

**AGENDA**  
**CONNECTICUT STATE DENTAL COMMISSION**

**Wednesday, June 10, 2020 at 1:00 PM**

**Department of Public Health**  
**410 Capitol Avenue, Hartford Connecticut**  
**Third Floor Hearing Room**

**CALL TO ORDER**

**I. MINUTES**

April 8, 2020

**II. NEW BUSINESS**

A. Provisional License Applications

- Foteini Touloumi, DDS

*Presented by Judith Bailey, License and Applications Analyst, DPH*

B. Proposed Amend Memorandum of Decision  
Ammar Idlibi, DMD – Petition No. 2016-640

C. Declaratory Ruling Proceeding - Treatment of Sleep Apnea with Oral Appliance Therapy  
Status Requests

**III. OLD BUSINESS**

Non-patient based clinical licensure examinations

**ADJOURN**

This meeting will be held by video conference.

**Connecticut State Dental Commission**

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**CONNECTICUT STATE DENTAL COMMISSION  
MINUTES OF MEETING  
April 8, 2020**

The Connecticut State Dental Commission held a meeting on April 8, 2020, at the Department of Public Health Complex, 470 Capitol Avenue, Hartford, Connecticut, in the Room 470-A/B.

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COMMISSION MEMBERS PRESENT:	Peter Katz, DMD, Chairman – via telephone Sarita Arteaga, DMD - via telephone Monica Cipes, DMD – via telephone Deborah Dodenhoff, RN – via telephone Mark Longobardi, DMD – via telephone Anatoliy Ravin, DDS – via telephone Steven Reiss, DDS – via telephone Barbara Ulrich – via telephone Robert Zager – via telephone
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COMMISSION MEMBERS ABSENT:	None
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Dr. Katz called the meeting to order at 1:00 p.m. All participants were present by telephone conference.

Dr. Arteaga was welcomed to her first meeting as a member of the Commission.

**I. MINUTES**

The minutes from the January 8, 2020 meeting were reviewed and approved on a motion by Dr. Longobardi, seconded by Ms. Ulrich. Dr. Arteaga abstained.

**II. NEW BUSINESS**

**A. Provisional License Application – Rawan Sarsour, DDS**

Judith Bailey, License and Applications Analyst, Department of Public Health presented a provisional license application for Rawan Sarsour, DDS, to allow for practice at the University of Connecticut, School of Dental Medicine. Following review of the application

Mr. Zager made a motion, seconded by Dr. Ravin, to recommend provisional licensure for Dr. Sarsour. The motion passed unanimously.

**B. American Academy of Dental Sleep Medicine Request for Declaratory Ruling**

**Treatment of Sleep Apnea with Oral Appliance Therapy**

Assistant Attorney General Kerry Colson was present for this discussion and to provide counsel to the Commission.

The Commission reviewed a request from Nancy Abby, DDS, President, American Academy of Dental Sleep Medicine. asking the following:

1. Is it within a dentist's scope of practice to dispense portable monitors when ordered by physicians for patients at risk for sleep apnea? The test results are provided to a physician for interpretation and diagnosis.
2. Is it within a dentist's scope of practice to order portable monitors for patients identified by the dentist as being at risk for sleep apnea? The test results are provided to a physician for interpretation and diagnosis.
3. Is it within a dentist's scope of practice to use a portable monitor to help determine the optimal effective position of a patient's oral appliance?
4. If a dentist does not use a portable monitor to determine the optimal effective position, is it within a dentist's scope of practice to order a portable monitor to verify the effectiveness of an oral appliance? The test results are provided to physicians for interpretation and therapeutic effectiveness is determined by physicians.

Following procedural advice from Attorney Colson, Dr. Reiss made a motion seconded by Dr. Ravin that the Commission proceed with the process for issuing a Declaratory Ruling. The motion passed unanimously.

A notice of the Commission's intent to issue a Declaratory Ruling will be published in the Connecticut Law Journal and will be sent to the Connecticut Medical Examining Board, Connecticut State Dental Association, Connecticut State Medical Society, American Dental Association and the Connecticut Thoracic Society

The notice will also require that requests to participate as a party or intervenor in the Declaratory Ruling proceeding must be filed by June 1, 2020.

C. Oral Argument – Proposed Amend Memorandum of Decision  
Ammar Idlibi, DMD – No. 2016-640

Assistant Attorney General Daniel Shapiro was present for this discussion and to provide counsel to the Commission.

Dr. Idlibi was present without representation. Staff Attorney David Tilles was present for the Department of Public Health. Dr. Idlibi and Attorney were provided the opportunity to address the Commission.

Dr. Reiss made a motion, seconded by Ms. Dodenhoff to adopt the proposed amended Memorandum of Decision.

Following discussion, Dr. Reiss voted to approve the amended decision as written, which indicates respondent violated the standard of care in the placement of crowns. Ms. Dodenhoff and Dr. Ravin abstained. Dr. Katz, Dr. Cipes, Dr. Longobardi, Ms. Ulrich and Mr. Zager were opposed. The motion to adopt the amended decision as written failed. Finding of fact 26 of the decision will be changed to indicate that the standard of care was not violated with the respect to the placement of crowns. Dr. Arteaga recused herself in this matter.

D. Proposed Memorandum of Decision  
Ean James, DMD – Petition No. 2019-653

Assistant Attorney General Daniel Shapiro was present for this discussion and to provide counsel to the Commission.

Dr. James was present without representation. Staff Attorney David Tilles was present for the Department of Public Health. Dr. James and Attorney were provided the opportunity to address the Commission.

Dr. Reiss made a motion, seconded by Ms. Dodenhoff to adopt the proposed Memorandum of Decision. The motion passed unanimously. The Memorandum of Decision imposes probation of respondent's license until June 1, 2021.

E. Commission on Dental Competency Assessments

David Perkins, DMD, Senior Advisor, Commission on Dental Competency Assessments (CDCA) provided an update regarding the ADEX non-patient examination.

**III. OLD BUSINESS**

Public Act 19-72 – An Act Concerning Dental Practitioners

Assistant Attorney Kerry Colson was present to provide counsel to the Commission.

Brie Wolf, Legislative Liaison, Department of Public Health, Office of Government Relations provided an overview of the background which prompted this legislation. The Commission offered suggestions for technical revisions.

Regarding the provision that eliminates patient-based restorative practical examinations effective July 1, 2021, or upon the Commission's approval of a non-patient-based examination.

The Commission will invite the various testing agencies and American Dental Association to present information regarding the specifics of non-patient based examinations they may offer.

**IV. ADJOURN**

As there was no further business the meeting was adjourned at 1:45 p.m.

Respectfully submitted,  
Peter Katz, DMD  
Connecticut State Dental Commission



STATE OF CONNECTICUT  
DEPARTMENT OF PUBLIC HEALTH

APPLICATION FOR DENTAL PROVISIONAL LICENSURE

First Name: FOTINI Last Name: TOULOUMI MI: N/A Maiden Name: N/A

Social Security No.: ██████-██████-██████ E-mail: ftouloumi@gmail.com

Name and Mailing Address: This will be how your name and address will appear on your official license, your address of record for all mailings from this office and releasable pursuant to Freedom of Information requests.

Name on License: FOTINI TOULOUMI

Address: UCONN HEALTH

263 FARMINGTON AVENUE

City, State, Zip: FARMINGTON, CT, 06030

Daytime Phone Number: (312) 805 9819 Date of Birth: 06/14/1985 Gender: Female

**PROFESSIONAL EDUCATION:**

INSTITUTION: ARISTOTLE UNIVERSITY OF THESSALONIKI, GREECE

ADDRESS: UNIVERSITY CAMPUS, THESSALONIKI, GREECE 54124  
NO. & STREET CITY STATE ZIP CODE

DATES ATTENDED FROM: 9/1/2003 TO: 12/3/2008

DEGREE/DIPLOMA RECEIVED: DDS DATE RECEIVED: 12/3/2008

Have you taken or do you plan to take the National Board Examination? Yes  No . If yes, indicate the date of the examination: NBDE I 02/20/2009, NBDE II 01/11/2014

Have you taken, or do you plan to take a Regional Board Examination? Yes  No . If yes, indicate the date and name of the examination: WRB 6/2014

Please indicate specialty area of practice, if applicable PROSTHODONTICS

List all states/territories/Canadian provinces in which you are now or have ever been licensed:

STATE	LICENSE NO.	EXPIRATION DATE	LICENSED BY:	
			EXAM	ENDORSEMENT
<u>Illinois</u>	<u>099.030019</u>	<u>09/30/2021</u>	<input checked="" type="checkbox"/>	
<u>Virginia</u>	<u>0401415022</u>	<u>03/31/2016</u>	<input checked="" type="checkbox"/>	
<u>Maine</u>	<u>FDN4</u>	<u>5/2016</u>	<input checked="" type="checkbox"/>	

PROFESSIONAL HISTORY: Answer 1-7 by checking YES or NO. If you answer YES, follow directions below.

1. Have you ever been censured, disciplined, dismissed or expelled from, had admissions monitored or restricted, had privileges limited, suspended or terminated, been put on probation, or been requested to resign or withdraw from any of the following: YES NO

- Any hospital, nursing home, clinic, or similar institution;
- Any health maintenance organization, professional partnership, corporation, or similar health practice organization, either private or public;
- Any professional school, clinical clerkship, internship, externship, preceptorship or postgraduate training program;
- Any third party reimbursement program, whether governmental or private?

2. Have you ever had your membership in or certification by any professional society or association suspended or revoked for reasons related to professional practice?

3. Has any professional licensing or disciplinary body in any state, the District of Columbia, a United States possession or territory, or a foreign jurisdiction, limited, restricted, suspended or revoked any professional license, certificate, or registration granted to you, or imposed a fine or reprimand, or taken any other disciplinary action against you?
4. Have you ever, in anticipation or during the pendency of an investigation or other disciplinary proceeding, voluntarily surrendered any professional license, certificate or registration issued to you by any state, the District of Columbia, a United States possession or territory, or a foreign jurisdiction?
5. Have you ever been subject to, or do you currently have pending, any complaint, investigation, charge, or disciplinary action by any professional licensing or disciplinary body in any state, the District of Columbia, a United States possession or territory, or a foreign jurisdiction or any disciplinary board/committee of any branch of the armed services? You need not report any complaints dismissed as without merit.
6. Have you ever been denied or surrendered a state or federal controlled substance registration, had it revoked or restricted in any way, or been warned, reprimanded, or fined by the responsible agency?

**If your answer is "yes" to any of the above questions (1-6), please give full details, names, addresses, etc. on a separate NOTARIZED statement.**

7. Have you ever entered into, or do you currently have pending, a consent agreement of any kind, whether oral or written, with any professional licensing or disciplinary body in any state, the District of Columbia, a United States possession or territory, any branch of the armed services or a foreign jurisdiction?

**If "yes", give full details, names, addresses, etc. on a separate, NOTARIZED statement. Also submit a NOTARIZED copy of the agreement.**

8. Have you ever been found guilty or convicted as a result of an act which constitutes a felony under the laws of this state, federal law or the laws of another jurisdiction and which, if committed within this state, would have constituted a felony under the laws of this state?

**If "yes", give full details, dates, etc. on a separate NOTARIZED statement and furnish a Certified Court Copy (with court seal affixed) of the original complaint, the answer, the judgment, the settlement, and/or the disposition.**



**NOTARIZATION:**

On this 13 day of May 2020,

Foteini Touloumi (applicant's name)  
personally appeared before me, who being duly sworn says that she/he is the person referred to in the foregoing application and that the photograph attached hereto is a true picture of self and that the statements made herein are true in every respect.

[Signature]  
SIGNATURE OF APPLICANT

Sworn of May 2020

[Signature] My commission expires 09/26/25  
SIGNATURE OF NOTARY PUBLIC

**PLEASE RETURN THIS APPLICATION AND THE FEE FOR \$565.00 (CERTIFIED CHECK OR MONEY ORDER) MADE PAYABLE TO, "TREASURER, STATE OF CONNECTICUT" TO:**

DEPARTMENT OF PUBLIC HEALTH • DENTAL LICENSURE • 410 CAPITOL AVE., MS# 12MQA • P.O. BOX 340308 • HARTFORD, CT 06134-0308 • [www.ct.gov/dph](http://www.ct.gov/dph)

**HELLENIC REPUBLIC  
ARISTOTLE UNIVERSITY OF THESSALONIKI  
DENTAL SCHOOL**

Number of certificate: 2009/764

**CERTIFICATE**

THE ACCURACY OF THE FOLLOWING IS CERTIFIED:

Identification document information:

Surname: **Touloumi**

Father's first name: Dimitrios

Place of birth: Thessaloniki

Place of municipality registration: -----

Name: **Foteini**

Mother's first name: Eleni

Year of birth: 1985

Number of municipality registration: -----

Information of registration:

Academic year: 2003-2004      Date: 9/26/2003      Semester: A

The registration is valid retrospectively since 9/1/2003

Type of matriculation: Lyceum graduate

Decision for matriculation: -----

Credentials: all the legal documents

Number of general registration: **346338**

Number of school registration: **9107**

The minimum studying duration is 10 semesters.

The academic year begins on the 1<sup>st</sup> of September every year and ends on the 31<sup>st</sup> of August the next year.

Touloumi Foteini after the successful completion of the curriculum and accumulation of the prerequisite number of the didactic units was judged worthy of the degree of the DENTAL SCHOOL with the grade:

**7,22 ( SEVEN AND TWENTY TWO HUNDRENTHS) "Very Good"**

**The graduation ceremony took place on: 12/3/2008 (December 3, 2008)**

**Thesis**

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This certificate is provided for use by foreign authorities and is signed by the School's Dean, according to the regulating decision numbered 6440/8-10-2003 (Greek Government gazette 1572/27-10-2003, volume B).

Numb.doub.receipt:2272 AAA 00112

Euros: -6-

Grade scale

- |             |           |
|-------------|-----------|
| a) 5-6.49   | Good      |
| b) 6.5-8.49 | Very good |
| c) 8.5-10   | Excellent |

PITELLENIC REPUBLIC  
ARISTOTLE UNIVERSITY OF THESSALONIKI  
DENTAL SCHOOL  
P.O. BOX 555  
55501 THESSALONIKI  
TEL: 55 515 753  
FAX: 55 515 753

TABLE OF GRADES

Title/Subtitle	Sem.	Didactic units	Grade	Grade fully written
<b>MANDATORY</b>				
ENGLISH I	A	4.0	10.00	TEN
HUMAN ANATOMY I	A	4.0	6.00	SIX
BIOSTATISTICS	A	2.0	5.00	FIVE
INTRODUCTION IN DENTISTRY AND PUBLIC DENTISTRY	A	2.0	7.00	SEVEN
INTRODUCTION IN DENTAL INFORMATICS	A	2.0	7.00	SEVEN
MEDICAL BIOLOGY	A	5.0	6.00	SIX
HISTOLOGY-EMBRYOLOGY I	A	3.0	8.00	EIGHT
ENGLISH II	B	4.0	9.00	NINE
HUMAN ANATOMY III	B	5.0	5.00	FIVE
10 BIOCHEMISTRY I	B	5.0	6.00	SIX
11 GENERAL PHYSIOLOGY	B	3.0	8.00	EIGHT
2 MEDICAL GENETICS	B	5.0	7.00	SEVEN
3 MEDICAL PHYSICS ( SPECIFIC CHAPTERS)	B	3.0	5.00	FIVE
4 HISTOLOGY EMBRYOLOGY II	B	4.0	6.00	SIX
5 ENGLISH III	C	4.0	9.00	NINE
6 HUMAN ANATOMY II	C	4.0	7.00	SEVEN
7 BIOLOGY OF DENTAL TISSUES	C	3.0	5.00	FIVE
8 BIOCHEMISTRY II	C	5.0	5.00	FIVE
9 BIOMATERIALS	C	2.0	7.00	SEVEN
10 GENERAL PATHOLOGIC ANATOMY	C	4.0	8.00	EIGHT
11 CLINICAL PHYSIOLOGY OF STOMATOGNATHIC SYSTEM- OCCLUSION (FIXED PROSTHODONTICS)	C	3.0	5.00	FIVE
12 DENTAL MORPHOLOGY AND INTRODUCTION IN OCCLUSION (OPERATIVE DENTISTRY)	C	2.0	7.00	SEVEN
13 PHYSIOLOGY I	C	5.0	9.00	NINE
14 ENGLISH IV	D	4.0	9.00	NINE
15 ORAL RADIOLOGY I	D	2.0	5.00	FIVE
16 INTRODUCTION IN REMOVABLE PROSTHODONTICS	D	1.0	7.00	SEVEN
17 ENDODONTICS-PATHOLOGY	D	3.0	5.00	FIVE
18 MICROBIOLOGY-IMMUNOLOGY	D	3.0	10.00	TEN
19 PREVENTIVE DENTISTRY (I)	D	3.0	5.00	FIVE
20 PHARMACOLOGY I	D	4.0	9.00	NINE
21 PHYSIOLOGY II	D	5.0	6.00	SIX
22 BASIC PRINCIPLES AND LABORATORY PROCEDURES OF COMPLETE DENTURES	E	3.0	8.00	EIGHT
23 GENERAL PATHOLOGY- NOSOLOGY	E	2.0	7.00	SEVEN
24 DENTAL ANESTHESIOLOGY	E	2.0	9.00	NINE
25 CROWNS AND BRIDGES	E	3.0	5.00	FIVE
26 PHARMACOLOGY II	E	4.0	6.00	SIX
27 ORAL RADIOLOGY II	F	2.0	7.00	SEVEN

ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ  
ΑΡΙΣΤΟΤΕΛΕΙΟ ΠΑΝΕΠΙΣΤΗΜΙΟ  
ΘΕΣΣΑΛΟΝΙΚΗΣ  
ΣΧΟΛΗ ΟΔΟΝΤΙΑΣ  
ΤΕΛΕΦΩΝΟ 55 515 753  
ΦΑΞ 55 515 753



... Greek language to English,  
according to the article 53  
Code of Attorney at Law  
Thessaloniki, Feb 7/03  
The Lawyer



ΑΓΓΕΛΙΚΗ Ν. ΚΟΥΡΙΤΕΝΛΗ  
ΝΕΟΧΩΡΟΥΔΑ ΘΕΣΣΑΛΟΝΙΚΗΣ  
ΤΗΛ. 532.252.787 - FAX: 515.753  
Α.Φ.Μ. 047138366

ΑΓΓΕΛΙΚΗ Ν. ΚΟΥΡΙΤΕΝΛΗ  
ΔΙΚΗΓΟΡΟΣ  
ΝΕΟΧΩΡΟΥΔΑ ΘΕΣΣΑΛΟΝΙΚΗΣ  
ΤΗΛ. 532.252.787.050 - FAX: 515.753  
Α.Φ.Μ. 047138366 - Δ.Ο.Υ. ΙΩΝΙΑΣ

The authenticity of the signature  
of .....  
Member of the Bar Association  
of Thessaloniki is hereby certified



.....  
President of the Bar Association

MANOLIS AN. LAMTZIDIS

ΚΑΡΤΑ ΕΠΙΣΤΗΜΟΝΙΚΗΣ  
ΑΔΙΑΓΡΑΦΙΑΣ  
Α.Φ.Μ. 047138366

ΠΑΓΚΟΣΜΙΑ  
ΝΕΟΧΩΡΟΙ  
532.252.1  
Μ. 0471383  
Ν. ΚΟΥΡΙΤΕΝΛΗ  
Π. Ρ. Ο. Σ.  
ΕΣΣΑΛΟΝΙΚΗΣ  
515.33  
Δ. Ο. Υ. ΚΑΝΙΔΑΣ

### ΠΙΣΤΟΠΟΙΗΤΙΚΟ

ΠΙΣΤΟΠΟΙΕΙΤΑΙ Η ΑΚΡΙΒΕΙΑ ΤΩΝ ΕΞΗΣ ΣΤΟΙΧΕΙΩΝ :

Στοιχεία ταυτότητας

Επώνυμο :	<u>Τουλούμη</u>	Όνομα :	<u>Φωτεινή</u>
Πατρώνυμο :	<u>Δημήτριος</u>	Μητρώνυμο :	<u>Ελένη</u>
Τόπος γέννησης :	<u>Θεσσαλονίκη</u>	Έτος γέννησης :	<u>1985</u>
Δημοτολόγιο :	<u>-----</u>	Αρ. Δημοτολ.:	<u>-----</u>

Στοιχεία εγγραφής

Ακαδ. έτος :	<u>2003-2004</u>	Ημερομηνία :	<u>26/9/2003</u>	Εξάμηνο :	<u>A</u>
Η εγγραφή ισχύει αναδρομικά από 1/9/2003					
Τρόπος εγγρ. :	<u>Απόφοιτος Ενιαίου Λυκείου</u>				
Αποφ. εγγρ.:	<u>-----</u>				
Δικαιολογητικά Εγγραφής : Όλα τα νόμιμα.					
Αρ. Γεν. Μητρ. :	<u>346338</u>	Αρ. Ειδ. Μητρ.:	<u>9107</u>		

Η ελάχιστη διάρκεια φοίτησης είναι 10 εξάμηνα.  
 Το ακαδημαϊκό έτος αρχίζει την 1η Σεπτεμβρίου κάθε έτους και λήγει την 31η Αυγούστου του επόμενου  
 Η Τουλούμη Φωτεινή αφού επέτυχε στα προβλεπόμενα μαθήματα και συγκέντρωσε τον απαιτούμενο αριθμό διδακτικών μονάδων, κρίθηκε άξια του πτυχίου της ΟΔΟΝΤΙΑΤΡΙΚΗΣ ΣΧΟΛΗΣ με βαθμό:  
**7,22 (ΕΠΤΑ ΚΑΙ ΕΙΚΟΣΙ ΔΥΟ ΕΚΑΤΟΣΤΑ) "Λίαν Καλώς"**  
 Ορκίστηκε στις: 03/12/2008 (3 Δεκεμβρίου 2008)

Διπλωματική εργασία

ΜΗ ΕΙΣ  
ΚΑΤΑ  
ΑΝΔΡΑΣ  
87052 FAX  
100

Το πιστοποιητικό αυτό χορηγείται για ξένες αρχές και υπογράφεται από τον Προσδρό του Τμήματος με βάση την κανονιστική απόφαση αριθμ. 6440/8-10-2003 (ΦΕΚ 1572/27-10-2003, τ. Β')

2009/02/12

Υπογραφή Διευκρινιστικής  
 5-4-09 Κίτσος  
 5-5-09 Λίαν Κιλίκης  
 4-5-09 Λίαν Κιλίκης

Πίνακας Βαθμολογίας

Α/Α	Τίτλος/Υπότιτλος	Βαθμολογία			
		Εξαμ.	ΔΜ	Βαθμός	Ολογράφως
<b>ΥΠΟΧΡΕΩΤΙΚΟ</b>					
1	*ΑΓΓΛΙΚΑ Ι	A	4.0	10.00	ΔΕΚΑ
2	ΑΝΑΤΟΜΙΑ ΤΟΥ ΑΝΘΡΩΠΟΥ Ι	A	4.0	6.00	ΕΞΙ
3	ΒΙΟΣΤΑΤΙΣΤΙΚΗ	A	2.0	5.00	ΠΕΝΤΕ
4	ΕΙΣΑΓΩΓΗ ΣΤΗΝ ΟΔΟΝΤΙΑΤΡΙΚΗ ΚΑΙ ΚΟΙΝΩΝΙΚΗ ΟΔΟΝΤΙΑΤΡΙΚΗ	A	2.0	7.00	ΕΠΤΑ
5	ΕΙΣΑΓΩΓΗ ΣΤΗΝ ΟΔΟΝΤΙΑΤΡΙΚΗ ΠΛΗΡΟΦΟΡΙΚΗ	A	2.0	7.00	ΕΠΤΑ
6	ΙΑΤΡΙΚΗ ΒΙΟΛΟΓΙΑ	A	5.0	6.00	ΕΞΙ
7	ΙΣΤΟΛΟΓΙΑ-ΕΜΒΡΥΟΛΟΓΙΑ Ι	A	3.0	8.00	ΟΚΤΩ
8	*ΑΓΓΛΙΚΑ ΙΙ	B	4.0	9.00	ΕΝΝΕΑ
9	ΑΝΑΤΟΜΙΑ ΤΟΥ ΑΝΘΡΩΠΟΥ ΙΙΙ	B	5.0	5.00	ΠΕΝΤΕ
10	ΒΙΟΛΟΓΙΚΗ ΧΗΜΕΙΑ Ι	B	5.0	6.00	ΕΞΙ
11	ΓΕΝ.ΦΥΣΙΟΛΟΓΙΑ	B	3.0	8.00	ΟΚΤΩ
12	ΙΑΤΡΙΚΗ ΓΕΝΕΤΙΚΗ	B	5.0	7.00	ΕΠΤΑ
13	ΙΑΤΡΙΚΗ ΦΥΣΙΚΗ (ΕΙΔΙΚΑ ΚΕΦΑΛΑΙΑ)	B	3.0	5.00	ΠΕΝΤΕ
14	ΙΣΤΟΛΟΓΙΑ-ΕΜΒΡΥΟΛΟΓΙΑ ΙΙ	B	4.0	6.00	ΕΞΙ
15	*ΑΓΓΛΙΚΑ ΙΙΙ	Γ	4.0	9.00	ΕΝΝΕΑ
16	ΑΝΑΤΟΜΙΑ ΤΟΥ ΑΝΘΡΩΠΟΥ ΙΙ	Γ	4.0	7.00	ΕΠΤΑ
17	ΒΙΟΛΟΓΙΑ ΤΩΝ ΟΔΟΝΤΙΚΩΝ ΙΣΤΩΝ	Γ	3.0	5.00	ΠΕΝΤΕ
18	ΒΙΟΛΟΓΙΚΗ ΧΗΜΕΙΑ ΙΙ	Γ	5.0	5.00	ΠΕΝΤΕ
19	ΒΙΟΪΛΙΚΑ	Γ	2.0	7.00	ΕΠΤΑ
20	ΓΕΝ.ΠΑΘΟΛΟΓΙΚΗ ΑΝΑΤΟΜΙΚΗ	Γ	4.0	8.00	ΟΚΤΩ
21	ΚΛΙΝΙΚΗ ΦΥΣΙΟΛΟΓΙΑ ΣΤΟΜΑΤΟΓΝΑΘΙΚΟΥ ΣΥΣΤΗΜΑΤΟΣ -ΣΥΓΚΛΕΙΣΗ (ΑΚΙΝΗΤΗ ΠΡΟΣΘ.)	Γ	3.0	5.00	ΠΕΝΤΕ
22	ΟΔΟΝΤΙΚΗ ΜΟΡΦΟΛΟΓΙΑ ΚΑΙ ΕΙΣΑΓΩΓΗ ΣΤΗ ΣΥΓΚΛΕΙΣΗ (ΟΔΟΝΤ.ΧΕΙΡΟΥΡΓΙΚΗ)	Γ	2.0	7.00	ΕΠΤΑ
23	ΦΥΣΙΟΛΟΓΙΑ Ι	Γ	5.0	9.00	ΕΝΝΕΑ
24	*ΑΓΓΛΙΚΑ ΙV	Δ	4.0	9.00	ΕΝΝΕΑ
25	ΑΚΤΙΝΟΛΟΓΙΑ ΣΤΟΜΑΤΟΣ Ι	Δ	2.0	5.00	ΠΕΝΤΕ
26	ΕΙΣΑΓΩΓΗ ΣΤΗΝ ΚΙΝΗΤΗ ΠΡΟΣΘΕΤΙΚΗ	Δ	1.0	7.00	ΕΠΤΑ
27	ΕΝΔΟΔΟΝΤΟΛΟΓΙΑ -ΠΑΘΟΛΟΓΙΑ	Δ	3.0	5.00	ΠΕΝΤΕ
28	ΜΙΚΡΟΒΙΟΛΟΓΙΑ-ΑΝΟΣΟΒΙΟΛΟΓΙΑ	Δ	3.0	10.00	ΔΕΚΑ
29	ΠΡΟΛΗΠΤΙΚΗ ΟΔΟΝΤΙΑΤΡΙΚΗ (Ι)	Δ	3.0	5.00	ΠΕΝΤΕ
30	ΦΑΡΜΑΚΟΛΟΓΙΑ Ι	Δ	4.0	9.00	ΕΝΝΕΑ
31	ΦΥΣΙΟΛΟΓΙΑ ΙΙ	Δ	5.0	6.00	ΕΞΙ
32	ΒΑΣΙΚΕΣ ΑΡΧΕΣ ΚΑΙ ΕΡΓΑΣΤΗΡΙΑΚΕΣ ΔΙΑΔΙΚΑΣΙΕΣ ΟΛΙΚΗΣ ΟΔΟΝΤΟΣΤΟΙΧΙΑΣ	E	3.0	8.00	ΟΚΤΩ
33	ΓΕΝΙΚΗ ΠΑΘΟΛΟΓΙΑ -ΝΟΣΟΛΟΓΙΑ	E	2.0	7.00	ΕΠΤΑ
34	ΟΔΟΝΤΙΑΤΡΙΚΗ ΑΝΑΙΣΘΗΣΙΟΛΟΓΙΑ	E	2.0	9.00	ΕΝΝΕΑ
35	ΣΤΕΦΑΝΕΣ ΚΑΙ ΓΕΦΥΡΕΣ	E	3.0	5.00	ΠΕΝΤΕ
36	ΦΑΡΜΑΚΟΛΟΓΙΑ ΙΙ	E	4.0	6.00	ΕΞΙ
37	ΑΚΤΙΝΟΛΟΓΙΑ ΣΤΟΜΑΤΟΣ ΙΙ	ΣΤ	2.0	7.00	ΕΠΤΑ

Πίνακας Βαθμολογίας

Α/Α	Τίτλος/Υπότιτλος	Εξάμ.	ΔΜ	Βαθμολογία	
				Βαθμός	Ολογράφως
38	ΒΑΣΙΚΕΣ ΑΡΧΕΣ ΚΑΙ ΕΡΓΑΣΤΗΡΙΑΚΕΣ ΔΙΑΔΙΚΑΣΙΕΣ ΜΕΡΙΚΗΣ ΟΔΟΝΤΟΣΤΟΙΧΙΑΣ	ΣΤ	3.0	8.00	ΟΚΤΩ
39	ΔΕΡΜΑΤΟΛΟΓΙΑ	ΣΤ	1.0	7.00	ΕΠΤΑ
40	ΚΛΙΝΙΚΕΣ ΚΑΙ ΕΡΓΑΣΤΗΡΙΑΚΕΣ ΔΙΑΔΙΚΑΣΙΕΣ ΣΤΗΝ ΑΚΙΝΗΤΗ ΠΡΟΣΘΕΤΙΚΗ	ΣΤ	4.0	7.00	ΕΠΤΑ
41	ΟΔΟΝΤΙΚΗ ΧΕΙΡΟΥΡΓΙΚΗ ΙΙΙ - ΕΜΦΡΑΚΤΙΚΑ ΥΛΙΚΑ, ΟΥΔΕΤΕΡΑ ΣΤΡΩΜΑΤΑ, ΕΦΑΡΜΟΓΕΣ	ΣΤ	3.0	5.00	ΠΕΝΤΕ
42	ΟΔΟΝΤΟΦΑΤΝΙΑΚΗ ΧΕΙΡΟΥΡΓΙΚΗ (Ι)	ΣΤ	2.0	8.00	ΟΚΤΩ
43	ΠΕΡΙΟΔΟΝΤΟΛΟΓΙΑ (Ι)	ΣΤ	4.0	6.00	ΕΞΙ
44	ΠΡΟΚΛΙΝΙΚΗ ΕΝΔΟΔΟΝΤΙΑ (ΙΙ)	ΣΤ	2.0	9.00	ΕΝΝΕΑ
45	ΓΕΝΙΚΗ ΧΕΙΡΟΥΡΓΙΚΗ ΠΑΘΟΛΟΓΙΑ ΚΑΙ ΕΓΧΕΙΡΗΤΙΚΗ (ΣΤΙΧ)	Ζ	5.0	9.00	ΕΝΝΕΑ
46	ΔΙΑΓΝΩΣΗ ΚΑΙ ΣΧΕΔΙΟ ΘΕΡΑΠΕΙΑΣ ΣΤΗΝ ΑΚΙΝΗΤΗ ΠΡΟΣΘΕΤΙΚΗ	Ζ	4.0	7.00	ΕΠΤΑ
47	ΠΕΡΙΟΔΟΝΤΟΛΟΓΙΑ (ΙΙ)	Ζ	3.0	9.00	ΕΝΝΕΑ
48	ΒΙΟΛΟΓΙΑ ΕΜΦΥΤΕΥΜΑΤΩΝ	Η	1.0	5.00	ΠΕΝΤΕ
49	ΕΦΑΡΜΟΓΕΣ ΟΔΟΝΤΙΑΤΡΙΚΗΣ ΠΛΗΡΟΦΟΡΙΚΗΣ	Η	2.0	8.00	ΟΚΤΩ
50	ΚΡΑΝΙΟΓΝΑΘΙΚΕΣ ΔΙΑΤΑΡΑΧΕΣ ΚΑΙ ΚΛΙΝΙΚΗ ΑΣΚΗΣΗ ΣΤΗΝ ΑΚΙΝΗΤΗ ΠΡΟΣΘΕΤΙΚΗ	Η	3.0	7.00	ΕΠΤΑ
51	ΜΕΡΙΚΕΣ ΟΔΟΝΤΟΣΤΟΙΧΙΕΣ Ι	Η	3.0	8.00	ΟΚΤΩ
52	ΟΡΘΟΔΟΝΤΙΚΗ (Ι)	Η	2.0	6.00	ΕΞΙ
53	ΠΑΙΔΟΔΟΝΤΙΑΤΡΙΚΗ	Θ	2.0	9.00	ΕΝΝΕΑ
54	ΧΕΙΡΟΥΡΓΙΚΗ ΟΔΟΝΤΙΚΩΝ ΕΜΦΥΤΕΥΜΑΤΩΝ	Θ	2.0	7.00	ΕΠΤΑ
55	Ω.Ρ.Α.	Θ	2.0	5.00	ΠΕΝΤΕ
56	ΚΛΙΝΙΚΗ ΕΝΔΟΔΟΝΤΙΑ (ΙΙΙ-ΙV)	Ι	6.0	9.00	ΕΝΝΕΑ
57	ΟΔΟΝΤΙΚΗ ΧΕΙΡΟΥΡΓΙΚΗ ΚΛΙΝΙΚΗ ΙV	Ι	6.0	9.00	ΕΝΝΕΑ
58	ΟΔΟΝΤΟΦΑΤΝΙΑΚΗ ΧΕΙΡΟΥΡΓΙΚΗ (ΙΙ)	Ι	6.0	9.00	ΕΝΝΕΑ
59	ΟΛΙΚΕΣ - ΜΕΡΙΚΕΣ ΟΔΟΝΤΟΣΤΟΙΧΙΕΣ ΙΙ	Ι	6.0	7.00	ΕΠΤΑ
60	ΟΡΘΟΔΟΝΤΙΚΗ (ΙΙ)	Ι	5.0	9.00	ΕΝΝΕΑ
61	ΠΕΡΙΟΔΟΝΤΟΛΟΓΙΑ (ΙΙΙ)	Ι	6.0	7.00	ΕΠΤΑ
62	ΠΡΟΛΗΠΤΙΚΗ ΟΔΟΝΤΙΑΤΡΙΚΗ (ΙΙ-ΙΙΙ)	Ι	5.0	7.00	ΕΠΤΑ
63	ΠΡΟΣΘΕΤΙΚΗ ΕΠΙ ΕΜΦΥΤΕΥΜΑΤΩΝ	Ι	6.0	8.00	ΟΚΤΩ
64	ΣΤΟΜΑΤΙΚΗ ΚΑΙ ΓΝΑΘΟΠΡΟΣΩΠΙΚΗ ΧΕΙΡΟΥΡΓΙΚΗ	Ι	6.0	8.00	ΟΚΤΩ
65	ΣΤΟΜΑΤΟΛΟΓΙΑ	Ι	6.0	8.00	ΟΚΤΩ

ΘΕΣΣΑΛΟΝΙΚΗ 1972

Ο Πρόεδρος της Οδοντιατρικής Σχολής

Καθηγητής ΚΩΣΤΑΣ Η. ΑΝΤΩΝΙΑΔΗΣ

HELLENIC REPUBLIC  
ARISTOTLE UNIVERSITY OF THESSALONIKI  
DENTAL SCHOOL

Number of certificate: 2009/759

**COPY OF PTYCHION**  
THIS CERTIFIES THAT:  
**Touloumi Foteini father's name Dimitrios**  
**Birth place: Thessaloniki**

after the successful completion of the curriculum and the accumulation of the prerequisite number of the didactic units, was judged worthy of the ptychion of **DENTAL SCHOOL**

with the grade **7,22 (SEVEN AND TWENTY TWO HUNDREDTHS ) " VERY GOOD "**  
Her graduation's ceremony took place on **12/03/2008 (December 3, 2008)**

This certificate is provided for use by foreign authorities and is signed by the School's Dean according to the regulating decision numbered 6440/ 8-10-2003 ( Greek Government gazette 1572/27-10-2003, volume B).

The authenticity of the signature of

of .....  
Member of the Bar Association  
of Thessaloniki, is hereby certified

THESSALONIKI, 07/13/2009  
Dental School's dean

Professor KOSTAS I. ANTONIADIS



Thessaloniki .....  
The President of the Bar Association

MANOLIS AN. LAMTZIDIS

Numb.doub receipt: 2272 AAA 00112  
Euros: -6-

Grade scale

- |             |           |
|-------------|-----------|
| a) 5-6.49   | Good      |
| b) 6.5-8.49 | Very good |
| c) 8.5-10   | Excellent |



This is an exact translation from  
Greek language to English of the following  
document, according to the article 53  
Code of Attorney at Law  
Thessaloniki, 9/17/09  
The President of the Bar Association  
N. KOYRITIS.....

ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ  
ΑΡΙΣΤΟΤΕΛΕΙΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΕΣΣΑΛΟΝΙΚΗΣ  
ΟΔΟΝΤΙΑΤΡΙΚΗ ΣΧΟΛΗ

Πιστ. 2009/758

**ΑΝΤΙΓΡΑΦΟ ΠΤΥΧΙΟΥ**

ΠΙΣΤΟΠΟΙΕΙΤΑΙ ΟΤΙ :

**Η Τουλούμη Φωτεινή του Δημήτριου**

**Τόπος γέννησης : Θεσσαλονίκη**

αφού επέτυχε στα προβλεπόμενα μαθήματα και συγκέντρωσε τον απαιτούμενο αριθμό διδακτικών μονάδων, κρίθηκε άξια του πτυχίου

**της ΟΔΟΝΤΙΑΤΡΙΚΗΣ ΣΧΟΛΗΣ**

με βαθμό **7,22 (ΕΠΤΑ ΚΑΙ ΕΙΚΟΣΙ ΔΥΟ ΕΚΑΤΟΣΤΑ) "ΛΙΑΝ ΚΑΛΩΣ"**

Ορκίστηκε στις **03/12/2008 (3 Δεκεμβρίου 2008)**

Το πιστοποιητικό αυτό χορηγείται για ξένες αρχές και υπογράφεται από τον Πρόεδρο της Σχολής με βάση την κανονιστική απόφαση αριθμ. 6440/8-10-2003 (ΦΕΚ 1572/27-10-2003, τ.Β').

ΘΕΣΣΑΛΟΝΙΚΗ, 13/07/2009

Ο Πρόεδρος της Οδοντιατρικής Σχολής

Καθηγητής **ΚΩΣΤΑΣ Η. ΑΝΤΩΝΙΑΔΗΣ**

Αρ. Διπλ. Εισπρ. 2272 ΑΑΑ 00112

Ευρώ -6-

Βαθμολογική Κλίμακα Επιτυχίας

α) 5.00 - 6.49	Καλώς
β) 6.50 - 8.49	Λίαν Καλώς
γ) 8.50 - 10	Άριστα



## Illinois Department of Financial and Professional Regulation

Division of Professional Regulation

JB Pritzker  
Governor

Deborah Hagan  
Secretary

Cecilia Abundis  
Director  
Division of  
Professional  
Regulation

### CERTIFICATION OF LICENSURE

1 W Superior St Apt 3607  
Chicago, IL 60654-8846

Licensee: License FOTEINI TOULOUMI DDS  
Number: 019.030019  
Profession: LICENSED DENTIST  
Date of Issuance: 08/14/2014  
Expiration Date: 09/30/2021  
License Status: ACTIVE  
License Method: ACCEPT EXAM  
Disciplinary History: Has not been disciplined

This document is a certified copy of the records maintained and kept by this department in the regular course of business as of 05/06/2020

Cecilia Abundis  
Director

05/06/2020

Date



Division of Professional Regulation

*Refer to the Department's Web Site at [www.idfpr.com](http://www.idfpr.com) to verify professional licenses via License Look-Up.*

Facebook

[www.idfpr.com](http://www.idfpr.com)

YouTube

Twitter



STATE OF MAINE  
BOARD OF DENTAL PRACTICE  
143 STATE HOUSE STATION  
AUGUSTA, MAINE 04333-0143

Phone: (207) 287-3333 / TTY: Maine Relay 711  
Website: [www.maine.gov/dental](http://www.maine.gov/dental)

May 19, 2020

Connecticut Dept. of Health  
Dental Licensing  
410 Capitol Ave., MS. #12 APP  
P.O. Box 340308  
Hartford, CT 06134

To Whom It May Concern:

This is to certify that the records of the Maine Board of Dental Practice indicate that:

**NAME:** Foteini Touloumi, DDS

**LICENSE TYPE:** FACULTY DENTIST

**LICENSE NUMBER:** FDN4

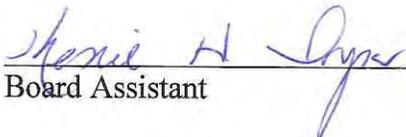
**LICENSE STATUS:** Did Not Renew

**FIRST ISSUE DATE:** 10/20/2014

**EXPIRATION DATE:** 12/31/2017

**LICENSE DISCIPLINE:**

Has there been any disciplinary action(s) taken against this person?  No  Yes  
If yes, a copy of the Consent Agreement or Decision and Order is attached for each case.

  
Board Assistant

The above is the current license record for the licensee indicated as it exists on the official license database of the Maine Board of Dental Practice on May 19, 2020.

Report Date: 05/27/2020

DENTPIN : 11194071

**National Board Dental Examinations (NBDE)**

Name	DENTPIN®	Graduation†	School
TOULOUMI, FOTEINI	11194071	2008	Non-Accredited Dental School

**Current Status**

Test Date	Exam Type	Score ‡	Status
01/11/2014	NBDE II		Pass
02/20/2009	NBDE I	88	Pass

**National Board Dental Examination Part II**

Test Date	Exam Type	Score ‡	Status
01/11/2014	NBDE II		Pass

**National Board Dental Examination Part I**

Test Date	Exam Type	Score ‡	Status
02/20/2009	NBDE I	88	Pass

† The number listed is the candidate's self reported year of graduation.

‡ Numerical score is reported only for candidates who tested prior to January 1, 2012.

May 6, 2020

Connecticut State Dental Commission  
c/o State of Connecticut  
Department of Public Health  
410 Capitol Avenue  
MS #12 MQA  
P.O. Box 340309  
Hartford, CT 06134-0308

Re: Dr. Foteini Touloumi  
Application for Provisional Licensure

Dear Colleagues,

Dr. Foteini Touloumi will be joining the faculty of the University of Connecticut School of Dental Medicine on a full time basis effective July 1, 2020. Dr. Touloumi has been offered a non-tenure, in-residence track position as an Assistant Professor in the Division of Prosthodontics. Her appointment is contingent upon the granting of a provisional dental license by the Connecticut State Dental Commission.

Dr. Touloumi received her DDS degree from the Aristotle University of Thessaloniki School of Dentistry in Thessaloniki, Greece in 2008. Following receipt of her dental degree, Dr. Touloumi practiced dental medicine in Greece and in the United Kingdom. She entered the Advanced Education Program in Prosthodontics at the University of Connecticut School of Dental Medicine in July of 2011 and completed both the fully accredited Prosthodontics certificate program and the Master of Dental Science graduate program in 2014.

Dr. Touloumi served on the faculty of the University of New England College of Dental Medicine in Portland, Maine from 2014 until 2016. She was a Clinical Assistant Professor and had a wide range of responsibilities including the didactic, preclinical and clinical instruction in fixed prosthodontics, removable partial dentures and complete dentures, as well as dental anatomy, foundations of clinical care, and introduction to public health. While at University of New England, she served as the course director for five courses. In 2016, Dr. Touloumi joined the faculty at the University of Illinois at Chicago College of Dentistry in Illinois. Dr. Touloumi has been serving as a Clinical Assistant Professor at UIC through the present time. At UIC, Dr. Touloumi teaches in every year of the predoctoral curriculum, including occlusion, implant therapy, complete dentures, removable partial dentures, fixed prosthodontics, and treatment planning. She also serves as a manager of one of UIC's comprehensive care clinics.

Dr. Touloumi has been an active and productive academician. She has ten invited presentations and six publications in peer-reviewed journals. She has received several research and teaching awards and currently serves on the editorial board of the American College of Prosthodontics and is on the credentials committee of the American Academy of Fixed Prosthodontics. Dr. Touloumi achieved Diplomate status with the American Board of Prosthodontics in 2015.

Dr. Touloumi successfully completed Part I of the NBDE in February 2009 and Part II in January 2014. She completed the Western Regional Examining Board (WREB) examination in June 2014. Dr. Touloumi currently possesses an unrestricted dental license in the State of Illinois.

The School of Dental Medicine is very fortunate to be able to recruit someone with Dr. Touloumi's background, training and teaching experience. We have first-hand knowledge of her talents and abilities as she received her specialty training at UConn and we are excited that she will be returning to CT.

It is the sincere opinion of the School of Dental Medicine that Dr. Foteini Touloumi possesses the requisite qualifications for provisional licensure in Connecticut and I am respectfully requesting that the Commission act favorably upon Dr. Touloumi's application. If I can offer any additional information or support for Dr. Touloumi's application, please do not hesitate to contact me by phone at 860-679-4885 or 860-679-2808 or by email at lepowsky@uchc.edu.

Sincerely,



Steven M. Lepowsky, D.D.S., F.A.G.D., F.A.C.D.

Interim Dean



## COMMONWEALTH of VIRGINIA

David E. Brown, D.C.  
Director

### Department of Health Professions

Perimeter Center  
9960 Mayland Drive, Suite 300  
Henrico, Virginia 23233-1463

[www.dhp.virginia.gov](http://www.dhp.virginia.gov)  
TEL (804) 367-4400  
FAX (804) 527-4475

### VERIFICATION

Re: **Foteini Touloumi DDS**  
To: Connecticut Board of Dentistry  
From: Virginia Board of Dentistry  
Subj: Licensure Verification  
Date: May 21, 2020

This is to certify that the above named individual was issued a license to practice the profession of :  
**Dentist**

License #: **0401415022**

Current Status: **Expired**

Issued on: **09/02/2015**

Issued on the basis of: **Examination**

Expires: **03/31/2016**

Disciplinary Action: **No**

*The information above is the only verification provided by this board. To expedite the verification process, the above format is the standard format prepared for all professions regulated by this board. If other information is needed, please do not hesitate to contact this office.*

Verifications may also be obtained from the License Lookup section on our website ([www.dhp.virginia.gov](http://www.dhp.virginia.gov)).

Sincerely, *Deanna Sykes*

Virginia Board of Dentistry

NOTE: The Board no longer provides a raised seal on this document.

Board of Audiology & Speech-Language Pathology – Board of Counseling – Board of Dentistry – Board of Funeral Directors & Embalmers  
Board of Long-Term Care Administrators – Board of Medicine – Board of Nursing – Board of Optometry – Board of Pharmacy  
Board of Physical Therapy – Board of Psychology – Board of Social Work – Board of Veterinary Medicine  
Board of Health Professions



## RESULTS OF SUCCESSFUL DENTAL EXAMINATION

**Foteini Touloumi**

893 Farmington Ave. Apt 5F  
West Hartford, CT 06119

Congratulations! Successful completion of the exam requires passing each of the five sections. A passing score is an average of 3.0 or higher or a percentage of 75% or higher. These results do not constitute licensure. Please contact your state board in the state where you plan to seek licensure.

### **OPERATIVE SCORE**

**PASS** Tufts University \*  
6/6/2014

### **PATP SCORE**

**PASS** Tufts University \*

### **ENDODONTICS SCORE**

**PASS** Tufts University \*  
6/6/2014

### **PERIODONTICS SCORE**

**PASS** Tufts University \*  
6/6/2014

### **PROSTHODONTICS SCORE**

**PASS** Tufts University \*

**EXAM RESULTS**

**PASS**

Please note that WREB sends group performance reports to WREB member state boards only. If you are applying for licensure in a non-member state that requires scores be sent directly from WREB, you will need to complete a score request form found on our website at [www.wreb.org](http://www.wreb.org).

For a listing of WREB member states and states accepting WREB, visit our website at [www.wreb.org](http://www.wreb.org) and click "WREB Information". For more information on licensure, you may want to visit the AADB website at [www.aadexam.org](http://www.aadexam.org).

WREB is a testing agency only, and therefore, its employees cannot answer your questions regarding licensure.

**STATE OF CONNECTICUT  
CONNECTICUT STATE DENTAL COMMISSION**

Ammar Idlibi, D.D.S.  
License No: 007893

Petition No. 2016-640

**FINAL MEMORANDUM OF DECISION**

*Procedural Background*

The Department of Public Health (“Department”) presented the Connecticut State Dental Commission (“Commission”) with a Statement of Charges (“Charges”) against dental license number 007893 held by Ammar Idlibi, D.D.S. (“Respondent”), dated September 7, 2017. Commission (“Comm.”) Ex. 1. The Charges allege that Respondent’s license is subject to disciplinary action pursuant to § 20-114(a) of the Connecticut General Statutes (“the Statutes”). Comm. Ex. 1.

A Statement of Charges and a Notice of Hearing was sent to the Respondent by certified mail, return receipt requested, and via email on October 13, 2017. Comm. Ex. 1. The Department scheduled a hearing for December 14, 2017, and if necessary January 11, 2018. Comm. Ex. 1. On October 13, 2017, the parties were notified that the hearings would be held before a duly authorized panel of Commissioners comprised of Steven G. Reiss, D.D.S., Deborah Dodenhoff, RN, and Anatoliy Ravin, D.D.S. (“panel”). Comm. Ex. 1.

