.
    - restorative devices, including matrix bands and wedges are not removed.
- During the assessment, participants must demonstrate competency in performing procedures in a clinical environment. Although there are no criteria for evaluating the posture of a participant, procedures must be performed in anatomically acceptable positions. Examples of unacceptable positions include:
    - the manikin's head positioned so that a patient would be uncomfortable.
    - the manikin's neck extended so that a patient would be uncomfortable.
    - the participant leaning on or inappropriately contacting the patient's torso or head.

Invigilators will direct participants to correct unacceptable positions. Any participant who continues to work with the manikin in an unacceptable position may be dismissed from the assessment and receive an "E" for all requirements.

- Participants must leave their work areas clean at the end of each day. Any participant who does not do so may receive an "E" for all requirements. Barriers applied for Day 1 may be left in place for Day 2.
- Participants must manage excess amalgam appropriately. Any participant who does not do so may be dismissed from the assessment and receive an "E" for all requirements.
- Participants are financially responsible for any damage caused to any supplied equipment.

The NDEB uses the series 200 typodont and simulated teeth from Kilgore International (http://www.kilgoreinternational.com/ - 1-800-892-9999).

- Series A21-200 pre-prepared teeth will be provided for the:
  - Class II Amalgam Restoration
  - Class IV Composite Resin Restoration
  - Class II Composite Resin Restoration
  - Provisional Crown Restoration

- Series S12-200 teeth with simulated enamel, dentin and pulp will be provided for the:
  - Endodontic Access Preparation

  Simulated enamel and dentin:

  The simulated enamel and dentin in the crown of the teeth are white in colour and are made of a uniform composite resin material with no demarcation between the simulated enamel and dentin. The simulated dentin in the root of the teeth is made of clear resin. The teeth have been manufactured so that procedures may be performed using normal pressure with a dental bur and, if desired, finishing can be done using normal pressure with sharp hand instruments. Fractures may occur if an attempt is made to remove a large section of tooth structure or if excessive force and/or dull instruments are used.

  Simulated pulp chamber and canals:

  The simulated dental pulp chamber and canals are hollow spaces lined with red colouring.

- Series A22-200 with simulated enamel, dentin and pulp will be provided for the:

- Full Metal Crown Preparation
- Metal-ceramic Crown Preparation

Simulated enamel:

The simulated enamel is **white** in colour and is made of composite resin that is harder than the simulated dentin. The teeth have been manufactured so that procedures may be performed using normal pressure with a dental bur and, if desired, finishing can be done using normal pressure with sharp hand instruments. Fractures may occur if an attempt to remove a large section of enamel is made or if excessive force and/or dull instruments are used.

Simulated dentin:

The simulated dentin is **light beige** and is softer than the simulated enamel.

Simulated pulp chamber and canals:

The simulated dental pulp chamber and canals are hollow spaces lined with red colouring.

Participants are cautioned not to use mechanical tooth separators and not to be aggressive with the use of interproximal wedges, as these may cause fractures to the simulated teeth.

- Series A27-200 teeth with simulated enamel, dentin and caries will be provided for the:
  - Class II Amalgam Preparation
  - Class III Composite Resin Preparation

Simulated enamel:

The simulated enamel is **white** in colour and is made of composite resin that is harder than the simulated dentin and simulated caries. The teeth have been manufactured so that procedures may be performed using normal pressure with a dental bur and, if desired, finishing can be done using normal pressure with sharp hand instruments. Fractures may occur if an attempt to remove a large section of enamel is made or if excessive force and/ or dull instruments are used.

Simulated dentin:

The simulated dentin is **yellow** in color and is softer than the simulated enamel.

Simulated caries:

The simulated caries in dentin is **dark brown** in colour and is softer than the simulated enamel but is of similar hardness to the simulated dentin. In anterior teeth, there is also a cavitation (hole) in the simulated enamel on the proximal

surface. This cavitation extends through the simulated enamel into the simulated dentin and must be included as part of the preparation.

Participants are cautioned not to use mechanical tooth separators and not to be aggressive with the use of interproximal wedges, as these may cause fractures to the simulated teeth.

The manufacturing process for teeth with simulated caries ensures that caries depth and extent is standardized for each tooth used as part of the assessment.

As a result of the manufacturing process, there may be a small cement-filled space between the simulated enamel and the simulated dentin which may appear grey in colour. This is not simulated caries.

Note:
Teeth are slightly softer and more easily abraded than natural teeth.

The use of metal hand instruments in cavity preparations will leave a grey stain.

Cleanliness of the typodonts is a responsibility of the participant.

Excessive use of petroleum jelly on prepared typodont teeth may be graded as "Unacceptable debris" or "Excessive debris".

The FDI two digit tooth numbering system below is used for all assessments.

