

# Assessment of Clinical Skills

## June 2019 Protocol

Approved March 29, 2019

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## Purpose

The purpose of the Assessment of Clinical Skills (ACS) is to assess the clinical competence of participants. During the two-day ACS, participants will perform 12 dental procedures on simulated patients (manikins) in a clinical setting. Participants must perform all procedures as if they were working with real patients. Participants are required to use their judgment and follow accepted clinical care guidelines/standards.

## Schedule

Day 1	Time
Check-in	7:30 a.m.
Clinic and equipment orientation	8:00 a.m.
Set up	8:30 a.m.
Clinical procedures on simulated patients - Morning	9:00 a.m. to 1:00 p.m.
Mandatory Lunch Break	1:00 p.m. to 1:30 p.m.
Clinical procedures on simulated patients - Afternoon	1:30 p.m. to 4:45 p.m.*

Day 2	Time
Check-in	7:30 a.m.
Set up	8:00 a.m.
Clinical procedures on simulated patients - Morning	8:30 a.m. to 1:00 p.m.
Mandatory Lunch Break	1:00 p.m. to 1:30 p.m.
Clinical procedures on simulated patients - Afternoon	1:30 p.m. to 4:45 p.m.*

*\* Participants who are scheduled for their dental dam requirement will finish 30 minutes later.*

Participants must exit the clinic and remove all of their equipment and supplies no later than 5:45 p.m. each day.

## Check-in

During check-in, participants are issued an ID badge. To receive the ID badge, participants must show current government issued photo identification such as a driver's license, passport, or military identification. The ID must be in English or French.

Photo identification:

- must show the participant's name exactly as it appears in the participant's online profile.
- must be issued by a federal, provincial, territorial, state, or municipal authority.
- must not be expired. If the 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.

# Assessment Requirements

## Restorative and Endodontic Requirements

Participants will be required to perform the following nine restorative and endodontic procedures on supplied typodonts:

- Class II amalgam preparation
- Class III composite resin preparation
- Full metal crown preparation
- Metal-ceramic (porcelain fused to metal) crown preparation
- Endodontic access preparation
- Class II composite resin restoration on a supplied pre-prepared tooth
- 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.

## Other Requirements

- Record of procedures
- Infection control and safety
- Dental dam

Each day participants will receive the following documentation and scheduling information:

- List of teeth for practice preparations.
- Detailed list of requirements specifying tooth numbers and surfaces.
- Scheduled time to perform the dental dam requirement in an operatory other than that assigned to you.

## Equipment, Instruments, and Supplies

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

- A typodont mounted in a manikin on a dental chair (the typodont will be labeled with the participant's ID number)
- 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
- Dental dam, frames, clamps, forceps, and dental floss
- Materials to place and finish restorative materials (matrix bands, matrix holders, wedges, polishing supplies, etc.)
- Hand sanitizer

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. Time delays will be noted on participant Time Delay Forms posted in each operatory. A time extension will be given if a cumulative delay of 5 minutes or more is experienced.

No time extensions are given for:

- problems with participant equipment.
- tightening and/or repositioning teeth.

Information regarding handpiece configuration (connectors) and preset air pressure at each centre is available on the [NDEB website](#). The air pressure delivery to hand pieces is set to that used in dental practice and university clinics in Canada and will not be altered.

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

## Typodonts and Teeth

The NDEB uses the series 200 typodont and simulated teeth from Kilgore International.

Website: <http://www.kilgoreinternational.com/>

Phone: 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.

The series A22-200 may occasionally have small voids. Most of these voids will not affect tooth preparation or evaluation of the requirement. If a void is identified, an Invigilator must be notified immediately.

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 NDEB uses custom caries teeth. The simulated caries in dentin is orange in colour. 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.

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

# Information for Participants

## General

1. The list of requirements for each day will be distributed at the clinical procedures start time.
2. Participants may perform the requirements for the day in any order, except for the dental dam, provisional crown, and the record of procedures requirements.
3. Grading criteria will be provided to each participant on Day 1 and Day 2. Protocols will be available onsite for consultation. Printed materials or hand-written notes are not allowed into the clinic.
4. The ability of a participant to read, interpret, and comply with instructions and other written material is part of the assessment.
5. Assessment supervisors and invigilators will not answer questions involving assessment content.
6. Assessment supervisors and invigilators may ask participants questions related to the assessment.
7. Clinical attire will not be assessed.
8. Open toed and perforated shoes should not be worn in clinics for safety reasons.
9. Participants may share dental instruments and unused dental materials.
10. Participants are permitted to use any method they wish to smooth or polish amalgam restorations as long as the method could be used in treating actual patients in the time frame of the assessment.
11. Magnification aids can be used.
12. It is not necessary to use the dental dam to perform any of the restorative or endodontic requirements.
13. If not specified, the margin chosen by the participant must be one that meets the requirements of the restorative material used at the margin.
14. The use of metal hand instruments in cavity preparations will leave a grey stain.
15. If used with excessive force, mechanical tooth separators and interproximal wedges may loosen or cause fractures to the simulated teeth.
16. Participants must leave their work areas clean at the end of each day. Barriers applied for Day 1 may be left in place for Day 2.
17. NDEB examiners use magnification and several methods of measuring including periodontal probes (Hu-Friedy QOW6) with millimeter markings, flexible clearance tabs, convergence gauges, and surveyors.

## Requirement Specific

Class II amalgam preparation and Class III composite resin preparation

- The evaluation of the preparations will consider the extent of the caries present.

Class II composite resin restoration and Class IV composite resin restoration

- Shade matching is not part of the evaluation.

Provisional crown restoration:

- The provisional crown restoration is performed on Day 2 of the assessment. A series 200 study model with the unprepared tooth will be provided on Day 2.
- Participants may submit the provisional crown requirement prior to the submission deadline.
- Once submitted to an Invigilator, the provisional crown will not be returned to the participant.

Record of procedures:

- Abbreviations can be used provided they meet North American standards, such as [http://srmlibrary.weebly.com/uploads/1/3/7/3/13735714/\\_dentalpractice\\_abbreviations.pdf](http://srmlibrary.weebly.com/uploads/1/3/7/3/13735714/_dentalpractice_abbreviations.pdf)
- Draft notes can be made on the back of the Record of Procedures Form.
- The date recorded on the Record of Procedures Form should be the date the record of procedures is completed.
- Dental regulatory authorities require that the dentist's signature be located immediately adjacent to the last entry on the Record of Procedure. For the ACS, to preserve anonymity, participants must enter their

NDEB ID number, instead of their signature, adjacent to the last entry in each requirement on the Record of Procedures Form.

- Participants may submit the record of procedures requirement prior to the submission deadline.
- Once submitted to an invigilator, the record of procedures will not be returned to the participant.

Dental dam requirement:

- Each participant will have an assigned time to apply the dental dam.
- Floss, small pieces of dental dam, wedges, Wedjets®, "O" rings or other similar materials can be used as ligatures for the dental dam requirement.
- The use of "Cushee" cushions is permitted.

## Regulations

All participants appearing for the assessment must comply with the following regulations.