On October 16, 2017, the Department filed a Motion for Continuance, which was granted, and the December 14, 2017, hearing was rescheduled for January 11, 2018. Comm. Ex. 4. On October 18, 2017, Respondent filed an Answer. Comm. Ex. 3. On November 16, 2017, the parties were provided a revised hearing schedule with hearings scheduled for January 11, 2018 and January 16, 2018. Comm. Ex. 5.

On January 8, 2018, the Department filed a Motion for its witness to make testimony by telephone or other electronic means, which was granted. Comm. Ex. 6. On January 11, 2018 and January 16, 2018, the panel held an administrative hearing to

adjudicate Respondent's case. Respondent appeared and represented himself. Transcript ("Tr.") 1-11-2018, p. 3. Attorney David Tilles represented the Department. *Id.*

The panel conducted the hearing in accordance with the Statutes § 4-166 *et seq.*, and the Regulations of Connecticut State Agencies ("Regulations") § 19a-9a-1 *et seq.* Both the Department and Respondent presented evidence, conducted cross-examination, and provided argument on all issues.

All panel members involved in this decision attest that they have either heard the case or read the record in its entirety. The Commission reviewed the panel's proposed final decision in accordance with the provisions of § 4-179 of the Statutes. This decision is based entirely on the record and the specialized professional knowledge of the Commission in evaluating the evidence. The Commission relied on the training and experience of its members in making its findings of fact and conclusions of law. *Pet v. Department of Health Services*, 228 Conn. 651, 670 (1994).

After the Commission issued its final memorandum of decision ("MOD"), plaintiff appealed the decision to the Connecticut Superior Court. On January 7, 2020, the Court (Cohn, J.) issued a Memorandum of Decision which remanded the case back to the Commission to "elaborate on Finding #26" and ordered the Commission to issue a revised final decision answering the question of whether plaintiff's treatment justified a finding of a violation of the AAPD standards.

On remand, the case was first heard by the panel who subsequently issued a new proposed final decision which found, among other things, that "the use of stainless steel crowns was not justified, and respondent practiced below the standard of care in using eight stainless steel crowns."

On April 8, 2020, the full Commission considered the panel's new proposed final decision. The Commission rejected the new proposed decision with respect to the new findings in Paragraph #26. The Commission voted to change the new proposed decision and the findings in Paragraph #26.

After determining that it was not a violation of the standard of care to place the eight stainless steel crowns, the Commission carefully considered whether to change its remedy in light of the new findings. The Commission voted to keep the period of probation and other terms of the Order the same. The Commission found that the remedy

contained in the initial Final Memorandum of Decision was appropriate based upon the other findings regarding the allegations in Count One of the Statement of Charges.

### *Allegations*

1. In paragraph 1 of the Charges, the Department alleges that Ammar Idlibi, D.D.S., of Bristol, Connecticut, is and has been at all times referenced in the Charges, the holder of Connecticut dentist license number 007893.
2. In paragraph 2 of the Charges, the Department alleges that Respondent provided care to three-year old Patient 1 on or about April 26, 2016. At that time, Respondent took x-rays and placed stainless steel crowns on eight teeth, all done under general anesthesia. Respondent's care for Patient 1 failed to meet the standard of care in one or more of the following ways:
  - a. He failed to obtain adequate informed consent for eight crowns;
  - b. He placed one or more crowns without adequate justification, or without adequately documented justification;
  - c. He failed to make adequate attempts at treatment without general anesthesia, or failed to adequately document such attempts;
  - d. He failed to adequately chart findings of cervical de-calcification;<sup>1</sup>
  - e. He failed to attempt treatment of cervical de-calcification other than placement of crowns; and/or
  - f. He failed to adequately chart caries or other dental disease for one or more of the teeth that he crowned.
3. In paragraph 3 of the Charges, the Department alleges that the above facts constitute grounds for disciplinary action pursuant to § 20-114(a)(2) of the Statutes.

### *Findings of Fact*

1. Respondent of Bristol, Connecticut, is and has been at all times referenced in this Charges, the holder of Connecticut dentist license number 007893.
2. On or about January 11, 2016, Joseph Guzzardi, D.D.S. performed an oral examination on Patient 1, a three-year-old female. Dr. Guzzardi informed Patient 1's mother that Patient 1 needed a stainless steel crown on tooth S. Tr. 1-11-2018, p. 118. He also indicated that teeth K and T appeared to have small cavities and that, absent the presence of interproximal cavities upon a more intense examination, those two teeth would only require treatment with fillings. *Id.*

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<sup>1</sup> The Charges originally had a typographical error, instead of stating the word "de-calcification," it erroneously stated "calcification." The Department orally requested a correction of the word, to which Respondent did not object. Tr. 1-11-2018, p. 29.

3. On or about January 11, 2016, Dr. Guzzardi was unable to take x-rays and perform a full examination that could lead to an adequate diagnosis and treatment without using general anesthesia on Patient 1 because she would not cooperate. Tr. 1-11-2018, p. 118.
4. On or about January 11, 2016, Dr. Guzzardi prepared a proposed treatment plan. Tr. 1-11-2018, p. 119.
5. On January 16, 2016, Dr. Guzzardi's noted that Patient 1 only brushed with fluoride paste once per day independently, Patient 1 was timid and would not cooperate with the dental examination, and that she probably required stainless steel crowns. Tr. 1-11-2018, p. 127. Consequently, Dr. Guzzardi identified Patient 1 as a high risk patient. *Id.*
6. On or about January 21, 2016, Dr. Guzzardi held a telephonic consultation with Patient 1's mother, and informed her that tooth S required a stainless steel crown under general anesthesia because it had multi-surface cavities. He also informed her that Patient 1 had a high sugar diet, and that she should obtain second and third consultations before agreeing to the proposed treatment plan. Patient 1's mom informed Dr. Guzzardi that she did not wish to place a stainless steel crown on Patient 1. Tr. 1-11-2018, pp. 119-120.
7. On or about January 21, 2016, Dr. Guzzardi informed Patient 1's mother that Patient 1 may need multiple stainless steel crowns depending on what a more comprehensive examination and x-rays performed under general anesthesia revealed. Tr. 1-11-2018, p. 121.
8. In January 2016, Dr. Guzzardi determined that Patient 1 required dental treatment under general anesthesia because her tooth S exhibited symptoms of reversible pulpitis with multiple surface cavities<sup>2</sup>, and Patient 1 was uncooperative. Thus, Dr. Guzzardi was unable to use a temporary filling and take radiographs without placing the patient under general anesthesia. Tr. 1-11-2018, pp. 128-129.
9. Proposed treatment plans often change for patients after taking radiographs under general anesthesia. Tr. 1-11-2018, p. 129.
10. On or around March 28, 2016, Patient 1's mother gave her consent for Dr. Guzzardi or Respondent to treat the patient, depending on which doctor was available at the scheduled date. Rec. Ex. 1, p. 2. Dr. Guzzardi and Respondent worked in the same practice at the time. Tr. 1-11-2018, p. 25.

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<sup>2</sup> Decay or cavities in teeth is a bacterial infection of the tooth. Tr. 1-11-2018, p. 200. It can be diagnosed with an x-ray or by clinical examination, such as poking the tooth with a pointed instrument. *Id.* If the cavity is deep enough that touches the root, the dentist will need to perform a root canal (go into the root of the tooth), or a pulpotomy (removal of the pulp or heart of the tooth). *Id.* at p. 201.

11. Dr. Guzzardi provided dental care to Patient 1 until April 8, 2016. On April 8, 2016, Dr. Guzzardi attempted to treat Patient 1 under general anesthesia in his office, but was unsuccessful. Tr. 1-11-2018, p. 122.
12. At all relevant times in the course of Dr. Guzzardi's treatment of Patient 1, Patient 1's mother only agreed to a stainless steel crown on tooth S, but she understood that more may be needed. Tr. 1-11-2018, pp. 122-123.
13. Patient 1's mother requested and Dr. Guzzardi agreed that he would consult with her after he had performed a full set of x-rays and clinical diagnosis under general anesthesia, and before he placed the stainless steel crowns on the patient. Tr. 1-11-2018, p. 123.
14. At all relevant times, Dr. Guzzardi did not have any discussion with Respondent regarding the scope of his discussions with Patient 1's mother. Tr. 1-11-2018, pp. 123-124.
15. Patient 1 was scheduled to be treated by Respondent on April 26, 2016, because Dr. Guzzardi was not available to be in the operating room on that date. Rec. Ex. 1, p. 2.
16. Respondent provided care to Patient 1 on or about April 26, 2016. At that time, Respondent took x-rays and placed stainless steel crowns on eight teeth, all done under general anesthesia. Dept. Ex. 2. Tr. 1-11-2018, pp. 64-65.
17. Respondent's care for Patient 1 failed to meet the standard of care in that he failed to obtain adequate informed consent for eight stainless steel crowns. Dept. Ex. 7. Tr. 1-11-2018 pp. 66,136-137, 210-211, 216. Tr. 1-16-2018 pp. 53, 85-86, 91, 102, 107, 116-117, 140, 160, 161, 192-193.
18. Respondent placed one or more crowns without adequate justification, or without adequately documented justification. Dept. Ex. 9, Tr. 1-11-2018, pp. 193-195, 199-200, 205, Tr. 1-16-2018 pp. 56-57, 58, 107.
19. The evidence is insufficient to establish that Respondent failed to make adequate attempts at treatment without general anesthesia, or failed to adequately document such attempts. Resp. Ex. 1 pp. 1-2, 492,381. Tr. 1-16-2018, p. 33 -34, 128.
20. Respondent failed to adequately chart findings of cervical decalcification. Resp. Ex. 1 p. 10. Dept. Ex. 9.
21. Respondent failed to attempt treatment of cervical de-calcification other than by placement of crowns. Resp. Ex. 1 p. 10, 376.

22. Respondent failed to adequately chart caries or other dental disease for one or more of the teeth that he crowned. Resp. Ex. 1 p. 10.
23. Patient 1 is classified as a high risk patient because of the amount of caries found in her teeth, the plaque score, and her high sugar intake. Tr. 1-16-2018, pp. 32-33. A high risk three-year-old patient is one who drinks mostly juice, eats a lot of candy, and does not have good oral hygiene. Tr. 1-11-2018, pp. 220-221.
24. Children's primary teeth have very thin enamel coatings. Thus, cavities will easily affect the inner surfaces of the teeth. Tr. 1-16-2018, p. 46.
25. Cavities found during clinical examination are usually deeper and more extensive than the same cavities diagnosed on x-rays. Tr. 1-16-2018, p. 46.
26. In accordance with the American Academy of Pediatric Dentistry ("AAPD") Guidelines, stainless steel crowns are an appropriate treatment for interproximal multi-surface caries in primary teeth. Tr. 1-16-2018, pp. 47-48. The AAPD published a Guideline on Pediatric Restorative Dentistry ("Guideline"). Record, Volume III, pp. 68-76. The Guideline provides "recommendations" when caring for children. *Id.* at 68 (last sentence). The Guideline expressly stated that there would be "exceptions to the recommendations based upon individual clinical findings". *Id.* The AAPD Guideline also recommends glass ionomers for children. *Id.* at 70. "Glass ionomers have several properties that make them favorable to use in children:" *Id.* With respect to stainless steel crowns, the Guidelines indicate that they can be useful if certain conditions are met. *Id.* at 72. The AAPD Guideline does not establish the standard of care. It makes recommendations if certain circumstances are present based upon clinical presentation. *Id.* at 68. The Guideline can be used to help determine whether a practitioner practiced within the standard of care based on the clinical presentation of the patient. In this case, based upon the Commission's review of all of the evidence, including the x-rays, and including the testimony of Dr. Federman, the Commission concludes that respondent did not practice below the standard of care with respect to the placement of the stainless steel crowns.
27. Decalcification of teeth is part of the cavities process and the initial lesion of teeth decay or infection of the tooth. It is a clinical sign of tooth decay. Tr. 1-16-2018, p. 56.
28. Glass ionomer filling is a recalcident (recalcifying agent) that contains fluoride and glass beads used to treat teeth with cavities. It sticks to decay and helps form secondary dentine, making the affected tooth stronger and healthier. Tr. 1-11-2018, pp. 177, 178. Glass ionomer treatment for children under three years of age, with primary teeth cavities can be used instead of using stainless steel crowns because it is efficient and less traumatic. *Id.* at pp. 178-179.

29. MI paste is a recalcant paste used for children in order to treat very small cavities and to re-calcify white lines on teeth (hypo-calcification and a precursor to decay). Tr. 1-11-2018, pp. 186-187.

### *Discussion and Conclusions of Law*

Section 20-114 of the Statutes provides, in pertinent part, that:

(a) The Dental Commission may take any of the actions set forth in section 19a-17 for any of the following causes . . . (2) proof that a practitioner has become unfit or incompetent or has been guilty of cruelty, incompetence, negligence or indecent conduct toward patients; . . . .

The Department is alleging that on or about April 26, 2016, Respondent provided care to three-year old Patient 1 that failed to meet the standard of care. Specifically, the Department alleges that the Respondent: failed to obtain adequate informed consent for eight crowns; placed one or more crowns without adequate justification, or without adequately documented justification; failed to make adequate attempts at treatment without general anesthesia, or failed to adequately document such attempts; failed to adequately chart findings of cervical decalcification; failed to attempt treatment of cervical decalcification other than by placement of crowns; and lastly failed to adequately chart caries or other dental disease for one or more of the teeth that he crowned. The Department bears the burden of proof by a preponderance of the evidence. *Jones v. Connecticut Medical Examining Board*, 309 Conn. 227 (2013).

Respondent admitted to the allegation contained in paragraphs 1 of the Charges, which states that the Respondent, of Bristol, Connecticut, is and has been at all times referenced in this Charges, the holder of Connecticut dentist license number 007893. Findings of Fact (“F.F.”) 1; Comm. Ex. 3. Therefore, these allegations are not in dispute. *See, Jones Destruction, Inc. v. Upjohn*, 161 Conn. 191, 199 (1971); *Commissioner of Public Works v. Middletown*, 53 Conn. App. 438, 444 (1999) *cert. denied*, 250 Conn. 923 (1999).

With regard to the allegations in paragraph 2a of the Charges, that Respondent’s care for Patient 1 failed to meet the standard of care when he failed to obtain adequate informed consent for eight crowns, the Department sustained its burden of proof.

Informed consent in pediatric dentistry is defined as the process of providing the parent of a minor child with relevant information regarding diagnosis and treatment needs so that the parent can make an educated decision regarding treatment. Dept. Ex. 7. The AAPD also provides that “dentists are required to provide information to patients/parents about the dental health problems that the dentist observes, the nature of any proposed treatment, the potential benefits and risks associated with that treatment, any alternatives to the treatment proposed, and the potential risks and benefits of alternative treatments, including no treatment.” *Id.*

To ensure compliance with the requirement of informed consent, informed consent is seen not from the practitioner’s point of view but rather the patient’s point of view. Tr. 1-16-2018 p. 102. The AAPD also provides that consent for sedation or general anesthesia should be obtained separately from consent for other procedures. Dept. Ex. 7. The AAPD further provides that consent may need to be updated or changed accordingly as changes to the treatment plan occur. *Id.*

The standard of care places the authority to make decisions about the patient’s treatment needs squarely in the hands of the patient or their representatives. *Id.* Accordingly, the standard of care requires that a dentist, who is treating a child, must allow the child’s parent to make a decision about the type of preventive care the child will receive. It is the parent’s choice to decide whether the child will get treated by a composite, glass ionomer, or a stainless steel crown. Tr. 1-11-2018, pp. 187, 212.

In this case, Patient 1’s mother testimony was reliable and credible. She testified that when she signed consent for treatment and the administration of anesthesia, she told Respondent to come out and talk to her about the treatment plan once Respondent had finished taking x-rays, performed his clinical evaluation, and determined a treatment plan. Dept. Ex. 1 pp. 18, 20. Tr. 1-11-2018 p. 66.

Patient 1’s mother’s testimony is corroborated by Dr. Guzzardi’s testimony. Dr. Guzzardi’s testimony was reliable and credible. He testified that in the April 8<sup>th</sup> visit he agreed to come out and tell the patient’s mother what he found on the x-rays because the patient’s mother told him that she would feel more comfortable if he discussed with her a definitive treatment plan prior to actually doing it, especially if the treatment plan required the placement of stainless steel crowns. Tr. 1-11-2018 pp. 123,137. Based on the

testimony of Patient 1's mother and Dr. Guzzardi, it is evident that the April 8<sup>th</sup> consent had within it a condition that Dr. Guzzardi would come out and let the patient's mother know what he found on the x-ray before doing anything else. According to Patient 1's mother, this was the same request she made of the Respondent when she signed the consent forms for her daughter's treatment on April 26, 2016. Dept. Ex. 1 pp. 18, 20; Tr. 1-11-2018, p. 66.

Respondent in his testimony asserts that he obtained adequate informed consent to treat the patient because he specifically told the patient's mother that her daughter was likely to get eight crowns and that the mother consented that she was okay with that. Tr. 1-16-2018 p. 160. Respondent also testified that there was no condition that he come out and talk to the patient's mother because he spent 15 to 20 minutes talking about the procedure and crowns and that the patient's mother did not ask him a single question or interact with him to the point that he was wondering if she was getting what he was saying or whether there was some kind of a barrier where she's not understanding. Tr. 1-16-2018 pp. 159-160. In his support, Respondent showed a standardized form signed by Patient 1's mother that indicates that "[s]he acknowledge[s] and consent[s] to the use of stainless steel crowns. . . ." Resp. Ex. 1, p. 9.

The Board finds that the standardized consent form is insufficient consent in the present case (*Pet*, 228 Conn. at 670), and finds that Respondent's testimony is not credible in light of Patient 1's mother's corroborated testimony to the contrary. Tr. 1-11-2018 p. 66, 123, 127. Moreover, the Board agrees with pediatric dentist and Department's expert witness Dr. Jenny T. Federman's testimony. She testified that Respondent should still have come out of the operating room for ten to fifteen minutes and explain to Patient 1's mother his finding and obtain her authorization to place the eight crowns, as requested. Tr. 1-11-2018, pp. 213-214; *see Pet*, 228 Conn. at 670.

When Respondent realized that he would be placing eight crowns, as opposed to the one that had been agreed upon, the treatment plan changed significantly. Tr. 1-16-2018 p. 107. Thus, Respondent should have come out and talked to the patient's mother, or called the mother from the operatory room. *See Pet*, 228 Conn. at 670. The testimony by Patient 1's mother that the Respondent failed to come and talk to her about the change in treatment plan demonstrates that the Respondent violated the standard of care. Thus, the

Department sustained its burden of proof with regard to the allegations contained in paragraph 2a of the Charges.

With regard to the allegations contained in paragraph 2b of the Charges that Respondent placed one or more crowns without adequate justification, or without adequately documented justification, the Department sustained its burden of proof.

With regard to the allegations in paragraph 2c of the Charges, that Respondent's care for Patient 1 failed to meet the standard of care in that he failed to make adequate attempts at treatment without general anesthesia, or failed to document such attempts adequately, the Department failed to sustain its burden of proof.

The AAPD recognizes that there exists a pediatric population for whom routine behavior management is not a viable option, where deep sedation and general anesthesia is necessary to provide optimum care. Resp. Ex. 1 p. 381. The AAPD Guidelines further provide that patients who cannot cooperate due to a lack of psychological or emotional maturity, for whom local anesthesia is ineffective, may be treated under general anesthesia. Resp. Ex 1 p. 492. Dr. Federman's testimony that she does not place children under general anesthesia because she wants them to have a good experience and learn how to be good dental patients, while noble, does not establish the standard of care. Tr. 1-11-2018, pp. 148-149. Accordingly, Respondent's actions in not following Dr. Federman's approach do not constitute a violation of the standard of care.

The standard of care, established in part by the AAPD provides that in situations where a patient is uncooperative, general anesthesia may be administered in order to provide optimum treatment. Resp. Ex. 1 pp. 381, 492. Dr. Kohn testified that Respondent followed the AAPD Guidelines on the indication for the use of general anesthesia. Tr. 1-16-2018, p. 33. Dr. Kohn also opined that Respondent was justified to treat Patient 1 under general anesthesia. *Id.* Specifically, because Patient 1 had several visits with multiple dentists, showed signs of frank (soft cavities) cavities that had not yet been fully diagnosed and treated, and the fact that Patient 1 could not sit for radiographs made the use of general anesthesia justified. *Id.* at p. 34. Furthermore, Patient 1's mother authorized the general anesthesia. *Id.* The Department failed to sustain its burden of proof because it failed to provide credible evidence that the use of general anesthesia on Patient 1 was a deviation from the standard of care.

With regard to the allegations contained in paragraph 2d of the Charges, the Department sustained its burden of proof that Respondent failed to adequately chart findings of cervical decalcification.

Dr. Guzzardi testified that based on his examination of the patient, he reasoned that tooth S would need a stainless steel crown and that tooth K and T appeared to have small cavities or interproximal cavities between the teeth but could not see any cavities on the other teeth or make a determination on whether they needed any treatment because of the patient's behavior. Resp. Ex. 1 p. 1. Tr. 1-11-2018, p. 118. Dr. Guzzardi also testified that based on the patient's behavior, he was unable to give a definitive treatment plan for the patient because he was unable to get radiographs. Tr. 1-11-2018, p. 118. According to Dr. Guzzardi, without radiographs his treatment plan was just guessing. Tr. 1-11-2018, p. 121. Based on Dr. Guzzardi's testimony, it is evident that there was no definitive treatment plan for the patient at the time the patient presented to the Respondent on April 26. *Id.*

In Respondent's operative report, Respondent reports that tooth S had advanced caries and was restored with a stainless steel crown cemented with a glass ionomer. Resp. Ex. 1 p. 10. Respondent's operative note also reports that teeth K, L, and T had multi-surface interproximal caries and cervical decalcification, and was restored with a stainless steel crown cemented with a glass ionomer cement. *Id.* Lastly, Respondent's operative notes report that teeth A, B, I and J had interproximal caries and general cervical decalcifications and were restored with a stainless steel crown cemented with a glass ionomer cement. *Id.* These notes fail to adequately chart findings of cervical decalcification. F.F. 6. Reviewing the Respondent's x-rays, submitted into evidence as Dept. Ex. 9, and the Respondent's operative notes, the Board finds that there is insufficient evidence for the Respondent's findings of cervical decalcification.

Dr. Kohn testified that cervical decalcification of teeth is part of the cavities process and the initial lesion of tooth decay or infection of the tooth. F.F. 13. It has a chalky white appearance and is the first sign of clinical tooth decay. Tr. 1-16-2018, p. 56. Dr. Kohn also testified that, when an operative note makes a notation for multi-surface caries, it could mean decalcification, part of a continuum of tooth decay. It can include decalcified lesions that are really soft and chalky, which can be just scraped away. It can also include a decalcification that is not soft, and which amounts to an actual cavity. *Id.*

Lastly, Dr. Kohn testified that based on the quality of the x-ray images he could not discern any interproximal decay on the teeth except, possibly, on the distal side of tooth L and the distal side of tooth S. Tr. 1-16-2018, pp. 76-79. Dr. Federman testified that she did not see any decay on the x-rays provided that warranted a crown. Tr. 1-11-2018, p. 199.

The Board agrees with Dr. Federman's testimony that the x-rays fail to show cervical decalcifications on K, L, T, A, B, I and J that require crowns. The Board also finds that the Respondent's operative note fails to adequately describe the cervical decalcifications that the Respondent found in his examination. The Respondent's operative note does not describe whether the cervical decalcification was at the initial chalky white stage that could be scrapped away or whether it amounted to a cavity and therefore warranted more aggressive treatment. *See Pet, 228 Conn. at 670.*

Respondent concedes that if you show his x-rays to any general dentist, the dentist will tell you that he was not justified in placing the eight crowns and it does not make sense to do so. Tr. 1-11-2018, p. 169. Knowing that his x-rays do not provide justification for placement of eight crowns, Respondent should have provided greater detail about his clinical findings in his operative notes to justify his aggressive treatment. Respondent's operative note fails to provide such justification. Resp. Ex. 1 p. 10. The operative note fails to specify, which sides of the teeth have cervical decalcification, the depth of the decalcification, and the type of disease that may result if left untreated. Resp. Ex. 1 p. 10. Based on its own training and experience, the Board also fails to see a justification for 8 crowns. *See Pet, 228 Conn. at 670.* Thus, the Board finds that the Department has sufficiently established by a preponderance of evidence that the Respondent failed to adequately chart findings of cervical decalcification in violation of the standard of care.

With regard to the allegations contained in paragraph 2e of the Charges, that Respondent failed to attempt treatment of cervical de-calcification other than by placement of crowns, the Department did not sustain its burden of proof.

With regard to the allegations contained in paragraph 2f of the Charges that Respondent failed to adequately chart caries or other dental disease for one or more of the teeth that he crowned, the Department sustained its burden of proof. The preponderance of the evidence establishes that Patient 1's x-rays only showed two small cavities on the

occlusal side of tooth S, but no cavities on the remaining teeth. Respondent contends that he placed stainless steel crowns on all the molars, including tooth S because he found that all of those teeth had multiple surface cavities. However, as discussed above, the chart is devoid of any such clinical finding. Therefore, the Department sustained its burden of proof with regard to the allegations contained in paragraph 2f of the Charges.

### ***Conclusion***

After considering the facts as proven by the Department as well as Respondent's defenses and testimony, the Commission finds that Respondent practice of dentistry fell below the standard of care and merits disciplinary action for the conduct alleged and proven in the Charges.

### ***Order***

Based upon the record in this case, the above findings of fact and the conclusions of law, and pursuant to the authority vested in it by §§ 19a-17 and 20-114 of the Statutes, the Commission orders the following in the case of Connecticut dental license number 007893 held by Ammar Idlibi, D.D.S., Petition No. 2016-640, for the conduct alleged and proven in the Charges, which warrants the disciplinary action imposed by this Order:

1. Respondent shall pay a civil penalty of ten thousand dollars (\$10,000.00) by certified or cashier's check payable to "Treasurer, State of Connecticut." The check shall reference the Petition Number of the face of the check, and shall be payable within thirty days of the effective date of this Memorandum of Decision ("Decision").
2. Respondent's license number 007893 to practice as a dentist in the State of Connecticut is hereby reprimanded.
3. Based on the allegations proven in the Charges, Respondent's license number 007893 to practice as a dentist in the State of Connecticut is hereby placed on probation for three (3) years, effective on the date of this Decision.

4. The terms and conditions of the probation are as follows:
  - a. Within six (6) months of the effective date of this Decision, Respondent shall successfully complete courses, pre-approved by the Department, in ethics, medical record documentation, and informed consent. Respondent shall provide the Department with proof of course completion, in a form satisfactory to the Department, within thirty (30) days of completing the course.
  - b. Respondent shall obtain, at his own expense, the services of a dentist, preapproved by the Department (“supervisor”) to conduct quarterly random review of twenty percent (20%) or twenty (20) of Respondent’s patient records, created or updated during the term of this Decision, whichever is the larger. In the event Respondent has twenty (20) or fewer patients, the supervisor shall review all of Respondent’s patients’ records.
    - (1) Respondent shall provide a copy of this Decision to his supervisor.
    - (2) Respondent’s supervisor shall furnish written confirmation to the Department of his or her engagement in that capacity and acknowledge receipt of a copy of this Decision within fifteen (15) days of the effective date of this Decision.
    - (3) Respondent’s supervisor shall conduct such review and meet with him not less than once each quarter during the probationary period.
    - (4) The supervisor shall have the right to monitor Respondent’s practice by any other reasonable means which she or he deems appropriate. Respondent shall fully cooperate with the supervisor.
    - (5) Respondent’s patients’ records shall include digital imaging of teeth.
    - (6) Respondent shall be responsible for providing written quarterly monitoring reports directly to the Department for the entire probationary period. Such monitor reports shall include documentation of the date and duration of meetings with Respondent, number and a general description of the patients’ records, additional monitoring techniques utilized, and statement regarding whether Respondent is practicing with reasonable skill and safety.

5. All correspondence related to this Decision and Order must be delivered to:

Lavita Sookram, Nurse Consultant  
Department of Public Health  
Division of Health Systems Regulation  
410 Capitol Avenue, MS #12HSR  
P.O. Box 340308  
Hartford, CT 06134-0308

6. All reports required by the terms of this Decision shall be due according to a schedule to be established by the Department.
7. Respondent shall comply with all state and federal statutes and regulations applicable to his licensure.
8. Respondent shall pay all costs necessary to comply with this Decision.
9. In the event Respondent is not employed as a dentist for periods of thirty (30) consecutive days or longer, or is employed as a dentist for less than twenty (20) hours per week, or is employed outside of the State of Connecticut, Respondent shall notify the Department in writing. Such periods of time shall not be counted in reducing the probationary period covered by this Decision.
10. Legal notice shall be sufficient if sent to Respondent's last known address of record reported to the Office of Practitioner Licensing and Investigations of the Department.
11. This Decision has no bearing on any criminal liability without the written consent of the Director of the Medicaid Fraud Control Unit or the Bureau Chief of the Division of Criminal Justice's Statewide Prosecution Bureau.
12. This Decision is effective on the date it is signed by the Commission.

Dated at Hartford, Connecticut this \_\_\_\_\_ day of June, 2020.

Connecticut State Dental Commission

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Peter Katz, DMD  
Chairman

**STATE OF CONNECTICUT**  
**Connecticut State Dental Commission**

In Re Declaratory Ruling Proceeding  
Regarding the Dispensing and Use of Unattended  
Cardiorespiratory Portable Monitors by Dentists

June 1, 2020

**PETITION OF CONNECTICUT STATE DENTAL ASSOCIATION, INCORPORATED TO INTERVENE**

Pursuant to Conn. Gen. Stat. §§ 4-176(d), 4-177a (b) and Section 19a-9-27 of the Regulations of Connecticut State Agencies, the Connecticut State Dental Association, Incorporated (the "CSDA") petitions the Connecticut State Dental Commission to be granted status as an intervenor in this proceeding. Allowing CSDA to participate in this declaratory ruling proceeding will serve the interests of justice and will not impair the orderly conduct of the proceeding (Conn. Gen. Stat. § 4-177a(b)). In support of this petition, the CSDA states as follows:

1. **CSDA contact information:** Carol Dingeldey is the Executive Director of the CSDA, 835 West Queen Street, Southington, Connecticut 06489, telephone (860) 378-1800, email: cdingeldey@csda.com. CSDA is a membership organization exempt from federal income taxation under section 501(c)(6) of the Internal Revenue Code. CSDA's authorized legal representative, Wiggin and Dana LLP, Aaron Bayer, Esq. and Melinda A. Agsten, Esq., 20 Church Street, Suite 1610, Hartford, CT 06103, (860) 297-3700, is filing this petition on behalf of the CSDA.
  
2. **CSDA's interests affected by the proceeding:** The CSDA is a statewide, not-for-profit professional membership organization. The CSDA represents over 1,900 licensed Connecticut dentists and has been the trusted leader and voice for oral healthcare in Connecticut since 1864.

The CSDA and its members have a direct and substantial interest in assuring that patients in Connecticut receive the proper care and in maintaining the quality of dental services provided in the State. Dentists play an essential role in the multidisciplinary care of patients with certain sleep related breathing disorders. The American Dental Association's *The Role of Dentistry in the Treatment of Sleep Related Breathing Disorders* encourages dentists to screen and refer patients to appropriate physicians for diagnosis, and indicates that the use of unattended portable monitoring devices is helpful in adjusting oral appliances for treatment efficacy. Moreover, the Commission itself has recognized that the CSDA is an interested party by providing CSDA with notice of the proceeding.

3. **CSDA's proposed participation in the proceeding:** As an intervenor in this proceeding, the CSDA will address whether ordering and dispensing unattended cardiorespiratory portable monitors, as well as utilizing data from these devices, is within the scope of practice of dentistry as defined by Chapter 379, Sec 20-123 of the Connecticut General Statutes. It will also address how the rulings on those practices will affect dental patients. CSDA proposes to address these issues through the submission of relevant pre-file testimony and documentary evidence as well as testimony and argument at the hearing. CSDA respectfully also requests the right to inspect and copy records, documents, and other evidence, and to examine and cross-examine witnesses, as may be appropriate based on the nature and scope of evidence submitted by the petitioner and other parties and intervenors. CSDA's proposed participation will not impair the orderly conduct of the proceeding.

4. **CSDA's participation will assist the Dental Commission:** The CSDA is uniquely positioned to represent the interests of dentists in the state and to provide the Commission with information directly related to dentistry. In particular, CSDA will provide information on why unattended cardiorespiratory portable monitors are an integral part of dentists' safe and effective treatment of patients with sleep related breathing disorders and are within dentists' training, expertise, and scope of practice. The CSDA's participation in this proceeding is in the interest of justice because it will help the Commission evaluate the patient safety and dental practice issues raised by the Petition and because a ruling will directly affect CSDA's members and their ability to effectively treat patients.

5. **Summary of evidence CSDA proposes to offer:** The CSDA plans to submit evidence and argument to support the position of the American Dental Association (the "ADA") that dentists can and do play an essential role in the multidisciplinary care of patients with certain sleep related breathing disorders (SRBD), and are well positioned to identify patients at greater risk of SRBD. According to the American Dental Association, "SRBD can be caused by a number of multifactorial medical issues and are therefore best treated through a collaborative model. Working in conjunction with our colleagues in medicine, dentists have various methods of mitigating these disorders... Oral appliance therapy (OAT) can improve OSA [obstructive sleep apnea] in adult patients...Dentists are the only health care provider with the knowledge and expertise to provide OAT." Furthermore, the ADA states dentists who provide OAT to patients should monitor and adjust the oral appliance (OA) for treatment efficacy as needed, or at least annually. "As titration of OAs has been shown to affect the final treatment outcome and overall

OA success...a dentist trained in the use of these portable monitoring devices may assess the objective interim results for the purposes of OA titration”.

**Conclusion.** For the foregoing reasons, Petitioner CSDA respectfully requests that it be granted intervenor status in this proceeding.

Respectfully submitted,  
THE CONNECTICUT STATE DENTAL  
ASSOCIATION, INCORPORATED

By:     /s/ Aaron S. Bayer    

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**From:** [Anthony Dioguardi, D.M.D., Diplomate ABDSM](#)  
**To:** [Kardys, Jeffrey](#)  
**Subject:** Status to participate in proceeding regarding portable sleep monitors.  
**Date:** Wednesday, April 29, 2020 10:04:23 AM  
**Attachments:** [Sleep Review- Dioguardi HST article.pdf](#)  
[Otolaryng. clinics- Dioguardi.pdf](#)  
[Anthony Dioguardi CV.doc](#)

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Dear Dr. Kardys,

I would like to request standing to participate in the hearing pursuant to Conn. Gen Stat 4-176 as it relates to portable sleep monitors.

I believe my publications, lectures, and participation in the Yale University Sleep Fellowship program and Yale- New Haven Hospital Department of Dentistry support my status as an expert in the field.

Attached are my CV and two publications on the subject.

Thank you for your time and consideration.

**Anthony T. Dioguardi, D.M.D.**  
*Diplomate of the American Board of Dental Sleep Medicine*  
*General Dentistry and Dental Sleep Medicine*  
*Editorial Advisory Board Member, Sleep Review Magazine*  
*Lecturing Faculty- Dental Sleep Medicine*  
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# Anthony T. Dioguardi, DMD

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### Professional Experience

**Private Practice, General Dentistry** 1984-Present  
Private clinical practice encompassing all phases of general dentistry

### Hospital Affiliations

**West Haven Veterans Administration** 1984-1999  
*Clinical instructor* West Haven, CT

**Yale-New Haven Hospital – Department of Dentistry** New Haven, CT  
*Clinical Instructor* 1990-2006  
*Program Director- Dental Sleep Medicine* 2016- present

### Academic Affiliations

**Yale University** New Haven, CT  
**School of Medicine** 1994-2006  
*Assistant Clinical Professor of Surgery (Dental)*

**Yale University** New Haven, CT 2010-present  
**School of Medicine**  
**Department of Sleep Medicine**  
*Clinical Instructor- Responsible for training of medical fellows in the area of oral appliance therapy in the management of sleep disorders.*

**Norwalk Hospital** Norwalk, CT 2017-present  
**Department of Sleep Medicine**  
*Clinical Instructor- Responsible for training of medical fellows in the area of oral appliance therapy in the management of sleep disorders.*

### Education

General Practice Residency Program- **West Haven Veterans Administration Hospital and Hospital of Saint Raphael**, 1984  
Doctorate of Dental Medicine - **University of Connecticut**, 1983  
Bachelors of Arts - Biology - **S.U.N.Y at Buffalo**, 1979

### Honors

**Magna cum Laude**, S.U.N.Y at Buffalo, 1979  
**Oral Pathology Award**, University of Connecticut, 1983  
**Connecticut Magazine-** Named one of top dentists in Connecticut ,  
August 2008, August 2018  
**New Haven Living Magazine-**  
Named one of top dentists in New Haven County 2014, 2015, 2016, 2017  
**Diplomate, American Board of Dental Sleep Medicine-**  
May 2014- Present

**AADSM Dental Sleep Medicine Site Accreditation-** 2015-present

**Director, Sleep Apnea and Snoring Dental Therapy of CT  
Member- Editorial Advisory Board- Sleep Review Journal  
(current)**

**Lectures**

**Special Problems in Crown and Bridge Therapy**

To New Haven Dental Association, 1986

**Overdenture Therapy**

To New Haven Dental Association, 1989

**Treatment Planning Seminar Series**

Bi-Monthly seminar to Yale-New Haven Hospital Dental Residents,  
1994 – 2006

**Medical Emergency in Dental Practice**

Continuing education course given at University of Bridgeport  
School of Dental Hygiene, 1991

**CPR Instructor**

American Red Cross, 1989-90

**Oral Mandibular Advancement Therapy in Sleep Apnea 2011**

**Update in Dental Sleep Medicine 2012**

**Update in Dental Sleep Medicine 2013**

Yale New Haven Hospital Department of Pulmonology/Sleep  
Disorders to Attending Physicians, Residents, and Fellows

**Update in Dental Sleep Medicine 2014**

Connecticut State Sleep Conference

**Update in Dental Sleep Medicine 2015**

Connecticut State Sleep Conference

CT Valley Dental Association

New Haven Dental Hygiene Association

**Update in Dental Sleep Medicine 2016**

Connecticut State Sleep Conference,

Norwalk Hospital Department of Sleep Medicine

Shoreline Dental Association

New Haven Dental Association

**Update in Dental Sleep Medicine 2017**

Norwalk Hospital Department of Sleep Medicine

Connecticut State Sleep Conference

**Clinical Workshop in Dental Sleep Medicine- Yale Sleep  
Medicine Fellowship- 2015-2019**

**Clinical Workshop in Dental Sleep Medicine- Norwalk Hospital  
Sleep Medicine Fellowship- 2017-2019**

**Yale Sleep Symposium “Treatment for Sleep Apnea: A  
Personalized Approach” 2017**

## **Publications**

**“Incorporating Home Sleep Testing into Oral Appliance Therapy” / “HST in the Dental Setting: Survey Results”**

Sleep Review Magazine (July 2016)

**“Oral Appliances in Obstructive Sleep Apnea”**

Otolaryngology Clinics of North America (December 2016)

**“Demystifying Intraoral Scanning and Dental Sleep Medicine**

Sleep Review Magazine (September 2019)

## **Affiliations**

<b>American Dental Association</b>	1984-Present
<b>Connecticut State Dental Association</b>	1984-Present
<b>New Haven Dental Association</b>	1984-Present
<b>American Academy of Dental Sleep Medicine</b>	2005-Present
<b>National Sleep Foundation</b>	2014-Present

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<b>American Academy of Dental Sleep Medicine</b>	2005-Present
<b>National Sleep Foundation</b>	2014-Present

# Oral Appliances in Obstructive Sleep Apnea

Anthony Dioguardi, DMD<sup>a,\*</sup>, Moh'd Al-Halawani, MD<sup>b</sup>

## KEYWORDS

- Obstructive sleep apnea • Snoring • Oral appliance therapy
- Mandibular advancement device • Temporomandibular joint • Home sleep testing
- Bruxism • Dental sleep medicine

## KEY POINTS

- Oral appliance therapy (OAT) should be considered for appropriate patients who request treatment of primary snoring or obstructive sleep apnea and express a preference for OAT rather than alternative treatment.
- Patients who are considered appropriate for OAT should ideally have a minimum of 10 healthy, well-supported and distributed teeth of sufficient size and contour in each arch; and have a stable temporomandibular joint system without pain or restriction during lateral or protrusive excursions.
- Dentists who treat patients with sleep disorders require advanced training in dental sleep medicine, which is not commonly provided in dental school or residency programs.
- There are many types of oral appliances available, and these should be selected from patient anatomy, physiology, sleep behavior, and preferences.
- Patients who have been treated with OAT should maintain long-term follow-up care with both dentists and physicians beyond the initial adjustment period.

## BACKGROUND

Oral appliances for the treatment of airway obstruction were first addressed in 1923 in the literature by French pediatrician, Pierre Robin,<sup>1</sup> who described the fall of the base of the tongue as the cause of nasopharyngeal impairment and proposed a prosthetic device to correct “the dysmorphic atresia of the mandible.” However, these appliances were not commonly used for the treatment of sleep disordered breathing until the early 1980s, when a tongue-retaining device for the treatment of snoring and sleep

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Conflicts of Interest: The authors have no commercial conflicts of interest.

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[oto.theclinics.com](http://oto.theclinics.com)

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apnea was described by Cartwright and Samelson.<sup>2</sup> This device was followed by renewed interest in mandibular advancement devices (MADs) that reposition the mandible in a protrusive position in order to help maintain the patency of the upper airway during sleep.

The ensuing popular demand for these appliances led to a plethora of appliance designs being targeted to both the dental professional and directly to the general population seeking relief from snoring. The US Food and Drug Administration (FDA) has classified over-the-counter antisnoring mouth guards as class II medical devices, which places restrictions on their sale without prescription by a physician. Although this classification was challenged and upheld in *United States v Snoring Relief Labs Of America* (manufacturer of SnorBan an OTC mouthpiece), these devices continue to be readily available over the Internet, taking advantage of the FDA exemptions from adequate directions for use, which require consumers to appropriately answer a questionnaire before fulfilling an order. The variety of available devices also led to much confusion among practitioners and third-party payers as to which features of appliances were fundamental to treatment success.<sup>3</sup>

In 2014, the American Academy of Dental Sleep Medicine (AADSM) released a position paper designed to address these issues and define the characteristics of an effective MAD.<sup>4</sup>

### ***Mechanism of Oral Appliance Therapy Action***

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A mandibular advancement device functions by protruding and stabilizing the mandible in order to maintain a patent upper airway during sleep.<sup>4</sup> The precise physiologic and anatomic changes that result from mandibular advancement remain elusive.

Tsuiki and colleagues<sup>5</sup> reported that the protruded mandible results in changes in the anteroposterior width of the upper airway, and positions of the hyoid bone and the third cervical vertebra. However, Ryan and colleagues<sup>6</sup> reported that MAD use resulted in an increase in the lateral dimension of the velopharynx greater than the increase in the anteroposterior dimension (**Fig. 1**).

Various clinical attributes have been associated with successful treatment outcome. These attributes include younger age, female sex, less severe obstructive sleep apnea (OSA), supine-dependent OSA, lower body mass index, and smaller neck circumference.<sup>7,8</sup>

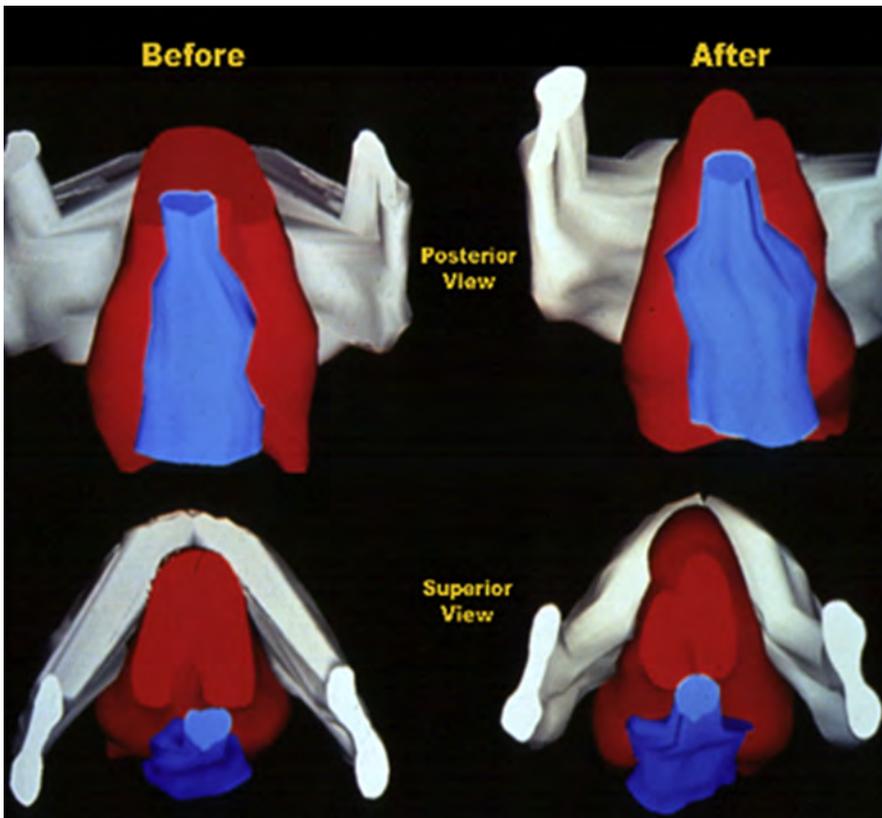
Analysis of lateral cephalometric images have shown an association between certain characteristics, such as retrognathic mandible, lower hyoid position, and greater angle between the cranial base and mandibular plane, with favorable MAD outcomes. However, none of the cephalometric associations are considered strong enough to have any clinically significant predictive value.<sup>9</sup>

In short, there is currently no reliable way to predict who will respond positively to MAD based on observable clinical features. In some patients, mandibular advancement results in improvement in the airway obstruction, whereas in others it results in increased obstruction.<sup>10</sup> However, Remmers and colleagues<sup>11</sup> reported predicting MAD therapeutic success using a remotely controlled mandibular positioning device during polysomnography.

### ***Definition of an Effective Oral Appliance***

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The abundance of trademarked custom MAD appliances available on the market all share the common characteristic of protrusively repositioning the mandible. Differences in materials, weight, size, range, placement of protrusive element, and a host



**Fig. 1.** Three-dimensional reconstruction of the velopharynx before and after MAD use. Red: tongue; white: mandible; blue: airway. (Courtesy of Alan A. Lowe, DMD, PhD, FRCD, Vancouver, British Columbia.)

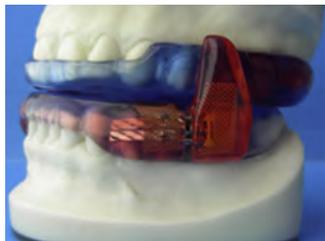
of other factors provide dentists with a wide variety of appliance choices to accommodate patients' physiologies and preferences (**Table 1**). Studies support that custom-made, adjustable MADs are superior in efficacy to prefabricated and nonadjustable alternatives.<sup>12,13</sup> The tongue-retaining device has similar efficacy but lower compliance than the MAD, but remains an option for significantly or partially edentulous patients.<sup>14</sup>

In 2014, the AADSM published a position report defining what constituted an effective oral appliance for the treatment of OSA in an effort set the standard of care and provide scientific rationale for the inclusion or exclusion of various device parameters.<sup>4</sup>

This article defined an effective oral appliance as one that:

- Has a dual arch design
- Is adjustable in a way that permits gradual protrusive advancement over a range of at least 5 mm
- Has an expected lifespan of at least 3 years
- Has a mechanism of protrusion that is verifiable and reversible
- Is custom fabricated for optimum fit and comfort

**Table 1**  
The variations of some commonly used MAD designs



Materials	Laser-sintered polyamide 12 body, polyamide 11 removable bars	Acrylic resin, stainless steel screw mechanism and bar	Acrylic resin, stainless steel screw mechanism	Control cured Poly (methyl methacrylate)
Protrusive mechanism	Replaceable bars of marked length	Telescopic fixed bar, adjustment screw on upper element with millimeter ruler	Fixed dorsal fin, adjustment screw on lower element	Fixed dorsal fin, no moving parts
Protrusive range	15 mm in 0.5-mm increments	8 mm, continuously variable	5 mm, continuously variable	2 upper and 2 lower interchangeable elements for a maximum of 3 different positions

### **Efficacy**

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Several studies provide evidence for the efficacy of MADs in reducing the overall apnea-hypopnea index [AHI], but with lower effectiveness compared with continuous positive airway pressure (CPAP). Treatment success across all levels of OSA severity using MADs is around 50%, with an overall average reduction in baseline AHI of 55%. MADs were also shown to have a positive effect on snoring and daytime symptoms, decreasing excessive daytime sleepiness and improving quality of life compared with placebo.<sup>8,12,13,15</sup> These results were more evident when the MADs were custom made compared with prefabricated ones.<sup>16</sup>

In a recent meta-analysis, Sutherland and colleagues<sup>17</sup> showed that 37% of patients using MADs achieved an AHI less than 5/h, 52% achieved AHI less than 10/h, and 64% reduced AHI by greater than or equal to 50%. Response rates were lower in patients with severe OSA; however, 70% of those showed a reduction in AHI greater than or equal to 50%, and 23% had complete resolution of OSA.

### **Compliance**

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MADs have higher compliance rates than CPAP with a median use of 77% of nights during the first year.<sup>15,18</sup> A short-term study by Philips and colleagues<sup>18</sup> showed that subjective reports of nightly compliance were less for CPAP compared with MAD.