FDI / UNIVERSAL NUMBERING SYSTEM

PERMANENT DENTITION

FDI	**1.8**	**1.7**	**1.6**	**1.5**	**1.4**	**1.3**	**1.2**	**1.1**	**2.1**	**2.2**	**2.3**	**2.4**	**2.5**	**2.6**	**2.7**	**2.8**	**FDI**
Universal	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Universal
Universal	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	Universal
FDI	**4.8**	**4.7**	**4.6**	**4.5**	**4.4**	**4.3**	**4.2**	**4.1**	**3.1**	**3.2**	**3.3**	**3.4**	**3.5**	**3.6**	**3.7**	**3.8**	**FDI**
			RIGHT										**LEFT**				

PRIMARY DENTITION

FDI	**5.5**	**5.4**	**5.3**	**5.2**	**5.1**	**6.1**	**6.2**	**6.3**	**6.4**	**6.5**	**FDI**
Universal	A	B	C	D	E	F	G	H	I	J	Universal
Universal	T	S	R	Q	P	O	N	M	L	K	Universal
FDI	**8.5**	**8.4**	**8.3**	**8.2**	**8.1**	**7.1**	**7.2**	**7.3**	**7.4**	**7.5**	**FDI**
	RIGHT							**LEFT**			

Grading Criteria

Metal-ceramic Crown Preparation for a Maxillary Anterior Tooth

Clearance for occlusion will be measured from opposing teeth in maximal intercuspation and excursions.

Grade	Path of Draw and Axial Convergence	Preservation of Tooth Vitality and Structural Durability	Finish and Margin

A+	• Preparation allows the fabrication of a restoration with optimal retention and contour
	• No undercuts
	• Axial convergence 6° - 10°
		• Optimal preparation has been performed to permit the fabrication of an esthetic and functional restoration
		• Axial reduction: Labial, mesial, distal 1.2mm
		  ○ Cingulum 0.5mm
		• Incisal reduction 2.0mm
		• Clearance for occlusion (lingual) 1.0 - 1.5mm
		• Width of margin: Labial 1.2 - 1.5mm
		  ○ Lingual 0.5mm
		• Preparation has no sharp line angles
		• No damage to adjacent teeth
			• Margin is optimally placed, defined and identifiable
			• Margin is smooth, continuous and has no steps
			• Margin positioned 0.5mm supragingival
			• Preparation walls are smooth
			• No damage to gingiva
			• Preparation is free of debris

A	• Minor undercuts. Manageable by lab • Axial convergence 11° - 20°	• Axial reduction: Labial, mesial, distal 1.3 - 1.5mm ○ Cingulum 0.1 - 0.4mm or 0.6 - 0.9mm • Incisal reduction 2.1 - 2.5mm • Minor damage to adjacent tooth corrected by enameloplasty	• Margin continuous with minor irregularity • Located supragingival < 0.5mm or 0.6 - 1.0mm • Located subgingival < 0.5mm • Axial wall finish not optimal • Minor damage to gingiva
D	• Will not draw. Modification required • Axial convergence 21° - 25°	• Axial reduction: Labial, mesial, distal 0.5 - 1.1mm or 1.6 - 2.5mm ○ Cingulum 1.0 - 1.2mm • Incisal reduction 1.0 – 1.9mm or 2.6 - 3.0mm • Clearance for occlusion 0.5 - 0.9mm or 1.6 - 2.0mm • Sharp line angle • Minor damage to adjacent tooth	• Indistinct, discontinuous or rough • Incorrect margin type for material • Unsupported enamel (lipping) • Located supragingival 1.1 - 2.0mm • Located subgingival 0.5 - 1.0mm • Unacceptable roughness on axial wall • Moderate damage to gingiva • Debris
E	• Will not draw. Major modification required • Axial convergence > 25°	• Axial reduction: Labial, mesial, distal < 0.5mm or > 2.5mm ○ Cingulum > 1.2mm • Incisal reduction < 1.0mm or > 3.0mm • Clearance for occlusion < 0.5mm or > 2.0mm • Excessive damage to adjacent tooth • Pulpal blush or exposure • Alternate preparation or RCT needed	• Excessively indistinct, discontinuous or rough • No discernible margin • Excessive unsupported enamel (lipping) • Located supragingival > 2.0mm • Located subgingival > 1.0mm • Excessive damage to gingiva • Excessive debris

Metal-ceramic Crown Preparation for a Mandibular Anterior Tooth

Clearance for occlusion will be measured from opposing teeth in maximal intercuspation and excursions.