1. Cell phones and smart watches are prohibited in the clinic. Only analog watches will be permitted.
2. Participants must not have devices with recording abilities such as radios, cameras, cell phones, smart watches, computers, or other electronic aids/devices in the clinic.
3. Participants arriving late will not be given extra time.
4. Family or friends are not permitted in the assessment centre.
5. Participants must have their ID card and ID badge visible at all times and must return them as directed at the end of each day of the assessment.
6. Participants are not permitted to remove or alter the position of teeth in the typodonts.
7. Participants are not permitted to remove typodonts from the manikin.
8. Participants are not permitted to move the torso of the manikin.
9. Participants are not permitted to have extra typodonts or extra typodont teeth in the clinic.
10. Participants are not permitted to bring any printed materials or hand-written notes into the clinic.
11. Participants are not permitted to modify the pre-set interocclusal distance on the typodonts.
12. Participants are not permitted to make impressions during setup time.
13. Participants are not permitted to bring pre-prepared stents for the provisional crown into the clinic.
14. Participants are not permitted to share impressions. Impressions are considered part of the assessment.
15. Participants must wear gloves while measuring, mixing and placing impression materials, including those to be used for the fabrication of provisional crowns.
16. Although the choice of technique and materials is the participant's, participants are only permitted to use instruments, devices, products, techniques, and materials acceptable and approved for dental treatment on patients.
17. The use of flowable composite exclusively is not permitted for the Class IV composite resin restoration or for the Class II composite resin restoration.
18. The use of dental dam adjuncts such as "Liquidam™" is not permitted in the dental dam requirement.
19. Participants are not permitted to re-prepare the assessment pre-prepared teeth unless directed otherwise.
20. Participants are not permitted to use cheek retractors.
21. Participants are financially responsible for any damage caused to supplied equipment.
22. The record of procedures requirement must be submitted by 9:00 a.m. on Day 2.
23. The provisional crown requirement must be submitted by 11:30 a.m. on Day 2 except for participants who have a dental dam application time on the morning of Day 2. Those participants must submit the Provisional Crown requirement by 12:15 p.m.
24. Participants must stop working on the dental dam requirement at the indicated end time.
25. Participants must stop working at the time of the mandatory lunch breaks.
26. Participants must stop working at the indicated end times of the assessment.
27. Participants must leave the clinic when asked to by invigilators.

## Leaving and Re-entering the Clinic

Participants are encouraged to take breaks whenever needed. There is a mandatory 30 minute break between 1:00 p.m. and 1:30 p.m. on Day 1 and Day 2. Participants are required to leave the clinic during this time. 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 at any time during the assessment.



# Grading of Requirements

## Restorative and Endodontic Requirement Grading Descriptions

The restorative and endodontic requirements are graded using the four point grading system below.

Grade	Description	
<b>A+</b>	Excellent	Optimal. No errors.
<b>A</b>	Acceptable	Improvement(s) could be made but clinical outcome not affected.
<b>D</b>	Error(s) present	Error(s) must be corrected to achieve an acceptable clinical outcome and/or Overpreparation, underpreparation, or tissue trauma as defined in the criteria.
<b>E</b>	Error(s) present	Error(s) is/are correctable, but indicate(s) significant lack of clinical skills or judgement and/or Error(s) is/are not correctable and compromise clinical outcome and/or Error(s) require(s) alternative treatment (e.g. more extensive restoration, extraction, RCT) and/or Overpreparation, underpreparation, or tissue trauma as defined in the criteria.

## Grading of Restorative and Endodontic Requirements

Each restorative and endodontic requirement is evaluated based on three criteria. Each criteria is assigned a grade. The requirement grade for the restorative and endodontic requirements is determined using the table below.

Criteria Grades	Requirement Grade
2 A+ and no D or E	<b>A+</b>
No more than 1 D and no E	<b>A</b>
2 D and no E	<b>D</b>
1 or more E or 3 D	<b>E</b>

## Grading of Dental Dam Requirement

The dental dam requirement grade is determined by the number of errors using the table below.

Number of Errors	Requirement Grade
No errors	<b>A+</b>
1 or more errors in the A section of the criteria	<b>A</b>
1 or 2 errors in the D section of the criteria	<b>D</b>
3 or more errors in the D section of the criteria or 1 or more errors in the E section of the criteria	<b>E</b>

## Grading of Infection Control and Safety Requirement

The infection control and safety requirement grade is determined by the number of infection control violations/errors using the table below.

Number of Violations/Errors	Requirement Grade
No violations of infection control or safety errors	<b>A+</b>
1 infection control violation or safety error	<b>A</b>
2 infection control violations or safety errors	<b>D</b>
3 or more infection control violations or safety errors	<b>E</b>

## Grading of Record of Procedures Requirement

The record of procedures requirement is determined by the number of errors using the table below.

Number of Errors	Requirement Grade
No errors	<b>A+</b>
1 error	<b>A</b>
2 or 3 errors	<b>D</b>
More than 3 errors or no entries	<b>E</b>

## ACS Result

ACS results are determined by the 12 requirement grades using the table below.

Requirement Grades			ACS Result
A+ / A	D	E	
12			<b>Pass</b>
11	1		<b>Pass</b>
11		1	<b>Pass</b>
10	2		<b>Pass</b>
10	1	1	<b>Pass</b>
9	3		<b>Pass</b>
9	2	1	<b>Pass</b>
8	4		<b>Pass</b>
Any other combination			<b>Fail</b>

## Report of Results

Participants will receive a pass/fail result and a grade for each requirement.

The results of the ACS will normally be released according to the following schedule:

- June Assessment – Minimum of 6 weeks following the assessment
- December Assessment – Minimum of 10 weeks following 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.

## Appeals

If you have received a failing grade on an assessment, you have up to three months from the date the results are released to make a written submission to the Board requesting to have the results changed.

Additional details can be found on the [NDEB Website](#).

## Compassionate Appeals

For information regarding compassionate appeals view the [NDEB By-laws](#).

## Repeats

You can take the ACS a maximum of three times.

# Criteria

## Critical Errors

Critical errors automatically result in an E grade for the associated requirement.

### Metal-ceramic crown preparation

- No preparation performed
- Wrong tooth prepared
- Tooth structure rebuilt with composite resin
- Restorative devices not removed

### Class III composite resin preparation

- No preparation performed
- Wrong tooth prepared
- Incorrect surface prepared
- Tooth structure rebuilt with composite resin
- Restorative devices not removed

### Class II amalgam restoration

- No/incomplete restoration
- Inappropriate material
- Restorative devices not removed

### Class II composite resin restoration

- No/incomplete restoration
- Inappropriate material
- Restorative devices not removed

### Endodontic access preparation

- No access performed
- Wrong tooth accessed
- Tooth structure rebuilt with composite resin

### Class II amalgam preparation

- No preparation performed
- Wrong tooth prepared
- Tooth structure rebuilt with composite resin
- Restorative devices not removed

### Class IV composite restoration

- No/incomplete restoration
- Inappropriate material
- Restorative devices not removed

### Full metal crown preparation

- No preparation performed
- Wrong tooth prepared
- Tooth structure rebuilt with composite resin
- Restorative devices not removed

### Provisional crown restoration

- No provisional crown
- Restoration cannot be seated
- Restorative devices not removed
- Altered tooth preparation

### Record of procedures

- No record of procedure(s)
- Incorrect procedure recorded

### Dental dam application

- Dam not placed in allotted time
- Improper position/placement of dam, frame, clamp, or floss not allowing treatment on indicated tooth

# Metal-ceramic Crown Preparation for a Maxillary Anterior Tooth

Clearance for occlusion will be measured from opposing teeth in maximal intercuspation. The labial margin must be 90°.