### **Side Effects of Mandibular Advancement Devices**

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MAD use is usually associated with mild and transient side effects that tend to resolve within several days or weeks, given that the device has a good fit and is used by the patient regularly.<sup>19</sup>

Commonly reported side effects include:

- Temporomandibular joint (TMJ) discomfort or pain
- Myofascial pain
- Tooth tenderness
- Excessive salivation
- Gum irritation and bleeding
- Dry mouth

Occasionally, side effects negatively affect treatment compliance, but significant and persistent side effects are rare.<sup>13,15</sup>

Long-term MAD use may lead to dental and skeletal side effects that include:

- Decrease in overjet and overbite
- Retroclination of the maxillary incisors
- Proclination of the mandibular incisors
- Increases in the mandibular plane angle
- Increases in the anterior facial height
- Decrease in the number of occlusal contact points
- Anteroposterior change in occlusion<sup>20,21</sup>

Morning jaw exercises following MAD use have been shown to:

- Improve compliance
- Reduce side effects
- Improve quality of life
- Reduce sleep symptoms
- Alleviate muscle stiffness
- Aid in the mandible returning to its normal position<sup>22,23</sup>

### **Hybrid Therapy**

The use of a hybrid therapy combining nasal CPAP with MAD therapy for patients with OSA has been reported in the literature. Thornton<sup>24</sup> reported the first case in 2002 of combined MAD and CPAP therapy in a patient with severe OSA who initially could not tolerate treatment with CPAP because of increased pressures and leakage, and later failed treatment with MAD because of TMJ symptoms at maximum protrusion. The combination therapy was better tolerated by the patient with fewer side effects, because the combination therapy allowed for the use of a lower CPAP pressure and less advancement of the MAD.

This treatment strategy leads to reduced CPAP pressure, better fit, less leakage, and greater compliance.<sup>24</sup>

Another case report was published by Denbar<sup>25</sup>; both reports agree that MADs increase the upper airway size, decreasing the need for high CPAP pressures to maintain airway patency with combination therapy, and leading to better tolerance than with CPAP or MAD alone.

A study by El-Solh and colleagues<sup>26</sup> in 2010 included 10 patients who were using MAD therapy for OSA after they could not tolerate CPAP and still had incomplete response to treatment. This study showed that combination therapy was well tolerated by all patients and resulted in a reduction of CPAP pressure and AHI by 29% and 86% respectively from baseline.<sup>26</sup>

This finding suggests that combination therapy may be effective in patients who cannot tolerate treatment with either CPAP or MAD alone.

### **Patient Selection**

#### **Clinical examination of oral appliance candidates**

An oral examination preceding a referral to a dentist for oral appliance therapy (OAT) should include evaluation of the overall condition of the existing dentition, their supporting structures, the TMJ, and health of the soft tissue (**Box 1**).

#### **Dental Caries and Oral Appliance Therapy**

The teeth that support an MAD should be free from active dental caries, periodontally healthy, and structurally sound in order to withstand the forces resisting the displacement of the arch over the long term.<sup>27–29</sup>

Evaluation of potential MAD candidates should include a complete intraoral examination that includes visual inspection of the teeth for caries, structural compromise, and their supporting tissues. Advanced dental decay can result in the devitalization of the pulp chamber, which can in turn lead to pain that is exacerbated by tapping

#### **Box 1**

##### **Characteristics of an ideal oral appliance candidate**

- No active dental decay or periodontitis.
- A stable dentition with at least 10 well-supported teeth well distributed in each arch.
- A healthy TMJ complex with pain-free and unrestricted protrusive, lateral, and vertical excursive movements.
- Has been diagnosed with OSA and expresses a desire for a nonsurgical alternative to positive airway pressure treatment.
- Expresses a desire for a nonsurgical treatment of primary snoring.

the affected tooth with a mirror handle or similar instrument. These necrotic chambers often drain to the buccal and lingual surfaces, resulting in a draining fistula adjacent to the affected root (Fig. 2).<sup>30</sup>

The use of a removable oral appliance can lead to increased tooth decay by acting as a new retentive surface for the colonization of *Streptococcus mutans* and other cariogenic bacteria.<sup>31</sup> In addition, any appliance that covers the surface of the teeth has the potential to compromise the caries-protective cleansing effect of saliva, which can lead to an increased rate of dental caries.<sup>32</sup> Likewise, xerostomia (dry mouth), immune suppression, or any other condition that reduces the ability to resist dental decay or periodontal inflammation should be addressed before referral for an oral appliance.<sup>33,34</sup>

### ***Can the Existing Teeth Support a Dental Appliance?***

MADs reposition the mandibular arch to a protrusive position, and place a protrusive force on the lower teeth and an equal and opposite retrusive force on the upper teeth. In addition, oral appliances that have the upper element connected to the lower element by a hinge, bar, or elastic can act to dislodge the appliance when the mouth is opened. Accordingly, the teeth retaining the appliance should be large enough, adequately secured in bone, and possess the physical undercuts necessary to resist the various forces placed on the appliance.

Although a minimum of 10 healthy teeth per arch is traditionally considered the general requirement to retain most types of tooth-borne MADs, it must be considered that not all teeth provide equal resistance to unwanted tooth movement, also known as anchorage.<sup>35</sup> This anchorage is generally related to the size and root area of the teeth that are secured to bone, with the canines and molars providing significantly greater anchorage than the smaller rooted incisors and bicuspid.<sup>36</sup>

In situations in which natural undercuts are inadequate to retain an MAD, dentists can alter the contour of the teeth either by enameloplasty or the addition of composite resin (Fig. 3), creating undercuts that enable satisfactory retention of the appliance. In addition, if teeth are not well distributed throughout the arch, the resulting forces will be disproportionality distributed as well.

Anchorage can be compromised by periodontitis or occlusal trauma, which can lead to the loss of the tooth's bony support (Fig. 4). The root of a tooth is anchored to the supporting bone by a periodontal ligament, which is attached to both the tooth



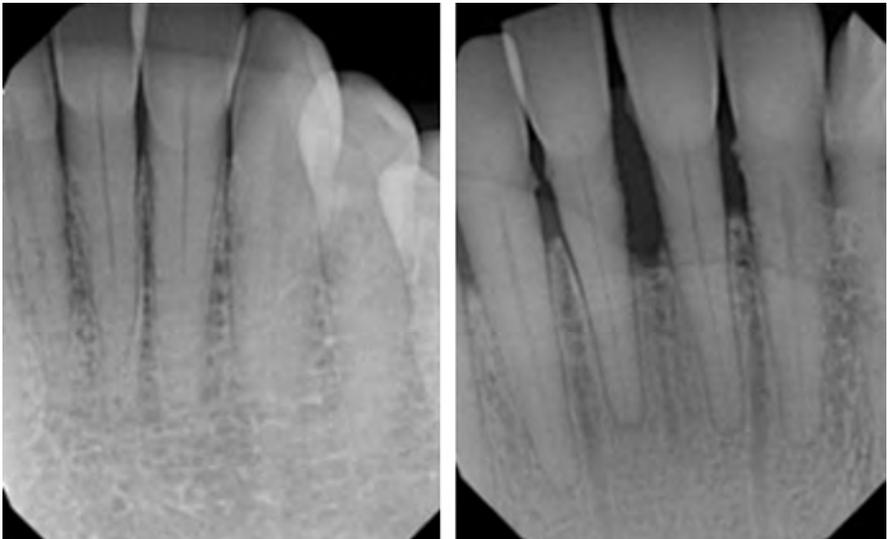
**Fig. 2.** Dental caries with fistula.



**Fig. 3.** Short teeth and bonded undercuts; enameloplasty shown in pink and addition of composite resin in blue.

and supporting bone. In many cases, a tooth becomes visibly mobile because of secondary occlusal forces overcoming the ability of the tooth to resist those forces.<sup>37</sup> Exceptions to the paradigm that only teeth can retain an MAD are discussed in reports of MAD designs that secure their retention by means of dental implants, extraoral soft tissue, and the edentulous arch.<sup>38-40</sup>

Periodontitis can often appear as red, swollen gingiva adjacent to the teeth, and readily bleeds on probing. In other cases, the disease exists without signs of obvious surface inflammation, with the inflammatory process existing beneath the surface of the gingiva in the space adjacent to the tooth, known as the periodontal pocket (**Fig. 5**). Tooth mobility can easily be observed by applying gentle pressure with a mirror handle. Active periodontitis and/or mobility in 1 or more of the teeth can be



**Fig. 4.** Normal bone level without periodontitis (*left*). Reduced bone level and anchorage secondary to periodontitis (*right*).



**Fig. 5.** Periodontal probe revealing loss of bone mesial of tooth 9. Note draining fistula buccal to base of the periodontal pocket.

exacerbated by the use of an oral appliance and must be addressed before fabrication of the device is considered. Clearly, patients presenting with a high caries rate and/or active periodontal disease, coupled with a history of only emergency-related dental visits, are better served by alternative therapies for their sleep disordered breathing.

#### ***Bruxism and Oral Appliance Therapy***

The presence of teeth with flattened occlusal surfaces suggests a history of or active tooth grinding or bruxism, a condition that has been associated with sleep apnea.<sup>41</sup> The precise nature of this association, or whether or not there is a causal relationship between bruxism and OSA, remains unclear.<sup>42</sup> Bruxism (**Fig. 6**) is commonly evaluated during polysomnography by electrodes placed on the masseter muscle, but is not typically evaluated during type 3 home sleep testing.<sup>43,44</sup> Nocturnal bruxism commonly results in breakage of acrylic oral appliances (**Fig. 7**) and its presence suggests that the device should be fabricated from one of the newer, more durable materials.<sup>45</sup>

#### ***Temporomandibular Joint Considerations in Oral Appliance Therapy***

A healthy TMJ complex that enables the patient to have pain-free and unrestricted protrusive, lateral, and vertical movement is a prerequisite for any OAT. It is



**Fig. 6.** Bruxism; note the characteristic wear pattern on the lower incisors (*left*); and loss of vertical dimension resulting from destruction of the incisal portion of the dentition (*right*).



Fig. 7. Appliance failure secondary to nocturnal bruxism.

unreasonable to expect a patient to wear an MAD if it is uncomfortable. Therefore, careful consideration must be given before attempting fabrication of an MAD for a patient with significant pain or restrictions when entering protrusive, lateral, or vertical mandibular excursions. Clinical evaluation of the TMJ complex should include observation of anything suggestive of disorder during these excursions (clicks, pops, or pain). In addition, the muscles of mastication, including the temporalis, masseter, and internal pterygoid, should be palpated and any tenderness noted.<sup>46</sup>

#### ***Which Patients with Sleep Disorder Should Be Referred for Oral Appliance Therapy?***

The July 2015 American Academy of Sleep Medicine (AASM)/AADSM guidelines<sup>47</sup> recommend that oral appliances should be offered to adult patients:

- Who request treatment of primary snoring (without sleep apnea)
  - The guideline recommends that patients who have failed traditional conservative measures such as positional therapy, weight loss, and alcohol avoidance be offered OAT.
  - Because loud snoring is often a warning sign of underlying OSA,<sup>48</sup> the diagnosis of primary snoring should be made by a sleep physician rather than a dentist. This notion has recently been challenged by the Texas Board of Dental Examiners, which passed Rule 108.12 referring to sleep studies as a screening tool that dentists may use to differentiate OSA from primary snoring and left it to the dentists' discretion to determine which patients require physician assessment before the initiation of treatment. In response, the Texas Medical Association and the AASM are currently challenging the ruling and requested the court to void the rule. This challenge has been supported by the AADSM, which maintains that treatment by a dentist may proceed only after a diagnosis of OSA or snoring has been made by a physician.<sup>28</sup>
- Are intolerant or prefer an alternative treatment to CPAP therapy
  - This new guideline no longer differentiates between different levels of OSA (mild, moderate, and severe). This recommendation was based on a meta-analysis of past studies that showed no statistically significant difference in the mean reduction in AHI before and after treatment in patients using oral appliances versus CPAP across all levels of OSA severity. However, the probability of achieving a target AHI in patients with moderate to severe OSA is significantly greater with CPAP than OAT.<sup>47</sup>

### ***Treatment Protocol and the Dental Referral***

OAT should be undertaken by a qualified dentist only after a referral from a qualified physician trained in sleep medicine who has performed a face-to-face evaluation of the patient.<sup>49</sup>

Dentists who treat patients with sleep disorders require advanced training in dental sleep medicine, which is not commonly provided in dental school or residency programs. The AASM/AADSM defines a qualified dentist as one who has completed 25 hours of continuing education in dental sleep medicine within the past 2 years from a nonprofit organization, been designated a dental director of an accredited dental sleep medicine facility by a nonprofit organization, or has certification in dental sleep medicine from a nonprofit organization.<sup>47</sup>

The dental evaluation for OAT should include examination of the oral cavity including the teeth and their supporting structures, soft tissue, temporomandibular complex, and review of a recent complete dental radiographic survey. A medical and sleep history should be taken and sleep studies reviewed. A thorough review of informed consent that includes the benefits, alternatives, potential side effects, and risks of the proposed therapy, along with the risks inherent in not treating the condition, should be reviewed in detail and signed by the patient in the presence of a witness.

Various options in appliances should be discussed, as should the dentist's recommendation of the appliance that would be ideally suited for that patient based on the clinical examination and the patient's preferences. It is highly advantageous for the patient to have the opportunity to physically hold and examine demonstration models of the appliances. Although CPAP has been consistently proved to be more predictably effective in treating moderate to severe OSA than OAT,<sup>50</sup> it must be remembered that the primary reason most patients seek out OAT is because they expect to be able to tolerate it better than they would a CPAP device. It is intuitively obvious that patients are even more likely to be compliant with a device that they have had a part in choosing.

The postinsertion adjustment period typically involves at least several visits over approximately 3 months before referral back to the sleep physician to confirm efficacy. During this time, the protrusive settings are gradually increased to what the dentist determines (by both subjective and sometimes objective means) to be the ideal therapeutic position.

The current clinical guidelines stress open communication between dentist and physician, OAT efficacy confirmation by physician-ordered sleep testing, and short-term and long-term medical and dental follow-up once efficacy has been established. Once the physician has verified that the OAT is effectively treating the patient's condition, the AADSM recommends that patients be seen a minimum of once every 6 months for the first 2 years and then on a once-a-year basis.<sup>51</sup> During these visits, the dentist can:

- Monitor the physical integrity of the appliance
- Reassess the patient's subjective symptoms, such as snoring and sleepiness as measured by the Epworth Sleepiness Scale
- Evaluate potential side effects of the device, such as bite changes (by comparing with preliminary models, radiographs and photographs), caries, and temporomandibular dysfunction
- Refer the patient back to the sleep physician if there are reasons to think that the current treatment is no longer effective

### ***Home Sleep Testing in the Dental Setting***

The AADSM Protocol for Oral Appliance Therapy for Sleep Disordered Breathing in Adults: An Update for 2012,<sup>52</sup> states that, “After this initial fitting, the dentist may obtain objective data during an initial trial period using a portable monitor to verify that the oral appliance effectively improves upper airway patency during sleep by enlarging the upper airway and/or decreasing upper airway collapsibility. If necessary, the dentist makes further adjustments to the device during a final fitting to ensure that optimal fit and positioning have been attained.”

Type 3 or type 4 home sleep tests (HSTs) are commonly given to patients by qualified dentists seeking to adjust the appliances to achieve the optimal desired effect of upper airway patency. Various protrusive and vertical positions can be assessed in order to adjust the appliance to result in optimal sleep scores. This objective information becomes particularly useful in cases in which the patient does not experience subjective symptoms such as snoring or daytime sleepiness. These tests are commonly scored by computer algorithm, and although not diagnostic, can provide valuable comparative information with respect to appliance settings.

It must be stressed to the patient that dentist-administered HSTs are performed solely to aid the dentist in the adjustment of the appliance and are not diagnostic, because the diagnosis of medical conditions is not within the ethical or legal scope of the practice of dentistry. It is the opinion of this author that, before a dentist gives an HST to a patient, the patient must agree in writing that the patient understands that the results of the test will not be shared directly with the patient, but may be shared with the patient’s sleep physician.

### **SUMMARY**

OAT use has become an increasingly popular option in the treatment of primary snoring and OSA in recent years. Although less consistently effective than CPAP, it remains an attractive nonsurgical treatment option because of its high levels of compliance, convenience, and stealth. A focused oral examination can help determine whether or not a patient is a candidate for an MAD. Recent studies have suggested that CPAP and OAT used together can provide a higher level of success than either used alone.

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# Incorporating Home Sleep Testing into Oral Appliance Therapy

Objective data provided by HST can optimize a dentist's ability to titrate a mandibular advancement device. Titration HST results should not be shared directly with the patient, but should be passed on to the sleep physician prior to the follow-up sleep study.

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An untuned guitar that arrives in the mail is useless until it is tuned to the proper pitch. If the strings are tightened too rapidly or too far, the neck will be strained and possibly damaged. Not enough string tension and the instrument will also not function properly.

Before the introduction of the modern electronic tuner, a guitarist had to rely only on trained ears to bring the instrument to the proper pitch. This new technology provided additional objective information that, when combined with the subjective sound of the instrument, led to ideal intonation of the guitar.

Likewise, an oral appliance can effectively open an airway during sleep only if it has been carefully advanced to its ideal three-dimensional position. That ideal position takes into account not only its effectiveness in achieving airway patency, but its suitability to the particular patient. In other words, it must be one the patient can tolerate on a nightly basis. But how does the dentist determine where that position is? Although it has been demonstrated that the degree of mandibular protrusion is generally correlated with increased device efficacy, this is not always the case. For some patients, excessive protrusion beyond an ideal position not only exacerbates unwanted side effects such as temporomandibular joint (TMJ) pain and tooth movement, it also can have a negative impact on airway patency.<sup>1</sup> Like the guitar tuner, the additional objective information provided by home sleep testing (HST) can optimize the dentist's ability to more effectively adjust the oral appliance.

## CHALLENGES IN APPLIANCE ADJUSTMENT

In the past, dentists providing oral appliance therapy were limited to adjustments based on the patient's subjective symptoms. Traditionally, a patient's sleepiness or a bed partner's reports of snoring would lead a dentist (or the patient) to advance the protrusive adjustment of an



appliance. If no protrusive setting provided the relief of subjective symptoms, the vertical dimension of the device was changed. Conversely, a dentist hearing reports of TMJ-related pain would be likely to pause or reduce the appliance's settings until the patient was comfortable.

However, there are many clinical situations when a patient's subjective symptoms are not always obvious or even obtainable. Consider, for example, the patient with moderate or even severe obstructive sleep apnea (OSA) but no significant daytime sleepiness. Perhaps they don't snore or, if they do, have no bed partner to witness it. On what basis is the dentist to adjust their appliance?

While mandibular advancement devices (MADs) have been consistently demonstrated to be more effective in reducing objective measures of airway obstruction than inactive sham appliances, there have been documented cases of the placebo effect on subjective outcomes.<sup>2</sup>

This scenario might be illustrated by the patient who experiences complete relief of subjective complaints while using the appliance, yet the sleep physician reports that follow-up polysomnography (PSG) revealed it has not effectively reduced the apnea-hypopnea index (AHI) or oxygen desaturation. What can the dentist do to have a reasonable expectation that

a future PSG would have a better result than the first?

## DENTISTRY AND HOME SLEEP TESTING

Modern HST devices are relatively unobtrusive and simple for patients to use. Their data can be scored by computers in a matter of moments. These range from relatively simple and less expensive Type IV monitors that typically measure only one or two channels such as oxygen saturation and heart rate to more sophisticated Type III models that measure four or more channels and are similar or identical to those used by sleep labs.

Many HST devices provide both raw data and computer-scored interpretations of that data. While these computer-scored tests have been demonstrated to significantly correlate to those scored by trained sleep technologists,<sup>3,4</sup> they are not considered diagnostic. However, they can provide the dentist with valuable insight during the adjustment period.

The use of HST for the adjustment of oral appliances is consistent with the American Academy of Dental Sleep Medicine (AADSM) guidelines for dental sleep medicine, which state, “the dentist may obtain objective data during an initial trial period to verify that



A SomnoMed Herbst Advance has an 8 mm range and millimeter scales on each side that facilitate observation of the protrusive position.

## HST in the Dental Setting: Survey Results

From April 28 through May 19, 2016, *Sleep Review* conducted an online survey to find out how home sleep testing (HST) is currently being used in the dental setting. More than half of the dentists who took the survey (57%) self-identified as general dentists; 34% identified themselves as dentists who spend more than half of their time on dental sleep medicine; 9% said they spend more than half of their time on an area of dentistry that is not general dentistry or dental sleep medicine.

Because a main avenue for survey distribution was via *Sleep Review* subscriber lists and social media channels, it is important to note that the dentists who took this survey were more likely to have an interest in dental sleep medicine than a random sampling of dentists in the general population. Seventy dentists completed the survey.

The survey was 11 questions in length (a 12th question allowed respondents to enter to win a gift card) and was developed by this article's author and *Sleep Review's* chief editor.

The *Sleep Review* survey found:

### When asked about how the dental practice has facilitated the use of HST for patients who do not currently have a diagnosis of obstructive sleep apnea (OSA) in the past 12 months, dentists replied as follows:

- 53% facilitate and follow up on referrals to local physicians who are likely to write HST prescriptions
- 40% directly connect the patient to an HST device, both with and without in-person physician visits
- 6% will make a physician referral but do not typically follow up
- 1% do not offer OSA screening or referrals for their patients

### Regarding patients who already have an OSA diagnosis, respondents indicated that their practice has facilitated HST with these patients in the following ways:

- 53% directly employ HST as a tool to help find the ideal oral appliance position before sending the patient back to a sleep physician
- 37% will make a physician referral or work in-person with a physician for titration follow-up via likely HST
- 9% do not typically facilitate any post-diagnosis HST
- 1% do not treat OSA patients

### Dentists indicated they use the following HST device supply model:

- 59% own the HST devices themselves
- 22% do not directly facilitate or employ HST
- 10% rent devices per month
- 9% outsource to a dental HST provider
- 0% rent devices per use

### The number of HSTs leased or owned per practice:

- 0 devices: 30% currently (33% one year ago; 44% two years ago)
- 1 device: 26% currently (28% one year ago; 26% two years ago)
- 2 devices: 25% currently (22% one year ago; 18% two years ago)
- 3 or more devices: 19% currently (17% one year ago; 12% two years ago)

### Type of HST device currently leased/owned:

- Type III: 45%
- Do not own/lease HST devices: 30%
- Both Type III and Type IV: 18%
- Type IV: 7%

### How HSTs are scored:

- 43% via outsourced service (by physician who dentist does not personally know or automated)
- 34% automated (by computer)
- 23% manually by local physician

### Do you or your office share the HST results with the patient?

- Yes: 80%
- No: 20%

the oral appliance effectively improves upper airway patency during sleep by enlarging the upper airway and/or decreasing upper airway collapsibility.”<sup>5</sup> The AADSM guidelines do not specify what device(s) may be used to gather the objective data nor does it provide any guidelines or protocols for their use. As is the case with other new technologies (for example, aerial drones), the introduction of technology commonly precedes any regulations or guidelines on their use. HST use by dentists has already become commonplace, as evidenced by the proliferation of dental HST providers and the results of a recent “HST in the Dental Setting” survey done in conjunction with this article (see the sidebar on page 13). This proliferation underscores the urgent need for more specific guidelines regarding the use of HST technology in the dental setting.

Although some dentists currently use various types of HST to screen patients for OSA, this practice is considered controversial and specifically contrary to American Academy of Sleep Medicine (AASM) and AADSM recommended practices. As Harold A. Smith, DDS, AADSM president, explains, “Sleep apnea is a chronic disease that is associated with an increased risk for other serious medical complications including hypertension, cardiovascular disease, stroke, and Type 2 diabetes, and it also raises the risk for workplace injuries and motor vehicle accidents. Therefore, patient health and public safety can be jeopardized—and healthcare professionals held liable—if sleep apnea is overlooked or misdiagnosed, or if the severity of the disease is underestimated. Dentists who order a home sleep apnea test to screen for a medical disease are exposing themselves to significant liability risks.”

As an additional word of caution, any dentists who are considering utilization of HST or any other medical testing in their practice should confirm that such testing is within the scope of their practice of dentistry as defined by their particular state’s laws and regulations. According to Patrick J. Monahan II, a Connecticut-based attorney who advises healthcare professionals in regulatory matters: “If a dentist orders home sleep testing or other medical tests in a state in which the state legislature or other controlling governmental body has determined such tests to be outside the dentist’s permissible scope of practice, or if there is doubt about whether the tests are in or outside the scope of dentistry, that dentist risks adverse action against his or her license, as well as the risk that the dentist’s professional liability insurer will deny coverage for any alleged negligence associated with such tests.”

## CASE EXAMPLE

SG is a 66-year-old nonobese male who was diagnosed by his sleep physician with moderate OSA (AHI: 25 (3%), oxygen

## HOME APPLIANCE ADJUSTMENT STUDY

Appliance: Herbst Advance

Name: Sxxxx Gxxxx	ADJUSTMENT or BAR LENGTH
Night 1-DATE	6 mm
Night 2-DATE:	5 mm
Night 3-DATE:	4 mm

Comments:

Figure 1. Home appliance adjustment study printed instructions given to patient.

saturation nadir: 79%, 12% sleep time with oxygen saturation below 90%). His chief complaints upon presentation to the sleep lab were excessive daytime sleepiness (Epworth Sleepiness Score: 17) and loud snoring reported by his bed partner. His medical history was remarkable for hypertension, atrial fibrillation, and borderline Type 2 diabetes. He has had two minor and one major motor vehicle accidents within the past 2 years. He was prescribed a CPAP by his sleep physician but after several failed attempts asked for an alternative treatment for his condition. At this point, he was referred to our office for evaluation. Clinical and radiographic examination (a recent full series of dental x-rays) revealed no contraindications to oral appliance therapy.

A SomnoMed Herbst Advance appliance was fabricated at an initial protrusive position of 50% (6 mm out of 12 mm protrusive range). This particular appliance has an 8 mm range and millimeter scales on each side that facilitate observation of the protrusive position.

His starting position corresponded to the 1 mm marks on each side of the appliance, which allowed for 1 mm retrusive and 7 mm protrusive adjustments. He was instructed not to advance the appliance during the initial first week period. At 1 week post-insertion, he reported that he was feeling somewhat less sleepy. His wife reported that he was still snoring although not nearly as loudly. He had no dental or TMJ-related complaints and was meticulously following all postoperative instructions. He was instructed (verbal and printed) to advance the device 0.5 mm each week but only if he was not experiencing any TMJ pain and to continue to do so up to a maximum of 2 mm or until his sleepiness and snoring were resolved.

He returned for follow-up 4 weeks later, and he and his wife happily reported the sleepiness and snoring were effectively eliminated by the appliance. He reported he had advanced the

Day	Percent protrusion vs original position	Reading on appliance scale	AHI	O <sub>2</sub> nadir	Time below 90% O <sub>2</sub> saturation
Night 1 – current position	92%	6 mm	4	92%	0%
Night 2 – retruded 1 mm	83%	5 mm	3	91%	0%
Night 3 – retruded 2 mm	75%	4 mm	14	82%	5%

Figure 2. Patient’s computer-scored home appliance adjustment study results.

appliance a total of 1 mm on both right and left sides. This was confirmed by observation of his appliance.

Subsequent follow-up visits over the next 2 months revealed no change in his subjective symptoms. This very happy patient was referred back to his sleep physician to evaluate the efficacy of the device.

Much to all of our surprise and disappointment, the report from his sleep physician indicated that his AHI was now 33 with the device in place and his oxygen desaturation nadir and duration essentially unchanged.

The patient was then instructed to further advance the appliance 0.5 mm per week (unless he had dental or TMJ-related symptoms) for a total of no more than 4 mm total. At this point, he had a total of 6 mm protrusive range from his current setting.

He was followed every 2 weeks during this time and showed no signs of difficulty with the advancement of his device.

After the appliance was advanced the full 4 mm, the patient was sent home with a Type III ResMed ApneaLink Air HST device, as well as additional AAA batteries for each night of use. His instructions (verbal and printed) were to use the monitor on each of 3 nights with the first night at the current appliance position and reduce the setting 1 mm on each subsequent night (see Figures 1 and 2). All patients who are to receive a HST from our office sign a written agreement that describes their specific responsibilities for any loss or damage to the device. The agreement also stipulates that the results of the test will not be shared with the patient, as doing so risks the possibility of implying a medical diagnosis.

Based on the HST adjustment study results, the patient was instructed to keep his device at the 5 mm setting for the subsequent follow-up with his sleep physician. The results of the HST were not discussed with the patient (as was stipulated in the pretest signed agreement). Copies of the reports were forwarded to the patient's sleep physician along with a link to retrieve the raw data.

The physician's subsequent PSG 3 months later confirmed the efficacy of the device at the 5 mm position. The patient was scheduled for a 6-month follow-up appointment and asked to contact our office if there were any changes in his symptoms or issues with the appliance.

## DISCUSSION

Although symptomatic relief often corresponds with reduction in objective observations, this case confirms reports in the literature that this does not always hold true. The primary advantage of using multnight sleep studies versus the traditional practice of a single-night study at one appliance setting is the ability to retrieve the maximum amount of information in a relatively short amount of time. Although there are cost savings related to the reduced number of office visits and the ability to reuse disposable accessories during the 3 nights, they are offset by the potential expense of additional HST devices, each capable of recording at least 3 nights of data, that the patient retains for the longer testing periods.

The protocol described in this article does have a notable disadvantage: HST is currently only approved for use by a physician for the diagnosis of OSA in patients with a high

Although symptomatic relief often corresponds with reduction in objective observations, this does not always hold true.

pretest probability of moderate to severe OSA. So a dentist, in collaboration with a physician, who is treating a patient with mild to moderate OSA—the type of patient who is more likely to be referred for oral appliance therapy than a patient with severe OSA—is gathering titration data in the range where HST reports are least reliable; that is, in cases of mild OSA. But in this author's view, this disadvantage underscores my recommendation that these computer-scored tests, when used as described in this article, should not be shared with the patient. The titration HSTs are not diagnostic. However, the ability to share raw data from these tests with the sleep physician would certainly provide an avenue for more effective collaboration during the adjustment period.

In an ideal world, all follow-up MAD visits would be conducted jointly by the physician and dentist in the same physical location, with unlimited testing at no expense to the patient. But in reality, physician-administered HST assessments throughout the adjustment period would require additional patient travel and expense. Also, even the most generous insurance policies have a limit on how many tests will be covered. So the protocol described in this article is a real-world effort to incorporate this new technology to assist the dentist in establishing a tentative appliance setting prior to assessment by the sleep physician, in the absence of any specific published guidelines.

Today, there are many technological advances in sleep medicine that offer providers superior options to serve patients' needs. HST in the dental setting, when used appropriately, is a tool that can increase a dentist's ability to collaborate more efficiently and effectively as a partner in the treatment of sleep disorders. **SR**

---

*Anthony T. Dioguardi, DMD, DABDSM, is a general dentist with extensive training and experience in the management of snoring and obstructive sleep apnea with oral appliances. As an active participant with Yale University's Sleep Medicine post-doctorate fellowship program since 2009, he provides clinical and academic instruction in the dental treatment of sleep-disordered breathing. He is a member of Sleep Review's editorial advisory board.*

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## THE COMMISSION ON **DENTAL COMPETENCY** ASSESSMENTS

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cdcaexams.org

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For Immediate Release

# Non-Patient-Based Dental Restorative Exam Option Using New Manikin Tooth Technology Approved by ADEX

(*Linthicum Heights, MD* | **April 3, 2020**) The American Board of Dental Examiners (ADEX) will allow candidates for dental licensure to choose a non-patient-based restorative examination option to demonstrate readiness for practice. This format utilizes the CompeDont™ DTX, a new manikin tooth technology developed by the CDCA and Acadental, Inc.

The CompeDont™ DTX is a first of its kind manufactured tooth that presents a high-fidelity opportunity for licensure candidates to diagnose and treat Class II and Class III caries. The CompeDont™ is patent pending with product development initiated by the CDCA in 2017 and was first made public last fall as part of pilot testing at 6 dental schools; University of Mississippi Medical Center School of Dentistry, University of Buffalo (SUNY), Indiana University School of Dentistry, University of Detroit Mercy School of Dentistry, Midwestern University College of Dental Medicine – Illinois, and Midwestern University College of Dental Medicine – Arizona. These schools hosted high stakes pilot examinations using the Class III lesions between September and December 2019.

When compared to that of ADEX patient-based exams, independent psychometrician analyzed pilot data showed the simulated tooth identified the same critical deficiencies in skill typically revealed by the treatment of natural teeth. “Candidates encountered realistic and variable caries unlike other simulated teeth currently available,” says Dr. Guy Champaine, CompeDont™ Development Team Leader.

CDCA Director of Examinations Dr. Ellis Hall says it is the CompeDont™’s ability to accurately represent infected, affected and sclerotic dentin that is unique. “Both examiners and students reported that the tooth mimics decay, stickiness and tug-back and can be restored as if it were a natural tooth in this way.”

The dental board representatives to ADEX voted 29-1 to approve the use of the CompeDont™ for both Class II and Class III restorative procedures at a special, virtual meeting on April 2, 2020. The CompeDont™ will be permitted in place of the patient portion of the restorative examinations in the same framework and processes of the existing psychometrically valid examination as soon as possible.

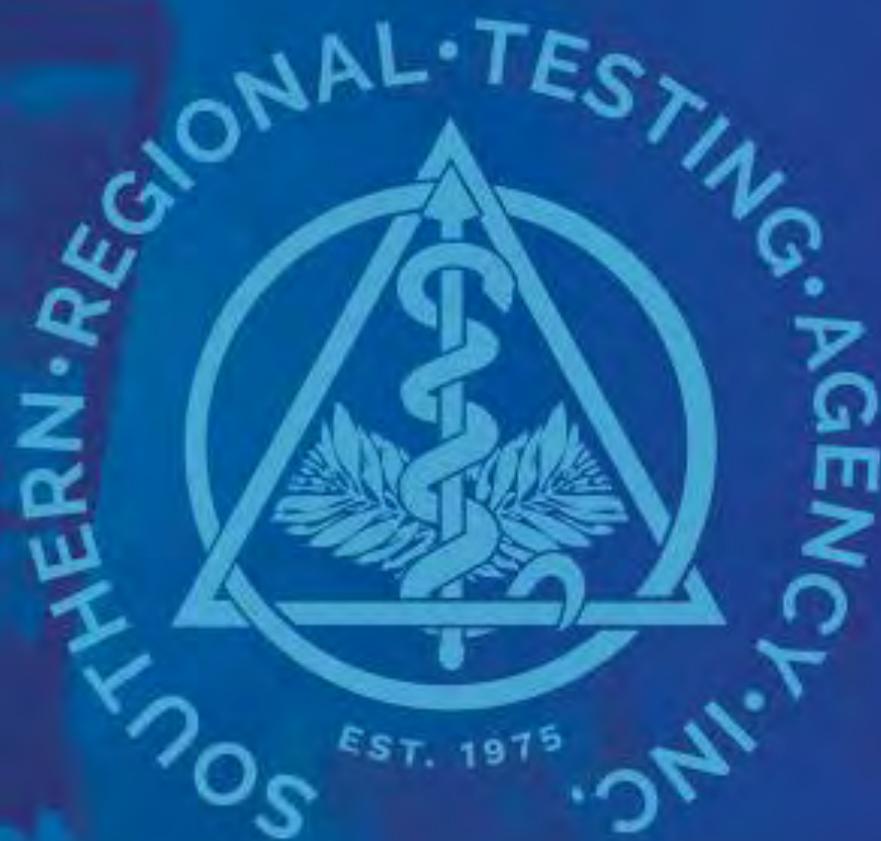
The acceptance of a non-patient-based examination for licensure falls to each jurisdiction. “The CompeDont™’s new technology provides an option to many state dental boards seeking to address public health concerns in the face of the COVID-19 outbreak without reducing important existing licensure standards,” says Dr. Harvey Weingarten, CDCA Chair. Based on this immediate ADEX approval, the new non-patient-based administration option will be incorporated into CDCA licensure exams for the Class of 2020 candidates. “We recognize each state will determine independently whether

they will accept this new non-patient option for restorative procedures. To help address these differences, the ADEX licensure examination reporting system will clearly identify if a Class II or Class III restoration are manikin or patient-based,” reports Dr. Bill Pappas, ADEX President.

ADEX dental licensure is a five-part examination. It includes a computerized written Objective Structured Clinical Examination (OSCE) measuring clinical judgments and treatment planning decision making, and four clinical portions including an anterior restorative, a posterior restorative, endodontic and prosthodontic sections. An optional periodontal scaling examination is also available. Since 2015, two administrative pathways have existed using the identical ADEX content and criteria, traditional patient-based and Patient-Centered Curriculum Integrated Format (PC-CIF, available at participating schools).

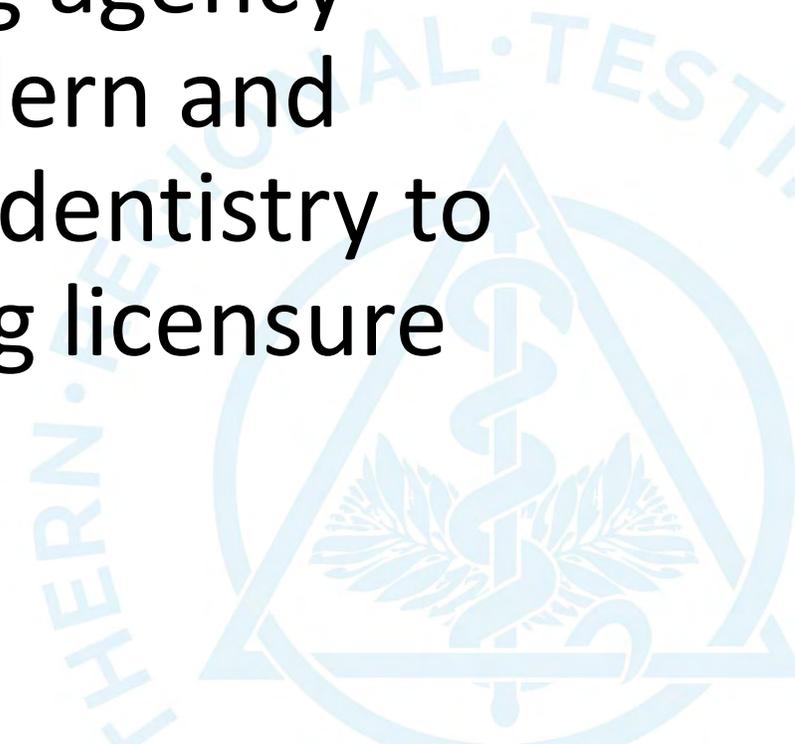
The CDCA partnered with Acadental, Inc. for the development and production of the CompeDont™ DTX. The tooth will be made available for all ADEX examinations but will remain the intellectual, protected property of the CDCA. Based in the Kansas City metropolitan area, Acadental, Inc. currently holds at least 5 patents and distributes dental educational products worldwide. The Commission on Dental Competency Assessments, founded in 1969, is the largest nonprofit, third-party administrator of dental and dental hygiene assessments in the US. For more information about the CDCA CompeDont™, contact Stephanie Beeler, Multimedia, Communications, and Strategic Projects Leader at [sbeeler@cdcaexams.org](mailto:sbeeler@cdcaexams.org).

*SRTA: Modern assessment  
for today's dental professional*



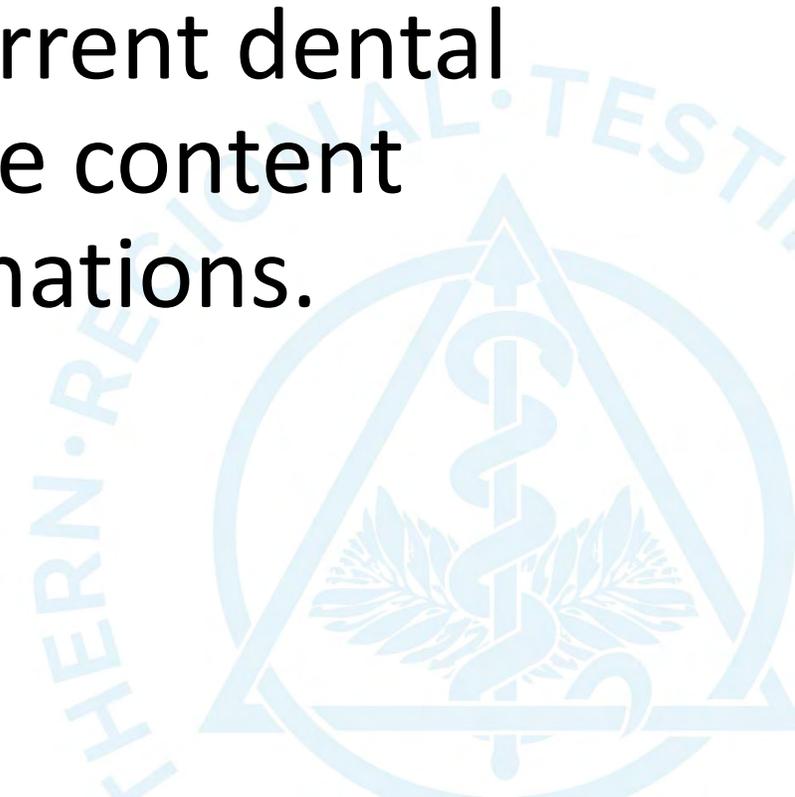
## **SRTA Mission and Goal**

The Southern Regional Testing Agency (SRTA) is a candidate-focused, innovative testing agency committed to bringing the most modern and innovative thoughts and practices in dentistry to dentists and dental hygienists seeking licensure assessments.



## **SRTA Experience**

The Southern Regional Testing Agency has a history of being at the forefront of current dental research, offering the most up-to-date content and setting for its clinical skills examinations.



# Goal for Candidates

## **SRTA is user friendly and innovative**

SRTA is committed to bringing the most up-to-date clinical skills assessment, and to properly preparing them to excel in the dental profession.



# Goal for Members and State Boards

**SRTA tests are valid with a commitment Quality Assurance**

SRTA ensures State Boards the highest level of clinical skills competence in the certification of dental professionals.

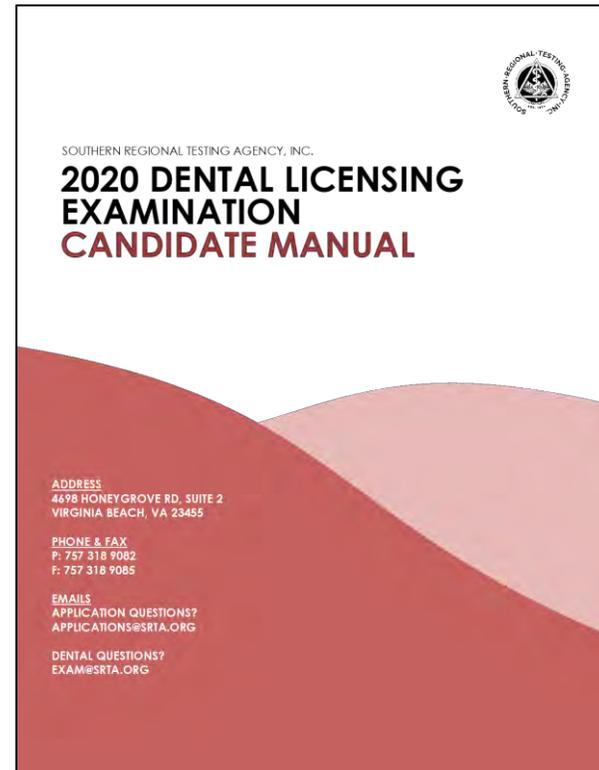




# SRTA Process and Testing Manual

## Dental Examination

- Endodontics
- Fixed Prosthodontics
- Anterior Prep & Restoration
- Posterior Prep & Restoration
- Optional periodontal section
- Pass/Fail



# SRTA Process and Testing Manual

## Dental Examination Continued:

- Endodontic Procedure\*:
  - Anterior endodontic procedure including access opening, instrumentation and obturation, and
  - Posterior endodontic procedure includes access opening and canal location, also
- Fixed Prosthodontic Procedure\*:
  - An all-ceramic anterior crown preparation, and
  - Three-unit fixed bridge, which includes a zirconium/gold posterior crown preparation and a porcelain fused to metal crown preparation.

\*Please reference candidate manual for specific details on criteria tested

# SRTA Process and Testing Manual

## Dental Examination Continued:

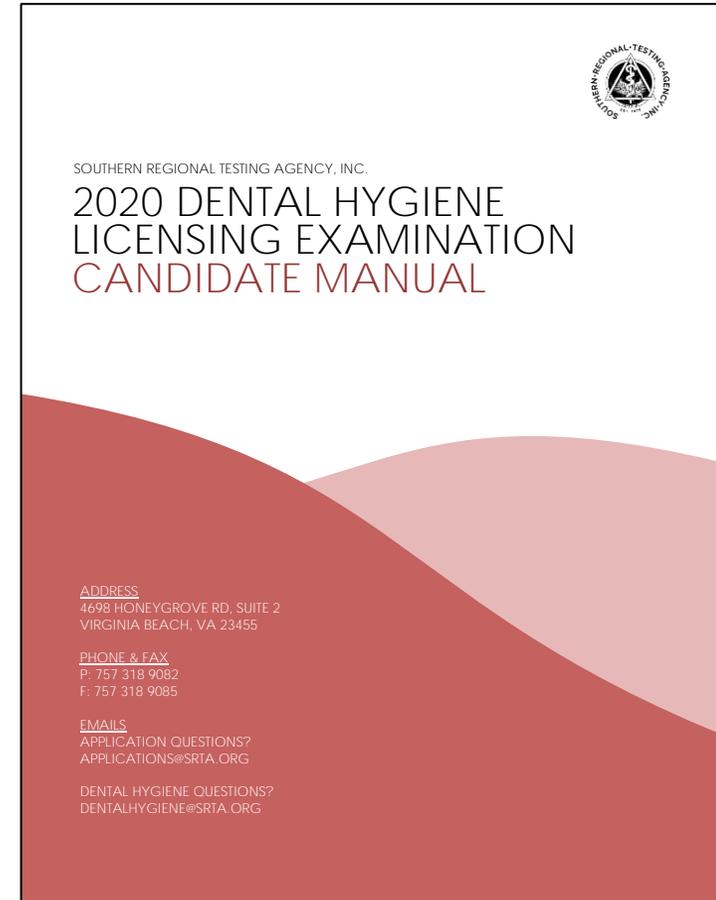
- Restorative sections\* consists of:
  - Anterior Restorative Class III: composite preparation and restoration;
  - Posterior Restorative Class II: composite or amalgam preparation and restoration; and
  - Periodontal Scaling Treatment (Optional): demonstrating calculus detection and removal.

\*Please reference candidate manual for specific details on criteria tested

# SRTA Process and Testing Manual

## Dental Hygiene Examination\*

- Candidates screen typodont for 12 surfaces of heavy to moderate calculus
- Periodontal Pocket Depth Detection
- Calculus Detection
- Calculus Removal
- Intra/Extra Oral Exam (optional)



\*Please reference candidate manual for specific details on criteria tested

# SRTA Process and Testing Manual

## Dental Hygiene Examination Continued:

- Candidates will screen typodont for 12 surfaces of heavy to moderate calculus
- 2 teeth to measure Periodontal Pocket Depth Detection
- 3 teeth for Calculus Detection
- Calculus Removal for case selection (1 quadrant and any additional teeth)
- Optional Intra/Extra Oral Exam has 50 multiple choice questions testing areas such as disease of the oral cavity and healthy tissue treatment management

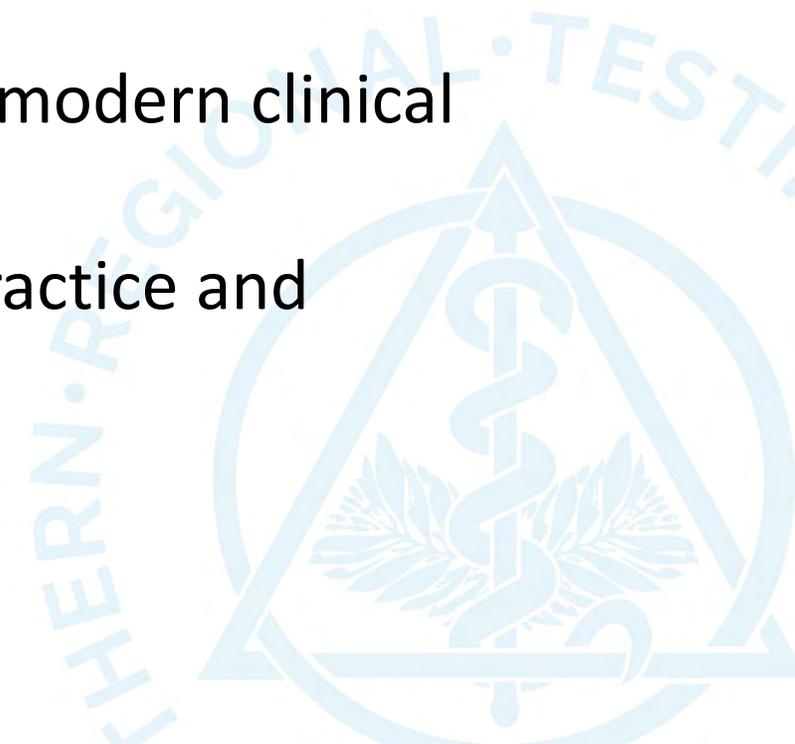
# SRTA Examiners

- Current and past SRTA state board members
- Educators from the universities where the SRTA exams are held, although they cannot examine within the same state they teach.
- Exchange examiners: examiners who currently examine for other testing agencies.



# SRTA Is....

- SRTA is experienced and innovative.
- SRTA is committed to its clinical skills assessment and its passage by our candidates.
- SRTA is able to adapt quickly and appropriately to modern clinical dental practice.
- SRTA is committed to the cutting edge of dental practice and examination technology.