Grade	Path of Draw and Axial Convergence	Preservation of Tooth Vitality and Structural Durability	Finish and Margin

A+	• Preparation allows the fabrication of a restoration with optimal retention and contour
	• No undercuts
	• Axial convergence 6° - 10°
		• Optimal preparation has been performed to permit the fabrication of an esthetic and functional restoration
		• Axial reduction: Labial, lingual, mesial, distal 1.2mm
		  ○ Cingulum 0.5mm
		• Incisal reduction 2.0mm
		• Clearance for occlusion 1.0 - 1.5mm
		• Width of margin: Labial 1.2 - 1.5mm
		  ○ Lingual 0.5mm
		• Preparation has no sharp line angles
		• No damage to adjacent teeth
			• Margin is optimally placed, defined and identifiable
			• Margin is smooth, continuous and has no steps
			• Margin positioned 0.5mm supragingival
			• Preparation walls are smooth
			• No damage to gingiva
			• Preparation is free of debris

A	• Minor undercuts. Manageable by lab • Axial convergence 11°- 20°	• Axial reduction: Labial, lingual, mesial, distal 1.3 - 1.5mm ○ Cingulum 0.1 - 0.4mm or 0.6 - 0.9mm • Incisal reduction 2.1 - 2.5mm • Minor damage to adjacent tooth corrected by enameloplasty	• Margin continuous with minor irregularity • Located supragingival < 0.5mm or 0.6 - 1.0mm • Located subgingival < 0.5mm • Axial wall finish not optimal • Minor damage to gingiva
D	• Will not draw. Modification required • Axial convergence 21°- 25°	• Axial reduction: Labial, lingual, mesial, distal 0.5 - 1.1mm or 1.6 - 2.5mm ○ Cingulum 1.0 - 1.2mm • Incisal reduction 1.0 – 1.9mm or 2.6 - 3.0mm • Clearance for occlusion 0.5 - 0.9mm or 1.6 - 2.0mm • Sharp line angle • Minor damage to adjacent tooth	• Indistinct, discontinuous or rough • Incorrect margin type for material • Unsupported enamel (lipping) • Located supragingival 1.1 - 2.0mm • Located subgingival 0.5 - 1.0mm • Unacceptable roughness on axial wall • Moderate damage to gingiva • Debris
E	• Will not draw. Major modification required • Axial convergence > 25°	• Axial reduction: Labial, lingual, mesial, distal < 0.5mm or > 2.5mm ○ Cingulum > 1.2mm • Incisal reduction < 1.0mm or > 3.0mm • Clearance for occlusion < 0.5mm or > 2.0mm • Excessive damage to adjacent tooth • Pulpal blush or exposure • Alternate preparation or RCT needed	• Excessively indistinct, discontinuous or rough • No discernible margin • Excessive unsupported enamel (lipping) • Located supragingival > 2.0mm • Located subgingival > 1.0mm • Excessive damage to gingiva • Excessive debris

Class III Composite Preparation

The criteria below describe a preparation for a tooth with minimal caries. Evaluation of preparations will consider the extent of caries present.

Grade	External Outline Form	Internal Form	Finish
A+	• Optimal extension based on location and extent of caries present • Gingival margin supragingival • No damage to adjacent teeth, assessment tooth beyond preparation or gingiva	• Optimal resistance and retention form based on location and extent of caries present with no unnecessary removal of internal tooth structure	• Smooth cavosurface margin • No debris or caries (infected dentin)
A	• Minor overextension • Minor underextension • Minor damage to adjacent tooth corrected by enameloplasty • Minor damage to assessment tooth beyond preparation margin corrected by enameloplasty • Minor damage to gingiva	• Minor overpreparation • Minor underpreparation	• Minor roughness
D	• Minor damage to adjacent tooth • Minor damage to assessment tooth beyond preparation margin • Moderate damage to gingiva	• Too deep 2.0 - 3.0mm • Unacceptable underpreparation • Unnecessary removal of internal tooth structure	• Unacceptable roughness • Debris
E	• Underextended > 0.5mm • Overextended > 0.5mm • Cavitation not included • Excessive damage to adjacent tooth • Excessive damage to assessment tooth beyond preparation margin • Excessive damage to gingiva	• Too deep > 3.0mm • Excessive underpreparation • Excessive overpreparation. Alternate design or RCT required	• Excessive debris • Caries remaining on axial • Caries remaining at dentinoenamel junction