		Criteria		
		Path of Draw and Axial Convergence	Preservation of Tooth Vitality and Structural Durability	Finish and Margin
<b>Grade</b>	<b>A+</b>	<ul style="list-style-type: none"> <li>Preparation allows the fabrication of a restoration with optimal retention and contour</li> <li>No undercuts</li> <li>Axial convergence 6° - 10°</li> </ul>	<ul style="list-style-type: none"> <li>Optimal preparation has been performed to permit the fabrication of an esthetic and functional restoration</li> <li>Axial reduction:                             <ul style="list-style-type: none"> <li>Labial, mesial, and distal: 1.2mm</li> <li>Lingual (gingival to cingulum) 0.5mm</li> </ul> </li> <li>Incisal reduction: 2.0mm</li> <li>Clearance for occlusion (lingual concavity): 1.0mm - 1.5mm</li> <li>Preparation has no sharp line angles</li> <li>No damage to adjacent teeth</li> </ul>	<ul style="list-style-type: none"> <li>Margin is optimally placed, defined and identifiable</li> <li>Margin is smooth, continuous and has no steps</li> <li>Margin positioned 0.5mm supragingival</li> <li>Preparation walls are smooth</li> <li>No damage to soft tissue</li> <li>Preparation is free of debris</li> </ul>
	<b>A</b>	<ul style="list-style-type: none"> <li>Minor undercuts</li> <li>Axial convergence 11° - 20°</li> </ul>	<ul style="list-style-type: none"> <li>Axial reduction:                             <ul style="list-style-type: none"> <li>Labial, mesial, and/or distal: &gt; 1.2mm and ≤ 1.5mm</li> <li>Lingual (gingival to cingulum): &gt; 0.5mm and ≤ 0.8mm</li> </ul> </li> <li>Incisal reduction: &gt; 2.0mm and ≤ 2.5mm</li> <li>Minor damage to adjacent tooth corrected by enameloplasty</li> </ul>	<ul style="list-style-type: none"> <li>Margin continuous with minor irregularity</li> <li>Located supragingival: &lt; 0.5mm or &gt; 0.5mm - 1.0mm</li> <li>Located subgingival: &lt; 0.5mm</li> <li>Minor damage to soft tissue</li> </ul>
	<b>D</b>	<ul style="list-style-type: none"> <li>Will not draw, modification required</li> <li>Axial convergence 21° - 25°</li> </ul>	<ul style="list-style-type: none"> <li>Axial reduction:                             <ul style="list-style-type: none"> <li>Labial, mesial, and/or distal: 0.5mm - &lt; 1.2mm or &gt; 1.5mm - 2.5mm</li> <li>Lingual (gingival to cingulum): &gt; 0.8mm and ≤ 1.1mm</li> </ul> </li> <li>Incisal reduction: 1.0mm - &lt; 2.0mm or &gt; 2.5mm - ≤ 3.0mm</li> <li>Clearance for occlusion (lingual concavity): 0.5mm - &lt; 1.0mm or &gt; 1.5mm - 2.0mm</li> <li>Sharp line angle</li> <li>Minor damage to adjacent tooth</li> </ul>	<ul style="list-style-type: none"> <li>Indistinct, discontinuous or rough</li> <li>Incorrect margin type for material</li> <li>Unsupported enamel (lipping)</li> <li>Located supragingival: &gt; 1.0mm - ≤ 2.0mm</li> <li>Located subgingival: &gt; 0.5mm - ≤ 1.0mm</li> <li>Unacceptable roughness on axial wall(s)</li> <li>Moderate damage to soft tissue</li> <li>Debris</li> </ul>
	<b>E</b>	<ul style="list-style-type: none"> <li>Will not draw, major modification required</li> <li>Axial convergence &gt; 25°</li> </ul>	<ul style="list-style-type: none"> <li>Axial reduction:                             <ul style="list-style-type: none"> <li>Labial, mesial, and/or distal: &lt; 0.5mm or &gt; 2.5mm</li> <li>Lingual (gingival to cingulum): &lt; 0.5mm or &gt; 1.1mm</li> </ul> </li> <li>Incisal reduction: &lt; 1.0mm or &gt; 3.0mm</li> <li>Clearance for occlusion (lingual concavity): &lt; 0.5mm or &gt; 2.0mm</li> <li>Excessive damage to adjacent tooth</li> <li>Pulpal blush or exposure</li> <li>Alternate preparation or RCT needed</li> </ul>	<ul style="list-style-type: none"> <li>Excessively indistinct, discontinuous or rough</li> <li>No discernible margin</li> <li>Excessive unsupported enamel (lipping)</li> <li>Located supragingival: &gt; 2.0mm</li> <li>Located subgingival: &gt; 1.0mm</li> <li>Excessive damage to soft tissue</li> <li>Excessive debris</li> </ul>

# Metal-ceramic Crown Preparation for a Mandibular Canine Tooth

Clearance for occlusion will be measured from opposing teeth in maximal intercuspation. The labial margin must be 90°.

		Criteria		
		Path of Draw and Axial Convergence	Preservation of Tooth Vitality and Structural Durability	Finish and Margin
<b>Grade</b>	<b>A+</b>	<ul style="list-style-type: none"> <li>Preparation allows the fabrication of a restoration with optimal retention and contour</li> <li>No undercuts</li> <li>Axial convergence: 6° - 10°</li> </ul>	<ul style="list-style-type: none"> <li>Optimal preparation has been performed to permit the fabrication of an esthetic and functional restoration</li> <li>Axial reduction:                             <ul style="list-style-type: none"> <li>Labial, mesial, and distal: 1.2mm</li> <li>Lingual (gingival to cingulum): 0.5mm</li> <li>Lingual (incisal to cingulum): 0.6mm - 1.2mm</li> </ul> </li> <li>Incisal reduction: 2.0mm</li> <li>Preparation has no sharp line angles</li> <li>No damage to adjacent teeth</li> </ul>	<ul style="list-style-type: none"> <li>Margin is optimally placed, defined and identifiable</li> <li>Margin is smooth, continuous and has no steps</li> <li>Margin positioned 0.5mm supragingival</li> <li>Preparation walls are smooth</li> <li>No damage to soft tissue</li> <li>Preparation is free of debris</li> </ul>
	<b>A</b>	<ul style="list-style-type: none"> <li>Minor undercuts</li> <li>Axial convergence: 11°- 20°</li> </ul>	<ul style="list-style-type: none"> <li>Axial reduction:                             <ul style="list-style-type: none"> <li>Labial, mesial, and/or distal: &gt; 1.2mm - ≤ 1.5mm</li> <li>Lingual (gingival to cingulum): &gt; 0.5mm - ≤ 0.8mm</li> </ul> </li> <li>Incisal reduction: &gt; 2.0mm - ≤ 2.5mm</li> <li>Minor damage to adjacent tooth corrected by enameloplasty</li> </ul>	<ul style="list-style-type: none"> <li>Margin continuous with minor irregularity</li> <li>Located supragingival: &lt; 0.5mm or &gt; 0.5mm - 1.0mm</li> <li>Located subgingival: &lt; 0.5mm</li> <li>Minor damage to soft tissue</li> </ul>
	<b>D</b>	<ul style="list-style-type: none"> <li>Will not draw, modification required</li> <li>Axial convergence: 21°- 25°</li> </ul>	<ul style="list-style-type: none"> <li>Axial reduction:                             <ul style="list-style-type: none"> <li>Labial, mesial, and/or distal: 0.5mm - &lt; 1.2mm or &gt; 1.5mm - ≤ 2.5mm</li> <li>Lingual (gingival to cingulum): &gt; 0.8mm - ≤ 1.1mm</li> </ul> </li> <li>Incisal reduction: 1.0mm - ≤ 2.0mm or &gt; 2.5mm - ≤ 3.0mm</li> <li>Sharp line angle</li> <li>Minor damage to adjacent tooth</li> </ul>	<ul style="list-style-type: none"> <li>Indistinct, discontinuous or rough</li> <li>Incorrect margin type for material</li> <li>Unsupported enamel (lipping)</li> <li>Located supragingival: &gt; 1.0mm - ≤ 2.0mm</li> <li>Located subgingival: &gt; 0.5mm - ≤ 1.0mm</li> <li>Unacceptable roughness on axial wall</li> <li>Moderate damage to soft tissue</li> <li>Debris</li> </ul>
	<b>E</b>	<ul style="list-style-type: none"> <li>Will not draw, major modification required</li> <li>Axial convergence: &gt; 25°</li> </ul>	<ul style="list-style-type: none"> <li>Axial reduction:                             <ul style="list-style-type: none"> <li>Labial, mesial, and/or distal: &lt; 0.5mm or &gt; 2.5mm</li> <li>Lingual (gingival to cingulum): &lt; 0.5mm or &gt; 1.1mm</li> <li>Lingual (incisal to cingulum): &lt; 0.6mm or &gt; 1.2mm</li> </ul> </li> <li>Incisal reduction: &lt; 1.0mm or &gt; 3.0mm</li> <li>Excessive damage to adjacent tooth</li> <li>Pulpal blush or exposure</li> <li>Alternate preparation or RCT needed</li> </ul>	<ul style="list-style-type: none"> <li>Excessively indistinct, discontinuous or rough</li> <li>No discernible margin</li> <li>Excessive unsupported enamel (lipping)</li> <li>Located supragingival: &gt; 2.0mm</li> <li>Located subgingival: &gt; 1.0mm</li> <li>Excessive damage to soft tissue</li> <li>Excessive debris</li> </ul>

# Metal-ceramic Crown Preparation for a Premolar Tooth

Clearance for occlusion will be measured from opposing teeth in maximal intercuspation. The labial margin must be 90°.