# SRTA Board and Members

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Dr. Bob Carter (Arkansas)

Dr. Van Morgan (South Carolina)

Dr. Kathy Hall (Tennessee)

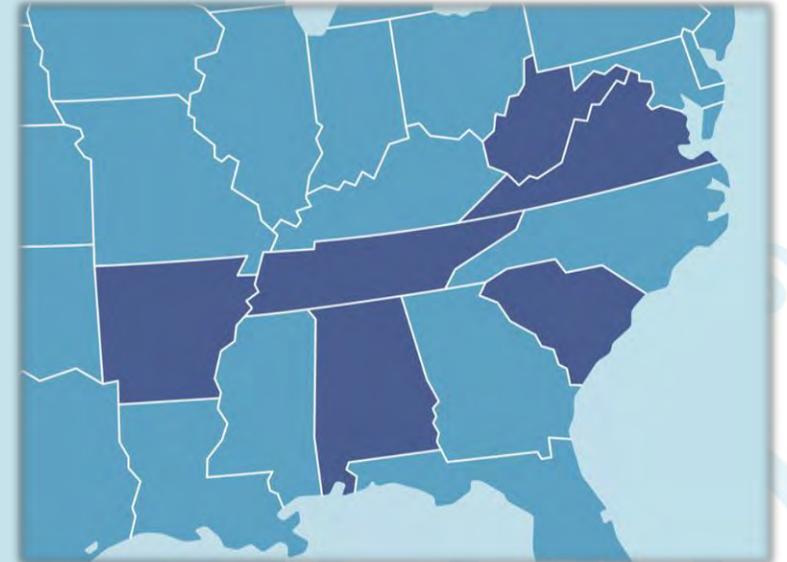
Dr. James Watkins (Virginia)

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**PRESIDENT ELECT:** Dr. Gerry Walker (Alabama)

**EXECUTIVE DIRECTOR:** Jessica Bui, [jbui@sрта.org](mailto:jbui@sрта.org)



# SRTA Promise and Commitment

- Focusing on a positive, collaborative environment, SRTA welcomes evidence-based research to ensure that our candidates are well-prepared for the evolving practice of dentistry.



# Addendum Slides



# Candidate Qualification

- Graduate of an American or Canadian Dental College accredited by the American Dental Association Commission on Dental Accreditation
- International Candidates considered for the “state only” status



# Psychometrically Valid Scoring

- Item analyses and calibration
- Psychometric equating
- Multiple-examiner review
- Analytic scoring



# Candidate Anonymity

Anonymity is preserved between the scoring examiners and candidates.





SOUTHERN REGIONAL TESTING AGENCY, INC.

# 2020 DENTAL LICENSING EXAMINATION CANDIDATE MANUAL

NON-PATIENT-BASED  
RESTORATIVE, PERIODONTAL, ENDODONTIC,  
PROSTHODONTICS

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# SOUTHERN REGIONAL TESTING AGENCY, INC.

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Southern Regional Testing Agency, Inc. (SRTA) is a nonprofit corporation committed to being a leader at the national level in examination development and administration by providing the following –

- Uniformly administered examinations and confidential results that are consistently reliable for use by the dental licensing boards or other agencies
- Protection for the public
- Appropriate care in the examination process
- Providing the most technologically advanced examination for its member states and participating examination sites
- Providing valid examinations in the most candidate focused environment possible, for the next generation of our colleagues in the Dental and Dental Hygiene Professions

## MISSION STATEMENT

---

SRTA will continue to provide valid, reliable, legally defensible examinations and results while striving to implement new testing methodologies in a candidate focused environment for the next generation of dental and dental hygiene professionals.

## EXAMINATION PURPOSE

---

This year's SRTA Dental Examination has been developed, administered and reviewed in accordance with guidelines from the American Dental Association (ADA), the American Association of Dental Boards (AADB), the American Psychological Association (APA), the American Educational Research Association and the National Council on Measurement in Education. SRTA collects input from practicing dentists nationwide every five years through a Task Analysis Survey, which is the basis for all decisions regarding content. The SRTA Examination was developed to provide a reliable clinical assessment for use by state boards in making valid licensing decisions. Prior to registering for the examination, candidates are strongly encouraged to verify the examination is accepted in the state in which they seek immediate licensure. After actively practicing two to five years, many states will accept licensure by criteria (or reciprocity). Again, candidates should check with state boards on licensure requirements.

## ANONYMITY

---

The SRTA Dental Examination is conducted anonymously. All examination materials are identified by the candidate's SRTA number. The candidate's name and school information should not appear on any testing materials. All examiners are vetted current and past State Dental Board members with diverse backgrounds. We also utilize faculty examiners, although they cannot examine in their respective state, the knowledge they gain through their experience is imparted to the students. Examiners are trained and standardized prior to each examination and are evaluated to ensure they are grading to established criteria. The examiners are separated from the candidates and will remain in a separate area of the clinic. Candidates must observe all signs and follow instructions so as not to breach anonymity. Anonymity is preserved between the scoring examiners and the candidates, but not among the examiners themselves. Examiners may consult with the SRTA Clinic Floor Coordinator (CFC) or Scoring Area Coordinator (SAC) whenever necessary.

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# I. EXAMINATION OVERVIEW

## EXAMINATION SECTIONS & FORMATS

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The Southern Regional Testing Agency (SRTA) Non-Patient Dental Examination consists of four required manikin-based sections – Endodontics, Fixed Prosthodontics, Anterior Restorative, and Posterior Restorative. SRTA also offers an optional manikin-based Periodontal section. Sections will be broken down as follows –

- A. Candidates will have one 7-hour day to complete both the manikin Endodontic and Fixed Prosthodontic sections of the examination. If only one of these sections need to be taken, then Candidates will get 3 hours to complete the Endodontics section or 4 hours to complete the Fixed Prosthodontic section.
- B. Candidate will have one 7-hour day to complete the manikin Anterior Restorative and manikin Posterior Restorative sections of the examination. If a candidate would like to take the optional manikin-based Periodontal section along with his/her manikin Restorative sections, then he/she will have a total of 9-hours to complete all three sections.

The SRTA Non-Patient Dental Examination is available as a Traditional Examination. A Traditional examination is where the manikin Endodontic/Fixed Prosthodontic sections and manikin Restorative section with the optional Periodontal manikin-based section will be administered in its entirety over the course of two consecutive days

## SCORING PROCESS

---

For SRTA's Clinical Dental Skills Examinations, candidates are required to demonstrate job-related skills in simulated settings (manikin-based) and an optional manikin-based Periodontal section. To score these complex performance tasks, SRTA has developed scoring criteria for each of these examinations to define important characteristics of minimally competent performance. Using these scoring criteria, SRTA then trains and calibrates examiners to independently evaluate candidates' performance on the range of tasks and related procedures that comprise each examination. All examiners are currently licensed dentists who are current or past members of a state board of dentistry and who are familiar with the content of the examination, the expectations of minimally competent performance, and the characteristics of the target population of candidates.

To ensure that examiners interpret the scoring criteria consistently, SRTA relies on an industry-standard practice of **having two or more examiners independently review a candidate's** work. Examiners use analytic scoring methods where candidate performances are defined as a series of criteria that will influence the acceptability of the characteristics of the product that the candidate produces. Each examiner specifies any observed major errors (i.e., domain critical errors) using electronic data entry. For an error to influence a candidate's score, it must be independently confirmed by at least one other examiner. This process helps to ensure that any decision about the pass/fail status for a candidate is based on the independent evaluations of at least two of three examiners.

Because of the efforts to train and calibrate examiners, decisions about errors will generally be made based on the judgment of the first two examiners. However, as a measure of internal

quality control and in instances where there is a disagreement about whether the performance constituted an overall pass or fail decision, a third examiner will also make independent judgments about the candidate's performance. Because the third examiner will not know whether his/her judgments are part of internal data collection for feedback or as an adjudication judgment, there is no reason for an examiner to think that his/her judgment carries more weight than any other examiner in the process.

SRTA uses analytic judgment (i.e., judgment based on a series of multiple steps and evaluation points rather than on an overall impression) rather than holistic judgment for three purposes. First, because a task comprises a number of skills, analytic judgment allows the examiner to separately evaluate the different phases of process and product that occur for a given task. Because each examination is unique, a slightly different number of skills have been defined and are scored in each section. Second, analytic judgment enables some limited feedback to the candidate about areas of strength or weakness and how these factors contributed to the overall pass/fail decision. Third, analytic judgment requires that examiners justify their ratings, given the specificity required for the judgments.

Overall, pass/fail decisions are conjunctive across examinations. This means that for a candidate to successfully pass the examination as a whole, he/she must pass each individual examination. This policy decision is based on empirical evidence suggesting that skills from one section of the examination are not sufficiently related to skills in another section such that someone would be able to compensate in practice. This decision also reflects the desire to be able to use examination results to make a **decision about a candidate's minimum** competency within each of the important sub-domains of the dental profession. A score of 75 and above is reported as a passing grade.

## II. POLICIES & PROCEDURES

### PROFESSIONAL STANDARDS & COMPETENCY

---

The purpose of this examination is to assess professional competency. The candidate is expected to maintain professional standards in the following areas –

- Suitable operating attire, inclusive of the full barrier technique.
- Candidates must follow OSHA and CDC Guidelines
- Cooperation with examiners, examination site personnel and other candidates.
- Aseptic techniques and general cleanliness of the operatory during all procedures.
- Candidates must maintain proper infection control throughout the entire examination.
- Protection of and concern for tooth structure and supporting tissue during treatment.

Violation of these standards and guidelines is ground for immediate dismissal (failure) from the examination, and the candidate may be denied reexamination for 12 months.

### CANDIDATE ACCESSIBILITY

---

Any candidate with a documented physical and/or learning disability that impairs sensory, manual or speaking skills and that requires a reasonable deviation from the normal administration of the examination may be accommodated. A written statement from a qualified physician must be provided at the time of application. The limitation(s) must be clearly defined, and the assistance required to ensure appropriate accommodations must be detailed. Requests will be evaluated on a case-by-case basis. Accommodations/deviations will not be allowed for components and skills the examination must measure.

Information received regarding the physical/learning challenges of a candidate will remain confidential except in the case of disabilities that may require emergency treatment. In this case, onsite safety personnel will be advised.

### CANDIDATE ELIGIBILITY

---

Candidates for the examination must be graduates of an American or Canadian dental college accredited by the American Dental Association Commission on Dental Accreditation.

A candidate who has not formally graduated from his/her university is required to secure certification from the dean of his/her program stating that:

1. The candidate is eligible and qualifies for the DDS or DMD degree requirements.
2. The candidate will complete the DDS or DMD degree requirements within 36 months of the examination date.

This certification must be in the form of a letter from the dean submitted with the application or provided to SRTA by the dean prior to the receipt of the candidate's application.

Candidates who graduated from a school outside of the United States and Canada may apply and be considered for the "state only" status, pending receipt of the appropriate state authorization. The candidate must furnish a letter from the State Board of Dentistry that accepts the results of this examination. This letter should indicate that the candidate is eligible

for licensure in that state only, upon successful completion of the examination. In addition, a copy of the candidate's diploma with an English translation must be provided.

## CANDIDATE INELIGIBILITY

---

If a candidate becomes ineligible to take the examination, they must notify the SRTA office, in writing, two weeks prior to the scheduled examination. A letter from the dean of the candidate's institution will be required as proof of ineligibility. SRTA will retain the complete application fee for any candidate declared ineligible by his/her dean. Candidates declared ineligible will be allowed to examine at a future site within a 12-month period upon payment of facility fees and a \$200 administrative processing fee. A diploma or letter from the dean stating the candidate's eligibility is required for a rescheduled exam.

## CANDIDATE RECOURSE – APPEALS PROCESS

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Refer to [www.srta.org](http://www.srta.org) for information regarding the appeals process.

## CHAIRSIDE ASSISTANT

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Chairside assistants are not permitted for the manikin-based examination.

## UNETHICAL CONDUCT

---

Professional behavior is a critical quality in the practice of dentistry. If a candidate is suspected of unethical conduct as defined by SRTA guidelines, they will fail the examination.

Examples of unethical conduct include, but are not limited to:

- Using unauthorized equipment at any time during the exam
- Using assistants
- Altering teeth used in the manikin procedures
- Engaging in dishonesty
- Altering candidate progress forms
- Any other behavior that compromises the standards of professional behavior

When SRTA charges a candidate with unethical conduct, it is SRTA's policy to notify all participating state boards of the situation. Many state statutes have criteria that include "good moral character" as a requirement for licensure. If a state board finds a candidate guilty of the alleged unethical conduct, the candidate may be ineligible for licensure in that state at any time in the future. While SRTA allows candidates to retake the SRTA Examination, they may be unable to obtain licensure in any participating state. Candidates are encouraged to address these matters with the state in which they desire licensure prior to retaking the examination.

## OTHER DISMISSAL REASONS

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This list is not all-inclusive. Listed below are the reasons for which a candidate may receive a failing evaluation or dismissal. Some procedures may be deemed unsatisfactory for other reasons. Additionally, a combination of several unsatisfactory evaluations may result in failure. Reexamination will be denied for one year (12 months) from the date of dismissal from the examination. Infractions that may lead to dismissal or failure include –

- Lack of protection and concern for tooth structure and supporting tissue during manikin treatment.
- Lack of professional judgment.
- Evidence of dishonesty or misrepresentation during the application process, including false or misleading statements or false documentation presented by the candidate or **on the candidate's behalf**.
- Evidence of dishonesty or misrepresentation during candidate registration or during the examination.
- Rude, abusive, or uncooperative behavior exhibited by the candidate.
- Continuing to work after published cutoff time.
- Working on a manikin model in a manner that does not simulate actual patient conditions.
- Working on Fixed Prosthodontics, Endodontics sextants, Restorative sextants or Periodontal sextants not provided by SRTA. Any evidence of tampering with or attempting to remove the screws from the sextants will result in failure of the entire examination and will be grounds for dismissal from the exam.
- Failure to complete the examination within the allotted time (No make-up time, grace period or second effort will be allowed for any part of this examination.)
- Receiving assistance from a dentist, another candidate, university representative(s), etc., during the course of the examination.
- Preparing a tooth other than the one approved/assigned by the examiners. This is considered major hard tissue damage.
- Thievery during the examination
- Performance of any unauthorized work outside of the examination site designated areas.
- Noncompliance with anonymity requirements for approval and/or examiner scoring. Candidates are not allowed in or near the area designated for scoring.
- Noncompliance with established guidelines for asepsis and infectious disease control
- Use of cellular telephones, pagers, cameras, or other electronic equipment by the candidate while in the clinic or scoring areas

## RESTORATIVE MANIKIN-BASED SUBMISSIONS

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If the candidate is scheduled to perform the Restorative Section as the first procedure of the day, they may begin setting up as soon as the clinic opens at 6:00AM. Between 7:00AM and 8:00AM candidates will obtain their typodonts from a SRTA Dental Administrator (DA) or Clinic Floor Coordinator (CFC) and secure it to the manikin head. A Clinic Floor Coordinator (CFC) will need to be called over to document that the typodont is secure and provide a start check. Restorative treatment begins at 8:00AM. Candidates will complete the preparation for a Class III Composite restoration for tooth #9 and a Class II Amalgam or Conventional Composite restoration for tooth #14. Candidates will begin with the Anterior procedure. Once the Anterior procedure is complete, the candidate will remove the upper arch from the typodont, place it in the poly bag or typodont box provided with his/her candidate number label on it and take it to the Evaluation area for preparation grading. Once grading is complete, the upper arch will be returned to the candidate. The candidate will then secure the arch in the typodont and complete the finish section of the Anterior Restorative Exam. When the finished Anterior restoration is ready for grading, the candidate will again remove the tray/upper arch for final evaluation. The Posterior procedure will be the second procedure of the examination. With the preparation check, again the tray/upper arch will be removed and submitted for the prep check. Upon completing the posterior restoration, the candidate

will remove the entire typodont for final evaluation. The typodont will not be returned after final evaluation of the last restorative procedure has been completed. Only one restorative procedure can be done at a time. Both the Anterior and Posterior portions must be finished in the allotted time.

## REFUNDS

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Candidates who fail to appear for a scheduled examination will lose their entire examination fees unless SRTA has received written notification at least 48 hours prior to the exam start date. Refunds will not be given for non-acceptability of any section of the examination. Candidates requesting a refund will have a \$200 administrative processing fee deducted from the refund. If you are requesting a refund, please email [help@srta.org](mailto:help@srta.org).

Any refunds requested prior to three weeks of the scheduled examination will result in:

75% Exam Fee minus \$200 Administrative Processing Fee

Any refunds requested within three weeks prior to the scheduled examination will result in:

50% Exam Fee minus \$200 Administrative Processing Fee

For candidates with a medical deferment, SRTA will retain the original fee and permit examination within 12 months. A physician's statement must substantiate the deferment.

## REMEDICATION

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If the candidate has not passed all sections of the examination after three attempts, they must contact the State Board of Dentistry where they plan to seek licensure to discuss remediation requirements. An original letter of approval/permission from the State Board(s) is required for a fourth and any subsequent examination effort. This letter must be submitted with the SRTA application for examination.

## RE-EXAMINATION REQUIREMENTS

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All sections (four or five, as required by state regulations) of the SRTA Examination Series must be completed successfully within 18 months after the first section of the Traditional examination. Candidates may retake each section up to three times within the 18-month exam period. If not successful after 3 attempted retakes of any one section, the entire examination must be taken/repeated. If a candidate needs to retake one or more sections of the exam, all sections must be taken at the same examination site.

Time allowed for Endodontics procedure is three (3) hours; Fixed Prosthodontics procedure is four (4) hours; One Restorative procedure is four (4) hours; Two Restorative procedures is seven (7) hours; Two Restorative procedures with Periodontal is nine (9) hours.

SRTA will assign the candidate a day and time for sectional reexaminations. This information will be emailed to the candidate. Candidates who do not attend registration and orientation must register with the Clinic Floor Coordinator (CFC) between 7:00 AM and 8:00 AM in the appropriate clinic on the day of the examination.

## SUPPLIES PROVIDED BY EXAMINATION SITE

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Alcohol torches	Impression material
Amalgam capsules	Instrument trays (disposable or metal)
Articulating paper	Isopropyl alcohol
Autoclave tape	Mask
Cement	Matches
Chair covers	Needles, short and long
Cotton pellets	Operator eyewear
Cotton rolls	Operator gowns
<b>2" x 2" cotton squares</b>	Paper towels
Cotton swabs	Polishing materials
Deck paper	Prophy paste
Disinfectant	Red rope wax
Disposable irrigation syringe for sodium hypochlorite	RC prep (EDTA or other appropriate material)
Drinking cups	Rubber dam
Evacuator tips	Rubber dam napkins
Facemasks	Saliva ejectors
Facial tissue	Soap
Floss	Sodium hypochlorite
Gloves	Trash bags
Hemodent	Tray covers

\*Disclaimer: listed items may or may not all be supplied by the examination site. Please refer to the University Letter for available supplies provided.

Candidates are responsible for supplying all materials, equipment and supplies not listed above for whichever techniques they choose to use. Candidates should download the University Instruction Letter published by the examination site for any exceptions to this list. The University Instruction Letter can be found under the "Documents" tab on your SRTA BrightTrac Profile.

When the Periodontal and Restorative typodont is sent to the evaluation area, the following items in an instrument box (enclosed) or tray must include: Progress form, white cubicle card, a sharp explorer, a probe with standard 1.0 mm incremented markings, an abrasive-free mirror, dental floss, and gauze.

## STATE BOARD OF DENTISTRY & LICENSURE INFORMATION

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Candidates taking the SRTA Examination must also file applications with those states in which they desire licensure, in addition to meeting the states' individual licensure requirements. Candidates should apply directly to the State Boards in which licensure is sought.

Licensure application forms for the participating State Boards of Dentistry are not available through SRTA and must be obtained from the various State Boards.

Individual state laws regarding remedial training may vary. Candidates should contact the states in which licensure is sought for their requirements on remedial education.

The Southern Regional Testing Agency's policy allows score certification of the most recent examination attempt for a period of five years. The individual State Boards of Dentistry determine acceptance of scores. The State Boards of Dentistry listed in the following chart automatically receive your examination results.

SRTA MEMBER STATES	
<p>Alabama Alabama Board of Dental Examiners 2229 Rocky Ridge Rd Birmingham, AL 35216 T: 205 985 7267 <a href="http://www.dentalboard.org">www.dentalboard.org</a></p>	<p>Arkansas Arkansas State Board of Dental Examiners 101 East Capitol Avenue, Suite 111 Little Rock, AR 72201 T: 501 682 2085 <a href="http://www.asbde.org">www.asbde.org</a></p>
<p>South Carolina South Carolina Board of Dentistry Department of Labor, Licensing &amp; Regulation Synergy Business Park, Kingstree Building 110 Centerview Drive Columbia, SC 29210 T: 803 896 4599 <a href="http://www.llr.state.sc.us">www.llr.state.sc.us</a></p>	<p>Tennessee Tennessee Board of Dentistry Bureau of Health, Licensure &amp; Regulation Division of Health-Related Boards 227 French Landing, Suite 300 Heritage Place Metro Center Nashville, TN 37243 T: 800 778 4123 or 615 532 3202 <a href="http://health.state.tn.us/boards/dentistry/index.htm">http://health.state.tn.us/boards/dentistry/index.htm</a></p>
<p>Virginia Virginia Board of Dentistry 9960 Mayland Drive, Suite 300 Henrico, VA 23233 T: 804 367 4538 <a href="http://www.dhp.virginia.gov/dentistry">www.dhp.virginia.gov/dentistry</a></p>	<p>West Virginia West Virginia Board of Dental Examiners 1319 Robert C. Byrd Drive, PO Box 1447 Crab Orchard, WV 25327 T: 877 914 8266 or 304 252 8266 <a href="http://www.wvdentalboard.org">www.wvdentalboard.org</a></p>

## SCORING CERTIFICATION

If you would like to request examination scores to be sent to your home or to a non-participating State Board, you may do so for a nominal fee. Some State Boards may require a notarized copy of the final report, which SRTA will also provide for a minimal fee. Please visit [www.srta.org](http://www.srta.org) and fill out a Score Card Request Form.

## QUESTIONS

Questions concerning jurisprudence, licensing, reciprocity and licensure by credentials should be directed to the appropriate State Board of Dentistry where licensure is sought.

Questions concerning examination facilities and equipment should be directed to the appropriate examination site. A University Instruction Letter with detailed site information can be downloaded under the "Documents" tab on your SRTA BrightTrac Profile.

If necessary, please contact the university/examination site after you have thoroughly read the letter. The addresses and telephone numbers for each examination site are listed under Examination Sites, Dates and Fees.

All questions concerning examination procedures, content, applications and test dates should be directed to Southern Regional Testing Agency. See the front cover of this manual for address and telephone information.

If you prefer to email your questions, use [exam@srta.org](mailto:exam@srta.org) for dental examination questions, [applications@srta.org](mailto:applications@srta.org) for application questions, and [help@srta.org](mailto:help@srta.org) for general questions. Be sure to include your contact information. Once an application has been processed for a particular site, any questions must be initiated by the candidate only.

### III. MANIKIN-BASED EXAMINATION

The Endodontic, Fixed Prosthodontics and Restorative Sections are administered on a typodont manikin head. All sections will be performed as if the manikin were a live patient. The manikin head and facial shroud must be maintained in an acceptable operating position, and the candidate must follow all appropriate infection control procedures.

When unpacking the typodont, all packing materials should be saved and used in repacking the typodont when finished. If there are any problems with the typodont during the examination, notify a Clinic Floor Coordinator (CFC) immediately.

Manikin heads may be mounted in simulation labs as part of a simulated patient work area, or they may be chair mounted in a clinic setting. In either scenario, the manikin head may not be disassembled or removed from the dental chair for any reason without prior permission of a CFC.

Candidates will have three hours to complete the Endodontic Section and four hours to complete the Fixed Prosthodontics Section. Candidates will have seven hours to complete both Restorative Sections and if taking the Periodontal Section will have a combined total of nine hours.

The Endodontics Section is followed by the Fixed Prosthodontics Section. After finishing the Endodontics Section, a Clinic Floor Coordinator (CFC) must be called to check the completion. If a candidate finishes the Endodontics Section early, they may proceed to the Fixed Prosthodontics Section without waiting but will only be allowed the standard four hours for this section.

The Restorative Section will begin with preparation of the Class III, followed by the Class III lesion. The Periodontal Section will be the last procedure of the day if the candidate has elected to take that section.

**Air/Water spray:** The Candidate should use only air but may use both air and water spray when preparing the teeth. If water spray is utilized, a mechanism to collect and remove the water must be in place during the use of the water spray.

**Assigned teeth:** Only the assigned teeth may be treated. If the candidate begins a procedure on the wrong tooth, they must notify the CFC. Candidates may mark the teeth to be treated (on the facial surface) but only after the actual examination has started and while employing all infection control guidelines.

**Assistants:** Auxiliary personnel are not permitted to assist at chairside or in a laboratory during the manikin-based Endodontic, Prosthodontic, Restorative and Periodontic examination sections. Candidates may not assist each other or critique or discuss one another's work.

**Security requirements:** No written materials may be in the operating area other than a copy of the Candidate Manual or parts thereof, notes written in the manual and the examination forms.

**Note:** Any validated unacceptable criteria recorded in either endodontics, fixed prosthodontics, or restorative will result in a failure of that procedure.

# ENDODONTICS SECTION

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The Endodontics Section consists of two procedures:

1. Anterior Endodontics – Access opening, canal instrumentation and obturation on an anterior tooth (#8). Tooth #8 is considered to have a normal size pulp chamber for a 21-year-old. The access opening must be triangular in shape, in the middle third of the tooth both inciso-gingivally and mesio-distally and otherwise appropriate for a young adult.
2. Posterior Endodontics – Access opening on a posterior tooth (#14). Candidate must achieve direct access to all three canals.

Filling material: No temporary filling material, cotton pellet or restorative material should be placed in the pulp chamber.

Instruments: Other than the instruments and materials provided by the examination site, the candidate is responsible for providing the instruments, files and materials of their choice. Rotary instruments are permissible during the Endodontics Section.

Isolation dam: The use of an isolation dam is required for the endodontic procedures. A single dam may be used to isolate both teeth simultaneously or separate dams for each tooth. An isolation dam clamp should not be placed on tooth #8 and #14. Doing so may cause the crown to separate from the root of the manikin tooth. Clamping of adjacent teeth or ligation is acceptable. All treatment must be done with the dam in place.

Caution: The use of warm gutta-percha or carrier-based, thermoplasticized gutta-percha techniques is not recommended, as they may cause damage to the plastic endodontic tooth.

Radiographs: Since the tooth/canal length of tooth #8 is directly measured prior to the procedure, no radiographs are permitted at any point during this section.

Reference point: The cemento-enamel junction (CEJ) on the facial surface should be used as the reference point to determine the fill depth in the pulp chamber.

Tooth Fractures: If the anterior endodontic tooth fractures during filling, contact the Clinic Floor Coordinator (CFC) before the treatment is continued/completed. If the crown fractures during treatment, contact the CFC immediately.

ANTERIOR ENDODONTICS: TREATMENT MANAGEMENT CRITERIA

TREATMENT GOALS

- 1. The adjacent teeth and/or restorations are free from damage.
- 2. The simulated gingiva and/or typodont is/are free from damage.
- 3. Correct tooth related.

SCORING CRITERIA

Acceptable
<ul style="list-style-type: none"><li>1. Damage to adjacent tooth/teeth can be removed by polishing without adversely altering the shape of the contour and/or contact.</li><li>2. There is slight damage to the simulated gingiva and/or typodont consistent with the procedure.</li><li>3. Correct tooth treated.</li></ul>
Unacceptable
<ul style="list-style-type: none"><li>1. There is gross damage to adjacent tooth/teeth, requiring a restoration.</li><li>2. There is gross iatrogenic damage to the simulated gingiva and/or typodont inconsistent with the procedure.</li><li>3. Wrong tooth treated.</li></ul>

## ANTERIOR ENDODONTICS: ACCESS OPENING CRITERIA

### TREATMENT GOALS

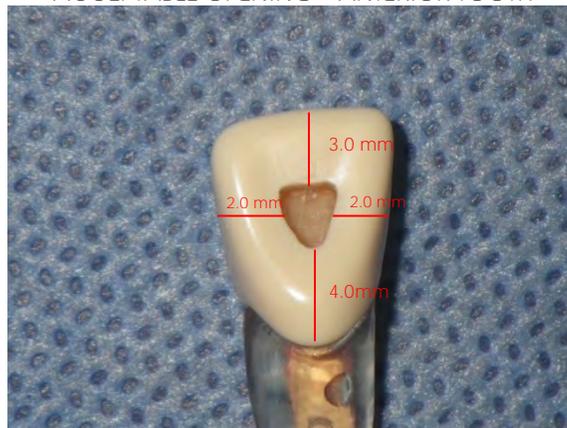
1. The placement of the access opening is on the lingual surface over the pulp chamber and allows for:
  - Pulp horns to be removed
  - Debridement of the pulp chamber
  - Provides straight line access to the root canal system.
2. The size of the access opening:
  - Allows for complete removal of the pulp horns
  - The incisal aspect of the access opening is 3.0 mm from the incisal edge which provides for a fully supported incisal edge
  - The cervical aspect of the access opening is 4.0 mm from the lingual CEJ which provides for a fully supported cingulum
  - The widest portion of the preparation mesio-distally provides for fully supported 2.0 mm marginal ridges.
3. From the lingual surface to the cervical portion, the internal form smoothly tapers to the canal opening.

### SCORING CRITERIA

#### Acceptable

1. The placement of the access opening is on the lingual surface over the pulp chamber and allows for:
  - Debridement of the pulp chamber
  - Provides straight line access to the root canal system.
2. The size of the access opening:
  - Allows for complete removal of the pulp horns
  - The incisal aspect of the access opening is not less than 2.0 mm from the incisal edge which provides for a fully supported incisal edge
  - The cervical aspect of the access opening is not less than 3.0 mm from the lingual CEJ which provides for a fully supported cingulum
  - The widest portion of the preparation provides for fully supported marginal ridges.
3. From the lingual surface to the cervical portion, the internal form tapers to the canal opening with only slight irregularities.

ACCEPTABLE OPENING – ANTERIOR TOOTH



### Unacceptable

1. The placement of the access opening is NOT over the pulp chamber and/or does NOT allow for:
  - Complete debridement of the pulp chamber OR
  - Access to debride the root canal system
2. The size of the access opening:
  - Does NOT allow removal of the pulp horns
  - The incisal aspect of the access opening is less than 2.0 mm from the incisal edge which compromises incisal edge
  - The cervical aspect of the access opening is less than 3.0 mm from the lingual CEJ which compromises the cingulum
  - The preparation compromises the mesial and/or distal marginal ridge(s) (less than or equal to 1.0 mm measured from the external surface)
3. The internal form exhibits excessive gouges, which compromises the integrity of the tooth.

ANTERIOR ENDODONTICS: CANAL INSTRUMENTATION CRITERIA

TREATMENT GOALS

1. The canal is shaped to a continuous taper to allow adequate debridement and obturation.
2. The cervical portion of the canal is of appropriate location and size to allow access to the apical root canal system.
3. The mid root portion of the canal blends smoothly with the cervical portion.
4. The apical portion of the canal is prepared to the anatomical apex of the tooth.
5. The mid root and apical preparations are not transported and are congruent with the anatomical apex.
6. No portion of the tooth is perforated.
7. No portion of the tooth is fractured.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. The canal is shaped to a continuous taper to allow adequate debridement and obturation.</li><li>2. The cervical portion of the canal is of appropriate location and size to allow access to the apical root canal system.</li><li>3. The mid root portion of the canal blends smoothly with the cervical portion. If canal irregularities are present, they will not prevent canal obturation.</li><li>4. The mid root or apical portion of the canal may be transported during preparation, but the apical portion of the preparation is still congruent with the anatomical apex.</li><li>5. No portion of the tooth is perforated.</li><li>6. No portion of the tooth is fractured.</li><li>7. Apical portion of the canal is prepared to the anatomical apex of the tooth or &lt; or = 3.0mm short of the anatomical apex.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. The shape of the canal preparation does not allow adequate debridement and obturation.</li><li>2. The cervical portion of the canal is grossly over prepared affecting the integrity of the tooth structure.</li><li>3. The mid root portion of the canal has significant instrumentation irregularities that will compromise obturation.</li><li>4. The apical portion of the canal preparation is transported to the extent that the apical portion of the canal is not instrumented.</li><li>5. Any portion of the tooth is perforated.</li><li>6. Any portion of the tooth is fractured.</li><li>7. Apical portion is under-prepared &gt; 3.0 mm short of the anatomical apex.</li></ol>

## ANTERIOR ENDODONTICS: CANAL OBTURATION CRITERIA

### TREATMENT GOALS

1. The root canal is obturated with gutta percha and sealer 1.0 mm short of the anatomical root apex.
2. The obturation in the root canal is dense without voids.
3. The coronal extent of the gutta percha in the root canal is removed to the level of the CEJ when measured from the facial.
4. The pulp chamber is clean without remnants of gutta percha or sealer.
5. No file separation.
6. No restorative material present in pulp chamber.

### SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. The root canal is obturated with gutta percha at the anatomical apex or up to 2.0 mm short of the root apex.</li><li>2. The apical third of the obturation in the root canal is dense but may contain minor voids.</li><li>3. The gutta percha in the root canal is up to 3.0 mm apical to the CEJ when measured from the facial.</li><li>4. Gutta percha and/or sealer is/are evident in the pulp chamber extending up to 2.0 mm coronal to the CEJ when measured from the facial.</li><li>5. A file is separated in the root canal but does not affect the obturation of the root canal.</li><li>6. There is no restorative material present in the pulp chamber.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. The root canal is obturated with gutta percha more than 2.0 mm short of the anatomical apex or beyond the anatomical apex.</li><li>2. There are significant voids throughout the obturation of the root canal or there is no gutta percha present in the root canal or a material other than gutta percha was used to obturate the root canal.</li><li>3. The gutta percha in the root canal is more than 3.0 mm apical to the CEJ when measured from the facial.</li><li>4. Gutta percha and/or sealer is/are evident in the pulp chamber extending more than 2.0 mm coronal to the CEJ when measured from the facial.</li><li>5. A file is separated in the root canal and either prevents obturation or allows obturation at a critically deficient level.</li><li>6. There is restorative material present in the pulp chamber.</li></ol>

POSTERIOR ENDODONTICS: TREATMENT MANAGEMENT CRITERIA

TREATMENT GOALS

1. The adjacent teeth and/or restorations are free from damage.
2. The simulated gingiva and/or typodont is/are free from damage.
3. Correct tooth treated.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. Damage to adjacent tooth/teeth can be removed by polishing without adversely altering the shape of the contour and/or contact.</li><li>2. There is slight damage to simulated gingiva and/or typodont consistent with the procedure.</li><li>3. Correct tooth treated.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. There is gross damage to adjacent tooth/teeth, requiring a restoration.</li><li>2. There is gross iatrogenic damage to the simulated gingiva and/or typodont inconsistent with the procedure.</li><li>3. Wrong tooth treated.</li></ol>

## POSTERIOR ENDODONTICS: ACCESS OPENING CRITERIA

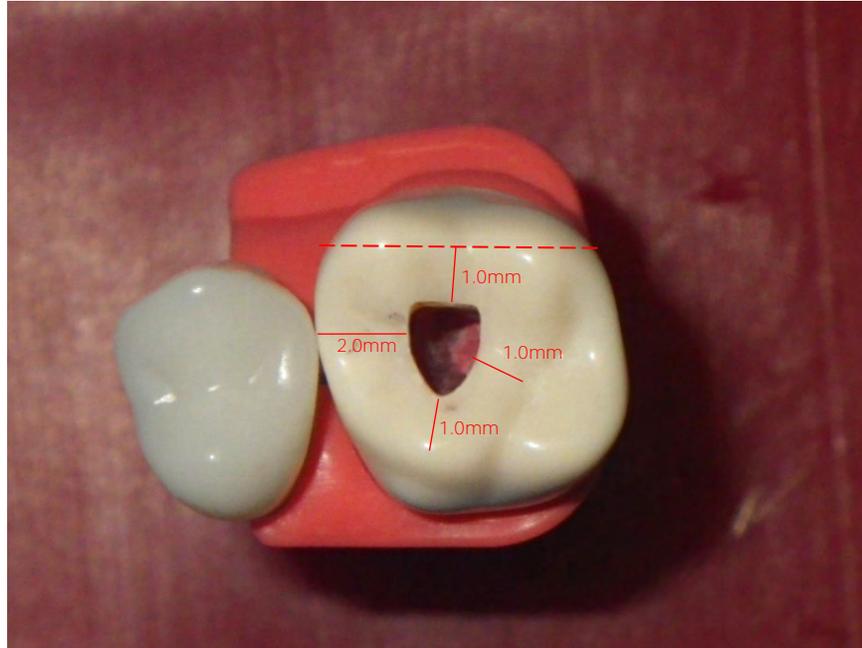
### TREATMENT GOALS

1. The placement of the access opening is over the pulp chamber allowing debridement of the pulp chamber and straight-line access to the three root canals located in the tooth. The access opening allows access to the three root canals to the extent that instruments can be placed to the apex of the roots.
2. The access opening is in the mesial triangular pit and central fossa of the tooth and:
  - The mesial extent of the access preparation is 3.0 mm from the external surface of the mesial marginal ridge of the tooth.
  - The buccal extent of the access preparation is 2.0 mm from the line bisecting the mesiobuccal and distobuccal cusp tips.
  - The distal extent of the access preparation is 1.5 mm from the distal oblique groove.
  - The palatal extent of the access preparation is 2.0 mm from the palatal cusp tip.
3. The depth of the access preparation removes the entire roof of the pulp chamber and all three canals can be accessed. The depth of the access preparation is 8.0 mm when measured from the buccal cavosurface margin of the access preparation.
4. The internal form of the access preparation leaves 2.0 mm of supported lateral tooth structure at any point of the preparation and tapers to the canal orifices with no gouges.
5. No portion of the tooth is perforated.
6. No portion of the tooth is fractured.

### SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. The placement of the access opening is ideally over the pulp chamber allowing debridement of the pulp chamber and straight-line access to the three root canals located in the tooth. The placement of the access opening may not be directly over the pulp chamber and may hinder, but will allow, complete debridement of the pulp chamber. The access opening must allow access to the three root canals to the extent that instruments can be placed to the apex of the roots.</li><li>2. The access opening is in the mesial triangular pit and central fossa of the tooth and:<ul style="list-style-type: none"><li>• The mesial extent of the access preparation is not less than 2.0 mm from the external surface of the mesial marginal ridge of the tooth.</li><li>• The buccal extent of the access preparation is not less than 1.0 mm from the line bisecting the mesiobuccal and distobuccal cusp tips.</li><li>• The distal extent of the access preparation is not less than 1.0 mm from the distal oblique groove.</li><li>• The palatal extent of the access preparation is not less than 1.0 mm from the palatal cusp tip.</li></ul></li><li>3. The depth and size of the access preparation removes the entire roof of the pulp chamber and all three canals can be straight-line accessed. The depth of the access preparation is a maximum of 10.0 mm when measured from the buccal cavosurface margin of the access preparation.</li><li>4. The internal form of the access preparation leaves at least 1.0 mm of supported lateral tooth structure at any point of the preparation and tapers to the canal orifices with no or slight gouges.</li><li>5. No portion of the tooth is perforated.</li><li>6. No portion of the tooth is fractured.</li></ol>

ACCEPTABLE OPENING – POSTERIOR TOOTH



Unacceptable

1. The placement of the access opening is not over the pulp chamber and does not allow complete debridement of the pulp chamber or access to the three root canals to the extent that instruments can be placed to the apex of the roots.
2. The access opening is either grossly under-or-over-extended in one or more of the following categories:
  - The mesial extent of the access preparation is less than 2.0 mm distal to the external surface of the mesial marginal ridge.
  - The buccal extent of the access preparation is less than 1.0 mm to the line bisecting the mesiobuccal and distobuccal cusp tips.
  - The distal extent of the access preparation is less than 1.0 mm from the distal oblique groove.
  - The palatal extent of the access preparation is less than 1.0 mm from the palatal cusp tip.
3. The depth and size of the access preparation does not remove the roof of the pulp chamber to the extent that all pulp tissue can be removed or all 3 canals cannot be straight-line accessed or the depth of the access preparation is more than 10.0 mm deep when measured from the buccal cavosurface margin of the access preparation.
4. The internal form of the access preparation leaves less than 1.0 mm of lateral supported tooth structure at any point of the preparation and/or tapers to the canal orifices with gross ledges that will inhibit access to the root canal orifices.
5. Any portion of the tooth is perforated.
6. Any portion of the tooth is fractured.

# FIXED PROSTHODONTIC SECTION

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The Fixed Prosthodontics Section consists of three procedures:

1. Porcelain-fused-to-metal crown preparation as an anterior abutment for the 3-unit bridge, plus an evaluation of the line of draw for the bridge abutment preparations (tooth #5)
2. Cast metal / All-Zirconia crown preparation as a posterior abutment for the 3-unit bridge (tooth #3)
3. All-ceramic crown preparation on an anterior central incisor (tooth #9)

Equilibration prohibited: No equilibration will be permitted on the typodont prior to or subsequent to any crown preparation.

Isolation dam: No isolation dam is required for the crown preparations.

Reduction guide: A reduction guide/stent can be fabricated during the set-up time. This can be done without the use of gloves prior to typodont mounting. Other impressions can be taken during the exam but can only be made using appropriate infection control procedures. All impressions, casts or models must be turned in at the end of the exam.

Reiteration: Stents and Reduction Guides can be fabricated during set up time. Upon completion of the exam, candidates must write their candidate number using a black permanent marker (indelible ink) on all sections of the stent. These are placed in a plastic bag with a candidate label adhered to the bag. This bag is then turned in when the typodont is submitted for scoring. If the candidate incorrectly fabricates stents, the ability to appeal is forfeited.

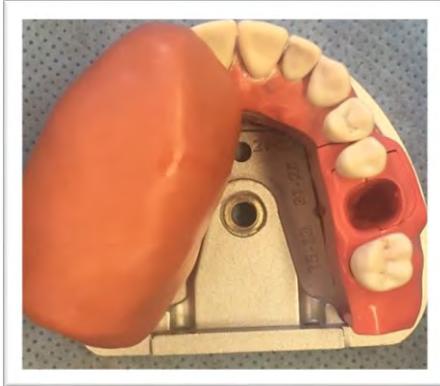
Prohibited materials: Prefabricated impressions, registrations, overlays, clear plastic shells, models or prefabricated preparations are not permitted to be brought to the examination site. Failure to follow these requirements will result in confiscation of the materials as well as dismissal from and failure of the examination.

Note: Before the typodont is submitted at the end of the examination, you must be sure it is clear of all dust and debris. At the discretion of the examiner, the stents may be used to aid in grading the typodont.

## STENT FABRICATION

\*Note: The fabrication of stents is required. Stents should be made during set-up time after receiving the fixed prosthodontic sextants.

For the Fixed Prosthodontic Section, candidates may form stents for three assigned teeth (#3, #5, and #9) using heavy-bodied putty PVS (poly vinyl siloxane). The stent for #3 and #5 can be made with one piece of putty. The stent should cover #2 and extend to #7, extending down past the facial and lingual surfaces of the teeth to be prepped and their adjacent teeth.



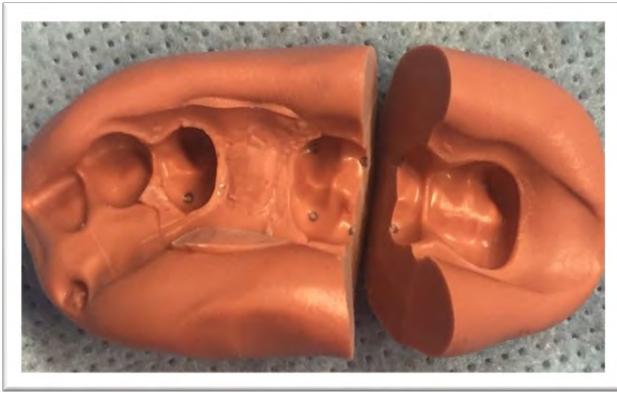
### *Teeth #3 & #5*

Form the stent to cover entirely from #2 to #7. Be certain to smear a small amount of the putty into the central grooves immediately prior to placing the bulk of the putty over the sextant. This will ensure the central groove area is captured in the putty stent.



### *Tooth #3*

With a scalpel/knife (Bard Parker blade works well) make a cut connecting the mesial buccal and the mesial lingual cusp tips. Then make a cut through the distal buccal and distal lingual cusp tips. The resulting three sections should be easily reassembled over the teeth to ensure that the stent is well adapted to all the contours of the tooth and supporting gingival area. The mesial portion of the stent will include tooth #5, which is addressed on the next page.



### Tooth #5

The mesial section of #3 contains your tooth #5. With a scalpel/knife make a cut connecting the buccal and the lingual cusps tips. This will result in a total of four sections for the two posterior teeth. These should be easily reassembled over the teeth #3 & #5 to ensure that the stent is well adapted to all the contours of the tooth, adjacent teeth, and supporting gingival area.



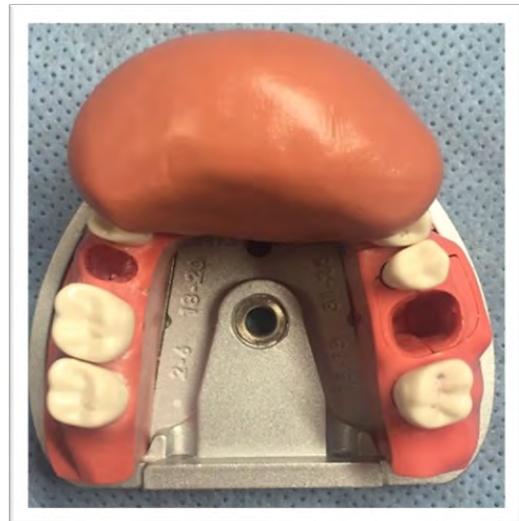
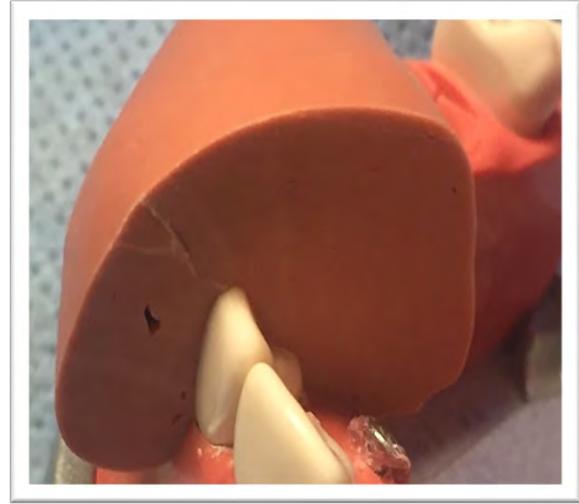
### Tooth #9

Mark the mesial-distal center of the incisal edge of tooth #9. Using a scalpel/knife, make a cut entirely through the putty stent, perpendicular to the incisal edge. The two resulting sections of the stent should be easily reassembled over the teeth to ensure that the stent is well adapted to all the contours of the tooth and supporting gingival area.



*Fit of the stents*

The stents should fit intimately to the teeth and adjacent soft tissue.



Remember: Write your candidate number using a black permanent marker (indelible ink) on all sections of the stent. Place the stents in a plastic bag with a candidate label affixed to the bag. Turn in the bag when the typodont is submitted for scoring. If stents are fabricated incorrectly or are not submitted, you will forfeit the ability to pursue an appeal based on reduction.

PORCELAIN-FUSED-TO-METAL CROWN PREPARATION: **TREATMENT MANAGEMENT CRITERIA**

*TREATMENT GOALS*

1. The adjacent teeth and/or restorations are free from damage.
2. The simulated gingiva and/or typodont is/are free from damage.
3. Correct tooth treated

*SCORING CRITERIA*

Acceptable
<ol style="list-style-type: none"><li>1. Damage to adjacent tooth/teeth can be removed by polishing without adversely altering the shape of the contour and/or contact.</li><li>2. There is slight damage to simulated gingiva and/or typodont consistent with the procedure.</li><li>3. Correct tooth treated</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. There is gross damage to adjacent tooth/teeth, requiring a restoration.</li><li>2. There is gross iatrogenic damage to the simulated gingiva and/or typodont inconsistent with the procedure.</li><li>3. Wrong tooth treated</li></ol>

PORCELAIN-FUSED-TO-METAL CROWN PREPARATION: CERVICAL MARGIN CRITERIA

TREATMENT GOALS

1. The cervical margins should be 1.0 mm occlusal to the simulated free gingival margin.
2. The cervical margin is smooth, continuous and well defined.
3. The margin design is a chamfer/rounded shoulder.
4. The facial margin is 1.5 mm in width.
5. The lingual margin is 1.0 mm.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. The cervical margin is less than 0.5 mm below or no greater than 1.5 mm above the simulated free gingival margin. If greater than 0.5 mm there is no visual damage.</li><li>2. The cervical margin is continuous but may be slightly rough and lacks some definition.</li><li>3. The margin design is a chamfer/rounded shoulder.</li><li>4. The facial margin is greater than 0.5 mm to 2.5 mm in width.</li><li>5. The lingual margin is 0.5 mm to 2.0 mm in width.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. The cervical margin is greater than 0.5 mm below with visual damage or greater than 1.5 mm above the simulated free gingival margin.</li><li>2. The cervical margin has no continuity and/or definition and will prevent fabrication of an adequate restoration.</li><li>3. The cervical margin is cupped or j-shaped resulting in unsupported enamel that will prevent fabrication of an adequate restoration.</li><li>4. The facial margin is less than 0.5 mm or greater than 2.5 mm in width.</li><li>5. The lingual margin is feathered and/or not explorer detectable or more than 2.0 mm in width.</li></ol>

PORCELAIN-FUSED-TO-METAL CROWN PREPARATION: WALLS & TAPER CRITERIA

TREATMENT GOALS

1. The facial axial tissue removal is 1.5 mm to be sufficient for convenience, retention and resistance form.
2. The lingual axial tissue removal is 1.0 mm to be sufficient for convenience, retention and resistance form.
3. The walls are smooth and well defined and/or internal line angles and/or cusp tip areas are rounded.
4. Taper, total occlusal convergence (TOC) is 10°– 16°.
5. There are no undercuts.
6. Occlusal reduction is 2.0 mm.
7. The appropriate path of insertion varies less than 10° from parallel to the long axis of the tooth on all axial surfaces, and a line of draw is established.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. The facial axial tissue removal is 0.5 mm to 2.5 mm.</li><li>2. The walls may be slightly rough and lack some definition and/ or internal line angles and/or cusp tip areas are rounded and have a slight tendency of being sharp.</li><li>3. Taper, total occlusal convergence (TOC) is 16° or less.</li><li>4. Slight undercut(s) exists, but an adequate restoration can be fabricated.</li><li>5. Occlusal reduction is 1.0 mm to 3.0 mm.</li><li>6. The path of insertion or line of draw deviates 10° to less 30° from the long axis of the tooth.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. The facial axial tissue removal is less than 0.5 mm or greater than 2.5 mm.</li><li>2. The walls are grossly rough and lack definition and/or internal line angles and/or cusp tip areas are sharp with no evidence of rounding.</li><li>3. Taper, total occlusal convergence (TOC) is greater than 16° TOC.</li><li>4. Undercut(s) exists greater than 0.5 mm and an adequate restoration cannot be fabricated.</li><li>5. Occlusal reduction is less than 1.0 mm; more than 3.0 mm.</li><li>6. The path of insertion or line of draw is unacceptable, deviating 30° or more from the long axis of the tooth.</li></ol>

CAST METAL/ALL ZIRCONIA CROWN PREPARATION: TREATMENT MANAGEMENT CRITERIA

TREATMENT GOALS

1. The adjacent teeth and/or restorations are free from damage.
2. The simulated gingiva and/or typodont is/are free from damage.
3. Correct tooth treated.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. Damage to adjacent tooth/teeth can be removed by polishing without adversely altering the shape of the contour and/or contact.</li><li>2. There is slight damage to simulated gingiva and/or typodont consistent with the procedure.</li><li>3. Correct tooth treated.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. There is gross damage to adjacent tooth/teeth, requiring a restoration.</li><li>2. There is gross iatrogenic damage to the simulated gingiva and/or typodont inconsistent with the procedure.</li><li>3. Wrong tooth treated.</li></ol>

## CAST METAL/ALL ZIRCONIA CROWN PREPARATION: CERVICAL MARGIN CRITERIA

### TREATMENT GOALS

1. The cervical margins should be 1.0 mm occlusal to the simulated free gingival margin.
2. The cervical margin is smooth, continuous and well defined.
3. The cervical margin meets the external surface of the tooth at approximately a right angle.
4. The cervical margin is 1.0 mm in width.

### SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. The cervical margin is less than 0.5 mm below or no more than 1.5 mm above the simulated free gingival margin. If greater than 0.5 mm there is no visual damage.</li><li>2. The cervical margin is continuous but may be slightly rough and lacks some definition.</li><li>3. The cervical margin meets the external surface of the tooth at approximately a right angle.</li><li>4. The cervical margin is a chamfer and varies slightly in width, is detectable visually or with an explorer, and is less than or equal to 2.0 mm in width.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. The cervical margin is greater than 0.5 mm below causing visual damage or greater than 1.5 mm above the simulated free gingival margin.</li><li>2. The cervical margin has no continuity and/or definition and/or will prevent fabrication of an adequate restoration.</li><li>3. The cervical margin meets the external surface of the tooth at an angle greater than 120°. The cervical margin is cupped or j-shaped resulting in unsupported enamel that will prevent fabrication of an adequate restoration.</li><li>4. The cervical margin is not a chamfer, is not detectable, and/or is greater than 2.0 mm in width.</li></ol>

## CAST METAL/ALL ZIRCONIA CROWN PREPARATION: WALLS & TAPER CRITERIA

### TREATMENT GOALS

1. Axial tissue removal is optimally 1.0 mm to be sufficient for convenience, retention and resistance form.
2. The walls are smooth and well defined and/or internal line angles and/or cusp tip areas are rounded.
3. Taper, total occlusal convergence (TOC) is 10°– 16°.
4. There are no undercuts.
5. Occlusal reduction is 1.5 mm.
6. The appropriate path of insertion varies less than 10° from parallel to the long axis of the tooth on all axial surfaces, and a line of draw is established.

### SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. The axial tissue removal is greater than 0.5 mm but less than 2.5 mm.</li><li>2. The walls are slightly rough and lack some definition and/or internal line angles and/or cusp tip areas are rounded and have a slight tendency of being sharp.</li><li>3. Taper, total occlusal convergence (TOC) is 16° or less.</li><li>4. Slight undercut(s) exists, but it will not interfere with fabrication of an adequate restoration.</li><li>5. Occlusal reduction is greater than 1.0 mm or less than or equal to 2.5 mm.</li><li>6. The path of insertion or line of draw deviates 10° to less than 30° from the long axis of the tooth.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. The axial tissue removal is less than 0.5 mm or greater than 2.5 mm.</li><li>2. The walls are rough and lack definition and/or internal line angles and/or cusp tip areas are sharp with no evidence of rounding.</li><li>3. Taper, total occlusal convergence (TOC) is greater than 16°.</li><li>4. Undercut(s) exists greater than 0.5 mm and an adequate restoration cannot be fabricated.</li><li>5. The occlusal reduction is less than 1.0 mm or more than 2.5 mm.</li><li>6. The path of insertion or line of draw is unacceptable, deviating 30° or more from the long axis of the tooth.</li></ol>

BRIDGE FACTOR -PATH OF INSERTION/LINE OF DRAW CRITERIA

TREATMENT GOALS

1. The line of draw or path of insertion would allow for the full seating of a fixed prosthesis in a direct vertical plane without rotation.

SCORING CRITERIA

Acceptable
1. A line of draw exists whereby an adequate prosthesis may be fabricated.
Unacceptable
1. An adequate prosthesis may not be fabricated without removal of additional tooth structure.

ALL-CERAMIC CROWN PREPARATION: TREATMENT MANAGEMENT CRITERIA

TREATMENT GOALS

1. The adjacent teeth and/or restorations are free from damage.
2. The simulated gingiva and/or typodont is/are free from damage.
3. Correct tooth treated.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. Damage to adjacent tooth/teeth can be removed by polishing without adversely altering the shape of the contour and/or contact.</li><li>2. There is slight damage to simulated gingiva and/or typodont consistent with the procedure.</li><li>3. Correct tooth treated.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. There is gross damage to adjacent tooth/teeth, requiring a restoration.</li><li>2. There is gross iatrogenic damage to the simulated gingiva and/or typodont inconsistent with the procedure.</li><li>3. Wrong tooth treated.</li></ol>

ALL-CERAMIC CROWN PREPARATION: **CERVICAL MARGIN CRITERIA**

TREATMENT GOALS

1. The cervical margins should be 1.0 mm occlusal to the simulated free gingival margin.
2. The cervical margin is smooth, continuous and well defined.
3. The cervical margin meets the external surface of the tooth at approximately a right angle.
4. The cervical margin is 1.25 mm in width.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. The cervical margin is less than 0.5 mm below or no more than 1.5 mm above the simulated free gingival margin. If greater than 0.5mm there is no visual damage.</li><li>2. The cervical margin is continuous but may be slightly rough and lacks some definition.</li><li>3. The cervical margin meets the external surface of the tooth at approximately a right angle.</li><li>4. The cervical margin is 0.5 mm to 2.0 mm in width.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. The cervical margin is greater than 0.5 mm below with visual damage or greater than 1.5 mm above the simulated free gingival margin.</li><li>2. The cervical margin has no continuity and/or definition and/or will prevent fabrication of an adequate restoration.</li><li>3. The cervical margin meets the external surface of the tooth at an angle greater than 120°. The cervical margin is cupped or j-shaped resulting in unsupported enamel that will prevent fabrication of an adequate restoration.</li><li>4. The cervical margin is less than 0.5 mm or greater than 2.0 mm in width.</li></ol>

## ALL-CERAMIC CROWN PREPARATION: WALLS & TAPER CRITERIA

### TREATMENT GOALS

1. The axial tissue removal is 1.0 mm to be sufficient for convenience, retention and resistance form.
2. The walls are smooth and well defined and/or internal line angles and/or incisal edge area are rounded.
3. Total occlusal convergence (TOC) is 10°– 16°.
4. There is no undercut present.
5. The incisal reduction is 2.0 mm.
6. The lingual wall is 2.0 mm in height.
7. The appropriate path of insertion varies less than 10° from parallel to the long axis of the tooth on all axial surfaces, and a line of draw is established.

### SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. The axial tissue removal is 1.0 mm to 2.5 mm.</li><li>2. The walls may be slightly rough and lack some definition and/or internal line angles and/or incisal edge are rounded and have a slight tendency of being sharp.</li><li>3. Taper, total occlusal convergence (TOC) is 16° or less.</li><li>4. Slight undercut(s) exists but will not interfere with fabrication of an adequate restoration.</li><li>5. The incisal reduction is 1.0 mm to 3.5 mm.</li><li>6. The lingual wall is greater than 1.0mm.</li><li>7. The path of insertion or line of draw deviates 10° to less than 30° from the long axis of the tooth.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. The axial tissue removal is less than 1.0 mm or greater than 2.5 mm.</li><li>2. The walls are grossly rough and lack definition and/or internal line angles and/or incisal edge are sharp with no evidence of rounding.</li><li>3. Taper, total occlusal convergence (TOC) is greater than 16°.</li><li>4. Undercut(s) exists and is greater than 0.5 mm and an adequate restoration cannot be fabricated.</li><li>5. The incisal reduction is less than 1.0 mm; more than 3.5 mm.</li><li>6. The lingual wall is less than 1.0 mm.</li><li>7. The path of insertion or line of draw is unacceptable, deviating 30° or more from the long axis of the tooth.</li></ol>

# RESTORATIVE SECTION

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The Restorative examination consists of two sections –

1. Anterior Restorative Section: Tooth #9 will be used for the Class III composite restoration. Surface sealants must not be placed on the finished composite restoration.
2. Posterior Restorative Section: Tooth #14 will be used for the Class II restoration. The candidate is required to complete one of the following:
  - a. Amalgam
  - b. Conventional Composite

\*For amalgam only: The condensed and carved amalgam surface should not be polished or altered by abrasive rotary instrumentation except for the purpose of adjusting occlusion. Proximal contact is a critical part of the evaluation, and the candidate should be aware that the examiners will be checking the contact with floss. Please note that, for this examination, proximal contacts must be visually closed. Some resistance to the passage of floss is not sufficient for judging a contact to be closed. Also, contacts must not prevent floss from passing through. Proximal contacts that are not visibly closed or that do not permit the passage of floss are evaluated as *Unacceptable*. The candidate must be familiar with the properties of the amalgam being used and should be sure to allow sufficient time for the amalgam to set before sending the typodont to the Evaluation Area/Grading Area.

If a candidate is taking only one of the two restorative procedures (anterior or posterior) they will be given 4 hours. If a candidate is taking both restorative procedures, they will have 7 hours to complete. If a candidate is taking anterior, posterior & periodontal, they will have 9 hours to complete.

The candidate is required to prepare a Class III on tooth #9 preparation and a Class II amalgam or conventional composite (no slot preps) on tooth #14. If the candidate does not pass one of the preparations, they will be informed of the failure, however, will be allowed to continue onto the 2nd restorative preparation. They will be required to retake the failed preparation at the next available grading site. If the 2nd preparation results in a failure, the Restorative Section is stopped, and the candidate will be required to retake both portions at the next available test site. If the candidate elects to take the Periodontal Section, they will be permitted to take that portion at an approved start time the same day.

## TREATMENT GUIDELINES

Restorative instruments and equipment: Candidates must provide the following materials for use during the Restorative Section:

- items in an instrument box (enclosed) or tray must include: Progress form, white cubicule card, a sharp explorer, a probe with standard 1.0 mm incremented markings, an abrasive-free mirror, dental floss, and gauze.
- Isolation dam: It is advised, though not required, that cavity preparations be instrumented with an isolation dam.

Pulpal exposure: If a candidate anticipates a pulpal exposure, a modification request must be completed describing what the candidate intends to do prior to continuing with the preparation, then send the upper arch and modification form to the Express Chair.

In the event of a pulpal exposure, the candidate should write in the Notes section on the Progress Form that a pulpal exposure has occurred, indicate the time and briefly describe how the situation should be treated. A CFC is called, and the upper arch is sent to the Express Chair in the Evaluation Area.

Instructions to candidates: Examiners may provide written instructions to candidates if they believe a treatment should be modified during the examination. When the typodont or upper arch returns from the Evaluation Area, if the candidate does not receive an Instruction to Candidate Form, the candidate should continue to the next step of the treatment. If the candidate does receive an Instruction to Candidate Form, it should be delivered by a CFC. The CFC will review the instructions with the candidate, and both the candidate and CFC will sign the form to indicate that the candidate understands the instructions. The corrections must be completed as stated on the form and checked by a CFC. The candidate must not request an opinion from CFC's concerning instructions given on the Instruction to Candidate Form (ITC).

### MODIFICATION REQUESTS

**"Bundling" of modification requests is not allowed.** Each request must be separate and answer the question where, how much, and why. The forms are available from the CFC.

The tooth must be prepared to ideal dimensions prior to submission of a Modification Request Form.

To request a modification, the candidate must briefly write each modification on the Modification Request Form. The candidate may obtain a Modification Request Form from a CFC. The request for each modification should include:

- What is the candidate requesting to do? (Type of modification)
- Where? (e.g., gingival axial line angle, mesial box)
- How Much is to be removed? (e.g., 0.5 mm from the axial wall)
- Why is the modification needed? (e.g., due to caries, decalcification)

If any of the four spaces for modification requests are not needed, cross out the additional requests lines not used. After viewing and logging the Modification request, the CFC will place a red dot in the designated circle at the top-left of the Progress Form to indicate a requested modification.

A request for modification may be denied on the basis of any one of the parts of the request. For example, if a candidate's request to "extend the box; to the lingual; 2.0 mm; to remove caries" is denied, they should not assume that the request was denied because there are no caries. The denial may be because the request to remove 2.0 mm is excessive.

The upper arch is checked-in to the Express Chair in the Evaluation Area for review of the Modification Request.

At the Express Chair, the examiners will place a green dot over the red dot on the Progress Form to indicate that they have assessed the request. A copy of the Modification Request Form will be returned to the candidate by the CFC to indicate whether the modification(s) has been granted or not granted.

Carefully review the criteria for modification requests. Inappropriate requests for modification(s) will result in a small penalty for each modification not granted. A larger penalty

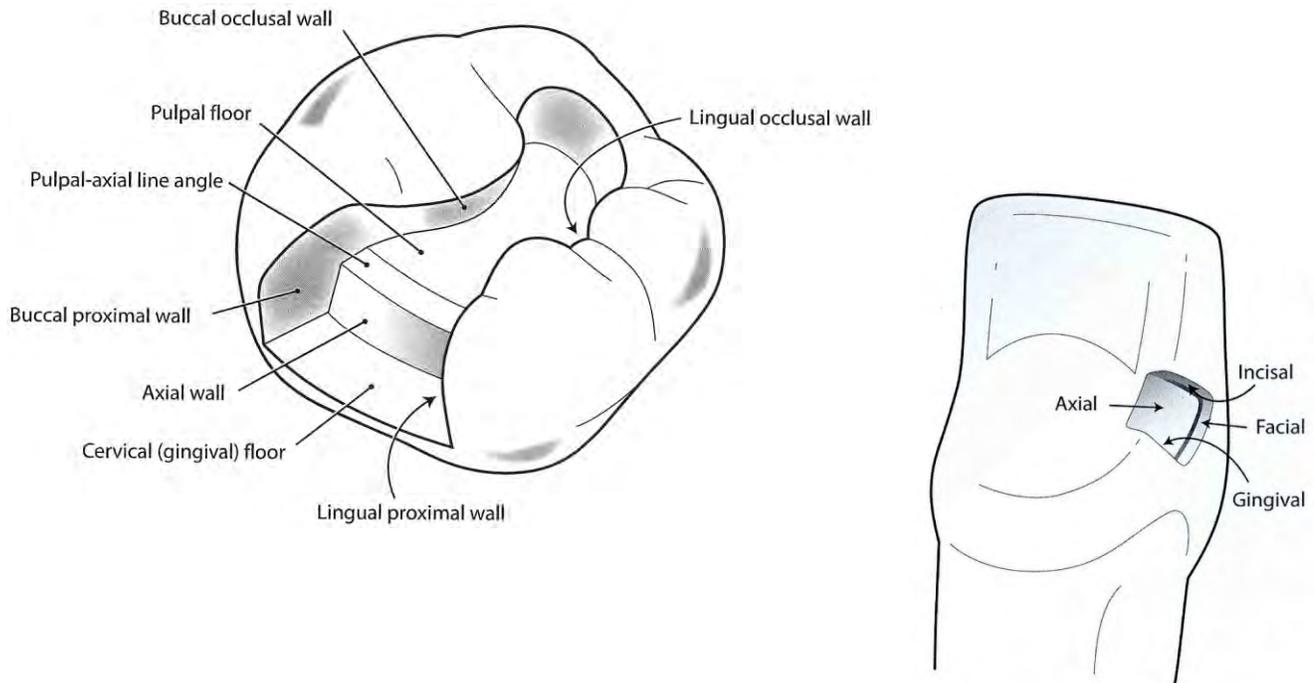
will be assigned for requests for a modification for removal of caries or decalcification when no caries or decalcification exists or for repeated modification requests in an apparent attempt to have the examiners confirm when all caries is removed. Modifications that have been approved and appropriately accomplished will not result in any penalties.

Regardless if the modification is granted or not granted, the candidate must complete the preparation and send the upper arch back to the Evaluation Area for evaluation of the final completed preparation.

If the candidate subsequently has additional requests for modification on the same preparation, a new red dot is placed over the green dot on the Progress Form, and the same procedure is followed. If more than one modification is anticipated at any time, it is to the candidate's advantage to submit them at the same time, as no additional time is provided for evaluation of modification requests, and multiple submissions may significantly decrease treatment time.

Once all approved modifications are completed, the upper arch and all required papers and instruments are submitted to the Evaluation Area for evaluation of the final preparation.

*Terminology to be used when requesting modifications*



## PROCEDURE MANAGEMENT GUIDELINES

Restorative Procedures: Candidates will begin with the Anterior restorative procedure first, followed by the Posterior restorative procedure. Candidates must have the CFC approve the mounting of the typodont before starting the Preparation.

Final evaluation of the preparation: Three independent examiners evaluate the prepared tooth/cavity. Once the Anterior **procedure's preparation is complete**, the candidate will get approval from the CFC to remove the upper (maxillary) arch and place it in the bag or typodont box provided. Place a candidate label on the bag or box and send it to the Evaluation area along with the required instruments, Progress form, and cubicle card for grading. Once grading is complete for the preparation, the upper (maxillary) arch will be returned to the candidate. The candidate will then secure the upper (maxillary) arch back within the typodont and complete the finish section of the Anterior restorative Exam. The same process will be conducted for the Posterior restorative examination.

Final evaluation of the restoration: Once the Anterior restoration have been restored, the candidate will get approval from the CFC to remove the upper (maxillary) arch, and send it to the evaluation area along with the required instruments, cubicle card, and Progress Form. Note that for the Anterior restoration, you will only be submitting the upper arch, not the entire typodont.

For the Posterior restoration, you will be submitting the entire typodont upon finishing the finished restoration. A CFC will sign off on your Progress form to dismount the entire typodont for submission. Affix the manila tag with a candidate ID label to the typodont. After the last restoration has been submitted for grading, the typodont will not be returned. Ensure that all packing materials from the typodont box are included.

For the Class II amalgam restoration, the amalgam must be sufficiently set to allow a check of the occlusion. Any of the composite restorations must be presented without any surface glaze/sealer on the restoration.

If adjustments to the restoration are required, an Instruction to Candidate Form (ITC) will be issued. Candidates must perform the corrections as instructed and verified by a CFC. Only one restorative procedure can be done at a time. Both the Anterior and Posterior portions must be finished in the allotted time and turned into the Evaluation area for Finish grading.

CLASS III ANTERIOR COMPOSITE PREPARATION: TREATMENT MANAGEMENT CRITERIA

TREATMENT GOALS

1. The adjacent teeth and/or restorations are free from damage.
2. The soft tissue is free from damage, or there is tissue damage that is consistent with the procedure.
3. Correct tooth treated.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. Any damage to adjacent tooth/teeth that can be removed by polishing or may require recontouring that does not adversely change the shape or contact.</li><li>2. There may be slight iatrogenic trauma to the soft tissue inconsistent with the procedure.</li><li>3. Correct tooth treated.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. There is evidence of gross damage and/or alteration to adjacent and/or opposing hard tissue inconsistent with the procedure which may require additional evaluation, intervention or treatment as a result of the damage.</li><li>2. There is gross iatrogenic damage to the soft tissue inconsistent with the procedure.</li><li>3. Wrong tooth treated.</li></ol>

CLASS III ANTERIOR COMPOSITE PREPARATION: EXTERNAL OUTLINE FORM CRITERIA

TREATMENT GOALS

1. The outline form is sufficient in size to have access to remove caries and to manipulate and finish the restorative material.
2. The outline form is not overextended beyond what is necessary for complete removal of caries.
3. The incisal cavosurface margin does not compromise the incisal angle.
4. The wall opposite the access, if broken, does not extend more than 0.5 mm beyond the contact area.
5. There are no caries remaining.
6. The cavosurface margins are not irregular and there is no explorer-penetrable decalcification remaining on the cavosurface margin.
7. There is no unsupported enamel.
8. Enamel cavosurface margin may be beveled.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"> <li>1. The outline form is sufficient in size to have access to remove caries and to manipulate and finish the restorative material.</li> <li>2. The outline form may be extended mesiodistally up to 1.5 mm beyond what is necessary.</li> <li>3. The outline form may be extended incisogingivally up to 5.0 mm</li> <li>4. The incisal cavosurface margin does not compromise the incisal angle.</li> <li>5. The wall opposite the access, if broken, may extend no more than 2.0 mm beyond the contact area.</li> <li>6. There is no caries remaining.</li> <li>7. The cavosurface margins may be slightly irregular but there is no explorer-penetrable decalcification remaining on the cavosurface margin.</li> <li>8. There may be a small area of unsupported enamel, which is necessary to preserve facial esthetics.</li> <li>9. Enamel cavosurface margin bevels, if present; do not exceed 1.0 mm in width.</li> <li>10. The gingival clearance is open up to 2.0 mm.</li> </ol>
Unacceptable
<ol style="list-style-type: none"> <li>1. The outline form is under-extended, making it impossible to remove caries or to manipulate and finish the restorative material.</li> <li>2. The outline form is extended mesiodistally up by more than 1.5 mm beyond what is necessary.</li> <li>3. The outline form is extended incisogingivally by more than 5.0 mm</li> <li>4. The incisal cavosurface margin is over-extended so that the incisal angle is compromised, removed or fractured. A Class IV restoration is now necessary without prior justification.</li> <li>5. The wall opposite the access opening extends more than 2.0 mm beyond the contact area.</li> <li>6. There is caries remaining.</li> <li>7. The cavosurface margin does not terminate in sound natural tooth structure. There is explorer-penetrable decalcification at the cavosurface margin.</li> <li>8. There are large or multiple areas of unsupported enamel that are not necessary to preserve facial esthetics.</li> <li>9. Enamel cavosurface margin bevels, if present, exceed 1.0 mm in width, are not uniform or are inappropriate for the size of the restoration</li> <li>10. The gingival clearance is open greater than 2.0 mm.</li> </ol>

CLASS III ANTERIOR COMPOSITE PREPARATION: INTERNAL FORM CRITERIA

TREATMENT GOALS

1. The preparation is free of caries.
2. The depth of the axial wall is just inside the DEJ.
3. No pulp exposure.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. The preparation is free of caries.</li><li>2. The depth of the axial wall is no more than 2.5 mm beyond the DEJ.</li><li>3. Properly managed justified pulp exposure.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. The preparation has remaining caries.</li><li>2. The axial wall is greater than 2.5 mm beyond the DEJ.</li><li>3. Any pulp exposure that is not properly managed or unjustified.</li></ol>

CLASS III ANTERIOR COMPOSITE FINISHED RESTORATION: TREATMENT MANAGEMENT CRITERIA

TREATMENT GOALS

1. The adjacent and/or opposing hard tissue is free from evidence of damage and/or alteration.
2. The soft tissue is free from damage, or there is soft tissue damage consistent with the procedure.
3. Correct tooth treated.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. Any hard tissue damage to adjacent or opposing tooth/teeth that can be removed by polishing or may require recontouring that does not adversely change the shape or contact.</li><li>2. There may be slight iatrogenic trauma to the soft tissue inconsistent with the procedure.</li><li>3. Correct tooth treated.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. There is evidence of gross damage and/or alteration to adjacent and/or opposing hard tissue inconsistent with the procedure which may require additional evaluation, intervention or treatment as a result of the damage.</li><li>2. There is gross iatrogenic damage to the soft tissue inconsistent with the procedure.</li><li>3. Wrong tooth treated.</li></ol>

CLASS III ANTERIOR COMPOSITE FINISHED RESTORATION: **CONTOUR, CONTACT & OCCLUSION CRITERIA**

TREATMENT GOALS

1. Interproximal contact is present. The contact is visually closed and properly shaped and positioned. There is definite, but not excessive, resistance to dental floss when passed through the interproximal contact area.
2. The restoration reproduces the normal physiological proximal contours of the tooth, occlusal anatomy and marginal ridge anatomy.
3. When checked with articulating paper, all centric and excursive contacts on the restoration are consistent in size, shape and intensity with such contacts on other teeth in that quadrant.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. Interproximal contact is visually closed, and the contact is adequate in size, shape or position but may demonstrate little resistance to dental floss.</li><li>2. The restoration may not reproduce the normal lingual anatomy, proximal contours of the tooth or marginal ridge anatomy but would not be expected to adversely affect the tissue health.</li><li>3. When checked with articulating paper, the restoration is in hyperocclusion. The restoration only requires minor occlusal adjusting.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. Interproximal contact is visually open or will not allow floss to pass through the contact area.</li><li>2. The restoration does not reproduce the normal lingual anatomy, proximal contour of the tooth or marginal ridge anatomy and as such it would be expected to adversely affect the health of the surrounding soft tissue.</li><li>3. There is gross hyperocclusion so that the restoration is the only point of occlusion in that quadrant.</li></ol>

CLASS III ANTERIOR COMPOSITE FINISHED RESTORATION: MARGIN INTEGRITY & SURFACE FINISH CRITERIA

TREATMENT GOALS

1. There is no marginal deficiency.
2. There is no marginal excess.
3. The restoration is not fractured and is bonded to the prepared tooth structure.
4. There is no evidence of unwarranted or unnecessary removal, or recontouring of tooth structure adjacent to the restoration, without a previous modification approval.
5. The shade of the restoration blends with the surrounding tooth structure.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. There is no open margin.</li><li>2. Marginal deficiency may be absent or detectable (either visually or with the tine of an explorer) at the restoration-tooth interface, but is no greater than 0.5 mm.</li><li>3. Marginal excess may be absent or detectable at the restoration-tooth interface, but it is no greater than 1.0 mm at the gingival margin and may extend greater than 0.5 mm in other areas.</li><li>4. The restoration is not fractured, debonded and/or movable in the preparation.</li><li>5. There is no or minimal evidence of unwarranted or unnecessary removal, modification or recontouring of tooth structure adjacent to the restoration (enameloplasty).</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. An open margin is detectable (either visually or with the tine of an explorer) at the restoration tooth interface.</li><li>2. Marginal deficiency is detectable (either visually or with the tine of an explorer) at the restoration-tooth interface, and is greater than 0.5 mm.</li><li>3. Marginal excess is greater than 1.0 mm at the gingival margin which impinges on the gingival tissue and will be detrimental to the gingival health.</li><li>4. The restoration is fractured, debonded and/or movable in the preparation.</li><li>5. There is evidence of unwarranted or unnecessary removal, modification or recontouring of tooth structure adjacent to the restoration (enameloplasty).</li></ol>

CLASS II POSTERIOR AMALGAM PREPARATION: TREATMENT MANAGEMENT CRITERIA

TREATMENT GOALS

1. The adjacent and/or opposing hard tissue is free from evidence of damage and/or alteration.
2. The soft tissue is free from damage, or there is soft tissue damage consistent with the procedure.
3. Correct tooth treated.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. Any hard tissue damage to adjacent or opposing tooth/teeth that can be removed by polishing or may require recontouring that does not adversely change the shape or contact.</li><li>2. There may be slight iatrogenic trauma to the soft tissue inconsistent with the procedure.</li><li>3. Correct tooth treated.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. There is evidence of gross damage and/or alteration to adjacent and/or opposing hard tissue inconsistent with the procedure which may require additional evaluation, intervention or treatment as a result of the damage.</li><li>2. There is gross iatrogenic damage to the soft tissue inconsistent with the procedure.</li><li>3. Wrong tooth treated.</li></ol>

## CLASS II POSTERIOR AMALGAM PREPARATION: EXTERNAL OUTLINE FORM CRITERIA

### TREATMENT GOALS

1. The proximal clearance at the height of contour is visibly open.
2. The proximal cavosurface margin is 90° to the external surface of the tooth.
3. There are no areas of unsupported enamel.
4. The gingival clearance is visibly open.
5. The isthmus is a minimum of 1.0 mm wide to no more than one-third the intercuspal width.
6. The cavosurface margins terminates in sound tooth structure, are not irregular and there is no explorer-penetrable decalcification remaining.
7. The outline form includes all carious and non-coalesced fissures and is smooth, rounded and flowing.

### SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. The proximal clearance at the height of contour is visibly open or extends no more than 3.0 mm on either one or both proximal walls.</li><li>2. The proximal cavosurface margin may deviate from 90° but is unlikely to jeopardize the longevity of the tooth or restoration; includes small areas of unsupported enamel.</li><li>3. The gingival clearance is visibly open or not greater than 3.0 mm.</li><li>4. The isthmus is from 1.0 mm wide to no more than one-half the intercuspal width.</li><li>5. The cavosurface margins should terminate in sound tooth structure, and may be slightly irregular, but there is no explorer-penetrable decalcification remaining.</li><li>6. The outline form does not compromise the marginal ridge.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. The proximal clearance at the height of contour is not visibly open or extends beyond 3.0 mm on either one or both proximal walls.</li><li>2. The proximal cavosurface margin deviates excessively from 90° and will jeopardize the longevity of the tooth or restoration; includes unsupported enamel.</li><li>3. The gingival clearance is not visibly open or is greater than 3.0 mm.</li><li>4. The isthmus is less than 1.0 mm or greater than one-half the intercuspal width.</li><li>5. The cavosurface margins do not terminate in sound tooth structure and there is explorer- penetrable decalcification.</li><li>6. The marginal ridge is undermined and/or less than 1.0 mm in width.</li></ol>

## CLASS II POSTERIOR AMALGAM PREPARATION: INTERNAL FORM CRITERIA

### TREATMENT GOALS

1. The pulpal floor depth is 2.0 mm beyond the cavosurface margin.
2. The depth of the axial wall is just inside the DEJ.
3. The walls of the proximal box are convergent and appropriate internal retention is present.
4. There is no evidence of caries.
5. Retention, when used, does not undermine the enamel.
6. Prepared surfaces are smooth.
7. No pulp exposure

### SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. The pulpal floor depth is 1.5 mm to 2.5 mm beyond the cavosurface margin.</li><li>2. The depth of the axial wall is no more than 2.5 mm beyond the DEJ.</li><li>3. The walls of the proximal box should be convergent but may be parallel, but appropriate internal retention is present.</li><li>4. There is no evidence of caries.</li><li>5. Retention, when used, may not undermine the enamel, and is acceptable and therefore not likely to jeopardize the longevity of the tooth or restoration.</li><li>6. Prepared surfaces may be slightly rough, irregular, or sharp.</li><li>7. Properly managed justified pulp exposure.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. The pulpal floor depth is less than 1.5 mm or greater than 2.5 mm from the cavosurface margin.</li><li>2. The axial wall is greater than 2.5 mm beyond the DEJ or is still in the enamel and does not include the DEJ.</li><li>3. The walls of the proximal box diverge occlusally, offering no retention and jeopardizing the longevity of the tooth or restoration.</li><li>4. The preparation has remaining caries.</li><li>5. Retention excessively undermines the enamel and is likely to jeopardize the longevity of the tooth or restoration.</li><li>6. A prepared surface of the tooth is excessively rough, irregular or sharp and is likely to jeopardize the longevity of the tooth restoration.</li><li>7. Any pulp exposure that is not properly managed and/or unjustified.</li></ol>

CLASS II POSTERIOR AMALGAM FINISHED RESTORATION: **TREATMENT MANAGEMENT CRITERIA**

*TREATMENT GOALS*

1. The adjacent and/or opposing hard tissue is free from evidence of damage and/or alteration.
2. The soft tissue is free from damage, or there is soft tissue damage consistent with the procedure.
3. Correct tooth treated.

*SCORING CRITERIA*

Acceptable
<ol style="list-style-type: none"><li>1. Any hard tissue damage to adjacent or opposing tooth/teeth that can be removed by polishing or may require recontouring that does not adversely change the shape or contact.</li><li>2. There may be slight iatrogenic trauma to the soft tissue inconsistent with the procedure.</li><li>3. Correct tooth treated.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. There is evidence of gross damage and/or alteration to adjacent and/or opposing hard tissue inconsistent with the procedure which may require additional evaluation, intervention or treatment as a result of the damage.</li><li>2. There is gross iatrogenic damage to the soft tissue inconsistent with the procedure.</li><li>3. Wrong tooth treated.</li></ol>

CLASS II POSTERIOR AMALGAM FINISHED RESTORATION: **CONTOUR, CONTACT & OCCLUSION CRITERIA**

TREATMENT GOALS

1. Interproximal contact is present. The contact is visually closed and properly shaped and positioned. There is definite, but not excessive, resistance to dental floss when passed through the interproximal contact area.
2. When checked with articulating paper, all centric and excursive contacts on the restoration are consistent in size, shape and intensity with such contacts on other teeth in that quadrant.
3. The restoration reproduces the normal physiological proximal contours of the tooth, occlusal anatomy and marginal ridge anatomy.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. Interproximal contact is visually closed, and the contact may be deficient in size, shape or position but may demonstrate little resistance to dental floss or shreds the floss.</li><li>2. When checked with articulating paper, the restoration may be in slight hyperocclusion inconsistent in size, shape and intensity with the occlusal contacts on surrounding teeth and the restoration may require adjustment.</li><li>3. The restoration may not reproduce the normal occlusal anatomy, proximal contours of the tooth or marginal ridge anatomy, but would not be expected to adversely affect the tissue health.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. Interproximal contact is visually open or will not allow floss to pass through the contact area.</li><li>2. There is gross hyperocclusion so that the restoration is the only point of occlusion in that quadrant.</li><li>3. The restoration does not reproduce the normal occlusal anatomy, proximal contours of the tooth or marginal ridge anatomy and will adversely affect the tissue health.</li></ol>

CLASS II POSTERIOR AMALGAM FINISHED RESTORATION: MARGIN INTEGRITY & SURFACE FINISH CRITERIA

TREATMENT GOALS

1. There is no marginal deficiency.
2. There is no marginal excess detectable, either visually or with the tine of an explorer, at the restoration-tooth interface.
3. The surface of the restoration is free of pits and voids.
4. Restoration is not fractured.
5. There is no evidence of unwarranted or unnecessary removal, modification or recontouring of tooth structure adjacent to the restoration (enameloplasty).
6. There is no evidence of open margins.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. Marginal deficiency may be absent or detectable (either visually or with the tine of an explorer) at the restoration-tooth interface, but it is no greater than 0.5 mm.</li><li>2. Marginal excess may be absent or detectable at the restoration-tooth interface, but it is no greater than 1.0 mm at the gingival margin and does not extend greater than 2.0 mm in other areas.</li><li>3. The surface of the restoration may be slightly grainy or rough, but it is free of pits and voids.</li><li>4. Restoration is not fractured.</li><li>5. There is no or minimal evidence of unwarranted or unnecessary removal, modification or recontouring of tooth structure adjacent to the restoration (enameloplasty).</li><li>6. There is no evidence of open margins.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. Marginal deficiency is detectable (either visually or with the tine of an explorer) at the restoration-tooth interface, and is greater than 0.5 mm.</li><li>2. Marginal excess is greater than 1.0 mm at the gingival margin which impinges on the gingival tissue and will be detrimental to the gingival health and/or extends greater than 2.0 mm in other areas.</li><li>3. The surface of the restoration is rough and exhibits significant surface irregularities, pits or voids.</li><li>4. Restoration is fractured.</li><li>5. There is evidence of unwarranted or unnecessary removal, modification or recontouring of tooth structure adjacent to the tooth being restored (enameloplasty).</li><li>6. There is an open margin detectable with the tine of an explorer.</li></ol>

CLASS II POSTERIOR CONVENTIONAL COMPOSITE PREPARATION: TREATMENT  
MANAGEMENT CRITERIA

TREATMENT GOALS

1. There is no hard tissue damage to adjacent or opposing tooth/teeth.
2. There is no iatrogenic trauma to the soft tissue inconsistent with the procedure
3. Correct tooth treated.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. Any hard tissue damage to adjacent or opposing tooth/teeth that can be removed by polishing or may require recontouring that does not adversely change the shape or contact.</li><li>2. There may be slight iatrogenic trauma to the soft tissue inconsistent with the procedure.</li><li>3. Correct tooth treated.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. There is evidence of gross damage and/or alteration to adjacent and/or opposing hard tissue inconsistent with the procedure which may require additional evaluation, intervention or treatment as a result of the damage.</li><li>2. There is gross iatrogenic damage to the soft tissue inconsistent with the procedure.</li><li>3. Wrong tooth treated.</li></ol>

CLASS II POSTERIOR CONVENTIONAL COMPOSITE PREPARATION: **EXTERNAL OUTLINE FORM CRITERIA**

*TREATMENT GOALS*

1. The proximal contact is either closed, or visibly open.
2. The gingival clearance is visibly open.
3. The outline form is not sharp and irregular. The outline form is not over extended so that it compromises the remaining marginal ridge and/or cusp(s).
4. The isthmus is at least 1.0 mm and may not exceed one-half the intercuspal width.
5. The cavosurface margin is 90° to the external surface of the tooth. There is no unsupported enamel.
6. The cavosurface margins terminates in sound tooth structure, are not irregular and there is no explorer-penetrable decalcification remaining.
7. There is no remaining non-coalesced fissure(s) that extend the DEJ and are contiguous with the outline form.

*SCORING CRITERIA*

Acceptable
<ol style="list-style-type: none"> <li>1. The proximal contact is either closed, or visibly open and proximal clearance at the height of contour does not extend more than 2.5 mm on either one or both proximal walls.</li> <li>2. The gingival clearance may be closed, or is less than or equal to 2.0 mm.</li> <li>3. The outline form may be sharp and irregular. The outline form may be inappropriately over extended so that it compromises the remaining marginal ridge and/or cusp(s).</li> <li>4. The isthmus must be at least 1.0 mm and may not exceed one-half the intercuspal width.</li> <li>5. The cavosurface margin may deviate from 90° but is unlikely to jeopardize the longevity of the tooth or restoration; Includes small areas of unsupported enamel and/or excessive bevel(s).</li> <li>6. The cavosurface margins should terminate in sound tooth structure and may be slightly irregular but there is no explorer-penetrable decalcification remaining.</li> <li>7. There are no remaining non-coalesced fissure(s) that extend the DEJ and are contiguous with the outline form.</li> </ol>
Unacceptable
<ol style="list-style-type: none"> <li>1. The proximal clearance at the height of contour extends beyond 2.5 mm on either one or both proximal walls.</li> <li>2. The gingival clearance is greater than 2.0 mm.</li> <li>3. The outline form is grossly over-extended so that it compromises or undermines the remaining marginal ridge to the extent that the cavosurface margin is unsupported by dentin or the width of the marginal ridge is 0.5 mm or less.</li> <li>4. The isthmus is less than 1.0 mm or greater than one-half the intercuspal distance.</li> <li>5. The cavosurface margin deviates from 90° and is likely to jeopardize the longevity of the tooth or restoration. This includes unsupported enamel and/or excessive bevel(s).</li> <li>6. The cavosurface margins do not terminate in sound tooth structure, are grossly irregular and there is explorer-penetrable decalcification.</li> <li>7. There are remaining non-coalesced fissure(s) that extend to the DEJ and are contiguous with the outline form.</li> </ol>

CLASS II POSTERIOR CONVENTIONAL COMPOSITE PREPARATION: INTERNAL FORM  
CRITERIA

TREATMENT GOALS

1. The pulpal floor depth is equal to 2.0 mm from the cavosurface margin and there is no remaining enamel.
2. The depth of the axial wall is just inside the DEJ.
3. The walls of the proximal box may be divergent or convergent but there is no undermined enamel.
4. There is no evidence of caries.
5. Retention, when used, does not undermine the enamel.
6. Prepared surfaces are smooth.
7. No pulp exposure.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. The pulpal floor depth is equal to or greater than 0.5 mm from the cavosurface margin, and the pulpal floor depth is no more than 4.0 mm from the cavosurface margin; there may be remaining enamel.</li><li>2. The depth of the axial wall is no more than 2.5 mm beyond the DEJ.</li><li>3. The walls of the proximal box may be divergent or convergent, and which may result in some undermined enamel.</li><li>4. There is no evidence of caries.</li><li>5. Retention, when used, may not undermine the enamel which is not likely to jeopardize the longevity of the tooth or restoration.</li><li>6. Prepared surfaces may be rough, irregular or sharp.</li><li>7. Properly managed justified pulp exposure.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. The pulpal floor depth is 4.0 mm or greater from the cavosurface margin or is less than 0.5 mm.</li><li>2. The axial wall is more than 2.5 mm beyond the DEJ or is entirely in enamel.</li><li>3. The walls of the proximal box are excessively divergent or convergent, resulting in excessively undermined enamel, that is likely to jeopardize the longevity of the tooth or restoration.</li><li>4. The preparation has remaining caries.</li><li>5. Retention excessively undermines the enamel and is likely to jeopardize the longevity of the tooth or restoration.</li><li>6. Prepared surfaces are excessively rough, irregular or sharp and likely to jeopardize the longevity of the tooth restoration.</li><li>7. Any pulp exposure that is not properly managed or unjustified.</li></ol>

CLASS II POSTERIOR CONVENTIONAL COMPOSITE FINISHED RESTORATION: TREATMENT MANAGEMENT CRITERIA

TREATMENT GOALS

1. The adjacent and/or opposing hard tissue is free from evidence of damage and/or alteration.
2. The soft tissue is free from damage, or there is soft tissue damage consistent with the procedure.
3. Correct tooth treated.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. Any hard tissue damage to adjacent or opposing tooth/teeth that can be removed by polishing or may require recontouring that does not adversely change the shape or contact.</li><li>2. There may be slight iatrogenic trauma to the soft tissue inconsistent with the procedure.</li><li>3. Correct tooth treated.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. There is evidence of gross damage and/or alteration to adjacent and/or opposing hard tissue inconsistent with the procedure which may require additional evaluation, intervention or treatment as a result of the damage.</li><li>2. There is gross iatrogenic damage to the soft tissue inconsistent with the procedure.</li><li>3. Wrong tooth treated.</li></ol>

CLASS II POSTERIOR CONVENTIONAL COMPOSITE FINISHED RESTORATION: **CONTOUR, CONTACT & OCCLUSION CRITERIA**

TREATMENT GOALS

1. Interproximal contact is present. The contact is visually closed and is properly shaped and positioned. There is definite, but not excessive, resistance to dental floss when passed through the interproximal contact area.
2. When checked with articulating paper, all centric and excursive contacts on the restoration are consistent in size, shape and intensity with such contacts on other teeth in that quadrant.
3. The restoration reproduces the normal physiological proximal contours of the tooth, occlusal anatomy and marginal ridge anatomy.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. Interproximal contact is visually closed, but the contact may be deficient in size, shape or position, and may demonstrate little resistance to dental floss or shreds the floss.</li><li>2. When checked with articulating paper, the restoration may be in hyperocclusion inconsistent in size, shape and intensity with the occlusal contacts on surrounding teeth. The restoration requires adjustment.</li><li>3. The restoration may not reproduce the normal occlusal anatomy, proximal contours of the tooth, or marginal ridge anatomy, but would not be expected to adversely affect the tissue health.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. Interproximal contact is visually open or will not allow floss to pass through the contact area.</li><li>2. There is gross hyperocclusion, such that the restoration is the only point of occlusion in that quadrant.</li><li>3. The restoration may not reproduce the normal occlusal anatomy, proximal contours of the tooth, or marginal ridge anatomy, and adversely affects tissue health.</li></ol>

CLASS II POSTERIOR CONVENTIONAL COMPOSITE FINISHED RESTORATION: MARGIN INTEGRITY & SURFACE FINISH CRITERIA

TREATMENT GOALS

1. There is no marginal deficiency.
2. There is no marginal excess detectable, either visually or with the tine of an explorer, at the restoration-tooth interface.
3. The restoration is bonded to the prepared tooth structure.
4. There is no evidence of unwarranted or unnecessary removal, modification or recontouring of tooth structure adjacent to the restoration.
5. Shade selection matches surrounding tooth structure.
6. There is no evidence of open margins.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. Marginal deficiency may be absent or detectable (either visually or with the tine of an explorer) at the restoration-tooth interface, but it is no greater than 0.5 mm.</li><li>2. Marginal excess may be absent or detectable at the restoration-tooth interface, but it is no greater than 1.0 mm at the gingival margin and may extend greater than 0.5 mm in other areas</li><li>3. The restoration is not fractured, debonded and/or movable in the preparation.</li><li>4. There is no or minimal evidence of unwarranted or unnecessary removal, or recontouring of tooth structure adjacent to the restoration (enameloplasty).</li><li>5. There is no evidence of open margins.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. Marginal deficiency is detectable (either visually or with the tine of an explorer) at the restoration-tooth interface, and is greater than 0.5 mm.</li><li>2. Marginal excess is greater than 1.0 mm at the gingival margin which impinges on the gingival tissue and will be detrimental to the gingival health.</li><li>3. The restoration is fractured, debonded and/or movable in the preparation.</li><li>4. There is evidence of unwarranted or unnecessary removal, modification or recontouring of tooth structure adjacent to the tooth being restored (enameloplasty).</li><li>5. There is an open margin detectable with the tine of an explorer.</li></ol>

## IV. PERIODONTAL EXAM (OPTIONAL)

The Periodontal is the only optional section of this examination. Candidates should contact the appropriate state board of dentistry directly to determine state-specific requirements before deciding whether to take the Periodontal section.

If a candidate is taking anterior, posterior & periodontal, they will have 9 hours to complete the examination. If taking only the Periodontal section, 3 hours total is allotted with a 1.5-hour clinical treatment time included.

Assistants: Use of chairside assistants are not permitted during the periodontal section.

Time Management: The candidate should be aware that the time allowed for the examination includes the time that the typodont will be at the Evaluation Area. The average time in the Evaluation Area is 30 minutes and may vary depending on the time of the day and number of candidates at this examination.

### SELECTION & CHECK-IN

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Teeth selection for the Periodontal section is important. Candidates have a maximum of two opportunities to present a valid treatment selection. If a second treatment selection is rejected or is not presented after the first treatment selection is rejected, a candidate will not be allowed to continue with the procedure and will result in a failed attempt.

Check-in: The candidates may begin setting up their operatories when the clinic opens. Candidates will receive their typodont from the CFC. They must mount the manikin and get **the CFC's approval before proceeding**. The candidate will record their teeth selection using the Treatment Selection Worksheet while the typodont is mounted in a manikin head. They will then dismount and send the typodont to the Evaluation Area for approval along with cubicle card, Periodontal Progress Form, Treatment Selection Worksheet and the required instruments.

### INSTRUMENTS

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The candidate's performance will not be evaluated without the proper instruments.

Sonic/ultrasonic instruments are permissible for scaling, but they may not be available at the examination site (check with the examination site). If the candidate elects to provide their own unit, they must check with the examination site about appropriate connection mechanisms. Air-abrasive polishers are not permissible.

An instrument box or tray containing the following items must be sent with the typodont:

- Periodontal Progress Form
- Cubicle card
- Instruments
  - 11/12 explorer
  - Clear mirror (unscratched, not tinted, non-disposable)

## TREATMENT SELECTION

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The candidate's treatment selection must include the proper number of teeth, adequate deposits of calculus and appropriate pocket depths as defined below:

- Teeth: There must be at least six and not more than eight permanent teeth selected, at least three of which are molars or premolars, including at least one molar. All posterior teeth must have at least one approximating tooth surface within 2.0 mm distance. Each of the selected teeth must have at least one surface of subgingival calculus selected for removal.
- Calculus: There must be exactly 12 surfaces of explorer-detectable subgingival calculus identified on the selected teeth, and no more than four surfaces may be on the incisors. Three of the 12 identified surfaces of calculus must be on interproximal surfaces of posterior teeth, i.e., molars and/or premolars.
  - Explorer detectable subgingival calculus is defined as a distinct deposit of calculus that can be felt with an explorer as it passes over the calculus. Qualified deposits may exhibit such characteristics as:
    - A definite "jump" or "bump" felt by the explorer, with the rough surface characteristic of calculus
    - Ledges or ring formations
    - Spiny or nodular formations
  - Qualified deposits must be apical to the gingival margin and may occur with or without associated supragingival deposits.
- If during the approval evaluation, the examiners confirm that four or more of the twelve surfaces of explorer detectable subgingival calculus are not present; this section of the examination is stopped as the candidate cannot successfully complete the examination. Candidates may, however, submit a second submission for approval. A maximum of two submissions for approval is allowed.

Candidates must use the Treatment Selection Worksheet (available at [www.srta.org](http://www.srta.org)) to identify and document a selection of the typodont's teeth that meet these criteria. Please refer to Examination Forms, Periodontal Treatment Selection Worksheet for more information.

Scaling: After the candidate performs the periodontal procedure, the subgingival surfaces of the assigned teeth must be smooth, with no deposits detectable with an explorer. Air may be used to deflect the tissue to locate areas for tactile confirmation. (All subgingival surfaces on an assigned tooth must be scaled, but only the selected surfaces will be evaluated.)

Supragingival deposits (polishing): All supragingival calculus must be removed from all coronal surfaces of the assigned teeth so that all surfaces are visually clean when air-dried and tactilely smooth upon examination with an explorer. The use of disclosing solution is not permitted.

## PROCEDURE & GUIDELINES

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1. A maximum of two treatment selections may be presented for the Periodontal Section. If the first treatment selection submitted is found unacceptable due to examination protocols, guidelines or requirements, a second treatment selection may be presented. If the selection is otherwise acceptable but there has been a correctable paperwork error, the candidate may be allowed to correct those errors and re-submit that selection for approval. In all circumstances the candidate must have their typodont presented and approved for treatment BEFORE proceeding further with the

examination. Treatment on a typodont without documented approval by a Clinic Floor Coordinator (CFC) is a violation of examination protocol and may subject the candidate to dismissal from the examination.