Class II Amalgam Restoration

Grade	Surface quality	Margin	Contours and Function
A+	• Uniform smoothness	• Junction of tooth/restoration not detectable with explorer • No debris/loose amalgam in soft tissue • No damage to adjacent teeth, assessment tooth or gingiva	• Physiologic tooth contours of occlusal and proximal surfaces optimally restored • Optimal proximal contact restored • Optimal occlusal contact
A	• Some areas of roughness	• Margin slightly detectable • Minor damage to adjacent tooth corrected by enameloplasty • Minor damage to assessment tooth corrected by enameloplasty • Minor damage to gingiva	• Slightly undercontoured • Slightly overcontoured • Proximal contact slightly too occlusal • Proximal contact slightly too gingival • Proximal contact slightly too broad • Slight marginal ridge disharmony
D	• Roughness or scratches requiring correction	• Excess amalgam at margin ≤ 0.5mm • Disharmony of amalgam-enamel margin ≤ 0.5mm on occlusal • Debris/loose amalgam in soft tissue • Minor damage to adjacent tooth • Minor damage to assessment tooth • Moderate damage to gingiva	• Undercontoured ≤ 0.5mm • Overcontoured ≤ 0.5mm • Poor occlusal morphology • Light proximal contact • Proximal contact too occlusal • Proximal contact too gingival • Proximal contact too broad/concave • Proximal contact too tight/rough • Marginal ridge disharmony ≤1.0mm • Excessive occlusal contact
E	• Excessive roughness or scratches • Deep or excessive voids other than at margin • Restoration must be replaced because of surface quality	• Excess amalgam at margin > 0.5mm • Deficiency/void at margin requiring replacement of restoration • Excessive debris/loose amalgam in soft tissue • Excessive damage to adjacent tooth • Excessive damage to assessment tooth • Excessive damage to gingiva	• Undercontoured > 0.5mm • Overcontoured > 0.5mm • No proximal contact • Marginal ridge disharmony > 1.0mm • Restoration fractured or loose

Class II Composite Resin Restoration

These criteria do not include shade matching, which is NOT part of the evaluation.

Grade	Surface Quality and Finish	Margin	Contours and Function
A+	• Uniform smoothness • Uniform polish matching tooth surface • No contamination of resin (no stain or inclusions)	• Junction of tooth/restoration not detectable with explorer • No excess resin past preparation margin • No damage to adjacent teeth, assessment tooth or gingiva	• Physiologic tooth contours of occlusal and proximal surfaces optimally restored • Optimal proximal contact restored • No excess resin in/on soft tissue • No excess resin on hard tissue
A	• Areas needing more polish • Minor contamination of resin not affecting durability or esthetics	• Junction of tooth/restoration slightly detectable with explorer • Minor amount of resin beyond preparation margin • Minor damage to adjacent tooth corrected by enameloplasty • Minor damage to assessment tooth corrected by enameloplasty • Minor damage to gingiva	• Undercontoured < 0.5mm • Overcontoured < 0.5mm • Proximal contact slightly too occlusal • Proximal contact slightly too gingival • Proximal contact slightly too broad • Slight marginal ridge disharmony
D	• Unacceptable roughness or scratches • Voids or porosities • Contamination of resin that needs correction	• Deficiency/void at margin ≤ 0.5mm • Resin beyond preparation margin requiring correction • Minor damage to adjacent tooth • Minor damage to assessment tooth • Moderate damage to gingiva	• Undercontoured 0.5 - 1.0mm • Overcontoured 0.5 - 1.0mm • Poor occlusal morphology • Light proximal contact • Proximal contact too occlusal • Proximal contact too gingival • Proximal contact too broad/concave • Proximal contact too small/pinpoint • Proximal contact too tight/rough • Marginal ridge disharmony ≤ 1.0mm • Resin in/on soft tissue • Resin on hard tissue • Excessive occlusal contact
E	• Excessive roughness or scratches • Excessive voids or porosities • Excessive contamination of resin requiring replacement of entire restoration. • Incomplete polymerization	• Deficiency/void at margin > 0.5mm • Excessive resin beyond preparation margin • Excessive damage to adjacent tooth • Excessive damage to assessment tooth • Excessive damage to gingiva	• Undercontoured > 1.0mm • Overcontoured > 1.0mm • Lack of physiologic contour • No proximal contact • Floss will not pass through proximal contact • Marginal ridge disharmony > 1.0mm • Excessive resin in /on soft tissue • Excessive resin on hard tissue • Restoration fractured or loose

Endodontic Access Preparation

Grade	External Outline Form	Internal Form	Finish
A+	• Optimal extension to obtain straight line access to all canals • Optimal removal of any unsupported structures • No overextension • Adequate extension to permit removal of pulp horns	• Optimal internal tooth structure removed to allow straight line access to canals • Canals accessed to a depth of 2.0mm	• Optimal smoothness of walls and cavosurface • No pulp material present on wall or floor of chamber • No debris
A	• Minor underextension < 1.0mm • Minor overextension < 1.0mm	• Minor overpreparation • Minor underpreparation	• Smoothness not optimal • Minor pulp material present on wall or floor of chamber • Minor debris present
D	• Underextended: obstructed access to canals • Moderate overextension 1.0 - 2.0mm	• Unacceptable removal of internal tooth structure • Gouging of wall • Canal not accessed to depth of 2.0mm • Moderate over-instrumentation of canal	• Unacceptable roughness • Significant pulp material present on wall or floor of chamber • Unacceptable debris
E	• Chamber not accessed • Excessive underextension > 2.0mm • Excessive overextension > 2.0mm	• Excessive removal of internal tooth structure • Perforation • Roof of pulp chamber not removed • Canal not accessed • Excessive gouging of wall • Excessive over-instrumentation of canal • Separated instrument in canal	• Excessive roughness • Excessive pulp material present on wall or floor of chamber • Debris obstructing chamber or canal

Class IV Composite Resin Restoration

These criteria do not include shade matching, which is NOT part of the evaluation.