		Criteria		
		Path of Draw and Axial Convergence	Preservation of Tooth Vitality and Structural Durability	Finish and Margin
<b>Grade</b>	<b>A+</b>	<ul style="list-style-type: none"> <li>Preparation allows the fabrication of a restoration with optimal retention and contour</li> <li>No undercuts</li> <li>Axial convergence 6° - 10°</li> </ul>	<ul style="list-style-type: none"> <li>Optimal preparation has been performed to permit the fabrication of an esthetic and functional restoration</li> <li>Axial reduction:                             <ul style="list-style-type: none"> <li>Labial, mesial, and distal: 1.2mm</li> <li>Lingual: 0.5mm</li> </ul> </li> <li>Clearance for occlusion: 1.5mm - 2.0mm</li> <li>Preparation has no sharp line angles</li> <li>No damage to adjacent teeth</li> </ul>	<ul style="list-style-type: none"> <li>Margin is optimally placed, defined and identifiable</li> <li>Margin is smooth, continuous and has no steps</li> <li>Margin positioned 0.5mm supragingival</li> <li>Preparation walls are smooth</li> <li>No damage to soft tissue</li> <li>Preparation is free of debris</li> </ul>
	<b>A</b>	<ul style="list-style-type: none"> <li>Minor undercuts</li> <li>Axial convergence 11° - 20°</li> </ul>	<ul style="list-style-type: none"> <li>Axial reduction:                             <ul style="list-style-type: none"> <li>Labial, mesial, and/or distal: &gt; 1.2mm - ≤ 1.5mm</li> <li>Lingual: 0.1mm - &lt; 0.5mm or &gt; 0.5mm - ≤ 1.0mm</li> </ul> </li> <li>Minor damage to adjacent tooth corrected by enameloplasty</li> </ul>	<ul style="list-style-type: none"> <li>Margin continuous with minor irregularity</li> <li>Located supragingival: &lt; 0.5mm or &gt; 0.5mm - 1.0mm</li> <li>Located subgingival: &lt; 0.5mm</li> <li>Minor damage to soft tissue</li> </ul>
	<b>D</b>	<ul style="list-style-type: none"> <li>Will not draw. Modification required</li> <li>Axial convergence 21° - 25°</li> </ul>	<ul style="list-style-type: none"> <li>Axial reduction:                             <ul style="list-style-type: none"> <li>Labial, mesial, and/or distal: 0.5mm - ≤ 1.2mm or &gt; 1.5mm - ≤ 2.5mm</li> <li>Lingual: &gt; 1.0mm - ≤ 1.2mm</li> </ul> </li> <li>Clearance for occlusion: 1.0mm - &lt; 1.5mm or &gt; 2.0mm - ≤ 2.5mm</li> <li>Sharp line angle</li> <li>Minor damage to adjacent tooth</li> </ul>	<ul style="list-style-type: none"> <li>Indistinct, discontinuous or rough</li> <li>Incorrect margin type for material</li> <li>Unsupported enamel (lipping)</li> <li>Located supragingival: &gt; 1.0mm - ≤ 2.0mm</li> <li>Located subgingival: &gt; 0.5mm - ≤ 1.0mm</li> <li>Unacceptable roughness on axial wall</li> <li>Moderate damage to soft tissue</li> <li>Debris</li> </ul>
	<b>E</b>	<ul style="list-style-type: none"> <li>Will not draw. Major modification required</li> <li>Axial convergence &gt; 25°</li> </ul>	<ul style="list-style-type: none"> <li>Axial reduction:                             <ul style="list-style-type: none"> <li>Labial, mesial, and/or distal: &lt; 0.5mm or &gt; 2.5mm</li> <li>Lingual: &gt; 1.2mm</li> </ul> </li> <li>Clearance for occlusion: &lt; 1.0mm or &gt; 2.5mm</li> <li>Excessive damage to adjacent tooth</li> <li>Pulpal blush or exposure</li> <li>Alternate preparation or RCT needed</li> </ul>	<ul style="list-style-type: none"> <li>Excessively indistinct, discontinuous or rough</li> <li>No discernible margin</li> <li>Excessive unsupported enamel (lipping)</li> <li>Located supragingival: &gt; 2.0mm</li> <li>Located subgingival: &gt; 1.0mm</li> <li>Excessive damage to soft tissue</li> <li>Excessive debris</li> </ul>

## Class III Composite Preparation

The criteria below describe a preparation for a tooth with minimal caries. Because the NDEB varies the size and location of caries for each assessment, the evaluation of the preparation will consider the extent of caries present in the assessment tooth.

		Criteria		
		External Outline Form	Internal Form	Finish
<b>Grade</b>	<b>A+</b>	<ul style="list-style-type: none"> <li>Optimal extension based on location and extent of caries present</li> <li>Gingival margin supragingival</li> <li>No damage to adjacent teeth, assessment tooth beyond preparation or soft tissue</li> </ul>	<ul style="list-style-type: none"> <li>Optimal resistance and retention form based on location and extent of caries present with no unnecessary removal of internal tooth structure</li> </ul>	<ul style="list-style-type: none"> <li>No debris or caries (infected dentin)</li> </ul>
	<b>A</b>	<ul style="list-style-type: none"> <li>Minor overextension</li> <li>Minor underextension</li> <li>Minor damage to adjacent tooth corrected by enameloplasty</li> <li>Minor damage to assessment tooth beyond preparation margin corrected by enameloplasty</li> <li>Minor damage to soft tissue</li> </ul>	<ul style="list-style-type: none"> <li>Minor overpreparation</li> <li>Minor underpreparation</li> </ul>	
	<b>D</b>	<ul style="list-style-type: none"> <li>Minor damage to adjacent tooth</li> <li>Minor damage to assessment tooth beyond preparation margin</li> <li>Moderate damage to soft tissue</li> </ul>	<ul style="list-style-type: none"> <li>Too deep: 2.0mm - 3.0mm</li> <li>Unacceptable underpreparation</li> <li>Unnecessary removal of internal tooth structure</li> </ul>	<ul style="list-style-type: none"> <li>Debris</li> </ul>
	<b>E</b>	<ul style="list-style-type: none"> <li>Underextended: &gt; 0.5mm</li> <li>Overextended: &gt; 0.5mm</li> <li>Cavitation not included</li> <li>Excessive damage to adjacent tooth</li> <li>Excessive damage to assessment tooth beyond preparation margin</li> <li>Excessive damage to soft tissue</li> </ul>	<ul style="list-style-type: none"> <li>Too deep: &gt; 3.0mm</li> <li>Excessive underpreparation</li> <li>Excessive overpreparation, alternate design or RCT required</li> </ul>	<ul style="list-style-type: none"> <li>Excessive debris</li> <li>Caries remaining on axial</li> <li>Caries remaining at dentinoenamel junction</li> </ul>