2. The Periodontal Progress Form will be provided at the examination site. When the candidate receives the Progress Form, they should place a candidate identification label on the form, enter his/her cubicle number and typodont number.
3. The procedures, instruments and materials used are the choice of the candidate, as long as they are currently accepted and taught by accredited dental schools and the candidate has been trained in their use. It is the responsibility of the candidate to provide the instruments used in this examination and listed in this Candidate Manual, unless such instruments are furnished by the school.
4. The Periodontal section will be the last procedure of the day unless only taking the one section. Candidates will retrieve the Periodontal typodont from the CFC and may mount the typodont. A CFC will sign off to ensure the typodont is properly mounted prior to beginning the screening process.
5. If any problems arise during the examination, the candidate should immediately notify a CFC. The CFC is also present to aid in any emergencies that may occur.
6. When a typodont is sent to the Evaluation Area for check-in, they will be signed in with the Dental Administrator. Typodonts will be evaluated for case acceptance in the order in which they are signed in. The required forms, cubicle card and instruments are sent to the Evaluation Area with the typodont.
7. The Dental Administrator will indicate a Finish Treatment Time on the Periodontal Progress Form. The approximate total time for the Periodontal Section is about 3 hours. The clinical treatment time is a maximum of 1 ½ hours and a minimum of 45 minutes. Candidates must check their typodont in for pre-treatment approval by 3:45pm and be checked out of the evaluation area by 4:15pm to receive a treatment time of 45 minutes prior to the end of the examination day. When the typodont is returned from the Evaluation Area, treatment should begin. Treatment continues until it is completed or until the Finish Time, as noted on the Periodontal Progress Form. If candidates finish the treatment before their assigned Finish Time, they may check in the typodont with the Dental Administrator for evaluation. The candidate must scale all subgingival surfaces on the six to eight selected teeth, but only the 12 selected surfaces chosen by the candidate will be evaluated. Supragingival calculus must be removed from all surfaces of the selected teeth. No other teeth may be scaled or polished during the examination, and once the examination is completed, the candidate will turn in their typodont.

8. The typodont must be checked in with the Dental Administrator for evaluation at the Evaluation Area by the recorded Finish Time.
9. For the treatment evaluation, the candidate must get approval from the CFC before dismounting the typodont. They will then send the typodont in the box with candidate ID label on it, the Progress form and cubicle card to the Evaluation Area.
10. The examiners will evaluate tissue management and subgingival calculus removal from the selected tooth surfaces and evaluate supragingival calculus removal from all surfaces on the selected teeth.
11. When the evaluation is completed, the Progress Form, cubicle card and instruments will be returned to the candidate. The candidate must clean the clinic area following accepted infection control procedures.

# PERIODONTAL CRITERIA

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## PERIODONTAL EXAMINATION: SELECTION CRITERIA

### TREATMENT GOALS

1. The Progress Form is complete, accurate and current.
2. The Calculus Detection portion of the Treatment Worksheet is properly completed, indicating:
  - a. Six to eight teeth selected, each with at least one surface of calculus charted
  - b. At least three posteriors (molars, premolars), including at least one molar, in the selection. All posterior teeth must have at least one approximating tooth within 2.0 mm distance.
  - c. Exactly 12 surfaces of subgingival calculus charted, including at least three surfaces of interproximal calculus on molars/premolars
  - d. At least eight of the surfaces on canines, premolars or molars (no more than four surfaces on incisors)

PERIODONTAL EXAMINATION: **TISSUE & TREATMENT MANAGEMENT CRITERIA**

TREATMENT GOALS

1. Instruments, polishing cups or brushes and dental floss are effectively utilized so that no unwarranted soft or hard tissue trauma occurs as a result of the scaling and polishing procedures.
2. All calculus has been removed from the candidate's 12 selected surfaces. No Plaque and/or stain remain on those 12 surfaces.

SCORING CRITERIA

Acceptable
<ol style="list-style-type: none"><li>1. There is minor soft tissue trauma that is inconsistent with the procedure. Soft tissue trauma may include, but is not limited to, abrasions, lacerations or ultrasonic burns.</li><li>2. There is minor hard tissue trauma that is inconsistent with the procedure. Hard tissue trauma may include root surface abrasions that do not require additional definitive treatment.</li><li>3. Calculus remaining on 3 or less surfaces with no plaque and/or stain remaining on those selected surfaces.</li></ol>
Unacceptable
<ol style="list-style-type: none"><li>1. There is major damage to the soft and/or hard tissue that is inconsistent with the procedure which may require additional evaluation, intervention or definitive treatment as a result of the damage. This damage may include, but is not limited to, such trauma as:<ul style="list-style-type: none"><li>• Amputated papillae</li><li>• Exposure of the alveolar process</li><li>• A laceration or damage that requires suturing and/or periodontal packing</li><li>• One or more ultrasonic burns</li><li>• A broken instrument tip in the sulcus or soft tissue</li></ul></li><li>2. There is major hard tissue trauma that is inconsistent with the procedure such as:<ul style="list-style-type: none"><li>• Root surface abrasion that requires additional treatment</li><li>• Exposure of bone that requires further treatment</li></ul></li><li>3. Calculus remaining on 4 or more surfaces and plaque and/or stain is remaining on those selected surfaces.</li></ol>

# V. EXAMINATION SCHEDULE

## TRADITIONAL EXAMINATION SCHEDULE

All clinics will be open at 6:00AM so setup may begin.

DAY ONE	Registration and Orientation 3:30PM or time designated by host examination site		
DAY TWO & THREE	MANIKIN ENDODONTIC/PROSTHODONTIC SCHEDULE		
	START	FINISH	PROCEDURE
	7:00AM	8:00AM	Check-in, distribution of typodonts, set up cubicle, call for CFC to measure endo tooth.
	8:00AM	11:00AM	Candidates doing Endodontic Procedures have 3 hours.
	11:15AM	3:15PM	Candidates doing Fixed Prosthodontic Procedures have 4 hours.
	MANIKIN RESTORATIVE AND PERIODONTAL SCHEDULE		
	START	FINISH	PROCEDURE
	7:00AM	8:00AM	Candidates will begin with the Anterior restorative procedure followed by the Posterior restorative procedure. Candidates can retrieve their typodonts from the CFC and mount them in their units. Candidates can then receive approval from a CFC for set up and 8:00 AM start time.  Candidates only doing the Periodontal Section, have 1.5** hours from the time their teeth selection is approved.
	*8:00AM	3:00PM	Candidates doing only the Restorative Section have 7 hours.
	*8:00AM	5:00PM	Candidates doing both the Restorative and Periodontal Section have 9 hours. For periodontal, candidates have 1.5** hours from the time their teeth selection is approved.

\*Candidates will be assigned 7 hours on Day Two or Day Three for the Restoration section. If taking periodontal, candidates will have 9 hours.

\*\*Maximum treatment time of 1 hour 30 minutes and minimum 45 minutes.

SRTA reserves the right to amend the schedule for the Traditional Exam as needed. All candidates should remain on site during the examination. All scheduled times as listed could be moved earlier if conditions exist to do so and all candidates permit this by means of vote.

#### DAY ONE – REGISTRATION & ORIENTATION

Candidates will receive instructions on the location and time of registration and orientation. During this time, candidates will register for the Traditional Examination and then proceed to the orientation.

For registration, candidates must present one form of government-issued photo identification (e.g.: **Military ID, Driver's License, State-Issued ID, or School ID**). Candidates will receive a white envelope which has peel-off ID labels, two (2) cubicle cards, badge, and progress forms. Candidates must keep the white envelopes and turn them in at the end of the examination. Orientation will begin after registration and will last approximately 45 minutes. Orientation will deal with manikin-based procedures. It also will cover the following information:

- Examination schedule
- Equipment troubleshooting
- Scoring and forms
- Helpful examination hints
- How to avoid the most common examination errors

#### DAY TWO/THREE – TRADITIONAL EXAMINATION

Any treatment procedure that is approved and/or started must be completed on the same day before the designated cutoff time. Time management is the candidate's responsibility.

All typodonts must be submitted by the designated cutoff time on the day the procedure was initiated. Any procedure submitted to the Evaluation Area after the designated cutoff time will not be scored, and the candidate will fail that section of the examination.

Candidates found treating typodonts that are not properly mounted and/or in the clinic after the designated cutoff time will fail that section of the examination.

## CHECK OUT PROCESS

Upon completion of all manikin-based examinations, candidates must personally submit all examination packets to the CFC. The following items must be submitted in the provided white envelope and accounted for prior to dismissal from the examination site:

- Completed Progress Forms
- Candidate ID Badge
- Cubicle cards (2)

Note: Any one validated unacceptable criteria recorded in either anterior restorative, posterior restorative, or periodontal will result in a failure of that section only.

## SECTIONAL EXAMINATION SCHEDULE

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Candidates will be scheduled according to which sections they are taking, the number of sections and the availability of operatory space.

Candidates scheduled for re-examination(s) must register with the Clinic Floor Coordinator the day of their exam if they did not attend orientation.

# CHECKLIST

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- Read the entire Candidate Manual for the SRTA Dental Examination Series.

## REGISTRATION

- Complete the online registration by following the instructions in Application Process Section of this manual.

## TAKE TO THE CLINICAL EXAMINATION SITE AND REGISTRATION/ORIENTATION

- One form of identification, with your signature and photograph.  
*Acceptable forms of ID include valid current driver's license, passport, military ID, school and employee ID. An out-of-date driver's license is not considered a valid ID for this purpose.*
- Assigned examination site, time and candidate number, available for printing from your SRTA online profile under the *Apply* tab.
- A ballpoint pen to be used on the Progress Forms
- Two #2 lead pencils
- All necessary materials and instruments
- SRTA Candidate Manual



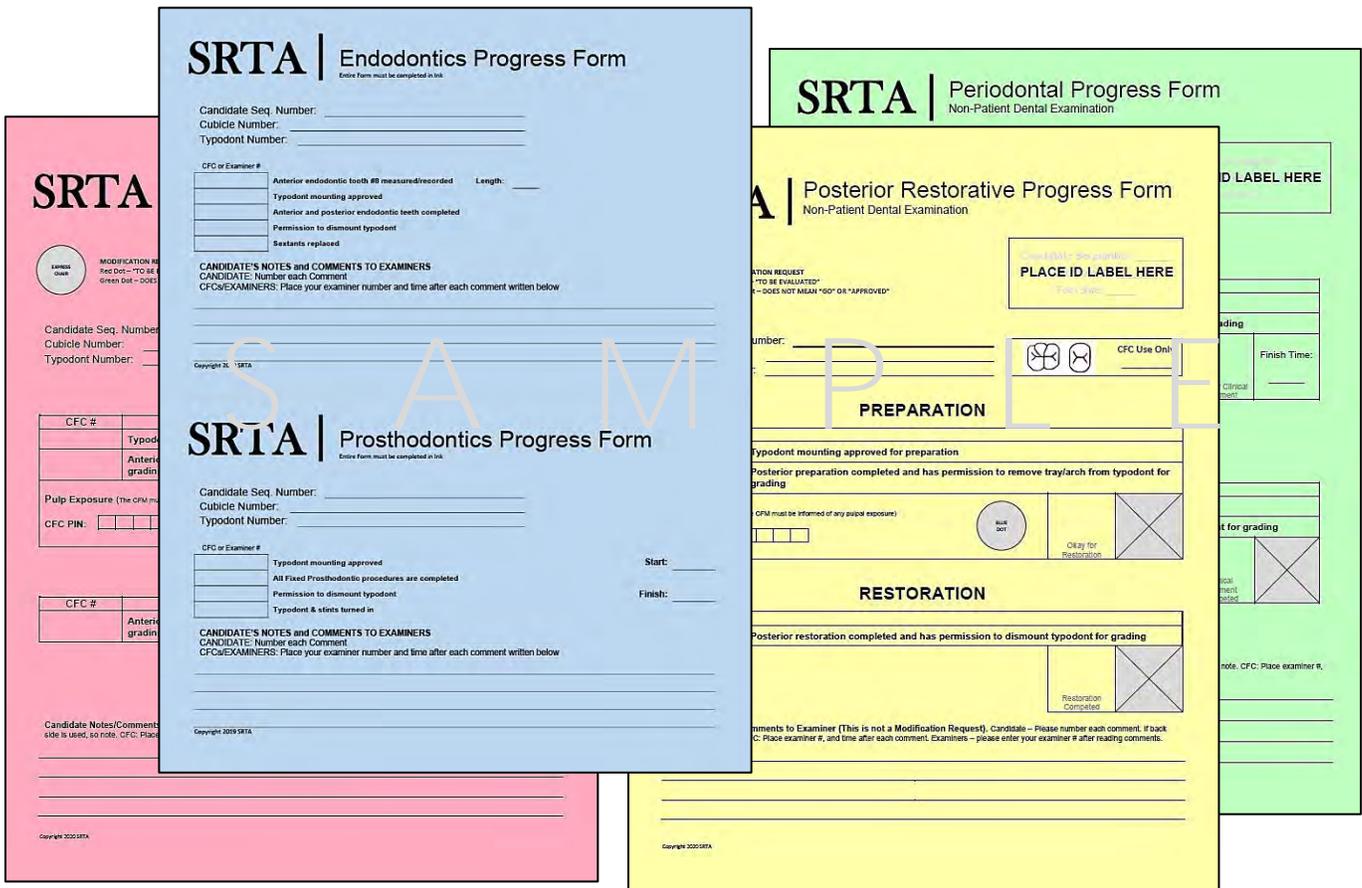
# PROGRESS FORMS

Color-coded Progress Forms are utilized to track the candidate's progress through each procedure, and treatment provided, collect examiner pins for all completed portions of the examination and provide appropriate progress notes from the candidate to examiners during the course of treatment.

Candidates will be provided with identification labels to place on each procedure's Progress Form, as indicated on the form.

The appropriate Progress Forms must be presented to the examiners at the time of check-in.

The Endodontic Section Progress Form and Fixed Prosthodontics will be filled out at the beginning of the examination and turned in upon completion of the manikin section of the examination.



# MODIFICATION REQUEST FORM

Modification Request Forms are utilized to request permission to deviate from a *Satisfactory*-level restorative preparation.

Candidates who need to request a modification should place an identification label on the Modification Request Form and indicate their cubicle number, procedure, day and time.

For more information refer to Treatment Guidelines in the Restorative Section.

<b>SRTA</b>		<b>Modification Request Form</b>	
		Non-Patient Dental Examination	
<b>Restorative</b> <input type="checkbox"/> Amalgam Prep <input type="checkbox"/> Composite Prep Tooth # _____ Surface _____		<b>Form</b> <input type="checkbox"/> 1 <sup>st</sup> <input type="checkbox"/> 2 <sup>nd</sup> <input type="checkbox"/> 3 <sup>rd</sup> Operator # _____ Typodont # _____	Candidate Preparation: <b>PLACE ID LABEL HERE</b> Test Site: _____
By entering my candidate number and having this modification request reviewed by a CFC, I acknowledge that I have completed this preparation to ideal form – prior to requesting this modification.		CFC Pin _____	Cand. # _____
<b>Modification Request #1</b>			
What: _____			
Where: _____			
How Much: _____			
Why: _____			
<input type="checkbox"/> Granted <input type="checkbox"/> Not Granted <input type="checkbox"/> _____			
Document: _____			
<b>Modification Request #2</b>			
What: _____			
Where: _____			
How Much: _____			
Why: _____			
<input type="checkbox"/> Granted <input type="checkbox"/> Not Granted <input type="checkbox"/> _____			
Document: _____			
<b>Modification Request #3</b>			
What: _____			
Where: _____			
How Much: _____			
Why: _____			
<input type="checkbox"/> Granted <input type="checkbox"/> Not Granted <input type="checkbox"/> _____			
Document: _____			
<b>Modification Request #4</b>			
What: _____			
Where: _____			
How Much: _____			
Why: _____			
<input type="checkbox"/> Granted <input type="checkbox"/> Not Granted <input type="checkbox"/> _____			
Document: _____			

# INSTRUCTION TO CANDIDATE FORM (ITC)

**SRTA** | Instruction to Candidate

**SEE THE CLINIC FLOOR COORDINATOR BEFORE PROCEEDING**

**Candidate Number:** \_\_\_\_\_

Procedures: \_\_\_\_\_ Tooth/Surface: \_\_\_\_\_ Operatory: \_\_\_\_\_

Reason(s) for ITC:

Candidate must complete the following:

General Comments:

Candidate Signature, Acknowledgment of Receipt: \_\_\_\_\_ Authorized by CFC to continue: \_\_\_\_\_

*Instructions to candidate and treatment have been completed. CFC sign below:*

CFC Signature: \_\_\_\_\_

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Candidates may receive written instructions from examiners on an Instruction to Candidate Form if the examiners believe the treatment should be modified. The Instruction to Candidate Form is generated electronically by the examiners and printed out in the Evaluation Area. Then it is delivered to the candidate by a Clinic Floor Coordinator, in order to preserve anonymity. The candidate must initial on the Instruction to Candidate Form that they understand the instructions.

# VII. FAQs & HELPFUL HINTS

## FAQs

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1. How long do I have before the start of the examination?  
Clinics open at 6:00AM, Typodont distribution begins at 7:00AM and clinic time begins at 8:00AM.
2. Can I use a dental chairside assistant?  
No, chairside assistants are not permitted during the manikin examination.
3. What is the cutoff time to have my teeth selection for Periodontal approved?  
Pre-treatment approval for Periodontal is 1 hour 15 minutes prior to the end of the day.
4. What is the cutoff time for my restorative or periodontal typodont to be sent to the Evaluation Area at the end of the day?  
5:00PM is the cutoff time for candidates doing the Restorative and Periodontics sections. And 3:00PM is the cutoff time for candidates doing Restorative only, (This applies to all candidates who are taking the complete examination. Reexamination candidates should refer to the schedule of times emailed to them.)
5. For the Class II Amalgam Procedure, does there have to be contact on the amalgam?  
Yes, the tooth must be in contact with a sound enamel surface.
6. Do I have to use an isolation dam?  
During the Restorative Section, cavity preparations may be instrumented with or without an isolation dam.  
  
During the Endodontic section, an isolation dam is required.
7. Where do I obtain new Progress Forms in the event, I need to submit a different selection for the Periodontal Section?  
Additional copies of these forms are available through the Clinic Floor Coordinator (CFC) and his/her assistant.
8. If a Periodontal selection is not approved, what do I do with the forms? Will I need a new Procedure Form? Will they be available?  
Submit the forms for the non-approval to the Clinic Floor Coordinator. The CFC will provide you with new forms.
9. For the Amalgam Procedure, I have cut an ideal preparation, but caries is still present. Do I need to send my typodont to the scoring area for observation of the condition and then remove the caries and send the typodont for a second check?  
Yes, you would obtain a Modification Form from the CFC and complete the form stating the reason for deviating from ideal. You will then send your typodont to the Evaluation Area. When you have finished the prep, send the typodont to the Evaluation Area for the prep to be scored.

10. I have an exposure. How do I proceed?  
Write in the Notes section on the Progress Form that a pulp exposure has occurred, indicate the time and briefly describe how the situation should be treated. Then call a CFC, who will consult with other examiners to determine the appropriate course of treatment. The CFC may instruct you to send the typodont to the Evaluation Area.
11. What do I do if my manikin head is damaged?  
Notify the CFC to observe the condition prior to beginning any work.
12. What is the purpose of the Instruction To Candidate Form?  
An Instruction To Candidate Form is used by the scoring examiners to convey information to the candidate. This form is used only for certain errors that can be adjusted/corrected/removed at the examination site.
13. If the equipment provided by the examination site malfunctions, what do I do?  
Notify the CFC immediately so repairs or appropriate arrangements can be made.
14. How do I know that all of the scoring examiners are grading to the same set of standards?  
All of the scoring examiners participate in a very detailed standardization program prior to each examination. This training ensures that all examiners are grading reliably to the same criteria.
15. If I think my attempt at the examination was unsuccessful and apply for reexamination, and then receive my scores indicating that I passed, how do I obtain a refund?  
You will not be eligible to receive a refund. We strongly recommend that candidates not apply for reexamination until they check their scores online or receive their final report.
16. I sent my **application four days prior to the deadline, but I wasn't placed in my preferred** examination site. Why?  
Typically, sites may be filled before the published application deadline. There is no guarantee of placement at any site even though the application is submitted prior to the published date. Plan ahead, collect all required items and submit your application as soon as you determine the need for the examination.

## HELPFUL HINTS

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- Time management is the candidate's responsibility. Be familiar with the time schedule each day and plan accordingly.
- All procedures must be completed/scored in sufficient time to submit the typodont to the Evaluation Area no later than the published cutoff time.
- Proper tooth selection for the Periodontal Section is a key to success in this examination. Ensure that you select teeth that meet the criteria. Do not put yourself in jeopardy with a difficult treatment selection. It is always recommended to have an alternate selection.
- Verify that all required instruments, forms and supplies are on your tray when you send your typodont to the Evaluation Area to be checked or scored.
- You must have a rubber dam in place for the Endodontic Procedures
- Do not use a rubber dam for final evaluation of the Restorative Restorations
- If a pulp exposure occurs during the preparation, write in the Notes section on the Progress Form that a pulp exposure has occurred, indicate the time and briefly describe how the situation should be treated. Then call a CFC, who will consult with other examiners to determine the appropriate course of treatment.
- Exercise caution if using new burs when preparing the typodont teeth.
- To avoid adjacent damage, use an interproximal wedge and/or shim.
- Allow time for the amalgam to set before sending your typodont to the Evaluation Area in order to prevent open contact created by flossing, either by the candidate or examiners.
- When you have finished your preparation, get up and stretch or get a drink of water; then, return and take a fresh look at your finished product.
- Be sure to look at your preparations and finished restorations from more than one direction: facial, lingual and occlusal.
- Review your Progress Form to assure your tooth/teeth selection has been approved.
- Each time your typodont returns from the Evaluation Area, review the Progress Form to confirm that it has been stamped. If the "SRTA" stamp is missing, contact the CFC.
- Work on your Endodontic, Fixed Prosthodontic, Restorative and Periodontal models as if they were a patient, using the proper position in the operator chair, rubber dam for Endodontics and Restorative procedures, and a shroud for all manikin procedures.
- Use a marker to make an "X" on the teeth to be treated for the Restorative, Endodontic and Fixed Prosthodontic procedures.
- Read this manual, keep it in your operator and refer to it throughout the examination.

# VIII. GLOSSARY OF WORDS, TERMS & PHRASES

Abrasion	Abnormal wearing of tooth substance or restoration by mechanical factors other than tooth contact.
Abutment	A tooth used to provide support or anchorage for a fixed removable prosthesis.
Adjustment	Selective grinding of teeth or restorations to alter shape or contour and establish stable occlusion.
Angle	A corner. <ul style="list-style-type: none"><li>• Cavosurface angle: An angle formed between the cavity wall and surface of the tooth.</li><li>• Line angle: The angle formed between two cavity walls or tooth surfaces.</li></ul>
Apical	The tip or apex of a root of a tooth and its immediate surroundings.
Attached gingiva	The portion of the gingiva that extends apically from the base of the sulcus to the mucogingival junction.
Axial wall	An internal cavity surface parallel to the long axis of the tooth.
Base	A replacement material for missing dentinal tooth structure, used for bulk build-up and/or for blocking out undercuts. Examples include ZOIB&T, IRM and zinc-phosphate cement.
Bevel	A plane sloping from the horizontal or vertical wall that creates a cavosurface angle greater than 90°.
Bonding agent	A component of a bonded resin restorative system, which is applied to an etched tooth surface and to which, after it is cured, the restorative material is applied and cured. A bonding agent may also be used to seal the surface of a cured composite resin restoration.
Bridge	A permanent restoration that replaces one or more missing natural teeth.
Build-up	A restoration associated with a cast restoration that replaces some, but not all, of the missing tooth structure coronal to the cemento-enamel junction. The buildup provides resistance and retention form for the subsequent cast restoration. Also called Pin Amalgam Build Up (PABU) or Foundation.
Calculus	A hard deposit attached to the teeth, usually consisting of mineralized bacterial plaque.
Caries	An infectious microbiological disease that results in localized dissolution and destruction of the calcified tissues of the teeth. The diagnosis of dentinal caries is made by tactile sensation with light pressure on an explorer, described as 1) a defect with a soft, sticky base or 2) a defect that can be penetrated and exhibits definite resistance upon withdrawal of the explorer.
Cavity preparation	Removal and shaping of diseased or weakened tooth tissue to allow placement of a restoration.
Cavosurface margin	The line angle formed by the prepared cavity wall with the unprepared tooth surface. The margin is a continuous entity enclosing the entire external outline of the prepared cavity. Also called the cavosurface line angle.
Cemento-enamel junction	Line formed by the junction of the enamel and cementum of a tooth.
Chamfer	A finish line design for tooth preparation in which the gingival aspect meets the external axial surface at an obtuse angle.
Contact area	The area where two adjacent teeth approximate.

Crown	Cast-metal restoration or porcelain restoration covering most of the surfaces of an anatomical crown.
Cusp, functional	Cusps of teeth that provide vertical stops that interdigitate with fossae or marginal ridges of an opposing tooth/teeth when the teeth are occluded.
Cusp, non-functional	Cusps of teeth, which by their present occlusion, do not provide a centric stop that interdigitates with a fossa or marginal ridge of an opposing tooth/teeth.
Debonded restoration	A restoration that exhibits immediate marginal leakage as a result of adhesive failure, which may include, but is not limited to, marginal discoloration, movement of the restoration or foreign substance between the restoration and tooth interface.
Debris	Scattered or fragmented remains of the cavity preparation procedure. All debris should be thoroughly removed from the preparation before the restoration is placed.
Defective restoration	Any dental restoration that is judged to be causing or is likely to cause damage to the remaining tooth structure if not modified or replaced.
Dentin	Calcified tissue surrounding the pulp and forming the bulk of the tooth.
Deposits, subgingival	Deposits that are apical to the gingival margin.
Deposits, supragingival	Deposits that are coronal to the gingival margin.
Divergence	The angle of opposing cavity walls that, when projected in an occlusal to gingival direction, would meet at a point some distance gingival to the crown of the tooth.
Enameloplasty	The selective reshaping of the enamel surfaces of teeth to improve their form.
Fissure	A developmental linear fault in the occlusal, buccal or lingual surface of a tooth, commonly the result of the imperfect fusion of adjoining enamel lobes.
Flash	Excess restorative material extruded from the cavity preparation extending onto the unprepared surface of the tooth.
Gingival recession	The visible apical migration of the gingival margin, which exposes the CEJ and root surface.
Gingival wall	An internal cavity surface perpendicular to the long axis of the tooth near the apical or cervical end of the crown of the tooth or cavity preparation, which in a Class II preparation, is the floor of the proximal box.
Gingivitis	Inflammation of the gingiva.
Grainy	The rough, perhaps porous, poorly detailed surface of a material.
Interproximal contact	The area of contact between two adjacent teeth. Also called proximal contact.
Isthmus	A narrow connection between two areas or parts of a cavity preparation.
Line angle	The angle formed by the junction of two surfaces. In cavity preparations there can be internal and external line angles, which are formed at the junction of two cavity walls.
Line of draw	The path or direction of withdrawal or seating of a removable or cast restoration.
Liner	Resin or cement coating of minimal thickness (usually less than 0.5 mm) to achieve a physical barrier and/or therapeutic effect (a chemical effect that in some way benefits the health of the tooth pulp). Examples include Dycal, Life, Cavitec, Hydroxylite, Vitrebond and Fuji Lining LC.
Liner, treatment	An appropriate dental material placed in deep portions of a cavity preparation to produce desired effects on the pulp, such as insulation, sedation, stimulation of odontoblasts, bacterial reduction, etc. Also called therapeutic liner.

Long axis	An imaginary straight line passing through the center of the whole tooth occlusoapically.
Marginal deficiencies	Failure of the restorative material to meet the cut surface of the cavity preparation properly and completely; the marginal discrepancy does not exceed 0.5 mm, and the margin is sealed. Marginal deficiencies may include voids or under-contour.
Marginal excess	Restorative material that extends beyond the cavosurface margin of the cavity walls. Marginal excess may or may not extend onto the unprepared surface(s) of the tooth. See also: over-contoured, flash, over-extension.
Mobility	The degree of looseness of a tooth.
Occlusion	As used in this manual, occlusion refers to the closed bite relationship of the teeth in which the <b>cusps are maximally interdigitated</b> , i.e., "centric occlusion," also known as CO, maximal intercuspal position (MI/MIP), habitual occlusion or acquired occlusion).
Open margin	A cavity margin or section of margin at which the restorative material is not tightly adapted to the cavity preparation wall(s). Margins are generally determined to be open when they can be penetrated by the tine of a sharp dental explorer.
Outline form, external	The external boundary or perimeter of the finished cavity preparation.
Outline form, internal	The internal details and dimensions of the finished cavity preparation.
Over-contouring	Excessive shaping of the surface of a restoration so as to cause it to extend beyond the normal physiologic contours of the tooth when in health.
Over-extension of preparation	The placement of final cavity preparation walls beyond the position required to restore the tooth properly as determined by the factors that necessitated the treatment.
Over-extension of restoration	Restorative material that extends beyond the cavosurface margin of the cavity walls. Marginal excess may or may not extend onto the unprepared surface(s) of the tooth. See also over-contoured, flash, and marginal excess.
Overhang, restoration	The projection of restorative material beyond the cavosurface margin of the cavity preparation but not extending onto the unprepared surface of the tooth. Also refers to the projection of a restoration outward from the nominal tooth surface. See also flash.
Path of insertion	The path or direction of withdrawal or seating of a removable or cast restoration. See also line of draw.
Periapical	Area around the root end of a tooth.
Periodontitis	Inflammation of the supporting tissues of the teeth. Usually a progressively destructive change leading to loss of bone and periodontal ligament. An extension of inflammation from gingiva into the adjacent bone and ligament.
Pits, surface	Small voids on the polished surface (but not at the margins) of a restoration.
Polishing, restoration	The act or procedure of imparting a smooth, lustrous and shiny character to the surface of the restoration.
Porous, restoration	Describes the surface of a restoration with minute orifices or openings that allow fluids or light to pass through.
Previous restorative material	Any preexisting restorative material present on a tooth, including pit and fissure sealants, liners, bases, composites, resin-based materials, alloys or cements.
Provisional restoration	Any restoration that, by intent, is placed for a limited period of time or until some event occurs. Any restorative material can be placed as a provisional restoration. The intent in placing the restoration and not the material determines the provisional status.

Pulp cap, direct	The technique of placing a liner (composed of an appropriate protective material) over the exposed pulp to promote reparative dentin formation and the formation of a dentinal bridge across the exposure. Usually a base is placed over the liner to provide structural support. The decision to perform a pulp cap or endodontics and the success of the procedure is determined by the conditions under which the pulp was exposed.
Pulp cap, indirect	The technique of deliberate incomplete caries removal in deep excavation to prevent frank pulp exposure, followed by basing of the area with an appropriate pulpal protection material to promote reparative dentin formation. The tooth may or may not be re-entered in six to eight weeks to remove the remaining dentinal caries.
Pulp exposure, carious	The frank exposure of the pulp through clinically carious dentin.
Pulp exposure, general	The exposure of the pulp chamber or former pulp chamber of a tooth with or without evidence of pulp hemorrhage.
Pulp exposure, irreparable	Generally, a pulp exposure in which most or all of the following conditions apply: <ul style="list-style-type: none"> <li>• The exposure is greater than 0.5 mm.</li> <li>• The tooth had been symptomatic.</li> <li>• The hemorrhage is not easily controlled.</li> <li>• The exposure occurred in a contaminated field.</li> <li>• The exposure was relatively traumatic.</li> </ul>
Pulp exposure, mechanical/ unwarranted	The frank exposure of the pulp through non-carious dentin caused by operator error, misjudgment, pulp chamber aberration, etc.
Pulp exposure, reparable	Generally, a pulp exposure in which most or all of the following conditions apply: <ul style="list-style-type: none"> <li>• The exposure is less than 0.5 mm.</li> <li>• The tooth had been asymptomatic.</li> <li>• The pulp hemorrhage is easily controlled.</li> <li>• The exposure occurred in a clean, uncontaminated field.</li> <li>• The exposure was relatively atraumatic.</li> </ul>
Pulpal wall	An internal cavity surface perpendicular to the long axis of the tooth, which is the floor of the occlusal portion of the cavity preparation. Also referred to as the pulpal floor.
Pulpoaxial line angle	The line angle formed by the junction of the pulpal wall and axial wall of a prepared cavity.
Reduction of the crown, in endodontics	Reduction of the occlusal surface of a posterior tooth or lingual and/or incisal surfaces of an anterior tooth to take the tooth out of occlusion purposely.
Resistance form	The feature of a tooth preparation that resists dislodgment of a restoration in a vertical direction or along the path of placement.
Retention form	The feature of a tooth preparation that resists dislodgment of a crown in a vertical direction or along the path of placement.
Scaling	Instrumentation of the crown and root surfaces of the teeth to remove plaque, calculus and stains from these surfaces.
Surface sealant, composite resin restoration coating	The application and curing of an unfilled resin to the surface of a composite restoration to fill porosities or voids or to provide a smooth surface after polishing the restoration.
Sealers	Cavity sealers provide a protective coating for freshly cut tooth structure of the prepared cavity. <ul style="list-style-type: none"> <li>• Varnish: A natural gum, such as copal rosin or a synthetic resin dissolved in an organic solvent, such as acetone, chloroform or ether. Examples include Copalite, Plastodent, Varnish, and Barrier.</li> <li>• Resin bonding agents: Include the primers and adhesives of dentinal and all-purpose bonding agents. Examples include All-Bond 2, Scotchbond MP+, Optibond, ProBond, Amalgambond, etc.</li> </ul>

Shade, restoration	The color of a restoration as defined by hue, value and chroma, which is selected to match as closely as possible the natural color of the tooth being restored.
Sound tooth structure	Enamel that has not been demineralized or eroded; it may include proximal decalcification that does not exceed one-half the thickness of the enamel and cannot be penetrated by an explorer. Previous restorative material or calcareous deposits do not qualify as sound tooth structure.
Stain, extrinsic	Stain that forms on and can become incorporated into the surface of a tooth after development and eruption. These stains can be caused by a number of developmental and environmental factors.
Stain, intrinsic	Stain that becomes incorporated into the internal surfaces of the developing tooth. These stains can be caused by a number of developmental and environmental factors.
Taper	The convergence of two opposing external walls of a tooth preparation as viewed in a given plane. The extension of those average lines within that plane form an angle describe as the total angle of convergence. Also known as Total Occlusal Convergence.
Temporary restoration	See provisional restoration.
Tissue trauma	Unwarranted iatrogenic damage to extra/intraoral tissues resulting in significant injury to the patient, such as lacerations greater than 3 mm, burns, amputated papillae or large tissue tags.
Total Occlusal Convergence	The convergence of two opposing external walls of a tooth preparation as viewed in a given plane. The extension of those average lines within that plane form an angle describe as the total angle of convergence. Also known as taper.
Ultrasonic scaler	An instrument tip attached to a transducer through which high frequency current causes ultrasonic vibrations (approximately 30,000 cps). These vibrations, usually accompanied by the use of a stream of water, produce a turbulence, which in turn removes adherent deposits from the teeth.
Under-contouring	Excessive removal of the surface of a restoration so as to cause it to be reduced beyond the normal physiologic contours of the tooth when in health.
Undercut	Feature of tooth preparation that retains the intracoronal restorative material. An undesirable feature of tooth preparation for an extracoronal restoration.
Undermined enamel	During cavity preparation procedures, an enamel tooth surface (particularly enamel rods) that lacks dentinal support. Also called unsupported enamel.
Varnish	See sealers.
Void(s)	An unfilled space within the body of a restoration or at the restoration margin, which may or may not be present at the external surface and therefore may or may not be visible to the naked eye.

# IX. CRITERIA REFERENCE CHART

Posterior Endodontics			
Treatment Management		ACCEPTABLE	UNACCEPTABLE
1	Damage to adjacent/opposing teeth	Damage to the adjacent tooth/teeth and/or opposing teeth can be removed by polishing without adversely altering the shape of the contour and/or contact.	There is damage to adjacent tooth/teeth and/or opposing teeth requiring a restoration.
2	Damage to simulated gingiva and/or typodont	There is slight damage to simulated gingiva and/or typodont consistent with the procedure.	There is gross iatrogenic damage to the simulated gingiva and/or typodont inconsistent with the procedure.
3	Correct Tooth Treated	Correct tooth treated.	Wrong tooth treated
Access Opening		ACCEPTABLE	UNACCEPTABLE
1	Access Placement	The placement of the access opening is ideally over the pulp chamber allowing debridement of the pulp chamber and straight-line access to the three root canals located in the tooth. The placement of the access opening may not be directly over the pulp chamber and may hinder, but will allow, complete debridement of the pulp chamber. The access opening must allow access to the three root canals to the extent that instruments can be placed to the apex of the roots.	The placement of the access opening is not over the pulp chamber and does not allow complete debridement of the pulp chamber or access to the three root canals to the extent that instruments can be placed to the apex of the roots.
2	Access Opening	<p>The access opening is in the mesial triangular pit and central fossa of the tooth and:</p> <ul style="list-style-type: none"> <li>• The mesial extent of the access preparation is not less than 2.0 mm from the external surface of the mesial marginal ridge of the tooth.</li> <li>• The buccal extent of the access preparation is not less than 1.0 mm from the line bisecting the mesiobuccal and distobuccal cusp tips.</li> <li>• The distal extent of the access preparation is not less than 1.0 mm from the distal oblique groove.</li> <li>• The palatal extent of the access preparation is not less than 1.0 mm from the palatal cusp tip.</li> </ul>	<p>The access opening is either grossly under-or-over-extended in one or more of the following categories:</p> <ul style="list-style-type: none"> <li>• The mesial extent of the access preparation is less than 2.0 mm distal to the external surface of the mesial marginal ridge.</li> <li>• The buccal extent of the access preparation is less than 1.0 mm to the line bisecting the mesiobuccal and distobuccal cusp tips.</li> <li>• The distal extent of the access preparation is less than 1.0 mm from the distal oblique groove.</li> <li>• The palatal extent of the access preparation is less than 1.0 mm from the palatal cusp tip.</li> </ul>
3	Access Depth	The depth and size of the access preparation removes the entire roof of the pulp chamber and all three canals can be straight-line accessed. The depth of the access preparation is a maximum of 10.0 mm when measured from the buccal cavosurface margin of the access preparation.	The depth and size of the access preparation does not remove the roof of the pulp chamber to the extent that all pulp tissue can be removed and all 3 canals cannot be straight-line accessed or the depth of the access preparation is more than 10.0 mm deep when measured from the buccal cavosurface margin of the access preparation.
4	Internal Form	The internal form of the access preparation leaves at least 1.0 mm of supported lateral tooth structure at any point of the preparation and tapers to the canal orifices with no or slight gouges.	The internal form of the access preparation leaves less than 1.0 mm of lateral supported tooth structure at any point of the preparation and/or tapers to the canal orifices with gross ledges that will inhibit access to the root canal orifices.
5	Perforation	No portion of the tooth is perforated.	Any portion of the tooth is perforated.
6	Tooth Fracture	No portion of the tooth is fractured.	Any portion of the tooth is fractured.

## Fixed Prosthodontics: PFM Crown # 5

Treatment Management		ACCEPTABLE	UNACCEPTABLE
1	Damage to adjacent/opposing teeth	Damage to the adjacent tooth/teeth and/or opposing teeth can be removed by polishing without adversely altering the shape of the contour and/or contact.	There is damage to adjacent tooth/teeth and/or opposing teeth requiring a restoration.
2	Damage to simulated gingiva and/or typodont	There is slight damage to simulated gingiva and/or typodont consistent with the procedure.	There is gross iatrogenic damage to the simulated gingiva and/or typodont inconsistent with the procedure.
3	Correct Tooth Treated	Correct tooth treated.	Wrong tooth treated
Cervical Margin		ACCEPTABLE	UNACCEPTABLE
1	Location (mm from CEJ or Crest of Free Gingival Margin)	The cervical margin is less than 0.5 mm below or no greater than 1.5 mm above the simulated free gingival margin. If greater than 0.5mm there is no visual damage.	The cervical margin is greater than 0.5 mm below with visual damage or greater than 1.5 mm above the simulated free gingival margin.
2	Margin Refinement	The cervical margin is continuous but may be slightly rough and lacks some definition.	The cervical margin has no continuity and/or definition and will prevent fabrication of an adequate restoration.
3	Margin Design	The margin is a chamfer/rounded shoulder.	The cervical margin is cupped or j-shaped resulting in unsupported enamel that will prevent fabrication of an adequate restoration.
4	Facial Cervical Margin (width mm)	The facial margin is greater than 0.5 mm to 2.5 mm in width.	The facial margin is less than 0.5 mm or greater than 2.5 mm in width.
5	Lingual Cervical Margin (width mm)	The lingual margin is 0.5 mm to 2.0 mm in width.	The lingual margin is less than 0.5 mm, is feathered and/or not explorer detectable or more than 2.0 mm in width.
Walls, Taper, & Shoulder		ACCEPTABLE	UNACCEPTABLE
1	Axial Reduction - Facial (mm)	The facial axial tissue removal is 0.5 mm to 2.5 mm.	Less than 0.5 mm or greater than 2.5 mm.
2	Walls / Axial Refinement	The walls may be slightly rough and lack some definition and/ or internal line angles and/or cusp tip areas are rounded and have a slight tendency of being sharp.	The walls are grossly rough and lack definition and/or internal line angles and/or cusp tip areas are sharp with no evidence of rounding.
3	Taper (Degrees TOC)	Taper, total occlusal convergence (TOC) is 16° or less.	Greater than 16° TOC.
4	Undercuts	Slight undercut(s) exists, but an adequate restoration can be fabricated.	Undercut(s) exists and an adequate restoration cannot be fabricated.
5	Occlusal Reduction (mm)	1.0 mm to 3.0 mm	Less than 1.0 mm; more than 3.0 mm.
6	Crown Path of Insertion (Degrees from Long Axis)	The path of insertion or line of draw deviates 10° to less than 30° from the long axis of the tooth.	The path of insertion or line of draw is unacceptable, deviating 30° or more from the long axis of the tooth.
Bridge Factor		Addressed on the Cast Metal-All Zirconia Crown Preparation Criteria Page	

## Fixed Prosthodontics: Cast Metal / All Zirconia Crown # 3

Treatment Management		ACCEPTABLE	UNACCEPTABLE
1	Damage to adjacent/opposing teeth	Damage to the adjacent tooth/teeth and/or opposing teeth can be removed by polishing without adversely altering the shape of the contour and/or contact.	There is damage to adjacent tooth/teeth and/or opposing teeth requiring a restoration.
2	Damage to simulated gingiva and/or typodont	There is slight damage to simulated gingiva and/or typodont consistent with the procedure.	There is gross iatrogenic damage to the simulated gingiva and/or typodont inconsistent with the procedure.
3	Correct Tooth Treated	Correct tooth treated.	Wrong tooth treated
Cervical Margin		ACCEPTABLE	UNACCEPTABLE
1	Location (mm from CEJ or Crest of Free Gingival Margin)	Less than 0.5 mm below or no more than 1.5 mm above the simulated free gingival margin.	Greater than 0.5 mm below or greater than 1.5 mm above the simulated free gingival margin.
2	Margin Refinement	The cervical margin is continuous but may be slightly rough and lacks some definition.	The cervical margin has no continuity and/or definition and will prevent fabrication of an adequate restoration.
3	Margin Design	The cervical margin meets the external surface of the tooth at approximately a right angle.	The cervical margin is cupped or j-shaped resulting in unsupported enamel that will prevent fabrication of an adequate restoration.
4	Cervical Margin (width mm)	Is a chamfer/rounded shoulder and varies slightly in width and is less than 1.5 mm in width.	Is not a chamfer/rounded shoulder and/or is greater than 1.5 mm in width.
Walls, Taper, & Shoulder		ACCEPTABLE	UNACCEPTABLE
1	Axial Tissue Reduction (mm)	Is greater than 0.5 mm but less than 1.5 mm.	Less than 0.5 mm or greater than 1.5 mm.
2	Walls / Axial Refinement	The walls are slightly rough and lack some definition and/or internal line angles and/or cusp tip areas are rounded and have a slight tendency of being sharp.	The walls are rough and lack definition and/or internal line angles and/or cusp tip areas are sharp with no evidence of rounding.
3	Taper (Degrees TOC)	(TOC) is 16° or less.	(TOC) is greater than 16°.
4	Undercuts	Slight undercut exists, but it will not interfere with fabrication of an adequate restoration.	Undercut(s) exists and an adequate restoration cannot be fabricated
5	Occlusal Reduction (mm)	Greater than 0.5 mm or less than 2.5 mm.	Less than 0.5 mm or more than 2.5 mm.
6	Crown Path of Insertion (Degrees from Long Axis)	Path of insertion or line of draw deviates 10° to less than 20° from the long axis of the tooth.	Path of insertion or line of draw is unacceptable, deviating 20° or more from the long axis of the tooth.
Bridge Factor		A line of draw exists whereby an adequate prosthesis may be fabricated.	An adequate prosthesis may not be fabricated without removal of additional tooth structure.

## Fixed Prosthodontics: Ceramic Crown # 9

Treatment Management		ACCEPTABLE	UNACCEPTABLE
1	Damage to adjacent/opposing teeth	Damage to the adjacent tooth/teeth and/or opposing teeth can be removed by polishing without adversely altering the shape of the contour and/or contact.	There is damage to adjacent tooth/teeth and/or opposing teeth requiring a restoration.
2	Damage to simulated gingiva and/or typodont	There is slight damage to simulated gingiva and/or typodont consistent with the procedure.	There is gross iatrogenic damage to the simulated gingiva and/or typodont inconsistent with the procedure.
3	Correct Tooth Treated	Correct tooth treated.	Wrong tooth treated
Cervical Margin & Draw		ACCEPTABLE	UNACCEPTABLE
1	Location (mm from CEJ or Crest of Free Gingival Margin)	Less than 0.5 mm below or no more than 1.5 mm above the simulated free gingival margin. If greater than 0.5 mm below, there is no visual damage.	Greater than 0.5 mm below with visual damage or greater than 1.5 mm above the simulated free gingival margin.
2	Margin Refinement	The cervical margin is continuous but may be slightly rough and lacks some definition.	The cervical margin has no continuity and/or definition and will prevent fabrication of an adequate restoration.
3	Margin Design	The cervical margin meets the external surface of the tooth at approximately a right angle.	The cervical margin meets the external surface of the tooth at an angle greater than 120°. The cervical margin is cupped or j-shaped resulting in unsupported enamel that will prevent fabrication of an adequate restoration.
4	Cervical Margin (width mm)	0.5 mm to 2.0 mm in width.	Less than 0.5 mm or greater than 2.0 mm in width.
Walls, Taper, & Shoulder		ACCEPTABLE	UNACCEPTABLE
1	Axial Reduction (mm)	1.0 mm to 2.5 mm	Less than 1.0 mm or greater than 2.5 mm
2	Walls / Axial Refinement	The walls may be slightly rough and lack some definition and/or internal line angles and/or incisal edge are rounded and have a slight tendency of being sharp.	The walls are grossly rough and lack definition and/or internal line angles and/or incisal edge are sharp with no evidence of rounding.
3	Taper (Degrees TOC)	(TOC) is 16° or less.	(TOC) is greater than 16°.
4	Undercuts	There may be a slight undercut, but it will not interfere with fabrication of an adequate restoration.	Undercut(s) exists and an adequate restoration cannot be fabricated.
5	Incisal Reduction (mm)	1.0 mm to 3.5 mm.	Less than 1.0 mm; more than 3.5 mm.
6	Lingual Wall	Equal to or greater than 1.0 mm in height.	Less than 1.0 mm in height.
7	Crown Path of Insertion (Degrees from Long Axis)	The path of insertion or line of draw deviates 10° to less than 30° from the long axis of the tooth.	The path of insertion or line of draw is unacceptable, deviating 30° or more from the long axis of the tooth.

## Class III Anterior Composite Preparation

TREATMENT MANAGEMENT		ACCEPTABLE	UNACCEPTABLE
1	Adjacent and/or Opposing Tooth	Any damage to adjacent tooth/teeth that can be removed by polishing or may require recontouring that does not adversely change the shape or contact.	There is evidence of gross damage and/or alteration to adjacent and/or opposing hard tissue inconsistent with the procedure which may require additional evaluation, intervention or treatment as a result of the damage.
2	Soft Tissue	There may be slight iatrogenic trauma to the soft tissue inconsistent with the procedure.	There is gross iatrogenic damage to the soft tissue inconsistent with the procedure.
3	Correct Tooth Treated	Correct tooth treated.	Wrong tooth treated
EXTERNAL FORM		ACCEPTABLE	UNACCEPTABLE
1	Outline Form (Access Size)	The outline form is sufficient in size to have access to remove caries or previous restorative material and to manipulate and finish the restorative material.	The outline form is under-extended, making it impossible to remove caries or previous restorative material or to manipulate and finish the restorative material.
2	Outline Form (Mesial-Distal)	May be extended mesiodistally up to 1.5 mm	Extended mesiodistally by more than 1.5 mm
3	Outline Form (Incisal-Gingival)	May be extended incisogingivally up to 5.0 mm	Outline form is extended incisogingivally by more than 5.0 mm
4	Incisal Cavosurface Margin	The incisal cavosurface margin does not compromise the incisal angle.	The incisal cavosurface margin is over-extended so that the incisal angle is compromised, removed or fractured. A Class IV restoration is now necessary without prior justification.
5	Wall opposite the access	If broken, may extend no more than 2.0 mm beyond the contact area.	The access opening extends more than 2.0 mm beyond the contact area.
6	Caries or previous restorative material	There is no caries remaining.	There is caries remaining.
7	Cavosurface Margin	The cavosurface margins may be slightly irregular but there is no explorer-penetrable decalcification remaining on the cavosurface margin.	The cavosurface margin does not terminate in sound natural tooth structure. There is explorer-penetrable decalcification at the cavosurface margin.
8	Unsupported Enamel	May be small area of unsupported enamel which is not necessary to preserve facial esthetics	Large or multiple areas of unsupported enamel that are not necessary to preserve facial aesthetics
9	Enamel Cavosurface Margin Bevel	Enamel cavosurface margin bevels, if present; do not exceed 1.0 mm in width.	Enamel cavosurface margin bevels, if present, exceed 1mm in width, are not uniform or are inappropriate for the size of the restoration
10	Gingival Clearance	The gingival clearance is open up to 2.0 mm.	The gingival clearance is open greater than 2.0 mm.
INTERNAL FORM		ACCEPTABLE	UNACCEPTABLE
1	Caries	Preparation is free of caries.	Preparation has remaining caries.
2	Axial Wall Depth (mm) (Beyond the DEJ)	The depth of the axial wall is no more than 2.5 mm beyond the DEJ.	The axial wall is greater than 2.5 mm beyond the DEJ.
3	Pulp Exposure	Properly managed justified pulp exposure.	Any pulp exposure that is not properly managed or unjustified.