Grade	Surface Quality and Polish	Margin	Contours and Function
A+	• Uniform smoothness • Uniform polish matching tooth surface • No contamination of resin (no stains or inclusions)	• Junction of tooth/restoration not detectable with explorer • No excess beyond preparation margin • No damage to adjacent teeth, assessment tooth or gingiva	• Physiologic tooth contours restored • Optimal proximal contact restored • No excess resin in/on soft tissue • No excess resin on hard tissue • Appropriate occlusal contact
A	• Areas needing more polish • Minor contamination of resin not affecting durability or esthetics	• Junction of tooth/restoration slightly detectable with explorer • Minor excess resin beyond preparation margin • Minor damage to adjacent tooth corrected by enameloplasty • Minor damage to assessment tooth corrected by enameloplasty • Minor damage to gingiva	• Undercontoured < 0.5mm • Overcontoured < 0.5mm • Proximal contact slightly too incisal • Proximal contact slightly too gingival • Proximal contact slightly too broad
D	• Unacceptable roughness or scratches • Voids or porosities • Contamination of resin that requires correction	• Deficiency/void at margin ≤ 0.5mm • Resin beyond preparation margin requiring correction • Minor damage to adjacent tooth • Minor damage to assessment tooth • Moderate damage to gingiva	• Undercontoured 0.5 - 1.0mm • Overcontoured 0.5 - 1.0mm • Light proximal contact • Proximal contact too incisal • Proximal contact too gingival • Proximal contact too broad/concave • Proximal contact too small/pinpoint • Proximal contact too tight/rough • Resin in/on soft tissue • Resin on hard tissue • Excessive occlusal contact
E	• Excessive roughness or scratches • Excessive voids or porosities • Excessive contamination of resin requiring replacement of entire restoration. • Incomplete polymerization	• Deficiency/void at margin > 0.5mm • Excessive resin beyond preparation margin • Excessive damage to adjacent tooth • Excessive damage to assessment tooth • Excessive damage to gingiva	• Undercontoured > 1.0mm • Overcontoured > 1.0mm • Lack of physiologic contour • No proximal contact • Floss will not pass through proximal contact • Excessive resin in/on soft tissue • Excessive resin on hard tissue • Restoration fractured or loose

Class II Amalgam Preparation

The criteria below describe a preparation for a tooth with minimal caries. Evaluation of preparations will consider the extent of caries present.

Grade	External Outline Form	Internal Form	Finish
A+	• Proximal and/or gingival margins clear adjacent teeth 0.5mm or less • Optimal extension based on location and extent of caries present • Cavosurface angle 90° • No damage to adjacent teeth, assessment tooth beyond preparation or gingiva	• Optimal resistance and retention form based on location and extent of caries present with no unnecessary removal of internal tooth structure • All internal line angles rounded	• Smooth cavosurface margins • All unsupported enamel removed • No debris or caries (infected dentin)
A	• Proximal margin clears adjacent tooth 0.6 - 1.0mm • Minor occlusal overextension • Minor damage to adjacent tooth corrected by enameloplasty • Minor damage to assessment tooth beyond preparation margin corrected by enameloplasty • Minor damage to gingiva	• Minor overpreparation occlusally • Minor overpreparation axially	• Small area of roughness
D	• Proximal margin does not clear adjacent tooth • Proximal margin clears adjacent tooth 1.1 - 1.5mm • Proximal wall flared • Unacceptable isthmus junction • Buccal-lingual width too wide • Buccal-lingual width too narrow • Minor damage to adjacent tooth • Minor damage to assessment tooth beyond preparation margin • Moderate damage to gingiva	• Pulpal floor too deep 2.5 - 3.0mm • Pulpal floor too shallow 1.0 - 1.5mm • Axial wall too deep 1.5 - 3.0mm • Axial wall too shallow < 0.5mm • Unnecessary removal of tooth structure • Divergent walls • Sharp line angle • Undefined line angle	• Unacceptable roughness • Unacceptable unsupported enamel • Unacceptable debris
E	• Proximal margin clears adjacent tooth > 1.5mm • Excessive occlusal overextension • Excessive occlusal underextension • Excessive damage to adjacent tooth • Excessive damage to assessment tooth beyond preparation margin • Excessive damage to gingiva	• Pulpal floor too deep > 3.0mm • Pulpal floor too shallow < 1.0mm • Axial wall too deep > 3.0mm • Excessive overpreparation. Alternate design or RCT required	• Excessive roughness • Excessive unsupported enamel • Excessive debris • Caries remaining on axial or pulpal • Caries remaining at dentinoenamel junction

Full Metal Crown Preparation

Clearance for occlusion will be measured from opposing teeth in maximal intercuspation and excursions.