## Class II Amalgam Restoration

		Criteria		
		Surface quality	Margin	Contours and Function
<b>Grade</b>	<b>A+</b>	<ul style="list-style-type: none"> <li>Optimal</li> </ul>	<ul style="list-style-type: none"> <li>Junction of tooth/restoration not detectable with explorer</li> <li>No debris/loose amalgam in soft tissue</li> <li>No damage to adjacent teeth, assessment tooth or gingiva</li> </ul>	<ul style="list-style-type: none"> <li>Physiologic tooth contours of occlusal and proximal surfaces optimally restored</li> <li>Optimal proximal contact restored</li> <li>Optimal occlusal contact</li> </ul>
	<b>A</b>		<ul style="list-style-type: none"> <li>Margin slightly detectable</li> <li>Minor damage to adjacent tooth corrected by enameloplasty</li> <li>Minor damage to assessment tooth corrected by enameloplasty</li> <li>Minor damage to soft tissue</li> </ul>	<ul style="list-style-type: none"> <li>Undercontoured &lt; 0.5mm</li> <li>Overcontoured &lt; 0.5mm</li> <li>Proximal contact slightly too occlusal</li> <li>Proximal contact slightly too gingival</li> <li>Proximal contact slightly too broad</li> <li>Slight marginal ridge disharmony</li> </ul>
	<b>D</b>	<ul style="list-style-type: none"> <li>Roughness or scratches requiring correction</li> </ul>	<ul style="list-style-type: none"> <li>Amalgam beyond preparation margin requiring correction: <math>\leq 0.5\text{mm}</math></li> <li>Disharmony of amalgam-enamel margin: <math>\leq 0.5\text{mm}</math></li> <li>Debris/loose amalgam in soft tissue</li> <li>Minor damage to adjacent tooth</li> <li>Minor damage to assessment tooth</li> <li>Moderate damage to soft tissue</li> </ul>	<ul style="list-style-type: none"> <li>Undercontoured 0.5mm - 1.0mm</li> <li>Overcontoured 0.5mm - 1.0mm</li> <li>Poor occlusal morphology</li> <li>Light proximal contact</li> <li>Proximal contact too occlusal</li> <li>Proximal contact too gingival</li> <li>Proximal contact too broad</li> <li>Proximal contact too concave</li> <li>Proximal contact too tight</li> <li>Proximal contact too rough</li> <li>Marginal ridge disharmony <math>\leq 1.0\text{mm}</math></li> <li>Excessive occlusal contact</li> </ul>
	<b>E</b>	<ul style="list-style-type: none"> <li>Excessive roughness or scratches</li> <li>Deep or excessive voids other than at margin</li> </ul>	<ul style="list-style-type: none"> <li>Excess amalgam beyond preparation margin: <math>&gt; 0.5\text{mm}</math></li> <li>Deficiency/void at margin requiring replacement of restoration</li> <li>Excessive debris/loose amalgam in soft tissue</li> <li>Excessive damage to adjacent tooth</li> <li>Excessive damage to assessment tooth</li> <li>Excessive damage to soft tissue</li> </ul>	<ul style="list-style-type: none"> <li>Undercontoured <math>&gt; 1.0\text{mm}</math></li> <li>Overcontoured <math>&gt; 1.0\text{mm}</math></li> <li>No proximal contact</li> <li>Marginal ridge disharmony <math>&gt; 1.0\text{mm}</math></li> <li>Restoration fractured or loose</li> </ul>

## Class II Composite Resin Restoration

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

		Criteria		
		Surface Quality and Finish	Margin	Contours and Function
<b>Grade</b>	<b>A+</b>	<ul style="list-style-type: none"> <li>Uniform polish matching tooth surface</li> <li>No contamination of resin (no stain or inclusions)</li> </ul>	<ul style="list-style-type: none"> <li>Junction of tooth/restoration not detectable with explorer</li> <li>No excess resin past preparation margin</li> <li>No damage to adjacent teeth, assessment tooth or gingiva</li> </ul>	<ul style="list-style-type: none"> <li>Physiologic tooth contours of occlusal and proximal surfaces optimally restored</li> <li>Optimal proximal contact restored</li> <li>No excess resin in/on soft tissue</li> <li>No excess resin on hard tissue</li> </ul>
	<b>A</b>	<ul style="list-style-type: none"> <li>Areas needing more polish</li> <li>Minor contamination of resin not affecting durability or esthetics</li> </ul>	<ul style="list-style-type: none"> <li>Junction of tooth/restoration slightly detectable with explorer</li> <li>Minor amount of resin beyond preparation margin</li> <li>Minor damage to adjacent tooth corrected by enameloplasty</li> <li>Minor damage to assessment tooth corrected by enameloplasty</li> <li>Minor damage to soft tissue</li> </ul>	<ul style="list-style-type: none"> <li>Undercontoured &lt; 0.5mm</li> <li>Overcontoured &lt; 0.5mm</li> <li>Proximal contact slightly too occlusal</li> <li>Proximal contact slightly too gingival</li> <li>Proximal contact slightly too broad</li> <li>Slight marginal ridge disharmony</li> </ul>
	<b>D</b>	<ul style="list-style-type: none"> <li>Roughness or scratches requiring correction</li> <li>Voids or porosities</li> <li>Contamination of resin that needs correction</li> </ul>	<ul style="list-style-type: none"> <li>Deficiency/void at margin: <math>\leq 0.5\text{mm}</math></li> <li>Resin beyond preparation margin requiring correction</li> <li>Minor damage to adjacent tooth</li> <li>Minor damage to assessment tooth</li> <li>Moderate damage to soft tissue</li> </ul>	<ul style="list-style-type: none"> <li>Undercontoured 0.5mm - 1.0mm</li> <li>Overcontoured 0.5mm - 1.0mm</li> <li>Poor occlusal morphology</li> <li>Light proximal contact</li> <li>Proximal contact too occlusal</li> <li>Proximal contact too gingival</li> <li>Proximal contact too broad</li> <li>Proximal contact too concave</li> <li>Proximal contact too small</li> <li>Proximal contact too tight</li> <li>Proximal contact too rough</li> <li>Marginal ridge disharmony <math>\leq 1.0\text{mm}</math></li> <li>Resin/debris in/on soft tissue</li> <li>Resin/debris on hard tissue</li> <li>Excessive occlusal contact</li> </ul>
	<b>E</b>	<ul style="list-style-type: none"> <li>Excessive roughness or scratches</li> <li>Excessive voids or porosities</li> <li>Excessive contamination of resin requiring replacement of entire restoration.</li> <li>Incomplete polymerization</li> </ul>	<ul style="list-style-type: none"> <li>Deficiency/void at margin: <math>&gt; 0.5\text{mm}</math></li> <li>Excessive resin beyond preparation margin</li> <li>Excessive damage to adjacent tooth</li> <li>Excessive damage to assessment tooth</li> <li>Excessive damage to soft tissue</li> </ul>	<ul style="list-style-type: none"> <li>Undercontoured <math>&gt; 1.0\text{mm}</math></li> <li>Overcontoured <math>&gt; 1.0\text{mm}</math></li> <li>Lack of physiologic contour</li> <li>No proximal contact</li> <li>Floss will not pass through proximal contact</li> <li>Marginal ridge disharmony <math>&gt; 1.0\text{mm}</math></li> <li>Excessive resin/debris in/on soft tissue</li> <li>Excessive resin/debris on hard tissue</li> <li>Restoration fractured or loose</li> </ul>

## Endodontic Access Preparation

		Criteria		
		External Outline Form	Internal Form	Finish
<b>Grade</b>	<b>A+</b>	<ul style="list-style-type: none"> <li>• Optimal extension to obtain straight line access to all canals</li> <li>• Optimal removal of any unsupported structures</li> <li>• No overextension</li> <li>• Adequate extension to permit removal of pulp horns</li> </ul>	<ul style="list-style-type: none"> <li>• Optimal internal tooth structure removed to allow straight line access to canals</li> <li>• Canals accessed to a depth of 2.0mm</li> </ul>	<ul style="list-style-type: none"> <li>• Optimal smoothness of walls and cavosurface</li> <li>• No pulp material present on wall or floor of chamber</li> <li>• No debris</li> </ul>
	<b>A</b>	<ul style="list-style-type: none"> <li>• Minor underextension &lt; 1.0mm</li> <li>• Minor overextension &lt; 1.0mm</li> </ul>	<ul style="list-style-type: none"> <li>• Minor overpreparation</li> <li>• Minor underpreparation</li> </ul>	<ul style="list-style-type: none"> <li>• Minor pulp material present on wall or floor of chamber</li> <li>• Minor debris present</li> </ul>
	<b>D</b>	<ul style="list-style-type: none"> <li>• Underextended: obstructed access to canals</li> <li>• Moderate overextension 1.0 - 2.0mm</li> </ul>	<ul style="list-style-type: none"> <li>• Unacceptable overpreparation</li> <li>• Unacceptable underpreparation</li> <li>• Gouging of wall</li> <li>• Canal not accessed to depth of 2.0mm</li> <li>• Moderate over-instrumentation of canal</li> </ul>	<ul style="list-style-type: none"> <li>• Unacceptable roughness</li> <li>• Significant pulp material present on wall or floor of chamber</li> <li>• Unacceptable debris</li> </ul>
	<b>E</b>	<ul style="list-style-type: none"> <li>• Chamber not accessed</li> <li>• Excessive underextension &gt; 2.0mm</li> <li>• Excessive overextension &gt; 2.0mm</li> </ul>	<ul style="list-style-type: none"> <li>• Excessive removal of internal tooth structure</li> <li>• Perforation</li> <li>• Roof of pulp chamber not removed</li> <li>• Canal not accessed</li> <li>• Excessive gouging of wall</li> <li>• Excessive over-instrumentation of canal</li> <li>• Separated instrument in canal</li> </ul>	<ul style="list-style-type: none"> <li>• Excessive roughness</li> <li>• Excessive pulp material present on wall or floor of chamber</li> <li>• Debris obstructing chamber or canal</li> </ul>