## Class III Anterior Composite Restoration

TREATMENT MANAGEMENT		ACCEPTABLE	UNACCEPTABLE
1	Adjacent and/or Opposing Tooth	Any damage to adjacent tooth/teeth that can be removed by polishing or may require recontouring that does not adversely change the shape or contact.	There is evidence of gross damage and/or alteration to adjacent and/or opposing hard tissue inconsistent with the procedure which may require additional evaluation, intervention or treatment as a result of the damage.
2	Soft Tissue	There may be slight iatrogenic trauma to the soft tissue inconsistent with the procedure.	There is gross iatrogenic damage to the soft tissue inconsistent with the procedure.
3	Correct Tooth Treated	Correct tooth treated.	Wrong tooth treated
CONTOUR, CONTACT, OCCLUSION		ACCEPTABLE	UNACCEPTABLE
1	Interproximal Contacts	Interproximal contact is visually closed. Adequate in size, shape or position but may demonstrate little resistance to dental floss.	Interproximal contact is visually open or will not allow floss to pass through the contact area.
2	Anatomy	The restoration may not reproduce the normal lingual anatomy, proximal contours of the tooth or marginal ridge anatomy but would not be expected to adversely affect the tissue health.	The restoration does not reproduce the normal lingual anatomy, proximal contour of the tooth or marginal ridge anatomy and as such it would be expected to adversely affect the health of the surrounding soft tissue.
3	Occlusion	When checked with articulating paper, the restoration is in hyperocclusion. The restoration only requires minor occlusal adjusting.	There is gross hyperocclusion so that the restoration is the only point of occlusion in that quadrant.
MARGIN INTEGRITY- SURFACE FINISH		ACCEPTABLE	UNACCEPTABLE
1	Open Margin	There is no open margin.	An open margin is detectable (either visually or with the tine of an explorer) at the restoration tooth interface
2	Marginal Deficiency	No marginal deficiency or if present is no greater than 0.5 mm.	Marginal deficiency is detectable at the restorative-tooth interface and is greater than 0.5 mm.
3	Marginal Excess	Marginal excess may be absent or detectable at the restoration-tooth interface, but it is $\leq 1.0$ mm at the gingival margin and may extend greater than 0.5 mm in other areas.	Marginal excess is $> 1.0$ mm at the gingival margin which impinges on the gingival tissue and will be detrimental to the gingival health.
4	Integrity of Restoration	Restoration is not fractured, debonded and/or movable in the preparation.	Restoration is fractured, debonded and/or movable in the preparation.
5	Enameloplasty	There is no or minimal evidence of unwarranted or unnecessary removal, modification or recontouring of tooth structure adjacent to the restoration (enameloplasty).	There is evidence of unwarranted or unnecessary removal, modification or recontouring of tooth structure adjacent to the tooth being restored (enameloplasty).

## Class II Posterior Amalgam Preparation

TREATMENT MANAGEMENT		ACCEPTABLE	UNACCEPTABLE
1	Adjacent and/or Opposing Tooth	Any damage to adjacent tooth/teeth that can be removed by polishing or may require recontouring that does not adversely change the shape or contact.	There is evidence of gross damage and/or alteration to adjacent and/or opposing hard tissue inconsistent with the procedure which may require additional evaluation, intervention or treatment as a result of the damage.
2	Soft Tissue	There may be slight iatrogenic trauma to the soft tissue inconsistent with the procedure.	There is gross iatrogenic damage to the soft tissue inconsistent with the procedure.
3	Correct Tooth Treated	Correct tooth treated.	Wrong tooth treated
EXTERNAL FORM		ACCEPTABLE	UNACCEPTABLE
1	Proximal Contact Clearance at the Height of Contour (mm)	Visibly open or extends no more than 3.0 mm on either one or both proximal walls.	Not visibly open or extends beyond 3.0 mm on either one or both proximal walls.
2	Proximal Cavosurface Margin	May deviate from 90° but is unlikely to jeopardize the longevity of the tooth or restoration; Includes small areas of unsupported enamel	Deviates from 90°. Will jeopardize the longevity of the tooth or restoration; Includes unsupported enamel
3	Gingival Contact Clearance	Visibly open or not greater than 3.0 mm.	Not visibly open or is greater than 3.0 mm.
4	Isthmus (mm)	$\geq 1.0$ $\leq 1/2$ Intercuspal Width	$< 1.0$ $> 1/2$ Intercuspal Width
5	Cavosurface Margin Termination	The cavosurface margins should terminate in sound natural tooth structure, and may be slightly irregular, but there is no explorer-penetrable decalcification remaining.	The cavosurface margins do not terminate in sound natural tooth structure and there is explorer-penetrable decalcification.
6	Outline Form	The outline form does not compromise the marginal ridge.	The marginal ridge is undermined and/or less than 1.0 mm in width.
INTERNAL FORM		ACCEPTABLE	UNACCEPTABLE
1	Pulpal Floor (mm) (From the cavosurface margin)	1.5 mm to 2.5 mm beyond the cavosurface margin.	Less than 1.5 mm or greater than 2.5 mm from the cavosurface margin.
2	Axial Wall Depth (mm) (Beyond the DEJ)	The depth of the axial wall is no more than 2.5 mm beyond the DEJ.	The axial wall is greater than 2.5 mm beyond the DEJ or is still in the enamel and does not include the DEJ.
3	Wall Angulation	The walls of the proximal box should be convergent but may be parallel. Internal retention is present.	The walls of the proximal box diverge occlusally, offering no retention and jeopardizing the longevity of the tooth or restoration.
4	Caries	No evidence of caries.	Remaining caries.
5	Retention	Retention, when used, may not undermine the enamel, which is not likely to jeopardize the longevity of the tooth or restoration.	Retention excessively undermines the enamel and is likely to jeopardize the longevity of the tooth or restoration.
6	Refinement	Prepared surfaces may be slightly rough, irregular, or sharp.	A prepared surface of the tooth is excessively rough, irregular or sharp and is likely to jeopardize the longevity of the tooth restoration.
7	Pulp Exposure	Properly managed justified pulp exposure.	Any pulp exposure that is not properly managed or unjustified.

# Class II Posterior Amalgam Restoration

TREATMENT MANAGEMENT		ACCEPTABLE	UNACCEPTABLE
1	Adjacent and/or Opposing Tooth	Any damage to adjacent tooth/teeth that can be removed by polishing or may require recontouring that does not adversely change the shape or contact.	There is evidence of gross damage and/or alteration to adjacent and/or opposing hard tissue inconsistent with the procedure which may require additional evaluation, intervention or treatment as a result of the damage.
2	Soft Tissue	There may be slight iatrogenic trauma to the soft tissue inconsistent with the procedure.	There is gross iatrogenic damage to the soft tissue inconsistent with the procedure.
3	Correct Tooth Treated	Correct tooth treated.	Wrong tooth treated
CONTOUR, CONTACT, OCCLUSION		ACCEPTABLE	UNACCEPTABLE
1	Interproximal Contacts	Interproximal contact is visually closed, and the contact may be deficient in size, shape or position but may demonstrate little resistance to dental floss or shreds the floss.	Interproximal contact is visually open or will not allow floss to pass through the contact area.
2	Occlusion	When checked with articulating paper, the restoration may be in slight hyperocclusion inconsistent in size, shape and intensity with the occlusal contacts on surrounding teeth and the restoration may require adjustment.	Gross hyperocclusion so that the restoration is the only point of occlusion in that quadrant.
3	Anatomy	Restoration may not reproduce the normal occlusal anatomy, proximal contours of the tooth or marginal ridge anatomy, but would not be expected to adversely affect the tissue health.	Restoration does not reproduce the normal occlusal anatomy, proximal contours of the tooth or marginal ridge anatomy and will adversely affect the tissue health.
MARGIN INTEGRITY- SURFACE FINISH		ACCEPTABLE	UNACCEPTABLE
1	Marginal Deficiency	Marginal deficiency may be absent or detectable (either visually or with the tine of an explorer) at the restoration-tooth interface, but it is no greater than 0.5 mm.	Marginal deficiency is detectable (either visually or with the tine of an explorer) at the restoration-tooth interface, and is greater than 0.5 mm.
2	Marginal Excess	Marginal excess may be absent or detectable at the restoration-tooth interface, but it is no greater than 1.0 mm at the gingival margin and does not extend greater than 2.0 mm in other areas.	Marginal excess is greater than 1.0 mm at the gingival margin which impinges on the gingival tissue and will be detrimental to the gingival health and/or extends greater than 2.0 mm in other areas.
3	Surface of Restoration	The surface of the restoration may be slightly grainy or rough, but it is free of pits and voids.	The surface of the restoration is rough and exhibits significant surface irregularities, pits or voids.
4	Integrity of Restoration	Restoration is not fractured	Restoration is fractured
5	Enameloplasty	There is no or minimal evidence of unwarranted or unnecessary removal, modification or recontouring of tooth structure adjacent to the restoration (enameloplasty).	Evidence of unwarranted or unnecessary removal, modification or recontouring of tooth structure adjacent to the tooth being restored (enameloplasty).
6	Margins	No evidence of open margins.	Open margin detectable with the tine of an explorer.

# Class II Posterior Conventional Composite Preparation

TREATMENT MANAGEMENT		ACCEPTABLE	UNACCEPTABLE
1	Adjacent and/or Opposing Tooth	Any damage to adjacent tooth/teeth that can be removed by polishing or may require recontouring that does not adversely change the shape or contact.	There is evidence of gross damage and/or alteration to adjacent and/or opposing hard tissue inconsistent with the procedure which may require additional evaluation, intervention or treatment as a result of the damage.
2	Soft Tissue	There may be slight iatrogenic trauma to the soft tissue inconsistent with the procedure.	There is gross iatrogenic damage to the soft tissue inconsistent with the procedure.
3	Correct Tooth Treated	Correct tooth treated.	Wrong tooth treated
EXTERNAL FORM		ACCEPTABLE	UNACCEPTABLE
1	Proximal Contact Clearance at the Height of Contour(mm)	Closed, or visibly open and proximal clearance at the height of contour does not extend more than 2.5 mm on either one or both proximal walls.	Height of contour extends beyond 2.5 mm on either one or both proximal walls.
2	Gingival Contact Clearance (mm)	Closed, or is less than or equal to 2.0 mm.	Greater than 2.0 mm.
3	Outline Form	The outline form may be sharp and irregular. The outline form may be inappropriately over extended so that it compromises the remaining marginal ridge and/or cusp(s).	Outline form is grossly over-extended so that it compromises or undermines the remaining marginal ridge to the extent that the cavosurface margin is unsupported by dentin or the width of the marginal ridge is 0.5 mm or less.
4	Isthmus (mm)	At least 1.0 mm and may not exceed one-half the intercuspal width.	Less than 1.0 mm or greater than one-half the intercuspal distance.
5	Proximal Cavosurface Margin	The cavosurface margin may deviate from 90° but is unlikely to jeopardize the longevity of the tooth or restoration; Includes small areas of unsupported enamel. This includes unsupported enamel and/or excessive bevel(s).	The cavosurface margin deviates from 90° and is likely to jeopardize the longevity of the tooth or restoration. This includes unsupported enamel and/or excessive bevel(s).
6	Cavosurface Margin Termination	The cavosurface margin should terminate in sound natural tooth structure and may be slightly irregular but there is no explorer-penetrable decalcification remaining.	The cavosurface margins do not terminate in sound natural tooth structure, are grossly irregular and there is explorer-penetrable decalcification.
7	Outline Form	There are no remaining non-coalesced fissure(s) that extend the DEJ and are contiguous with the outline form.	There are remaining non-coalesced fissure(s) that extend to the DEJ and are contiguous with the outline form.
INTERNAL FORM		ACCEPTABLE	UNACCEPTABLE
1	Pulpal Floor (mm) (From the cavosurface margin)	Equal to or greater than 0.5 mm from the cavosurface margin, and the pulpal floor depth is no more than 4.0 mm from the cavosurface margin; there may be remaining enamel.	Pulpal floor depth is 4.0 mm or greater from the cavosurface margin or is less than 0.5 mm.
2	Axial Wall Depth (mm) (Beyond the DEJ)	The depth of the axial wall is no more than 2.5 mm beyond the DEJ.	The axial wall is greater than 2.5 mm beyond the DEJ.
3	Proximal Walls	Walls of the proximal box may be divergent or convergent, and which may result in some undermined enamel.	Walls of the proximal box are excessively divergent or convergent, resulting in excessively undermined enamel, that is likely to jeopardize the longevity of the tooth or restoration.
4	Caries	No evidence of caries.	Remaining caries.
5	Retention	Retention, when used, may not undermine the enamel resulting in undermined enamel, which is not likely to jeopardize the longevity of the tooth or restoration.	Retention excessively undermines the enamel and is likely to jeopardize the longevity of the tooth or restoration.
6	Refinement	Prepared surfaces may be rough, sharp, or irregular	Prepared surfaces of the tooth are excessively rough, irregular or sharp to jeopardize the longevity of the tooth restoration.
7	Pulp Exposure	Properly managed justified pulp exposure.	Any pulp exposure that is not properly managed or unjustified.

## Class II Posterior Conventional Composite Restoration

TREATMENT MANAGEMENT		ACCEPTABLE	UNACCEPTABLE
1	Adjacent and/or Opposing Tooth	Any damage to adjacent tooth/teeth that can be removed by polishing or may require recontouring that does not adversely change the shape or contact.	There is evidence of gross damage and/or alteration to adjacent and/or opposing hard tissue inconsistent with the procedure which may require additional evaluation, intervention or treatment as a result of the damage.
2	Soft Tissue	There may be slight iatrogenic trauma to the soft tissue inconsistent with the procedure.	There is gross iatrogenic damage to the soft tissue inconsistent with the procedure.
3	Correct Tooth Treated	Correct tooth treated.	Wrong tooth treated
CONTOUR, CONTACT, OCCLUSION		ACCEPTABLE	UNACCEPTABLE
1	Interproximal Contacts	Interproximal contact is visually closed, but the contact may be deficient in size, shape or position, and may demonstrate little resistance to dental floss or shreds the floss.	Interproximal contact is visually open or will not allow floss to pass through the contact area.
2	Occlusion	When checked with articulating paper, the restoration may be in hyperocclusion inconsistent in size, shape and intensity with the occlusal contacts on surrounding teeth. The restoration requires adjustment.	Restoration is in gross hyperocclusion, such that the restoration is the only point of occlusion in that quadrant.
3	Anatomy	Restoration may not reproduce the normal occlusal anatomy, proximal contours of the tooth, or marginal ridge anatomy, but would not be expected to adversely affect the tissue health.	Restoration may not reproduce the normal occlusal anatomy, proximal contours of the tooth, or marginal ridge anatomy, and adversely affects tissue health.
MARGIN INTEGRITY-SURFACE FINISH		ACCEPTABLE	UNACCEPTABLE
1	Marginal Deficiency	Marginal deficiency may be absent or detectable (either visually or with the tine of an explorer) at the restoration-tooth interface, but it is no greater than 0.5 mm.	Marginal deficiency is detectable (either visually or with the tine of an explorer) at the restoration-tooth interface, and is greater than 0.5 mm.
2	Marginal Excess	Marginal excess may be absent or detectable at the restoration-tooth interface, but it is no greater than 1.0 mm at the gingival margin and may extend greater than 0.5 mm in other areas	Marginal excess is greater than 1.0 mm at the gingival margin which impinges on the gingival tissue and will be detrimental to the gingival health.
3	Integrity of Restoration	Restoration is not fractured, debonded and/or movable in the preparation.	Restoration is fractured, debonded and/or movable in the preparation.
4	Enameloplasty	There is no or minimal evidence of unwarranted or unnecessary removal, or recontouring of tooth structure adjacent to the restoration (enameloplasty).	There is evidence of unwarranted or unnecessary removal, modification or recontouring of tooth structure adjacent to the tooth being restored (enameloplasty).
5	Margins	No evidence of open margins.	Open margin detectable with the tine of an explorer.

# Periodontal

## TREATMENT GOALS

1	Forms	Progress Form is complete, accurate and current.	
2	Calculus Requirements	<p>The Calculus Detection portion of the Periodontal Evaluation Form is properly completed, indicating:</p> <ul style="list-style-type: none"> <li>• Six to eight teeth selected, each with at least one surface of calculus charted</li> <li>• At least three posteriors (molars, premolars), including at least one molar, in the selection. All posterior teeth must have at least one approximating tooth within 2.0 mm distance.</li> <li>• Exactly 12 surfaces of subgingival calculus charted, including at least three surfaces of interproximal calculus on molars/premolars</li> <li>• At least eight of the surfaces on canines, premolars or molars (no more than four surfaces on incisors)</li> </ul>	
TREATMENT MANAGEMENT		TREATMENT GOALS	
1	Hard Tissue	Instruments, polishing cups or brushes and dental floss are effectively utilized so that no unwarranted soft or hard tissue trauma occurs as a result of the scaling and polishing procedures.	
2	Calculus Removal	All calculus has been removed from the candidate's 12 selected surfaces. No Plaque and/or stain remain on those selected 12 surfaces.	
TREATMENT MANAGEMENT		ACCEPTABLE	UNACCEPTABLE
1	Soft Tissue	There is minor soft tissue trauma that is inconsistent with the procedure. Soft tissue trauma may include, but is not limited to, abrasions, lacerations or ultrasonic burns.	<p>There is major damage to the soft and/or hard tissue that is inconsistent with the procedure which may require additional evaluation, intervention or definitive treatment as a result of the damage. This damage may include, but is not limited to, such trauma as:</p> <ul style="list-style-type: none"> <li>• Exposure of the alveolar process</li> <li>• A laceration or damage</li> <li>• One or more ultrasonic burns</li> <li>• A broken instrument tip in the sulcus or soft tissue</li> </ul>
2	Hard Tissue	There is minor hard tissue trauma that is inconsistent with the procedure. Hard tissue trauma may include root surface abrasions that do not require additional definitive treatment.	<p>There is major hard tissue trauma that is inconsistent with the procedure such as:</p> <ul style="list-style-type: none"> <li>• Root surface abrasion that requires additional treatment</li> <li>• Exposure of bone that requires further treatment</li> </ul>
3	Calculus Removal	Calculus remaining on 3 or less surfaces with no plaque and/or stain remaining on those selected surfaces.	Calculus remaining on 4 or more surfaces and plaque and/or stain is remaining on those selected surfaces.



SOUTHERN REGIONAL TESTING AGENCY, INC.

# 2020 DENTAL HYGIENE LICENSING EXAMINATION CANDIDATE MANUAL (NON-PATIENT EDITION)

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# SOUTHERN REGIONAL TESTING AGENCY, INC.

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Southern Regional Testing Agency, Inc. (SRTA) is a nonprofit corporation committed to being a leader at the national level in examination development and administration by providing the following –

- Uniformly administered examinations and confidential results that are consistently reliable for use by the dental licensing boards or other agencies
- Protection for the public
- Appropriate care in the examination process
- Providing the most technologically advanced examination for its member states and participating examination sites
- Providing valid examinations in the most candidate focused environment possible, for the next generation of our colleagues in the Dental and Dental Hygiene Professions

## MISSION STATEMENT

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SRTA will continue to provide valid, reliable, legally defensible examinations and results while striving to implement new testing methodologies in a candidate focused environment for the next generation of dental and dental hygiene professionals.

## EXAMINATION PURPOSE

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This year's SRTA Dental Hygiene Examination has been developed, administered and reviewed in accordance with guidelines from the American Dental Association (ADA), the American Association of Dental Boards (AADB), the American Psychological Association (APA), the American Educational Research Association and the National Council on Measurement in Education. SRTA collects input from practicing dental hygienists nationwide every five years through a Task Analysis Survey, which is the basis for all decisions regarding content. The SRTA Examination was developed to provide a reliable clinical assessment for use by state boards in making valid licensing decisions. Prior to registering for the examination, candidates are strongly encouraged to verify the examination is accepted in the state in which they seek immediate licensure. *After actively practicing two to five years, many states will accept licensure by criteria (or reciprocity). Again, candidates should check with state boards on licensure requirements.*

## ANONYMITY

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The SRTA Dental and Dental Hygiene Examination is conducted anonymously. All examination materials are identified by the candidate's SRTA number. The candidate's name and school information should not appear on any testing materials. All examiners are vetted current and past State Dental Board members with diverse backgrounds. We also utilize faculty examiners, although they cannot examine in their respective state, the knowledge they gain through their experience is imparted to the students. Examiners are trained and standardized prior to each examination and are evaluated to ensure they are grading to established criteria. The examiners are separated from the candidates and will remain in a separate area of the clinic. Candidates must observe all signs and follow instructions so as not to breach anonymity. Anonymity is preserved between the scoring examiners and the candidates, but not among the examiners themselves. Examiners may consult with the SRTA Clinic Floor Manager (CFM) or Dental Hygiene Administrator (DHA) whenever necessary.

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# I. INTRODUCTION

## PURPOSE

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The purpose of this manual is to provide candidates with information regarding the criteria and procedures for the SRTA Dental Hygiene Examination. The manual covers examination content and scoring criteria for the Non-Patient-Based examination (hereby referred to as manikin or typodont). Bring this manual to the examination and keep it available for easy reference.

Please visit [www.srta.org](http://www.srta.org) for information regarding application, testing sites, dates, deadlines, fees, scheduling examinations, results, appeals, and state board contact information.

## APPLICATION

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To apply to the SRTA Dental Hygiene Examination, visit [www.srta.org](http://www.srta.org). The following items are necessary when applying –

- Recent headshot photograph (.jpg, .gif, .png, etc.)
- Valid CPR certification (BLS or higher, no online courses will be accepted)
- Diploma or eligibility letter from your program director
- Visa or Mastercard for payments

## SRTA PERSONNEL

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The following SRTA representatives are in the clinic throughout the day to assist candidates, monitor infection control procedures, and answer questions –

- Clinic Floor Manager (CFM): A dentist who works with candidates and manages activities in the clinic
- Dental Hygiene Administrator (DHA): A dental hygienist or SRTA staff member, who conducts the registration and examination general session, and assists candidates in the clinic. The DHA will serve as a liaison between the candidates and the examiners.

Clinical Examiners are made up of dentists and/or dental hygienists. Candidates will not have any interaction with them. These examiners will be calibrated and trained by SRTA at and before each clinical examination.

SRTA uses a triple-blind scoring system. The system requires three examiners to perform independent evaluations of each phase of the candidate's performance. The term "validate" and its variants used in this manual means at least two of the three examiners independently agree that the candidate's work either met or did not meet the published criteria.. Points are awarded on a 100-point scale, and candidates must earn 75 or more points to pass.

## II. CONTENT AND SCORING

### CLINICAL SKILLS EVALUATED

---

During the two-hour clinical treatment portion of the examination, candidates must demonstrate the clinical skills listed below –

- Calculus detection
- Periodontal pocket depth measurement
- Calculus removal
- Tissue management
- Calculus remaining on unassigned surfaces and stain removal

In addition to these scored criteria, candidates must follow standard infection control precautions and demonstrate a thorough understanding of all requirements set forth in this manual.

### POINTS

---

Points are awarded on a 100-point scale. Candidates must earn 75 or more points to pass. All candidates will start the SRTA examination with zero points and earn them as examiners validate that the criteria are met based on the following system below –

CATEGORY	POINTS
Calculus requirements	6
Periodontal requirements	6
Detection of calculus	12
Removal of calculus	72
Removal of calculus on unassigned surfaces, stain and tissue management	4
TOTAL POINTS	100

If the three examiners do not validate twelve surfaces of moderate to heavy calculus in the candidate's selection while evaluating both the primary and secondary quadrant submissions, points will be withheld as follows –

11 validated surfaces	-6 points
10 validated surfaces	-12 points
9 validated surfaces	-18 points
8 validated surfaces	-24 points
7 or fewer validated surfaces <u>OR</u> 8 or fewer validated surfaces and do not meeting the 3/5/8 criteria  <i>Candidate cannot earn enough points to pass the exam.</i>	-30 points

## OPTIONAL INTRA/EXTRA ORAL COMPUTERIZED EXAM

---

Candidates have the option to take the computerized portion of the SRTA examination within one year of the initial start of the clinical portion of the exam. Candidates can take the computerized portion at any conveniently located PSI Testing Center. Candidates are to schedule an appointment with a PSI Testing Center directly. If special accommodations are needed, contact the SRTA office.

The computerized portion is a one-hour examination that consists of 50 multiple choice questions with emphasizes on oral manifestations and diseases and healthy tissue management.

The fee to take the computerized portion is \$150. Candidates that miss their appointment and need to reregister for a new date are subject to a \$50.00 seating fee. Check the SRTA website for further details on the computerized examination and how to schedule an appointment with a PSI Testing Center.

## SKILLS NOT EVALUATED

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The skills listed below have been sufficiently covered by the National Board of Dental Hygiene Examination, thus, SRTA does not examine these skills in the SRTA Dental Hygiene Examination.

- Radiography
- Medical assessment
- Emergency management
- Pharmacology

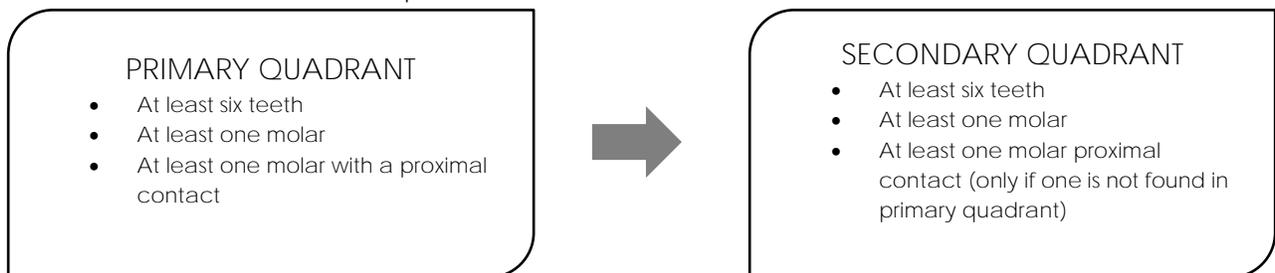
# III. EXAMINATION PREPARATION

## SELECTING A CASE

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The case selected must include the following elements –

- A primary quadrant with at least six teeth, one must be a molar
- A secondary quadrant with at least six teeth, one must be a molar
- At least one molar in the primary quadrant or one molar in the secondary quadrant must have at least one proximal contact



Third molars: Candidates will choose whether to include the third molar as part of the primary and/or secondary quadrants. If you choose not to include the third molar, those will not be assigned for any part of the evaluation process.

SRTA does not prohibit candidates from seeking advice from faculty, peers, or others regarding the selection of the patient versus the non-patient exam. However, this decision and the primary and secondary case selection is the sole responsibility of the candidate. The opinions of anyone other than the three calibrated SRTA examiners who evaluate the manikin on the day of the examination will not be considered in any scoring decisions or appeals.

The SRTA Dental Hygiene Examination requires that the candidate select a primary and secondary quadrant to present for his/her case selection. Examiners will evaluate the primary quadrant for moderate to heavy explorer-detectable subgingival calculus. If twelve surfaces of moderate to heavy calculus cannot be found within the primary quadrant, the secondary quadrant will be utilized to find additional teeth that help meet calculus requirement. During the two-hour clinical treatment time, the candidate must remove all calculus from the entire quadrant selected, and any teeth that may be selected from the secondary quadrant. The selections will be noted on the Procedure Form in Section IV.

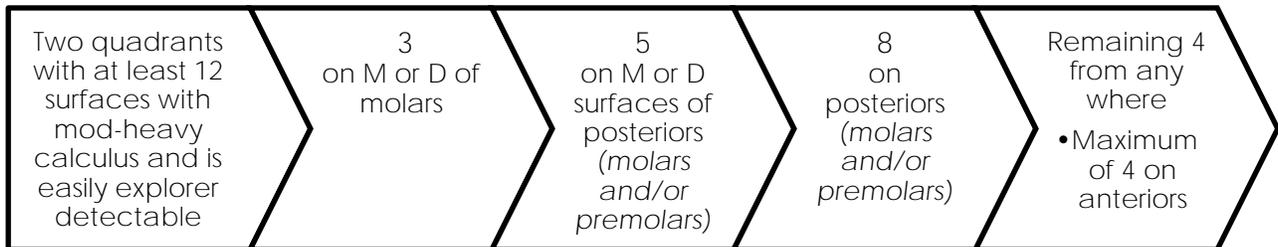
## CALCULUS REQUIREMENTS (3/5/8)

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To earn the maximum number of points, the case must include at least twelve surfaces of moderate to heavy, explorer-detectable calculus, distributed as follows –

- Three of five surfaces must be located on mesial or distal surfaces on molars, and must be subgingival

- Five of eight surfaces must be located on mesial or distal premolars and molars, and must be subgingival
  - Eight of the twelve surfaces must be on premolars and molars, and must be subgingival
- The remaining four of the twelve surfaces of required calculus may be on any surface of any teeth in the selected quadrants
- Calculus on anterior teeth may be subgingival or supragingival limited to a maximum of four surfaces.



To earn enough points to pass, the case selection must have more than surfaces of moderate to heavy calculus and meet the 3/5/8 criteria. Candidate will be dismissed if two of the three examiners are unable to validate more than 8 surfaces with moderate to heavy calculus, or there are 7 or fewer validated surfaces and it does not meet the 3/5/8 criteria. In cases where the candidate is dismissed by the CFM, a verbal explanation is given to the candidate for the reasons of dismissal and a written document is provided stating those reasons.

#### CHARACTERISTICS OF REQUIRED CALCULUS

- Moderate to heavy
- Easily explorer-detectable
- Subgingival on posteriors; may be sub- or supra-gingival on anterior teeth
- Distinct and easily detected with an 11/12 explorer
- A definite jump or bump detected by the explorer
- Binds the explorer or causes a definite catch
- Ledges or ring formation
- Spiny or nodular formations

## SCORED SECTIONS

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#### CALCULUS REQUIREMENTS 3/5/8 (6 POINTS)

Two points will be rewarded if examiners can validate three proximal surfaces of subgingival moderate to heavy, explorer detectable calculus on molars, five on the proximal surfaces of molars and premolars and eight surfaces on posterior teeth.

#### PERIODONTAL MEASUREMENTS (6 POINTS)

During check-in, examiners will assign one anterior and one posterior tooth for the candidate to measure periodontal pocket depths. Three examiners independently measure and record

periodontal pocket depths on the two assigned teeth using a UNC probe, marked with 1.0 mm increments, and document their findings in the computer scoring system.

During clinical treatment time, the candidate will measure and record pocket depths for the same two assigned teeth on the mesio-lingual (ML), lingual (L), and disto-lingual (DL) surfaces. SRTA's computer scoring system compares a candidate's measurements with the examiners' measurements. Candidates earn one point for each measurement that is no more than +/- 1.0 mm from the examiners' average measurement. Six points (one point per surface) can be earned.

The examiners record their pocket depth measurements before removing any calculus. Candidates must complete periodontal measurements before removing any calculus since pocket depth measurement could change after removal.

Candidates are to record each measurement in the appropriate spaces on the Procedure Form. For example, the measurement for the mesio-lingual surfaces of the assigned tooth must be recorded in the space labeled "ML." Errors are assessed for any space left blank.

After clinical treatment time ends, the DHA will assist the candidate in entering measurements into the computer scoring system. Do not use any copies or reference materials for this section. Candidates found using previously recorded and/or copied periodontal charts or found copying other candidates' periodontal measurements will be dismissed for unprofessional conduct and will automatically fail the examination.

#### *Procedure Form, Section 4: Periodontal Assessment*

<b>Section 4: Periodontal Assessment</b>							
Do not complete this section until after check-in. Enter the probing depth in millimeters for the teeth surfaces assigned in this section.							
<b>Posterior Tooth #</b> _____	<b>ML</b> ____	<b>L</b> ____	<b>DL</b> ____	<b>Anterior Tooth #</b> _____	<b>ML</b> ____	<b>L</b> ____	<b>DL</b> ____

*\*COMPLETE THE PERIODONTAL MEASUREMENTS AND CALCULUS DETECTION EXERCISE ON PROCEDURE FORM BEFORE BEGINNING CALCULUS REMOVAL*

#### **CALCULUS DETECTION (12 POINTS)**

During check-in, examiners will assign candidates with three teeth to evaluate for the presence or absence of calculus. Three examiners will evaluate the mesial (M), distal (D), lingual (L), and facial (F) surfaces of those three teeth and document their findings in the computer scoring system. Examiners will use the 11/12 explorer and compressed air for calculus detection.

At the start of clinical treatment time and prior to removal of any calculus, evaluate the four surfaces of the three assigned teeth. If any supra-or subgingival calculus-whether light, moderate or heavy-is present on a surface, indicate "Yes" on the Procedure Form. If no calculus is found on a surface, enter "No" on the form. For the purposes of the detection exercise, any calculus present on the surface should be marked "Yes". It does not have to be

moderate to heavy. Use the explorer and compressed air to determine the presence or absence of calculus on each surface.

Complete the detection exercise prior to removing any calculus. If calculus is removed prior to completing the detection exercise, candidates will unlikely be able to make an accurate evaluation of the presence or absence of calculus. Remember that the examiners complete their own calculus detection exercise during check-in and prior to any calculus removal.

After clinical treatment time ends, the DHA will assist candidates in entering their twelve detection answers into the computer scoring system. One point can be earned for each surface where the candidate's findings match at least two of the three examiners' findings for a total of twelve points. If two of the three examiners find calculus on a surface and a candidate finds calculus on the same surface, one point is earned. If examiners find no calculus on a surface and a candidate finds no calculus on that surface, one point is also earned. No points are earned if you do not select an answer at all or if you select both "Yes" and "No".

*Procedure Form, Section 5: Calculus Detection*

<b>Section 5: Calculus Detection</b>												
Do not complete this section until after check-in. Is any type of calculus present? Circle "Yes" or "No" for the four surfaces of each tooth assigned below.												
<b>Tooth #</b> _____	<b>Mesial</b>	Yes	No	<b>Distal</b>	Yes	No	<b>Facial</b>	Yes	No	<b>Lingual</b>	Yes	No
<b>Tooth #</b> _____	<b>Mesial</b>	Yes	No	<b>Distal</b>	Yes	No	<b>Facial</b>	Yes	No	<b>Lingual</b>	Yes	No
<b>Tooth #</b> _____	<b>Mesial</b>	Yes	No	<b>Distal</b>	Yes	No	<b>Facial</b>	Yes	No	<b>Lingual</b>	Yes	No

**CALCULUS REMOVAL (72 POINTS)**

This is the most important portion of the SRTA Dental Hygiene Examination. Candidates can earn up to 72 points for complete removal of moderate to heavy, explorer-detectable calculus.

Choose two quadrants where at least 12 surfaces of moderate to heavy, explorer-detectable calculus is located and will meet the 3/5/8 calculus requirements discussed earlier in this section. Document these on the Procedure Form.

1. Primary quadrant selection and whether a candidate wishes to include the third molar
2. Secondary quadrant selection and whether a candidate wishes to include the third molar.

During check-in, examiners will evaluate both the primary and secondary quadrant submissions, for moderate to heavy explorer-detectable calculus. Examiners will attempt to validate twelve surfaces with moderate to heavy, explorer-detectable calculus in the primary quadrant. If twelve surfaces of moderate to heavy calculus can be found within the primary quadrant, then no additional teeth from the secondary quadrant will be assigned for

treatment. However, if examiners are unable to verify at least twelve surfaces of moderate to heavy calculus in the primary quadrant, they will attempt to find additional surfaces in the secondary quadrant to give you the highest chance to earn the maximum number of points.

If teeth from the secondary quadrant are not assigned, the teeth in that quadrant do not have to be cleaned. However, if any additional teeth from the secondary quadrant are listed on the Procedure Form, they must be cleaned and will be evaluated for remaining calculus.

Upon completion of check-in, one of the two submitted quadrants and any additional teeth for treatment will be listed on the Procedure Form. All calculus, plaque, and stain must be removed from all surfaces of the teeth in the assigned quadrant and any additional teeth listed in Section 3 of the Procedure Form.

After completing periodontal measurements and calculus detection, clean all surfaces of all teeth in the selection assigned. All surfaces of all teeth in the assigned selection will be evaluated for remaining calculus, both subgingival and supragingival. Remaining subgingival and supragingival calculus will be scored equally.

Example 1: Procedure Form, Section 2 & 3

Primary quadrant is assigned plus teeth #29 and #30 from the secondary quadrant, to help the candidate earn the maximum number of points.

Section 2: Selection of Teeth for Calculus Removal			
Primary Quadrant Submission		Secondary Quadrant Submission	
Circle Primary Quadrant	Include this quadrant's 3 <sup>rd</sup> molar?	Circle Secondary Quadrant	Include this quadrant's 3 <sup>rd</sup> molar?
<ul style="list-style-type: none"> <li><input checked="" type="radio"/> UR</li> <li><input type="radio"/> LR</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Yes</li> <li><input checked="" type="checkbox"/> No</li> </ul>	<ul style="list-style-type: none"> <li><input type="radio"/> UR</li> <li><input checked="" type="radio"/> LR</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Yes</li> <li><input type="checkbox"/> No</li> </ul>
UL		UL	
LL		LL	

Section 3: Selection Assignment		Examiner Use Only   DO NOT WRITE IN THIS SECTION	
<p>After check-in, the final assignment is entered here by the examiners. All surfaces of all teeth in this assignment must be free of remaining calculus, plaque, and stain for the final evaluation phase of the examination. No other areas of the patient's mouth will be evaluated.</p>			
Quadrant to treat <u>UR</u>		Additional teeth to treat <u>#29 &amp; #30</u>	

Example 2: Procedure Form, Section 2 & 3

Examiners validated twelve surfaces in the primary quadrant (LR). No additional teeth are assigned, only the LR quad is to be treated.

Section 2: Selection of Teeth for Calculus Removal			
Primary Quadrant Submission		Secondary Quadrant Submission	
Circle Primary Quadrant	Include this quadrant's 3 <sup>rd</sup> molar?	Circle Secondary Quadrant	Include this quadrant's 3 <sup>rd</sup> molar?
<ul style="list-style-type: none"> <li><input type="radio"/> UR</li> <li><input checked="" type="radio"/> LR</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Yes</li> <li><input checked="" type="checkbox"/> No</li> </ul>	<ul style="list-style-type: none"> <li><input type="radio"/> UR</li> <li><input type="radio"/> LR</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Yes</li> <li><input type="checkbox"/> No</li> </ul>
UL		UL	
LL		LL	

Section 3: Selection Assignment		Examiner Use Only   DO NOT WRITE IN THIS SECTION	
<p>After check-in, the final assignment is entered here by the examiners. All surfaces of all teeth in this assignment must be free of remaining calculus, plaque, and stain for the final evaluation phase of the examination. No other areas of the patient's mouth will be evaluated.</p>			
Quadrant to treat <u>LR</u>		Additional teeth to treat <u>None</u>	

## REMAINING CALCULUS ON UNASSIGNED SURFACES, STAIN & TISSUE MANAGEMENT (4 POINTS)

After treatment by the candidate, examiners will return to evaluate the assigned quadrant and any additional teeth assigned for the presence of remaining stain and calculus on surfaces that were not the twelve assigned surfaces. Tissue management is evaluated for irreversible tissue trauma.

## AUTOMATIC FAILURE (-100 POINTS)

A 100-point deduction will be assigned for major critical errors.

### *Major Infection Control Violation*

- Although you will be working with a manikin, all infection control procedures will be evaluated and monitored as if working with a patient.
- Examples of major infection control violations include, but are not limited to: forms, gauze, and/or barriers visibly contaminated at check-in or final evaluation, use of non-sterile instruments, and other violations that would put a patient, candidate, examiners or staff members at risk for injury or exposure.
- Examiners will make an assessment at the start of check-in and the start of final evaluation. The CFM, DHA and faculty personnel will be monitoring and evaluating that candidates follow the CDC recommended procedures for infection control.
- Major infection control violations noted by the CFM or DHA during clinical treatment will be validated, photographed, and witnessed by the two SRTA officials, and when possible, a testing site staff member/educator.

### *Irreversible Tissue Trauma Caused by Candidate*

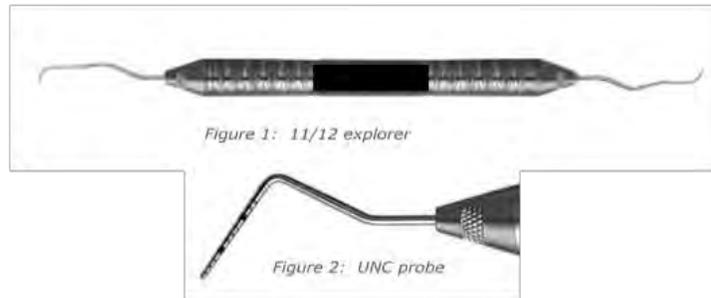
- Although you will be working on a manikin, all tissue will be evaluated as patient tissue.
- This includes any injury that is inconsistent with the procedure that will not heal on its own without professional treatment by a dentist or physician. Four or more validated areas of reversible tissue trauma results in automatic failure. **“Reversible tissue trauma”** is damage caused by the candidate that could have been avoidable but can be expected to heal on its own.
- Examples of irreversible tissue trauma are, but not limited to, amputated papilla, severely lacerated soft tissue, exposure of the alveolar process, broken instrument tip evident in the sulcus or soft tissue, and root surface abrasion that requires professional treatment.
- Must be independently validated during final evaluation by two examiners.

# INSTRUMENTS

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Candidates may choose any instruments for calculus removal. However, for the calculus detection and periodontal measurements exercises, all candidates and examiners must use the same instruments. This ensures that the examination is standardized for all candidates at all testing sites. The required instruments are listed below:

- Explorer: 11/12 explorer (i.e., the ODU or EXD 11/12) is used by candidates and examiners for calculus detection. No other type of explorer will be used for detection of calculus.
- Probe: A probe marked with 1 mm increments (i.e., the UNC probe) is used for the probing exercise. SRTA prefers probes that have alternating colored markings such as yellow/black, yellow/bare metal, yellow/white plastic, or any other combination of colored markings. This improves accuracy of measurements by both the candidates and examiners.
- Mirror: Can be single or double sided
- Pencils: Provide two pencils covered with a barrier.



For check in and final evaluation, have a clean mirror, explorer, 2X2 gauze and air/water tip set out.

If using double ended probe cover the unused side with autoclavable tape.

Candidates are required to provide their own hand instruments and sonic/ultrasonic scalers. Some material and equipment may be available at the testing site. A site letter will be available under the "Documents" tab on your profile that explains what materials will and will not be available at that testing site. Contact the testing site directly to determine whether the equipment available onsite is compatible with your personal items. Prophy jets or air polishers are not allowed.

# IV. CLINIC SCHEDULE EXAMINATION DAY

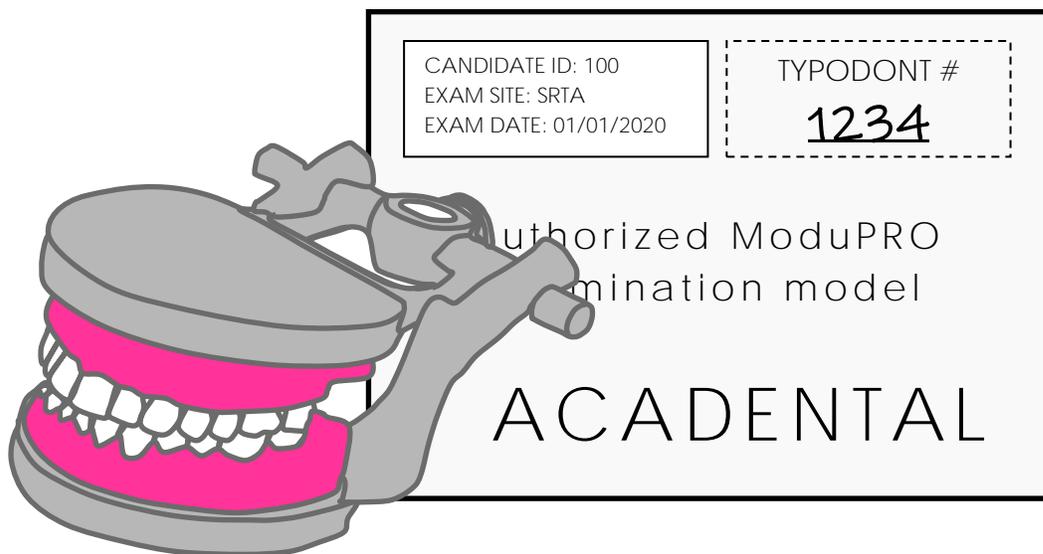
	GROUPS A (D)	GROUPS B (E)	GROUPS C (F)
Registration Examination Discussion	6:15 AM	8:10 AM	12:15 PM
Examination start-time (set up)	6:45 AM	8:40 AM	12:45 PM
Check in begins	8:00 AM	9:55 AM	2:00 PM

\*SRTA reserves the right to amend the schedule. Candidates should be present onsite prior to the examination start-time. All scheduled times as listed could be moved earlier if conditions exist to do so and if all candidates, and examiners agree to an earlier start time.

## GENERAL SESSION AND REGISTRATION

At the group published registration/examination discussion time, the CFM and DHA will review the procedures for the day and answer questions. This informal discussion is optional, but attendance is highly recommended. After the discussion, the CFM and DHA will check identifications, distribute the SRTA candidate badges & manikin, and collect paperwork/forms.

\*DO NOT OPEN the typodont box until entering the clinic for set-up time. Opening the typodont box prior to entering the clinic will result in a failure.



### SET-UP & SCREENING

At the examination start time for each group, shown in the table above, candidates may set up their manikin and instruments to prepare to evaluate primary and secondary quadrants when instructed.

During this time, candidates will need to check that they have received the correct typodont by verifying the label on the typodont box matches their assigned candidate ID. Once

candidate has confirmed that they have received the correct typodont, they will need to write the typodont number on their procedure form. Candidates will then screen/evaluate typodont for quadrants and/or additional teeth to meet the 3/5/8 rule and submit the case selection to the DHA. The DHA will confirm quadrant selections in the computer scoring system and assist with cubicle preparation.

## CHECK-IN

The manikin check-in is the procedure during which three examiners complete the following tasks:

- Evaluate the primary and secondary quadrants for the required criteria
- Assign teeth for the calculus detection and periodontal assessment exercises
- Document if any calculus is found on the four surfaces of the three teeth assigned for detection
- Measure and record the periodontal pocket depths on the teeth assigned for the periodontal assessment
- Validate up to twelve surfaces with moderate to heavy, explorer-detectable calculus for evaluation of calculus removal skills

This process may take up to 60 minutes. Candidates may not enter the clinic during check-in. Failure to leave or attempting to re-enter the clinic without permission from the CFM may result in dismissal and automatic failure.

### *Preparing for Typodont Check-in*

- Place mirror, 11/12 explorer and required probe on tray; no other instruments are allowed on tray
- Place Procedure Form, and covered pencils on tray.

## CLINICAL TREATMENT

When check-in is completed, candidates may begin clinical treatment on the quadrant and any additional teeth assigned in Section 3 of the Procedure Form. The CFM will announce the treatment start time.

Candidates are allowed two hours to complete all clinical treatment. During this time, candidates must complete the following procedures:

- Measure periodontal pocket depths on the two assigned teeth
  - Record measurements on the Procedure Form in the designated area
- Complete the calculus detection exercise
  - Assess the assigned teeth for the presence or absence of any calculus on the mesial, distal, facial and lingual surfaces of the three assigned teeth
  - Circle "Yes" or "No" in the appropriate area of the Procedure Form
- Thoroughly clean all surfaces of all teeth in the final selection assigned, all surfaces of all teeth in the final selection assignment will be evaluated for remaining calculus.

- Prior to the start of final evaluation, you will be evaluated on your infection control procedures. Replace contaminated barriers, saliva ejector and air-water syringe tips with clean ones.

## FINAL EVALUATION

During final evaluation, three examiners independently assess the assigned quadrant and all additional teeth for remaining calculus, stain, and tissue conditions.

To prepare for final evaluation, replace the manikin barriers with clean ones. Remove all instruments from the tray except for one clean mirror and one 11/12 explorer. The mirror and explorer should be free of visible debris but does not need to be sterile. A probe is not needed for final evaluation.

When the examiners start final evaluation on the manikins, the DHA will collect the Procedure Forms from the cubicles and enter into the computer scoring system the candidate's detection findings and periodontal probe measurements.

## CLEAN UP

After final evaluation of the manikin, candidates have 20 minutes to clean and disinfect the cubicle, return the manikin as directed, gather personal belongings and exit the clinic.

# V. FORMS

Download and print forms from the SRТА website at [www.srta.org](http://www.srta.org)



# FORMS FOR REGISTRATION

## CANDIDATE IDENTIFICATION

Each candidate must provide one form of government or school-issued photo ID during registration. A SRTA badge will be provided and must be worn at all times during the examination.

## ONLINE ORIENTATION NOTICE FORM (T1)

The signed form must be turned in at registration. This form must be completed and signed prior to registration. The on-line presentation provides details on the requirements for registration and orientation. For your benefit, we strongly suggest you review this presentation prior to the examination date.

Southern Regional Testing Agency, Inc.  
**Online Notice Form – Orientation Slides**

**T1**  
Turn in at registration

Exam Site \_\_\_\_\_

This signed notice must be presented during registration. The online presentation provides details on the requirements for registration and orientation. For your benefit, we strongly suggest you view this presentation.

By signing below, I confirm that I reviewed and understand the online orientation presentation prior to the scheduled registration and examination.

Print Name \_\_\_\_\_ Candidate Number \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

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## INCIDENT DISCLAIMER FORM (T2)

The candidate must sign and date, in ink, prior to registration.