Grade	Path of Draw and Axial Convergence	Preservation of Tooth Vitality and Structural Durability	Finish and Margin
A+	• Preparation allows the fabrication of a restoration with optimal retention and contour • No undercuts • Axial convergence 6° - 10°	• Optimal preparation has been performed to permit fabrication of a functional restoration • Axial reduction 0.5 - 1.0mm • Clearance for occlusion 1.5mm • Margin width 0.5mm • No sharp cusps or line angles • No damage to adjacent teeth	• Margin optimally placed, defined, and identifiable • Margin smooth, continuous and has no steps • Positioned 0.5mm supragingival • Preparation walls are smooth • No damage to gingiva • Preparation is free of debris
A	• Minor undercuts, manageable by lab • Axial convergence 11° - 20°	• Axial reduction >1.0mm but < 1.5mm • Clearance for occlusion > 1.0mm but < 1.5mm or > 1.5mm but < 2.0mm • Minor damage to adjacent tooth corrected by enameloplasty	• Margin continuous with minor irregularity • Located supragingival < 0.5mm or 0.6 - 1.0mm • Located subgingival < 0.5mm • Axial wall finish not optimal • Minor damage to gingiva
D	• Will not draw. Modification required. • Axial convergence 21° - 25°	• Axial reduction < 0.5mm or 1.6 - 2.0mm • Clearance for occlusion 0.5 - 1.0mm or 2.0 - 3.0mm • Sharp cusp • Sharp line angle • Minor damage to adjacent tooth	• Indistinct, discontinuous or rough • Located supragingival 1.1 - 2.0mm • Located sub-gingival 0.6 - 1.0mm • Incorrect margin type for metal crown • Unsupported enamel (lipping) • Unacceptable roughness of axial wall • Moderate damage to gingiva • Unacceptable debris
E	• Will not draw. Major modification required. • Axial convergence >25°	• Axial reduction – no reduction or > 2.0mm • Clearance for occlusion < 0.5mm or > 3.0mm • Pulpal blush or exposure • Excessive damage to adjacent tooth • Alternative preparation or RCT needed	• Excessively indistinct, discontinuous or rough • No discernible margin • Located supragingival > 2.0mm • Located subgingival > 1.0mm • Excessive unsupported enamel (lipping) • Excessive damage to gingiva • Excessive debris

Provisional Crown Restoration

Grade	Margin Contour and Adaptation	Morphology and Occlusion	Finish
A+	• Margin not over/underextended • Margin not over/undercontoured • Restoration is stable and retentive • Preparation margin, adjacent teeth and gingiva intact	• Optimal contour for gingival health, esthetics and integrity • Optimal interproximal contacts • Optimal occlusal contact • Restoration can be removed	• Optimal polish • No roughness or porosities • No excess material in/on soft tissue • No excess material on hard tissue • Restoration material is hard setting, tooth coloured plastic resin
A	• Overextended < 0.5mm • Underextended < 0.5mm • Overcontoured < 0.5mm • Undercontoured < 0.5mm • Minor damage to adjacent tooth corrected by enameloplasty • Minor damage to gingiva	• Slightly overcontoured • Slightly undercontoured • Slight infraocclusion	• Polish not optimal
D	• Overextended 0.5 - 1.0mm • Underextended 0.5 - 1.0mm • Overcontoured 0.5 - 1.0mm • Undercontoured 0.5 - 1.0mm • Damage to preparation margin • Minor damage to adjacent tooth • Moderate damage to gingiva	• Overcontoured • Undercontoured • Proximal contact too light • Proximal contact too occlusal • Proximal contact too gingival • Proximal contact too tight • No proximal contact ≤ 0.5mm open • Supraocclusion ≤ 1.0mm • Infraocclusion ≤ 1.0mm	• Unacceptable roughness • Porosities • Material in/on soft tissue • Material on hard tissue
E	• Overextended > 1.0mm • Underextended > 1.0mm • Overcontoured > 1.0mm • Undercontoured > 1.0mm • Restoration is unstable or non-retentive • Excessive damage to adjacent tooth • Excessive damage to gingiva • Needs major revision or new provisional	• Excessive overcontour • Excessive undercontour • No proximal contact > 0.5mm open • Supraocclusion > 1.0mm • Infraocclusion > 1.0mm • Restoration cannot be removed • Restoration submitted broken or cracked • Restoration broken or cracked due to excessive occlusion or lack of structural integrity	• Excessive roughness • Excessive porosity • Excessive material in/on soft tissue • Excessive material on hard tissue • Inappropriate restorative material

Record of Procedures

Participants will complete the Record of Procedures on one of the assessment days. For this requirement, participants will record selected procedures performed during the ACS (except the Rubber Dam application), on the supplied "Record of Procedures" form.