## Class IV Composite Resin Restoration

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

		Criteria		
		Surface Quality and Polish	Margin	Contours and Function
<b>Grade</b>	<b>A+</b>	<ul style="list-style-type: none"> <li>Uniform polish matching tooth surface</li> <li>No contamination of resin (no stains or inclusions)</li> </ul>	<ul style="list-style-type: none"> <li>Junction of tooth/restoration not detectable with explorer</li> <li>No excess beyond preparation margin</li> <li>No damage to adjacent teeth, assessment tooth or gingiva</li> </ul>	<ul style="list-style-type: none"> <li>Physiologic tooth contours restored</li> <li>Optimal proximal contact restored</li> <li>No excess resin in/on soft tissue</li> <li>No excess resin on hard tissue</li> <li>Appropriate occlusal contact</li> </ul>
	<b>A</b>	<ul style="list-style-type: none"> <li>Areas needing more polish</li> <li>Minor contamination of resin not affecting durability or esthetics</li> </ul>	<ul style="list-style-type: none"> <li>Junction of tooth/restoration slightly detectable with explorer</li> <li>Minor excess resin beyond preparation margin</li> <li>Minor damage to adjacent tooth corrected by enameloplasty</li> <li>Minor damage to assessment tooth corrected by enameloplasty</li> <li>Minor damage to soft tissue</li> </ul>	<ul style="list-style-type: none"> <li>Undercontoured &lt; 0.5mm</li> <li>Overcontoured &lt; 0.5mm</li> <li>Proximal contact slightly too incisal</li> <li>Proximal contact slightly too gingival</li> <li>Proximal contact slightly too broad</li> </ul>
	<b>D</b>	<ul style="list-style-type: none"> <li>Roughness or scratches requiring correction</li> <li>Voids or porosities</li> <li>Contamination of resin that requires correction</li> </ul>	<ul style="list-style-type: none"> <li>Deficiency/void at margin <math>\leq</math> 0.5mm</li> <li>Resin beyond preparation margin requiring correction</li> <li>Minor damage to adjacent tooth</li> <li>Minor damage to assessment tooth</li> <li>Moderate damage to soft tissue</li> </ul>	<ul style="list-style-type: none"> <li>Undercontoured 0.5mm - 1.0mm</li> <li>Overcontoured 0.5mm - 1.0mm</li> <li>Light proximal contact</li> <li>Proximal contact too incisal</li> <li>Proximal contact too gingival</li> <li>Proximal contact too broad</li> <li>Proximal contact too concave</li> <li>Proximal contact too small</li> <li>Proximal contact too tight</li> <li>Proximal contact too rough</li> <li>Resin/debris in/on soft tissue</li> <li>Resin/debris on hard tissue</li> <li>Excessive occlusal contact</li> </ul>
	<b>E</b>	<ul style="list-style-type: none"> <li>Excessive roughness or scratches</li> <li>Excessive voids or porosities</li> <li>Excessive contamination of resin requiring replacement of entire restoration.</li> <li>Incomplete polymerization</li> </ul>	<ul style="list-style-type: none"> <li>Deficiency/void at margin <math>&gt;</math> 0.5mm</li> <li>Excessive resin beyond preparation margin</li> <li>Excessive damage to adjacent tooth</li> <li>Excessive damage to assessment tooth</li> <li>Excessive damage to soft tissue</li> </ul>	<ul style="list-style-type: none"> <li>Undercontoured <math>&gt;</math> 1.0mm</li> <li>Overcontoured <math>&gt;</math> 1.0mm</li> <li>Lack of physiologic contour</li> <li>No proximal contact</li> <li>Floss will not pass through proximal contact</li> <li>Excessive resin/debris in/on soft tissue</li> <li>Excessive resin/debris on hard tissue</li> <li>Restoration fractured or loose</li> </ul>

## Class II Amalgam Preparation

The criteria below describe a preparation for a tooth with minimal caries. Because the NDEB varies the size and location of caries for each assessment, the evaluation of the preparation will consider the extent of caries present in the assessment tooth.

		Criteria		
		External Outline Form	Internal Form	Finish
<b>Grade</b>	<b>A+</b>	<ul style="list-style-type: none"> <li>Proximal and/or gingival margins clear adjacent teeth 0.5mm</li> <li>Optimal extension based on location and extent of caries present</li> <li>Cavosurface angle 90°</li> <li>No damage to adjacent teeth, assessment tooth beyond preparation or gingiva</li> </ul>	<ul style="list-style-type: none"> <li>Optimal resistance and retention form based on location and extent of caries present with no unnecessary removal of internal tooth structure</li> <li>Internal line angles rounded</li> </ul>	<ul style="list-style-type: none"> <li>Smooth cavosurface margins</li> <li>All unsupported enamel removed</li> <li>No debris or caries</li> </ul>
	<b>A</b>	<ul style="list-style-type: none"> <li>Proximal and/or gingival margin clears adjacent tooth &gt; 0.5mm or ≤ 1.0mm</li> <li>Proximal and/or gingival margin clears adjacent tooth &lt; 0.5mm</li> <li>Minor occlusal overextension</li> <li>Minor damage to adjacent tooth corrected by enameloplasty</li> <li>Minor damage to assessment tooth beyond preparation margin corrected by enameloplasty</li> <li>Minor damage to soft tissue</li> </ul>	<ul style="list-style-type: none"> <li>Minor overpreparation occlusally</li> <li>Minor overpreparation axially</li> </ul>	
	<b>D</b>	<ul style="list-style-type: none"> <li>Proximal and/or gingival margin does not clear adjacent tooth</li> <li>Proximal and/or gingival margin clears adjacent tooth &gt; 1.0mm - ≤ 1.5mm</li> <li>Proximal wall flared</li> <li>Unacceptable isthmus junction</li> <li>Buccal-lingual width too wide</li> <li>Buccal-lingual width too narrow</li> <li>Minor damage to adjacent tooth</li> <li>Minor damage to assessment tooth beyond preparation margin</li> <li>Moderate damage to soft tissue</li> </ul>	<ul style="list-style-type: none"> <li>Pulpal floor too deep 2.5mm - 3.0mm</li> <li>Pulpal floor too shallow 1.0mm - 1.5mm</li> <li>Axial wall too deep 1.5mm - 3.0mm</li> <li>Axial wall too shallow &lt; 0.5mm</li> <li>Divergent walls</li> <li>Sharp line angle</li> <li>Undefined line angle</li> </ul>	<ul style="list-style-type: none"> <li>Unacceptable roughness</li> <li>Unacceptable unsupported enamel</li> <li>Unacceptable debris</li> </ul>
	<b>E</b>	<ul style="list-style-type: none"> <li>Proximal and/or gingival margin clears adjacent tooth &gt; 1.5mm</li> <li>Excessive occlusal overextension</li> <li>Excessive occlusal underextension</li> <li>Excessive damage to adjacent tooth</li> <li>Excessive damage to assessment tooth beyond preparation margin</li> <li>Excessive damage to soft tissue</li> </ul>	<ul style="list-style-type: none"> <li>Pulpal floor too deep &gt; 3.0mm</li> <li>Pulpal floor too shallow &lt; 1.0mm</li> <li>Axial wall too deep &gt; 3.0mm</li> <li>Excessive overpreparation, alternate design or RCT required</li> </ul>	<ul style="list-style-type: none"> <li>Excessive roughness</li> <li>Excessive unsupported enamel</li> <li>Excessive debris</li> <li>Caries remaining on axial or pulpal</li> <li>Caries remaining at dentinoenamel junction</li> </ul>