The Record of Procedures should be completed assuming that:

- each procedure is performed on a different patient.
- patients have no changes in medical history.
- local anesthesia has been administered for each procedure.
- any prepared teeth were restored during the session.
- any restored teeth were prepared during the session.
- provisional crowns were cemented during the session.
- for the endodontic access opening, the final obturation has not been completed.

In order to preserve anonymity, do NOT sign the Record of Procedures. Participants should use their NDEB ID number in place of a signature.

Grade	Record of Procedures
A+	• Appropriate and accurate record of all procedures.
A	• One error
D	• Two or three errors
E	• More than three errors • No entries

Errors on Record of Procedures:

- Incorrect or incomplete record of procedures.
- No or inappropriate date.
- No or inappropriate record of updating medical history.
- No or inappropriate record of type, quantity or location of local anesthesia.
- No or incorrect tooth number identified.
- No or incorrect restored surfaces identified.
- No or inappropriate type or brand of restorative / provisional material or cement identified.
- Incorrect technique, improper use of material or improper sequencing of procedures identified.
- No shade recorded.
- No cementation of provisional restoration recorded.
- Record not written in ink.
- Record not legible.
- Inappropriate correction of entry (original entry not visible through correction) or addition to the record.
- Blank spaces left in record.
- No ID number or ID number in inappropriate location.

Rubber Dam Application

Grade	Rubber Dam Application
A+	• Appropriate and stable clamp • Clamp secured with an appropriate length of dental floss • Optimal number of teeth isolated (one tooth distal and including incisors on same side) • Orientation provides an unrestricted airway • Dam inverted on all isolated teeth • All punch holes in appropriate positions • Dam, frame and clamp positioned for optimal access, safety, moisture control and patient comfort

A	• Dam is inverted on teeth in operative area only
	• Dam is through contacts in operative area only, not affecting moisture control
	• Minor correction to ligature required
	• Minor deviations in punch hole locations
	• Minor tears or holes not affecting moisture control in operative area
	• Dam needs minor adjustment for
	  ○ Access
	  ○ Safety
	  ○ Moisture control
	  ○ Patient comfort
	• Frame needs minor adjustment for
	  ○ Access
	  ○ Safety
	  ○ Moisture control
	  ○ Patient comfort
	• Clamp needs minor adjustment for
	  ○ Access
	  ○ Safety
	  ○ Moisture control
	  ○ Patient comfort
	• Floss needs minor adjustment for
	  ○ Access
	  ○ Safety
	  ○ Moisture control
	  ○ Patient comfort

D	• One or two of the following deficiencies:
	  ○ Unnecessary trauma to gingiva or teeth
	  ○ Unstable clamp
	  ○ Unsecured or inadequately secured clamp
	  ○ Inappropriate ligature
	  ○ Patient airway compromised
	  ○ Dam caught on wings of clamp
	  ○ Inappropriate number of teeth isolated
	  ○ Dam not inverted in operative area
	  ○ Dam not through all interproximal contact points
	  ○ Punch holes improperly positioned
	  ○ Tears or holes compromising moisture control
	  ○ Dam must be altered for proper
	  ▪ Access
	  ▪ Safety
	  ▪ Moisture control
	  ▪ Patient comfort
	• Frame must be altered for
	  ○ Access
	  ○ Safety
	  ○ Moisture control
	  ○ Patient comfort
	• Clamp must be altered for
	  ○ Access
	  ○ Safety
	  ○ Moisture control
	  ○ Patient comfort
	• Floss must be altered for
	  ○ Access
	  ○ Safety
	  ○ Moisture control
	  ○ Patient comfort

E	• Three or more of the above deficiencies or:
	  ○ Dam not placed in allotted time
	  ○ Improper position/placement of dam, frame, clamp or floss not allowing treatment on indicated tooth

Infection Control

Participants will perform all requirements as if they were working on actual patients. Infection control and material hygiene procedures will be observed by assessment Invigilators. Participants will not be informed of any recorded violations.

There are several standards for infection control procedures used across Canada. For the ACS, the following standard will be used:

- Participants should designate a portion of their operatory as the "operating" area, and leave other areas for storage of instruments and materials not being directly used for the day.
- The "operating" area should only have:
    - instruments that can be sterilized
    - single-use items and materials that will be discarded at the end of patient treatment
    - items covered by barriers
- All surfaces in the operatory touched with treatment gloves should be covered by barriers. No other surfaces need to be covered with barriers.
- Items outside of the "operative" area may be handled without treatment gloves being worn.
- It will be assumed that all instruments are sterile at the beginning of each day.

If an instrument or treatment material is dropped during a procedure, a participant must notify an Invigilator who will ask the participant to describe how the situation should be handled in actual patient treatment and give permission to pick up the instrument or material.

The following modifications to infection control procedures for the purposes of this assessment:

- participants are allowed to wear treatment gloves while:
    - loosening the clamp that allows the patient's head position to be adjusted and adjusting the head.
    - using the amalgamators.
    - walking to and from the Rubber Dam Requirement operatories.

Grade	Infection Control
A+	• No violations of infection control or material hygiene errors
A	• One infection control violation or material hygiene errors
D	• Two infection control violations or material hygiene errors
E	• Three or more infection control violations or material hygiene errors

Infection control and material hygiene errors include:

- Gloves not worn.
- Gloves worn outside of the operatory.
- Gloves have holes or tears.
- Unacceptable infection control procedures involving gloves such as wearing treatment gloves when retrieving an article from outside the operating area such as a storage bin or cabinet or touching masks, glasses or hair.
- Mask not worn or not worn appropriately.
- Use of contaminated instruments or materials.
- No barriers placed on equipment touched with treatment gloves.
- Contamination of operating area or instruments.
- Eye protection not used.
- Hair not appropriately controlled.
- Unacceptable amalgam handling and disposal.
- Unacceptable handling and disposal of sharps.
- Safety of patient or operator is jeopardized by handling or placement of materials or instruments.
- No or insufficient cooling water used with high speed handpiece.

Grade Derivation Grid for Individual Requirements

Each requirement is evaluated in one (1) or three (3) criteria categories.

Each category receives the lowest assigned grade of A^+, A, D, or E.

- **Requirements with one criterion category**
    - The grade assigned for these requirements will be determined as described in the evaluation criteria.
- **Requirements with three criteria categories**
    - The grade assigned for these requirements will be determined by the grades assigned in the criteria categories.
    - A grade of A^+ will be assigned for a requirement if two (2) A^+ and no D or E is assigned in any category.
    - A grade of A will be assigned for a requirement if no more than one (1) D and no E is assigned in any criteria category.
    - A grade of D will be assigned for a requirement if two (2) D's and no E are assigned in any criteria category.
    - A grade of E will be assigned for a requirement if one (1) E or three (3) D's are assigned in any criteria category.

Grade Derivation Grid for Pass/Fail Result (12 Requirements)

In order to pass the Assessment of Clinical Skills, on the 12 requirements, a participant must obtain:

Eight (8) or more grades of A / A^+ and no E grade

OR

Nine (9) or more grades of A / A^+ and no more than one (1) E grade

Compassionate Appeal

Participants who consider themselves disadvantaged by a personal circumstance beyond their control, occurring either immediately before or during the assessment may, within one week of this personal circumstance occurring, request that the NDEB make a special consideration to void the results of the assessment. Requests for compassionate appeals must be submitted by email to info@ndeb-bned.ca. The NDEB may grant permission for the participant to withdraw from the assessment. Participants may also request special consideration for a refund of up to 50% of the assessment fee.

Details can be found in the NDEB By-laws and Policies for Assessments & Examinations available on the NDEB Website.

Results

Participants will receive a grade for each requirement as determined by using the evaluation criteria for the requirement and the "Grade Derivation Grid". The final result for each participant will be determined using the "Final Result" Grade Derivation Grid.

The results of the Assessment of Clinical Skills will normally be released within six weeks from the date of the assessment. Email notification will be sent when results are available in the participant's online profile. Results will not be released by telephone, email, or fax.

The results of the Assessment of Clinical Skills will be sent to universities in Canada offering a Qualifying or Degree Completion Program. Results cannot be obtained from educational institutions or Provincial Licensing Authorities.

Appeal

Within three months of the release of results, a participant who has failed the Assessment of Clinical Skills may make a submission in writing to the Board setting out the grounds for requesting to have the results changed. Any such application for review must be accompanied by the filing fee.

Only participants who received a failing grade can make an appeal of their grades. Participants with a pass result are not eligible for this service.

This submission must clearly identify the individual requirement results to be reviewed and must set out the grounds for requesting to have the grade(s) changed. The NDEB Appeals Committee will review the participant's submission, all related correspondence, grade sheets and the participant's submitted typodont teeth. The decision of the Appeals Committee is final.

Details can be found in the NDEB By-laws and Policies for Assessments & Examinations available on the NDEB Website.

Repeats

A participant can take the Assessment of Clinical Skills a maximum of three times.