## Full Metal Crown Preparation

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

		Criteria		
		Path of Draw and Axial Convergence	Preservation of Tooth Vitality and Structural Durability	Finish and Margin
<b>Grade</b>	<b>A+</b>	<ul style="list-style-type: none"> <li>Preparation allows the fabrication of a restoration with optimal retention and contour</li> <li>No undercuts</li> <li>Axial convergence 6° - 10°</li> </ul>	<ul style="list-style-type: none"> <li>Optimal preparation has been performed to permit fabrication of a functional restoration</li> <li>Axial reduction 0.5mm - 1.5mm</li> <li>Clearance for occlusion 1.5mm</li> <li>No sharp cusps or line angles</li> <li>No damage to adjacent teeth</li> </ul>	<ul style="list-style-type: none"> <li>Margin optimally placed, defined, and identifiable</li> <li>Margin smooth, continuous and has no steps</li> <li>Positioned 0.5mm supragingival</li> <li>Preparation walls are smooth</li> <li>No damage to soft tissue</li> <li>Preparation is free of debris</li> </ul>
	<b>A</b>	<ul style="list-style-type: none"> <li>Minor undercuts</li> <li>Axial convergence 11° - 20°</li> </ul>	<ul style="list-style-type: none"> <li>Clearance for occlusion 1.0mm - &lt; 1.5mm or &gt; 1.5mm - 2.0mm</li> <li>Minor damage to adjacent tooth corrected by enameloplasty</li> </ul>	<ul style="list-style-type: none"> <li>Margin continuous with minor irregularity</li> <li>Located supragingival &lt; 0.5mm or &gt; 0.5mm - 1.0mm</li> <li>Located subgingival &lt; 0.5mm</li> <li>Minor damage to soft tissue</li> </ul>
	<b>D</b>	<ul style="list-style-type: none"> <li>Will not draw, modification required</li> <li>Axial convergence 21° - 25°</li> </ul>	<ul style="list-style-type: none"> <li>Axial reduction &gt; 0mm - &lt; 0.5mm or &gt; 1.5mm - ≤ 2.0mm</li> <li>Clearance for occlusion 0.5mm - &lt; 1.0mm or &gt; 2.0mm - ≤ 3.0mm</li> <li>Sharp cusp</li> <li>Sharp line angle</li> <li>Minor damage to adjacent tooth</li> </ul>	<ul style="list-style-type: none"> <li>Indistinct</li> <li>Discontinuous</li> <li>Rough</li> <li>Located supragingival &gt; 1.0mm - ≤ 2.0mm</li> <li>Located sub-gingival &gt; 0.5mm - ≤ 1.0mm</li> <li>Incorrect margin type for metal crown</li> <li>Unsupported enamel (lipping)</li> <li>Unacceptable roughness of axial wall</li> <li>Moderate damage to soft tissue</li> <li>Unacceptable debris</li> </ul>
	<b>E</b>	<ul style="list-style-type: none"> <li>Will not draw, major modification required</li> <li>Axial convergence &gt;25°</li> </ul>	<ul style="list-style-type: none"> <li>Axial reduction – no reduction or &gt; 2.0mm</li> <li>Clearance for occlusion &lt; 0.5mm or &gt; 3.0mm</li> <li>Pulpal blush or exposure</li> <li>Excessive damage to adjacent tooth</li> <li>Alternative preparation or RCT needed</li> </ul>	<ul style="list-style-type: none"> <li>Excessively indistinct</li> <li>Excessively discontinuous</li> <li>Excessively rough</li> <li>No discernible margin</li> <li>Located supragingival &gt; 2.0mm</li> <li>Located subgingival &gt; 1.0mm</li> <li>Excessive unsupported enamel (lipping)</li> <li>Excessive damage to soft tissue</li> <li>Excessive debris</li> </ul>

## Provisional Crown Restoration

		Criteria		
		Margin Contour and Adaptation	Morphology and Occlusion	Finish
<b>Grade</b>	<b>A+</b>	<ul style="list-style-type: none"> <li>Margin not over/underextended</li> <li>Margin not over/undercontoured</li> <li>Restoration is stable and retentive</li> <li>Preparation margin, adjacent teeth and gingiva intact</li> </ul>	<ul style="list-style-type: none"> <li>Optimal contour for gingival health and esthetics</li> <li>Optimal interproximal contacts</li> <li>Optimal occlusal contact</li> <li>Optimal strength</li> <li>Restoration can be removed</li> </ul>	<ul style="list-style-type: none"> <li>Optimal polish</li> <li>No roughness or porosities</li> <li>No excess material in/on soft tissue</li> <li>No excess material on hard tissue</li> <li>Restoration material is hard setting, tooth-coloured plastic resin</li> </ul>
	<b>A</b>	<ul style="list-style-type: none"> <li>Overextended &lt; 0.5mm</li> <li>Underextended &lt; 0.5mm</li> <li>Overcontoured &lt; 0.5mm</li> <li>Undercontoured &lt; 0.5mm</li> <li>Minor damage to adjacent tooth corrected by enameloplasty</li> <li>Minor damage to soft tissue</li> </ul>	<ul style="list-style-type: none"> <li>Slightly overcontoured</li> <li>Slightly undercontoured</li> <li>Slight infraocclusion</li> </ul>	<ul style="list-style-type: none"> <li>Polish not optimal</li> </ul>
	<b>D</b>	<ul style="list-style-type: none"> <li>Overextended 0.5 - 1.0mm</li> <li>Underextended 0.5 - 1.0mm</li> <li>Overcontoured 0.5 - 1.0mm</li> <li>Undercontoured 0.5 - 1.0mm</li> <li>Damage to preparation margin</li> <li>Minor damage to adjacent tooth</li> <li>Moderate damage to soft tissue</li> </ul>	<ul style="list-style-type: none"> <li>Overcontoured</li> <li>Undercontoured</li> <li>Proximal contact too light</li> <li>Proximal contact too occlusal</li> <li>Proximal contact too gingival</li> <li>Proximal contact too tight</li> <li>No proximal contact (<math>\leq 0.5\text{mm}</math> open)</li> <li>Supraocclusion <math>\leq 1.0\text{mm}</math></li> <li>Infraocclusion <math>\leq 1.0\text{mm}</math></li> <li>Too thin, requires modification</li> </ul>	<ul style="list-style-type: none"> <li>Unacceptable roughness</li> <li>Porosities</li> <li>Material in/on soft tissue</li> <li>Material on hard tissue</li> </ul>
	<b>E</b>	<ul style="list-style-type: none"> <li>Overextended &gt; 1.0mm</li> <li>Underextended &gt; 1.0mm</li> <li>Overcontoured &gt; 1.0mm</li> <li>Undercontoured &gt; 1.0mm</li> <li>Restoration is unstable or non-retentive</li> <li>Excessive damage to adjacent tooth</li> <li>Excessive damage to soft tissue</li> <li>Needs major revision or new provisional</li> </ul>	<ul style="list-style-type: none"> <li>Excessive overcontour</li> <li>Excessive undercontour</li> <li>No proximal contact (&gt; 0.5mm open)</li> <li>Supraocclusion &gt; 1.0mm</li> <li>Infraocclusion &gt; 1.0mm</li> <li>Too thin, requires replacement of restoration</li> <li>Restoration cannot be removed</li> <li>Restoration submitted broken or cracked</li> <li>Restoration broken or cracked due to excessive occlusion or lack of structural integrity</li> </ul>	<ul style="list-style-type: none"> <li>Excessive roughness</li> <li>Excessive porosity</li> <li>Excessive material in/on soft tissue</li> <li>Excessive material on hard tissue</li> <li>Inappropriate restorative material</li> </ul>

## 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 dental dam requirement), 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.

Record of procedures errors include:

<ul style="list-style-type: none"> <li>• Incorrect or incomplete record of procedures.</li> </ul>	<ul style="list-style-type: none"> <li>• No or inappropriate date.</li> </ul>
<ul style="list-style-type: none"> <li>• No or inappropriate record of updating medical history.</li> </ul>	<ul style="list-style-type: none"> <li>• No or inappropriate record of type, quantity or location of local anesthesia.</li> </ul>
<ul style="list-style-type: none"> <li>• No or incorrect tooth number identified.</li> </ul>	<ul style="list-style-type: none"> <li>• No or incorrect restored surfaces identified.</li> </ul>
<ul style="list-style-type: none"> <li>• No or inappropriate type and/or brand of restorative/provisional material or cement identified.</li> </ul>	<ul style="list-style-type: none"> <li>• Incorrect technique, improper use of material or improper sequencing of procedures identified.</li> </ul>
<ul style="list-style-type: none"> <li>• No shade recorded.</li> </ul>	<ul style="list-style-type: none"> <li>• No cementation of provisional restoration recorded.</li> </ul>
<ul style="list-style-type: none"> <li>• Record not written in ink.</li> </ul>	<ul style="list-style-type: none"> <li>• Record not legible.</li> </ul>
<ul style="list-style-type: none"> <li>• Inappropriate correction of entry (original entry not visible through correction) or addition to the record.</li> </ul>	<ul style="list-style-type: none"> <li>• Blank spaces left in record.</li> </ul>
<ul style="list-style-type: none"> <li>• No ID number or ID number in inappropriate location.</li> </ul>	

## Dental Dam Requirement

Criteria		
<b>A+</b> <input type="checkbox"/>	Appropriate and stable clamp	
	Clamp secured with an appropriate length of dental floss	
	Orientation provides an unrestricted airway	
	Dam inverted on all isolated teeth	
	All punch holes in appropriate positions	
	Dam and frame positioned for optimal access, safety, moisture control and patient comfort	
	Appropriate number of teeth isolated	
<b>A</b> <input type="checkbox"/>	<input type="checkbox"/> Dam is inverted on teeth in operative area only	
	<input type="checkbox"/> Dam is through contacts in operative area only, not affecting moisture control	
	<input type="checkbox"/> Minor correction to ligature required	
	<input type="checkbox"/> Minor deviations in punch hole locations	
	<input type="checkbox"/> Minor tears or holes not affecting moisture control in operative area	
	<input type="checkbox"/> Dam needs minor adjustment for proper	<input type="checkbox"/> Access <input type="checkbox"/> Safety <input type="checkbox"/> Moisture control <input type="checkbox"/> Patient comfort
	<input type="checkbox"/> Frame needs minor adjustment for proper	<input type="checkbox"/> Access <input type="checkbox"/> Safety <input type="checkbox"/> Moisture control <input type="checkbox"/> Patient comfort
	<input type="checkbox"/> Clamp needs minor adjustment for proper	<input type="checkbox"/> Access <input type="checkbox"/> Safety <input type="checkbox"/> Moisture control <input type="checkbox"/> Patient comfort
	<input type="checkbox"/> Floss needs minor adjustment for proper	<input type="checkbox"/> Access <input type="checkbox"/> Safety <input type="checkbox"/> Moisture control <input type="checkbox"/> Patient comfort

Criteria		
<b>D</b> <input type="checkbox"/> 1 or 2 errors	<input type="checkbox"/> Unnecessary trauma to gingiva or teeth	
	<input type="checkbox"/> Unstable clamp	
	<input type="checkbox"/> Unsecured or inadequately secured clamp	
	<input type="checkbox"/> Inappropriate ligature	
	<input type="checkbox"/> Patient airway compromised	
	<input type="checkbox"/> Dam caught on wing(s) of clamp	
	<input type="checkbox"/> Inappropriate number of teeth isolated	
	<input type="checkbox"/> Dam not inverted in operative area	
	<input type="checkbox"/> Dam not through all interproximal contact points	
	<input type="checkbox"/> Punch holes improperly positioned	
	<input type="checkbox"/> Tears or holes compromising moisture control	
	<input type="checkbox"/> Dam must be altered for proper	<input type="checkbox"/> Access <input type="checkbox"/> Safety <input type="checkbox"/> Moisture control <input type="checkbox"/> Patient comfort
	<input type="checkbox"/> Frame must be altered for proper	<input type="checkbox"/> Access <input type="checkbox"/> Safety <input type="checkbox"/> Moisture control <input type="checkbox"/> Patient comfort
	<input type="checkbox"/> Clamp must be altered for proper	<input type="checkbox"/> Access <input type="checkbox"/> Safety <input type="checkbox"/> Moisture control <input type="checkbox"/> Patient comfort
<input type="checkbox"/> Floss must be altered for proper	<input type="checkbox"/> Access <input type="checkbox"/> Safety <input type="checkbox"/> Moisture control <input type="checkbox"/> Patient comfort	
<b>E</b> <input type="checkbox"/>	<input type="checkbox"/> 3 or more errors defined above	
	<input type="checkbox"/> Dam not placed in allotted time	
	<input type="checkbox"/> Improper position of dam, frame, clamp or floss not allowing treatment on indicated tooth	

## Infection Control & Safety

Participants will perform all requirements as if they were working on actual patients. Infection control and safety procedures will be observed by invigilators. Participants will not be informed of recorded violations.

Standards for infection control procedures differ 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 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 except hoses and tubing. Do not cover hoses and tubing with barriers. No other surfaces need to be covered with barriers.
- All items, including study models, that are located outside of the “operative” area may be handled without treatment gloves.
- 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.
- Participants should use standard handwashing procedures. The use of hand sanitizer/alcohol-based hand rub is permitted.

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 dental dam requirement operatories.
- opening and closing the excursion hooks.

Participants must wear appropriate treatment gloves while mixing, placing and removing putty materials used in the making of stents.

Infection control and safety errors include:

<ul style="list-style-type: none"> <li>• Hand hygiene not performed</li> </ul>	<ul style="list-style-type: none"> <li>• Hair not appropriately controlled</li> </ul>
<ul style="list-style-type: none"> <li>• Gloves not worn</li> </ul>	<ul style="list-style-type: none"> <li>• Unacceptable amalgam handling and disposal</li> </ul>
<ul style="list-style-type: none"> <li>• Gloves worn outside of the operatory</li> </ul>	<ul style="list-style-type: none"> <li>• Unacceptable handling and disposal of sharps</li> </ul>
<ul style="list-style-type: none"> <li>• Gloves have holes or tears</li> </ul>	<ul style="list-style-type: none"> <li>• No or insufficient cooling water used with high speed handpiece</li> </ul>
<ul style="list-style-type: none"> <li>• Mask not worn or not worn appropriately</li> </ul>	<ul style="list-style-type: none"> <li>• Use of acetone or other solvents intraorally</li> </ul>
<ul style="list-style-type: none"> <li>• Use of contaminated instruments or materials</li> </ul>	<ul style="list-style-type: none"> <li>• Liquids, gels and pastes not in their original labelled containers</li> </ul>
<ul style="list-style-type: none"> <li>• No barriers placed on equipment touched with treatment gloves</li> </ul>	<ul style="list-style-type: none"> <li>• Manikin head positioned so that a patient would be uncomfortable</li> </ul>
<ul style="list-style-type: none"> <li>• Contamination of operating area or instruments</li> </ul>	<ul style="list-style-type: none"> <li>• Manikin neck extended so that a patient would be uncomfortable</li> </ul>
<ul style="list-style-type: none"> <li>• Eye protection not used</li> </ul>	<ul style="list-style-type: none"> <li>• Participant leaning on or inappropriately contacting the patient's torso or head</li> </ul>
<ul style="list-style-type: none"> <li>• 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</li> </ul>	<ul style="list-style-type: none"> <li>• Safety of patient or operator is jeopardized by handling or placement of materials or instruments</li> </ul>