Southern Regional Testing Agency, Inc.  
**Non-Patient Incident Disclaimer**

**T2**  
Turn in at registration

Exam Site \_\_\_\_\_

**DISCLOSURE STATEMENT AND EXPRESS ASSUMPTION OF RISK FOR ANY DAMAGE FROM (1) EXPOSURE TO BLOODBORNE INFECTIOUS AGENTS SUCH AS HIV, HBV, AND OTHER MICROORGANISMS IN THE BLOOD, (2) EXPOSURE TO ORAL OR RESPIRATORY SECRETIONS, (3) OTHER INJURIES.**

The relationship between the Southern Regional Testing Agency (SRTA), the school where the examination is administered (the school) and you (the candidate) is not an employer/employee relationship. Neither SRTA nor the examination site is responsible for your behavior. As a candidate, you do not qualify as an employee and are not covered under OSHA regulations. You must assume responsibility for any exposure or other incident which may occur.

SRTA and the school cannot, and therefore, do not assume any responsibility or liability for the health status of candidates assistants or patients. If an exposure or other injury occurs during the course of this examination, neither SRTA nor the school assumes any duty or responsibility to you to provide serologic testing, counseling, follow-up care or any other health service. It is your responsibility to assure that you see a licensed health care professional and initiate appropriate management and follow-up care.

**LIMITATION OF LIABILITY AND INDEMNITY AGREEMENT**

I, the undersigned, state that I have read and understood the above disclosure statement and express assumption of risk. I agree that SRTA and the school are not responsible for the prevention or management of any of the incidents listed above. I agree to release and discharge SRTA for any liability or personal injury which may occur to me, unless actively committed by SRTA. I agree to release and discharge the school for any liability or injury that may occur to me unless actively committed by school personnel. I further understand that SRTA and the school have no responsibility or duty to provide medical evaluation, treatment, counseling, follow-up care, or any type of compensation for any of the incidents listed above. I also agree to indemnify and hold SRTA and the school harmless for any occurrence under this agreement, including SRTA's and the school's attorneys' fees, costs and expenses, should a claim be made against them.

Full name (Printed) \_\_\_\_\_ Candidate Sequential Number \_\_\_\_\_

Signature \_\_\_\_\_ Date Signed \_\_\_\_\_

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# FORMS FOR SETUP

## PROCEDURE FORM (T3)

Complete the Procedure Form, Section 1 prior to the date of examination. During set-up, the candidate will complete section 2. Upon completion of check-in, Section 3 of the form will indicate which quadrant has been assigned and any additional teeth assigned to treat. Section 4 and 5 will indicate the teeth for both the periodontal and detection exercises, respectively.

### SAMPLE PROCEDURE FORM PRESENTED AT SET-UP

Southern Regional Testing Agency, Inc.

## Non-Patient Dental Hygiene Procedure Form

# T3

Keep in Cubicle

**Section 1: General Information**  
 Candidate # 100 Cubicle # 10 Typodont # 4032 Exam Site UT Date 5/18/19

Primary Quadrant Submission		Secondary Quadrant Submission	
Circle Primary Quadrant	Include this quadrant's 3 <sup>rd</sup> molar?	Circle Secondary Quadrant	Include this quadrant's 3 <sup>rd</sup> molar?
UR	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	UR	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
UL		UL	
LR		LR	LL
			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

**Section 3: Selection Assignment** Examiner Use Only | DO NOT WRITE IN THIS SECTION  
 After check-in, the final assignment is entered here by the examiners. All surfaces of all teeth in this assignment must be free of remaining calculus, plaque, and stain for the final evaluation phase of the examination. No other areas of the patient's mouth will be evaluated.

Quadrant to treat \_\_\_\_\_ Additional teeth to treat \_\_\_\_\_

**Section 4: Periodontal Assessment**  
 Do not complete this section until after check-in. Enter the probing depth in millimeters for the teeth surfaces assigned in this section.

Posterior Tooth # \_\_\_\_\_ ML \_\_\_\_\_ L \_\_\_\_\_ DL \_\_\_\_\_ Anterior Tooth # \_\_\_\_\_ ML \_\_\_\_\_ L \_\_\_\_\_ DL \_\_\_\_\_

**Section 5: Calculus Detection**  
 Do not complete this section until after check-in. Is any type of calculus present? Circle "Yes" or "No" for the four surfaces of each tooth assigned below.

Tooth # _____	Mesial	Yes	No	Distal	Yes	No	Facial	Yes	No	Lingual	Yes	No
Tooth # _____	Mesial	Yes	No	Distal	Yes	No	Facial	Yes	No	Lingual	Yes	No
Tooth # _____	Mesial	Yes	No	Distal	Yes	No	Facial	Yes	No	Lingual	Yes	No

Pre-Treatment			
Examiner #1:	O	P	T
Examiner #2:	O	P	T
Examiner #3:	O	P	T
FINISH TIME:			STAMP REQUIRED

Post-Treatment			
Examiner #1:	C	F	M
Examiner #2:	C	F	M
Examiner #3:	C	F	M
EXAM COMPLETED (CFM PIN)			STAMP REQUIRED

SECTION 1:

- Candidate #
- Cubicle #
- Typodont #
- Exam Site
- Exam date

SECTION 2: Select a primary and secondary quadrant. Indicate whether to include the 3<sup>rd</sup> molar.

DO NOT WRITE IN SECTION 3

SECTION 4 & 5: Complete after check-in, but prior to any calculus removal.

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## VI. INFECTION CONTROL

Candidates must follow the infection control procedures recommended by the Centers for Disease Control and Prevention. Failure to follow standard precautions may result in dismissal from and failure of the examination. For this examination the manikins will be considered as real patients.

## VII. CANDIDATE POLICIES

### CANDIDATE ACCESSIBILITY

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Any candidate with a documented physical and/or learning disability that impairs sensory, manual or speaking skills and that requires a reasonable deviation from the normal administration of the examination may be accommodated. A written statement from a qualified physician must be provided at the time of application. The limitation(s) must be clearly defined, and the assistance required to ensure appropriate accommodations must be detailed. Requests will be evaluated on a case-by-case basis. Accommodations/deviations will not be allowed for components and skills the examination must measure.

Information received regarding the physical/learning challenges of a candidate will remain confidential except in the case of disabilities that may require emergency treatment. In this case, onsite safety personnel will be advised.

### DISMISSAL FROM EXAMINATION

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This list is not all-inclusive. Listed below are the reasons for which a candidate may receive a failing evaluation or dismissal. Some procedures may be deemed unsatisfactory for other reasons. Additionally, a combination of several unsatisfactory evaluations may result in failure. Reexamination will be denied for one year (12 months) from the date of dismissal from the examination. Infractions that may lead to dismissal or failure include –

- Evidence of dishonesty or misrepresentation during the application process, including false or misleading statements or false documentation presented by the candidate or **on the candidate's behalf**
- Evidence of dishonesty or misrepresentation during candidate registration or during the examination
- Rude, abusive, or uncooperative behavior exhibited by the candidate and/or those accompanying the candidate to the examination site
- Failure to vacate the clinic for manikin check-in or continuing to work after published cut-off time
- Failure to complete the examination within the allotted time (No make-up time, grace period or second effort is allowed for any part of this examination.)

- Thievery during the examination
- Performance of any unauthorized work outside of designated areas at the test site
- Noncompliance with anonymity requirements for patient check-in and/or examiner scoring. Candidates must not enter the area during check-in or scoring.
- Noncompliance with established guidelines for asepsis and infectious disease control
- Use of previously recorded and/or copied periodontal charting forms, calculus detection lists/charts or other references for the periodontal assessment or calculus detection exercises
- Use of cellular telephones, pagers, cameras, or other electronic equipment by the candidate while in the clinic.

## ELECTRONIC EQUIPMENT

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SRTA prohibits the use of cellular phones, cameras, or other electronic equipment by candidates within the clinic. Violation of this policy is a reason for dismissal from the examination.

## EXAMINATION PLACEMENT & LIMITATIONS

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When the application is processed, SRTA assigns a group and cubicle for each candidate after the examination published registration deadline. SRTA policy does not allow transfer to another testing date or location once an examination site assignment has been made. However, in cases of a medical emergency, SRTA may consider transfers on a case-by-case basis. The candidate must fully document the nature of the emergency in writing, including contact information of a medical professional included for verification. The SRTA office must receive notification prior to the examination, or the request will not be considered, and the candidate will be deemed a "no-show."

Priority seating for the examination is given for the exam site's current students and then on a first come, first serve basis for all other candidates. An exam site may become full prior to the application deadline; therefore, SRTA cannot guarantee placement at any exam site. Applying early may increase the probability of placement in the preferred site.

SRTA requires a minimum of 12 candidates at any testing site and reserves the right to cancel an exam and reassign candidates to other testing sites in the event there are fewer than 12 candidates scheduled for any examination.

## EXAMINATION RESULTS

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Candidates must pass the clinical and/or computerized examination with a score of at least 75 points out of 100.

Notification will be sent to the candidate via email when scores are available for viewing online. Clinical examination results will be available online in the afternoon of the next business day after the examination. The computerized examination results will be available

within ten days of taking the examination. Scores can be viewed by logging in to <https://srta.brighttrac.com> by using the username and password that were created during the online registration process. Candidates will also be able to view the details of their evaluation on their profile.

To maintain confidentiality, SRTA staff and examiners will not discuss candidate concerns and questions with a spouse, parent, friend, faculty member or any other family member.

The examination results of each candidate will automatically be sent to the secretaries of the Board of Dentistry of Alabama, Arkansas, Kentucky, South Carolina, Tennessee, Virginia and West Virginia. The examination results may also be sent to each current graduate's university. Candidates should contact the State Board of Dentistry where they are applying for licensure to verify acceptance of the SRTA scores and to learn of other state-specific requirements.

Southern Regional Testing Agency does not analyze or interpret the results and makes no recommendations on the way the scores are used by the state. Acceptance of the regional scores is determined by the individual State Boards.

## EQUIPMENT

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Providing the necessary equipment is the responsibility of each candidate. Each testing site charges an additional fee for the use of facilities and incidental materials. This fee is combined with the examination fee, which is listed by site on SRTA's website. SRTA strongly advises candidates to visit the examination site prior to examination to familiarize themselves with the facilities and available equipment and to ensure that their hand-pieces and ultrasonic/sonic equipment can be adapted to the unit available at the testing site. These arrangements must be made directly with the school. The use of ultrasonic/sonic instruments is permitted. However, it is the candidate's responsibility to provide equipment that is compatible with testing site attachments. Some additional equipment may be available from certain testing sites if candidates arrange in advance with the school. The testing site provides the operating chair and unit. Candidates must furnish all necessary materials and required instruments.

SRTA is not responsible for the malfunction of the facility's or the candidate's equipment and will not allot additional time due to the malfunction of any equipment. Equipment maintenance personnel are onsite during each examination to ensure the equipment and the water are in working order. At the site, should an equipment malfunction occur prior to or during the examination, the candidate must notify the CFM or DHA immediately, so the appropriate personnel may be contacted.

## INELIGIBLE CANDIDATES

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If a candidate becomes ineligible to take the examination, they must notify the SRTA office, in writing, two weeks prior to the scheduled examination. A letter from the dean of the candidate's institution will be required as proof of ineligibility. SRTA will retain the complete

application fee for any candidate declared ineligible by his/her dean. Candidates declared ineligible will be allowed to examine at a future site within a 12-month period upon payment of facility fees and a \$100 administrative processing fee. A diploma or letter from the dean stating the candidate's eligibility is required for a rescheduled exam.

## INFECTION CONTROL

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SRTA requires candidate compliance with the Centers for Disease Control and Prevention: Recommended Infection Control - U.S. Department of Health and Human Services - Public Health Service, Centers for Disease Control and Prevention Guidelines for Infection Control in Dental Health-Care Settings - 2003 as reprinted from Morbidity and Mortality Weekly Report, Recommendations and Reports December 19, 2003, Vol. 52, No. RR-17. Refer to the aforementioned publication for a complete listing of recommended practices.

### INFECTION CONTROL PROCEDURES AND CATEGORIES OF PATIENT CARE

During the examination, candidates must follow the current recommended infection control procedures as published by the CDC, beginning with the initial set-up of the unit, continuing throughout the clinical examination, and including the final cleanup of the cubicle. Dental professionals must prevent the spread of infectious diseases. Because many infectious patients are asymptomatic, all manikins shall be treated as if they are, in fact, contagious. It is the candidate's responsibility to ensure that he/she complies fully with these procedures.

Major violations of these standards and guidelines—defined as violations that put patients, candidates, school staff, or examiners at risk—may be grounds for immediate dismissal, and reexamination may be denied for one year (12 months) from the date of dismissal from the examination.

Post-exposure management: Should a needle-stick injury or other exposure to blood borne pathogens occur during the clinical module of the examination, follow these protocols:

- Contact the CFM immediately.
- Follow all guidelines and directions required by the facility.
- If time allows, the candidate may return to the clinic and complete the examination. If the candidate cannot complete the examination, the reexamination fees will apply.

## INSTRUMENTS

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Candidates must provide these instruments for the examiners during check-in and final evaluation:

- A probe with markings of 1-2-3-4-5-6-7-8-9-10 mm (UNC probe) only. SRTA prefers color-coded probes with yellow bands alternating with any other color, including bare metal or plastic. The probe may be single ended or double-ended. However, if the candidate provides a double-ended probe, the unused end must be covered using autoclave tape. Candidates may use the brand or manufacturer of their choice.

- An 11/12 explorer for calculus detection at check-in and final evaluation of calculus removal
- A reflective front surface mouth mirror, which may be one- or two-sided

All other instruments are the choice of the candidate.

If the candidate does not provide the appropriate instruments, examiners cannot evaluate the manikin at check-in, and the candidate will lose the time necessary to provide the missing item(s). If the candidate cannot obtain the required instruments, he/she will be unable to take the examination and will, therefore, fail.

Candidates are encouraged to secure and provide additional instruments for the examination. Although you will be working on a manikin you will be evaluated as if working on a patient. Candidates will not be allowed additional time if an instrument is dropped or requires autoclaving. The candidate should provide an additional sterile mirror, 11/12 explorer, and correct color-coded periodontal probe in case an instrument is dropped.

## JURISPRUDENCE

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SRTA does not administer the jurisprudence examination for the participating boards of dentistry. The respective boards of dentistry develop, administer, and score their own jurisprudence examinations. SRTA does not have access to, nor can we provide, jurisprudence study materials. Candidates should contact the board(s) of dentistry in the state(s) in which licensure is sought to arrange to take the jurisprudence examination.

## MALPRACTICE INSURANCE

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SRTA's professional liability insurance company provides malpractice insurance for all candidates at no additional charge. CNA Insurance Company extends SRTA's professional liability coverage to candidates with the limit of \$1,000,000/\$3,000,000 for the patient-based portion of the SRTA clinical examination in dental hygiene.

## PROFESSIONAL STANDARDS

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The purpose of this examination is to assess professional competency. SRTA expects the candidates to maintain professional standards in the following areas:

- Suitable operating attire, inclusive of the Personal Protective Equipment. Candidates must follow OSHA and CDC Guidelines.
- Consideration and cooperation with examiners, test site personnel, and other candidates.
- Aseptic techniques and general cleanliness of the cubicle during all procedures. Candidates must maintain proper infection control throughout the entire examination. Major violations of these standards and guidelines are grounds for immediate dismissal and possible failure. SRTA may deny reexamination for one year (12 months) from the date of dismissal from the examination.

- Protection of and concern for tooth structure and supporting tissue during manikin treatment. The unwarranted occurrence of major tissue trauma will result in automatic failure of the entire examination.

Violation of any of these standards is grounds for immediate dismissal from the examination. SRTA may deny reexamination for 12 months.

## QUESTIONS

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Direct all questions concerning jurisprudence, licensing, reciprocity, and licensure by credentials to the appropriate state board where licensure is sought. A listing of the addresses and telephone numbers of the SRTA participating boards **can be found on SRTA's website**.

Direct any questions concerning testing facilities, equipment, and facility fees to the appropriate test site. The examination site instruction letter, available on the SRTA website in the downloadable forms section, may address most questions. If necessary, please contact the testing site after thoroughly reading this letter.

Direct all questions concerning examination procedures, content, applications, and examination dates to the Southern Regional Testing Agency:

4698 Honeygrove Road, Suite 2  
Virginia Beach, VA 23455-5934  
(757) 318-9082

Email general questions and questions relating to the dental hygiene examination to [dentalhygiene@srta.org](mailto:dentalhygiene@srta.org). Be sure to include your contact information. Once an application has been processed for a particular site, all questions for both pre-examination and post-examination must be initiated by the candidate only. To preserve candidate confidentiality, the SRTA staff and examiners will not discuss candidate concerns and questions with a candidate's spouse, parent, faculty member, family member, or friend.

## REEXAMINATION/REMEDICATION

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After three unsuccessful examination attempts, the candidate must contact the state in which licensure is sought to obtain a letter of approval/permission for a fourth examination attempt. Some states may require remedial training after three unsuccessful attempts. Passing the examination after four or more attempts does not negate the required remedial training. This letter from the state dental board must be submitted with the SRTA application for examination. Follow the same procedure for all subsequent examination attempts.

## REFUNDS

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Candidates who fail to appear for a scheduled examination will lose their entire examination fees unless SRTA has received written notification. Candidates requesting a dental hygiene refund will have a \$100 administrative processing fee deducted from the refund. If you are requesting a refund, please email [help@srta.org](mailto:help@srta.org).

Any refunds requested prior to three weeks of the scheduled examination will result in:

75% Exam Fee minus \$100 Administrative Processing Fee

Any refunds requested within three weeks prior to the scheduled examination will result in:

50% Exam Fee minus \$100 Administrative Processing Fee

For candidates with a medical deferment, SRTA will retain the original fee and permit examination within 12 months. A physician's statement must substantiate the deferment.

## RESTRICTIONS

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Candidates may not use:

- Nitrous oxide
- Air-abrasive instruments
- Assistants

## SCHEDULING CONFLICTS

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Please contact the SRTA office for any special requirements, including religious exemptions.

## SHARING EQUIPMENT

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SRTA discourages sharing sonic and ultrasonic scalers, hand-pieces, and other equipment because it is possible that candidates who are sharing equipment could be placed in the same testing group and would need to use the shared equipment simultaneously.

## UNETHICAL CONDUCT

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Professional behavior is a critical quality in the practice of dental hygiene. Candidates exhibiting unethical conduct are subject to examination termination and failure.

Examples of unethical conduct include, but are not limited to:

- Using unauthorized equipment at any time during the exam
- Receiving assistance from another practitioner during clinical treatment time
- Engaging in dishonesty
- Altering candidate worksheet or treatment notes
- Any other behavior that compromises the standards of professional behavior

When SRTA charges a candidate with unethical conduct, it is SRTA's policy to notify all participating state boards of the situation. Many state statutes have criteria that include "good moral character" as a requirement for licensure. If a state board finds a candidate guilty of the alleged unethical conduct, the candidate may be ineligible for licensure in that state at any time in the future. While SRTA allows candidates to retake the SRTA Examination, they may be unable to obtain licensure in any participating state. Candidates are encouraged to address these matters with the state in which they desire licensure prior to retaking the examination.

## VIII. CHECKLIST

### PRIOR TO THE DAY OF EXAMINATION

- Complete application and submit all required materials online
- Watch the online orientation slide presentation
- Sign the form attesting that you watched the slide presentation
- Complete all pre-examination forms

### FORMS FOR REGISTRATION & DISCUSSION SESSION

- Government- or school-issued photo ID
- Completed and signed affidavit attesting that you watched the on-line orientation slides

### CUBICLE SETUP

- Check equipment, air, water, light, and chair to ensure proper functioning; contact the CFM or DHA if any problems are found.
- Verify the accuracy of case selection, if entered electronically prior to the examination date. The DHA and CFM can assist with any last-minute changes that need to be made in your case selection.
- Place clean mirror, 11/12 explorer, and probe on tray (no other instruments).
- Put all other forms and paperwork out of sight of examiners and away from the clinical treatment area.
- Have a clipboard and covered pencils easily available. No mechanical pencils, please.

### CLINICAL TREATMENT TIME

- Complete periodontal measurements and recording. Blanks are assessed as errors.
- Complete detection exercise. Blanks are assessed as errors.
- Remove all calculus, and stain from all teeth assigned in final case selection.

### PREPARING FOR FINAL EVALUATION

- Ensure that all teeth assigned are free of calculus, stain, and prophy paste. Use air and 11/12 explorer.
- Place clean mirror, a few clean gauze squares, and 11/12 explorer on tray (no other instruments or supplies on tray).
- Clear area of contaminated gauze, instruments, floor hazards, etc.
- Remove ultrasonic/sonic inserts and contaminated prophy angles.
- Attach a clean air/water syringe tip and saliva ejector.
- Verify that all periodontal assessment measurements and detection findings are recorded on Procedure Form.
- Replace contaminated barriers and tray covers.
- Recline the manikin with light on.

### DURING FINAL EVALUATION

- With assistance from the DHA and/or CFM, enter your detection findings, periodontal probe measurements into the computer-scoring program.

## **Brief Overview of the SRTA DH Non-Patient Examination**

Southern Regional Testing Agency, Inc. (SRTA) is a nonprofit corporation committed to being a leader at the national level in examination development and administration by providing the following –

- Uniformly administered examinations and confidential results that are consistently reliable for use by the dental licensing boards or other agencies
- Protection for the public
- Appropriate care in the examination process
- Providing the most technologically advanced examination for its member states and participating examination sites
- Providing valid examinations in the most candidate focused environment possible, for the next generation of our colleagues in the Dental and Dental Hygiene Professions

SRTA will continue to provide valid, reliable, legally defensible examinations and results while striving to implement new testing methodologies in a candidate focused environment for the next generation of dental and dental hygiene professionals.

This nonpatient based clinical examination is an alternative method of testing that evaluates criteria that meets the requirements of state boards for licensure.

Each candidate will be given a typodont that has the required calculus meeting the SRTA criteria. The candidate will evaluate the typodont and select a primary and secondary quadrant to submit as a case selection during the designated set up period.

The submitted case selection will then be evaluated by three examiners, independently. These examiners will assign 12 areas of calculus that the candidate is expected to remove during treatment time.

The candidate will be assigned a primary quadrant and any additional teeth to fulfill the calculus requirements. If the primary quadrant meets all the calculus requirements, then the candidate will only have to perform treatment on that quadrant. If additional surfaces are required to meet the criteria, they will be assigned teeth numbers within a secondary quadrant and will have to treat the primary quadrant and those additional assigned teeth.

During the two-hour patient treatment portion of the examination, candidates must demonstrate the clinical skills listed below –

- Calculus detection
- Periodontal pocket depth measurement
- Calculus removal
- Tissue management
- Calculus remaining on unassigned surfaces and stain removal

In addition to these scored criteria, candidates must follow standard infection control precautions.

SRTA also offers an intra/extra oral computerized component to the examination as an optional section for those states that require a computerized portion for licensure. SRTA's IEO allows candidates can take the computerized portion at any conveniently located PSI Testing Center.

Candidates are to schedule an appointment with a PSI Testing Center directly. If special accommodations are needed, contact the SRTA office.

The computerized portion is a one-hour examination that consists of 50 multiple choice questions with emphasizes on oral manifestations and diseases and healthy tissue management.

The skills listed below have been sufficiently covered by the National Board of Dental Hygiene Examination, thus, SRTA does not examine these skills in the SRTA Dental Hygiene Examination.

- Radiography
- Medical assessment
- Emergency management
- Pharmacology

#### How are points calculated? (3/5/8)

To earn the maximum number of points, the case must include at least twelve surfaces of moderate to heavy, explorer-detectable calculus, distributed as follows –

- Three of five surfaces must be located on mesial or distal surfaces on molars, and must be subgingival
- Five of eight surfaces must be located on mesial or distal premolars and molars, and must be subgingival
- Eight of the twelve surfaces must be on premolars and molars, and must be subgingival
- The remaining four of the twelve surfaces of required calculus may be on any surface of any teeth in the selected quadrants
- Calculus on anterior teeth may be subgingival or supragingival limited to a maximum of four surfaces

#### Examination Process:

During check in the first examiner will assign on posterior and anterior tooth for periodontal measurement. The candidate will measure and record the ML, M and DL surfaces pocket depths.

In addition to assigning teeth for perio pocket measurements, the first examiner will assign three teeth for calculus detection for the presence or absence of any type of calculus on the mesial, distal, lingual, and buccal surface.

Once check in is complete, students will enter the clinic and begin treatment. They have two hours to complete the calculus detection, perio pocket depth measurements and calculus removal.

After treatment time is completed, the candidates exit the clinic and the examiners will return to evaluate the assigned quadrant and any additional teeth for the presence of remaining stain and calculus. Surfaces that were not the twelve assigned surfaces will also be evaluated to ensure

the entire quadrant was thoroughly treated. Tissue management is evaluated for irreversible tissue trauma.

Infection control standards will be in place and monitored even while working with a typodont. Any major infection control violation evaluated during set up, treatment time and final evaluation will be a reason for an automatic failure.



## Overview

### **PURPOSE**

The Central Regional Dental Testing Service (CRDTS) is an organization of State Boards of Dentistry who have joined forces to develop and conduct examinations to measure the level of applied knowledge and skills for clinical competency in dentistry and dental hygiene. Each State Board has equal authority and responsibility to participate in the development and administration of the examination program. CRDTS' exams have been developed and administered on a national basis within the framework of its regional governing structure.

### **HISTORY**

CRDTS history began in the late 1960's through the cooperative efforts of three states who began administering simultaneous Board exams. CRDTS began in 1972 and was incorporated in 1974 as a non-profit organization. From these beginnings, CRDTS' membership has expanded for over 40 years to include 21 states with acceptance for licensure in 42 states.

### **RELATIONSHIP WITH REGIONAL SCHOOLS**

As reported above, regional educators are involved in examination development as members and special consultants of the Examination Review Committees. One of CRDTS' greatest assets is the fine rapport that exists with the schools. Dental Deans and Dental Hygiene Program Directors are annually invited to CRDTS' Annual Meeting and Workshop.

### **DENTAL EXAMINATION FORMAT**

The exam is administered in 2 different formats, both examinations are identical in content, criteria and scoring.

**Curriculum Integrated Format** – This format is administered in segments over the course of eight months to eligible dental students during their senior year or graduate program in dental school. The time-sequencing of this format provides for the opportunity to treat patients of record within the dental school curriculum and allows for targeted remediation as well as for timely issuance of licenses upon graduation.

**Traditional Format** – This format is administered in the spring, usually within a few weeks of local graduation dates. Contingent upon the availability of testing sites, additional exams are usually conducted at one or two regional sites later in the year.

### **DENTAL EXAMINATION CONTENT**

**Examination Overview:** The examination consists of individual, skill-specific parts. Each examination Part is listed below:

CONTENT
Manikin-Based Examination Part II: Endodontics Access opening & Obturation Part III: Prosthodontics Ceramic, Cast Gold, PFM Patient-Based Examination Part IV: Periodontics Calculus detection/removal, oral assessment, supragingival deposit removal, tissue & treatment management Part V: Restorative Class II and III Preparation/Restoration

**NON-PATIENT DENTAL EXAMINATION ALTERNATIVE – CRDTS SIMULATED PATIENT EXAMINATION**

This examination was initially developed as a remediation and relicensure tool for State Boards. It is identical in content, criteria and scoring to the current patient-based examination with the exception of several patient management aspects. It was developed over a 2 year period and utilizes typodonts for each exam section above, including the Periodontal Section and procedures outlined. The typodonts for the Periodontal section have removable calculus and the typodonts for the Restorative section include 3 preparations on teeth with simulated decay and 3 pre-prepared teeth requiring restoration placement as outlined below:

**PARTS II – V CLINICAL SIMULATED PATIENT DENTAL EXAMINATION – 100 POINTS**

CONTENT
Manikin-Based Examination <b>PART II: Endodontics</b> Access opening & Obturation <b>PART III: Prosthodontics</b> Ceramic, Cast Gold, PFM <b>PART IV: Periodontics</b> Calculus detection/removal, probing depths, supragingival deposit removal, tissue & treatment management <b>PART V: Restorative</b> Class II Preparation/Restoration (2) Class III Preparation/Restoration (1)

**DENTAL HYGIENE EXAMINATION**

There is one comprehensive total score, based on 100 points, reported for the Dental Hygiene Examination. CRDTS utilizes a criterion-based grading system to differentiate between acceptable and unacceptable performance. Criteria have been established for each clinical procedure.

CONTENT
Treatment Selection – Patient selection & Calculus detection Oral Assessment Probing Depth Measurements Subgingival Calculus Removal Supragingival Deposit Removal Tissue and Treatment Management

**DENTAL THERAPIST EXAMINATION**

CONTENT
Primary Molar Pulpotomy Procedure Primary Molar Stainless Steel Crown Placement Primary Molar Stainless Steel Crown Preparation Primary Molar Class II Amalgam Restoration Restorative Procedures – Class II and III Preparation/Restoration

**LOCAL ANESTHESIA EXAMINATION**

<b>CONTENT</b>
Written Examination 5 cases with 8 multiple choice questions/case 20 multiple choice questions
Clinical Examination One posterior superior alveolar (PSA) injection One inferior alveolar (IA) injection

**RESTORATIVE AUXILIARY EXAMINATION**

<b>CONTENT</b>
Class II Amalgam – Restoration OR Class II Composite – Restoration AND Class III Composite – Restoration

**CONTACT INFORMATION**

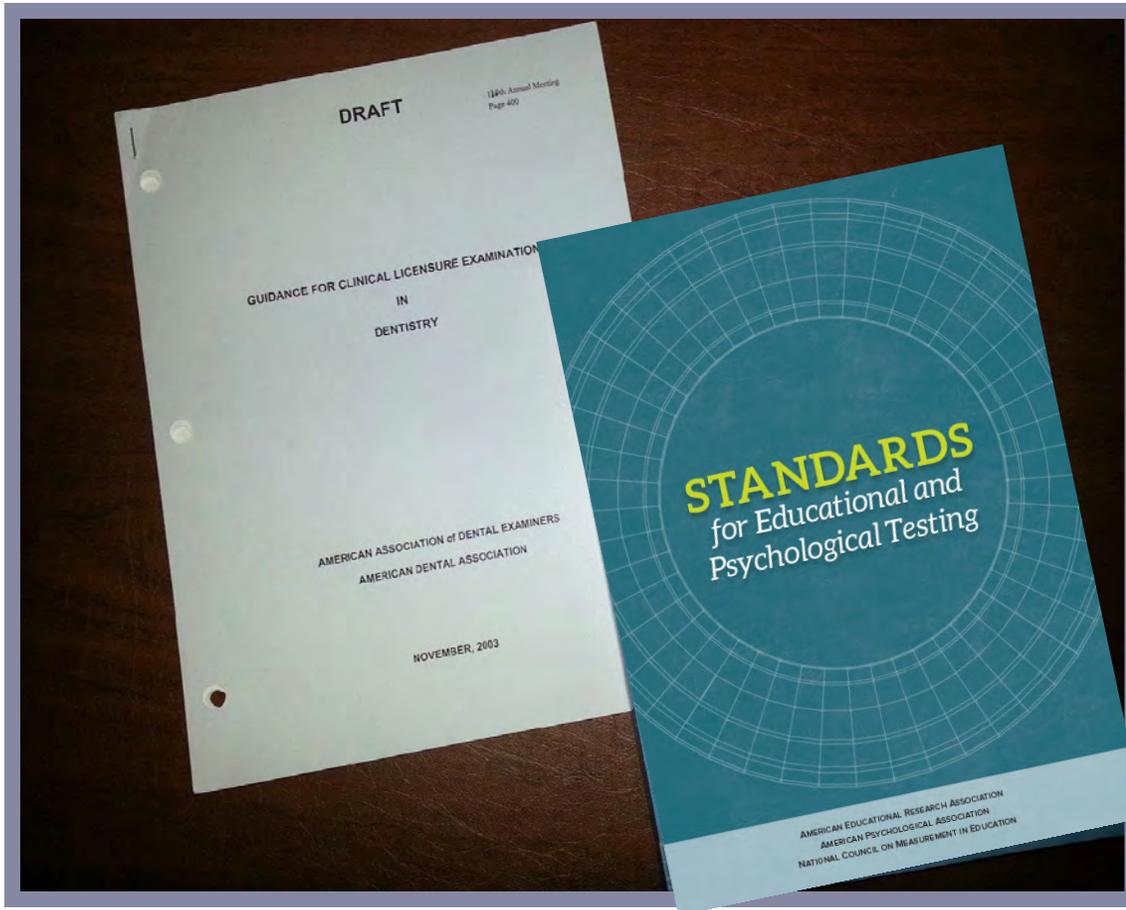
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# CENTRAL REGIONAL DENTAL TESTING SERVICE, INC.

ALL MANIKIN  
DENTAL EXAMINATION

# Clinical Licensure Exams: Examination Development



Reference book:  
*Standards for Educational  
& Psychological Testing  
(2014)*

AADB used to develop:  
*Guidance for Clinical  
Licensure Examinations  
in Dentistry (2003)*

# Examination Development

## Content

- Knowledge, Skills, Abilities and Judgments to be Evaluated

## Performance Criteria

## Scoring System

## Administrative Format

## Examiner Calibration

Occupational Analysis  
Conducted every 8-10  
years – determines  
content

- » 2018 Dental & Dental Hygiene Occupational Analysis
- » Joint project with Western Regional Examining Board (WREB)

## OCCUPATIONAL ANALYSIS

As recommended by Dr. Thomas Haladyna in the 2010 Technical Reports, CRDTS has launched separate, simultaneous projects to complete an Occupational Analysis for both dentistry and dental hygiene. In a conference call meeting May 10, the Steering Committee approved a proposed budget, a contract with a measurement specialist and a list of nominees to serve as Subject Matter Experts (SME's). Dr. Gene Kramer, whom many may know as the former measurement specialist for the ADA Joint Commission on National Dental Examinations, has retired from the ADA and has been retained to serve as the measurement specialist for these projects.

Seven dental hygienists were approved to serve as SME's. They are Diann Bomkamp, Penny Fudally, Jane Lott, Denise Maus, Joan McKee, Marti Pollard and Liz Thompson. Dr. Kramer suggested that two SME's be selected to represent each of the disciplines in the dental exam. The eight dental SME's are *Endodontics*: Drs. Clyde Andrews and Bob Patta- lochi; *Prosthodontics*: Drs. Steve Holcomb and Myron Pudwill; *Periodontics*: Drs. Gay Derderian and Joe Unger; *Restorative*: Drs. John Cosby and Tom Cavel. Both our professional and administrative staff will be providing support for the two groups.



*CRDTS' National Dental Examination*

Technical Report

for the

Year Ending 2017

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Technical Report 3<sup>rd</sup> Party Evaluation of Examinations, CRDTS publishes online

# Examiners

State Board Members from Member States

Deputy Examiners referred to CRDTS by Member State Boards

Exchange Examiners from other Regional Testing Agencies

## Selection Criteria

- Experienced practitioners and/or educators w/ acceptable credentials
- Available and willing to participate in 2-3 exams/year
- Demonstrate the ability to be calibrated
- Understand and apply CRDTS criteria appropriately
- Accept critique feedback and adjust accordingly

3 examiners independently evaluate all candidate performance

Observers often present

# Examiner Profiles

Electronic Scoring Devices (ESD's) capture and record every mark made by each and every examiner during an examination.

Every examiner's performance is analyzed and profiled each year to assess their reliability.

Examiner Assignment and Evaluation Committee reviews each individual profile every year before assigning examiners.

- May remediate, reassign or terminate an examiner.

Examiners receive their individual profiles at CRDTS' annual meeting and use them as a self-assessment.

# Comprehensive Statistical Analysis

## ERC ANALYSIS

- Evaluates each section of the exam
- Screens for Construct Irrelevant Variance

## ANNUAL SCHOOLS' REPORT

- Failure Rates, Average Scores, Frequency of Specific Errors, Penalties

## EXAMINER PROFILES

- Hygiene, Perio, Restorative, Manikin
- Pass/Fail Agreement, Error Detection, Peer Evaluations

## TECHNICAL & OCCUPATIONAL REPORTS

# CRDTS ALL MANIKIN EXAMINATION

## History & Development

---

Initially developed as a remediation/re-licensure resource for State Boards

---

Content, criteria and scoring are identical to current dental examination components

---

Psychometric data dating back to 2006

---

Procedures supported by data from current Occupational Analysis

CRDTS  
ALL MANIKIN  
EXAMINATION  
SECTIONS

---

PART II - ENDODONTIC  
PROCEDURES

---

PART III - PROSTHODONTIC  
PROCEDURES\*

---

PART IV - PERIODONTAL  
PROCEDURES

---

PART V - RESTORATIVE  
PROCEDURES

\*Moving to all zirconia materials for 2021

# Scoring System

---

Criterion based

---

Conjunctive Scoring System

---

4 Levels for Rating Restorative Competency

Periodontal – dichotomous scoring (Yes/No)

---

3 independent scorers

# Competency Levels & Criteria

Satisfactory

Minimally  
Acceptable

Marginally  
Substandard

Critically  
Deficient

Objective, **measurable** criteria developed for each rating by a panel of experts consisting of examiners, practitioners, and educators

# SCORING

Scoring methodologies were developed with consultation from various measurement specialists such as the Rand Corporation and with input from studies completed by testing specialists from the University of Chicago

- Continual review of these items is conducted independently as well

3 examiners conduct separate, independent evaluations & assign a score for each criteria rating

Corroboration by at least 2 of the 3 examiners before points deducted or zero/failing score assigned

- Median score is assigned in the absence of corroboration for Restorative Procedures

# CRDTS ALL MANIKIN EXAMINATION:

## PART II - ENDODONTIC SECTION

- ▶ ANTERIOR ENDODONTIC PROCEDURE
  - ▶ TOOTH # 8
- ▶ ACCESS OPENING
- ▶ INSTRUMENTATION
- ▶ OBTURATION
  
- ▶ POSTERIOR ENDODONTIC PROCEDURE
  - ▶ TOOTH #14
- ▶ ACCESS OPENING ONLY
  
- ▶ TREATMENT MANAGEMENT FOR ALL PROCEDURES
  - ▶ PENALTY ONLY

# ENDODONTIC MODULES



TOOTH # 8 OPENING  
AND OBTURATION OF  
CANAL GRADED



ENDODONTIC TYPODONT



TOOTH # 3 OPENING  
AND DEBRIDMENT OF THE  
PULP CHAMBER GRADED

# ANTERIOR ENDODONTIC CRITERIA CATEGORIES

- ▶ ACCESS OPENING
- ▶ PLACEMENT OF OPENING
- ▶ SIZE OF OPENING
- ▶ INTERNAL FORM
- ▶ PULP HORN REMOVAL
- ▶ CANAL INSTRUMENTATION
- ▶ CERVICAL PORTION
- ▶ MID-ROOT PORTION
- ▶ APICAL PORTION
- ▶ ROOT CANAL OBTURATION
- ▶ OVERFIL/UNDERFIL
- ▶ EXTRUDED SEALER
- ▶ VOIDS IN GUTTA PERCHA
- ▶ CORONAL FILL/APICAL TO CEJ
- ▶ SEPARATED FILE

# ANTERIOR ENDODONTIC MODULES TOOTH # 8



POSTERIOR  
ENDODONTIC  
CRITERIA  
CATEGORIES

---

ACCESS OPENING ONLY

---

PLACEMENT

---

SIZE

---

INTEGRITY OF OCCLUSAL ANATOMY

---

INTERNAL FROM

---

PULP HORN REMOVAL

# POSTERIOR ENDODONTIC MODULES TOOTH # 14



# CRDTS ALL MANIKIN EXAMINATION:

## PART III - PROSTHODONTIC SECTION\*

- ▶ CERAMIC CROWN PREPARATION
  - ▶ TOOTH # 9
- ▶ PORCELAIN FUSED TO METAL PREPARATION
  - ▶ TOOTH # 5
- ▶ CAST CROWN PREPARATION
  - ▶ TOOTH # 3
- ▶ BRIDGE DRAW FACTOR
  - ▶ TEETH # 3 - # 5
- ▶ TREATMENT MANAGEMENT FOR ALL PROCEDURES
  - ▶ PENALTY ONLY

\*Moving to all zirconia materials in 2021

# CRDTS ALL MANIKIN EXAMINATION: PART III - PROSTHODONTIC SECTION MODULES



# CERAMIC CROWN # 9 CRITERIA CATEGORIES

---

MARGIN EXTENTION

---

MARGIN DEFINITION

---

LINE OF DRAW

---

AXIAL WALLS – SMOOTHNESS/UNDERCUTS

---

TAPER

---

CERVICAL MARGIN WIDTH

---

INCISAL REDUCTION

---

LINGUAL FOSSA REDUCTION

---

LINGUAL WALL HEIGHT

---

FACIAL AXIAL REDUCTION

---

EXTERNAL/INTERNAL LINE ANGLES

---

# ALL CERAMIC CROWN #9



PORCELAIN  
FUSED TO  
METAL  
CRITERIA  
CATEGORIES

---

MARGIN EXTENTION

---

MARGIN DEFINITION

---

LINE OF DRAW

---

AXIAL WALLS – SMOOTHNESS/UNDERCUT

---

TAPER

---

FACIAL SHOULDERWIDTH

---

FACIAL AXIAL REDUCTION

---

OCCUSAL AXIAL REDUCTION

---

INTERNAL LINE ANGLES

---

OCCLUSAL ANATOMY

---

MARGIN EXTENTION

---

MARGINDEFINITION

---

LINE OF DRAW

# PORCELAIN FUSED TO METAL PREPARATION TOOTH # 5



CAST GOLD  
CROWN # 3  
CRITERIA  
CATEGORIES

---

MARGIN EXTENTION

---

MARGIN DEFINITION

---

LINE OF DRAW

---

AXIAL WALLS – SMOOTHNESS/UNDERCUT

---

TAPER

---

CERVICAL FINISH LINE

---

OCCLUSAL/AXIAL REDUCTION

---

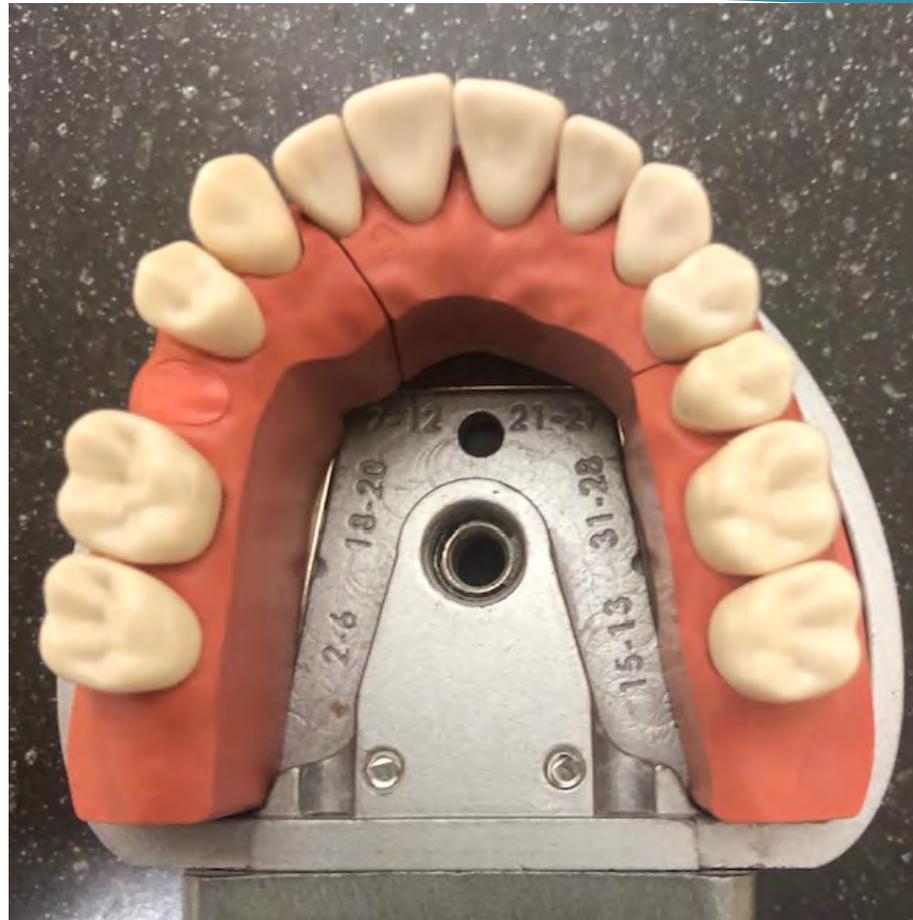
INTERNAL LINE ANGLES

---

OCCLUSAL ANATOMY

---

# CAST GOLD CROWN TOOTH # 3



BRIDGE  
DRAW  
FACTOR  
CRITERIA  
CATEGORIES

---

BRIDGE DRAW FACTOR

---

BRIDGE WILL DRAW

---

BRIDGE WILL DRAW WITH ALTERED PATH

---

OF INSERTION

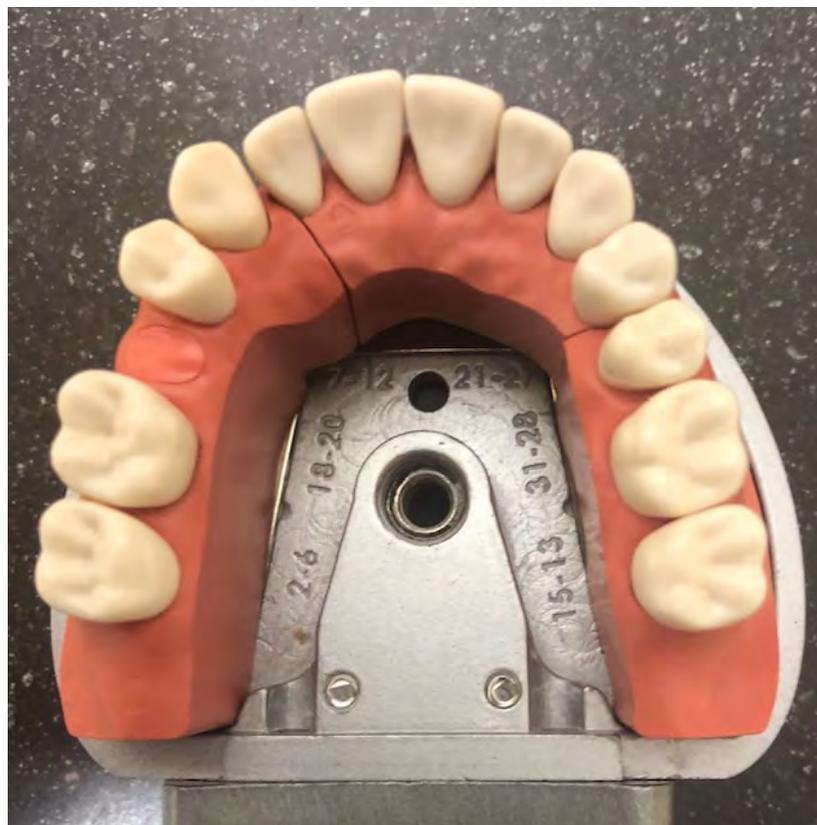
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BRIDGE WILL NOT DRAW DUE TO  
UNDERCUTS

---

OR ANY ALTERED PATH OF INSERTION -  
100 Point Deduction

# BRIDGE FACTOR TEETH # 3 - # 5



# CRDTS ALL MANIKIN EXAMINATION PART IV - PERIODONTAL SECTION



# PART IV - PERIODONTAL SECTION CONTENT

- ▶ CALCULUS DETECTION
- ▶ PROBING DEPTHS
- ▶ CALCULUS REMOVAL
- ▶ SUPRAGINGIVAL DEPOSIT REMOVAL
- ▶ TISSUE AND TREATMENT MANAGEMENT

# CRDTS ALL MANIKIN EXAMINATION:

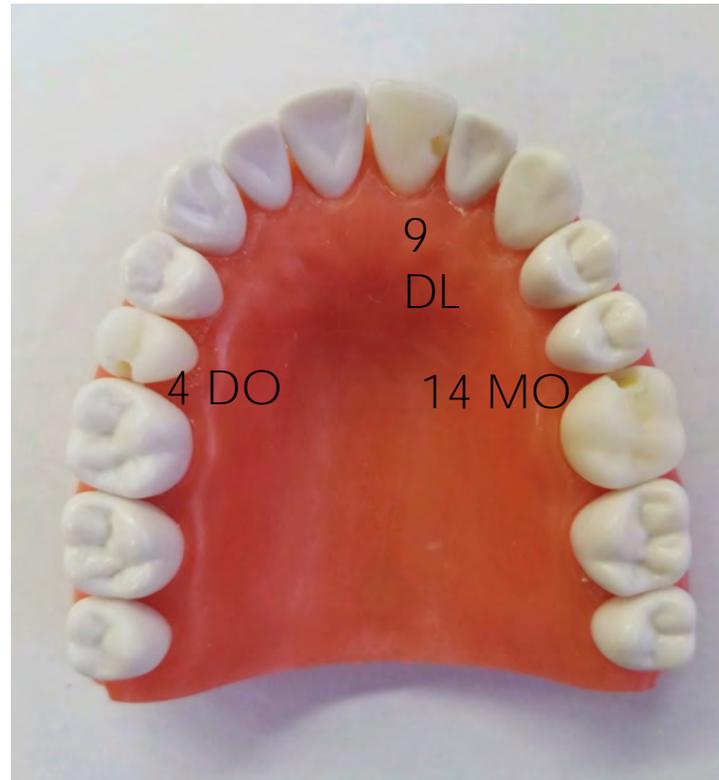
## PART V - RESTORATIVE SECTION

- ▶ CLASS II PREPARATION DO #4 WITH SIMULATED DECAY
- ▶ CLASS II PREPARATION MO # 14 WITH SIMULATED DECAY
- ▶ CLASS III PREPARATION DL # 9 TOOTH WITH SIMULATED DECAY
- ▶ CLASS II RESTORATION MO #13 STANDARDIZED PREPARATION
- ▶ CLASS II RESTORATION DO # 28 STANDARDIZED PREPARATION
- ▶ CLASS III RESTORATION DL # 23 STANDARDIZED PREPARATION
- ▶ TREATMENT MANAGEMENT FOR ALL PROCEDURES
  - ▶ PENALTY ONLY

# CRDTS RESTORATIVE ACADENTAL ModuPro TYPODONT



UNPREPARED MAXILLARY TYPODONT



PREPS TO BE GRADED



STANDARDIZED PREPS TO BE RESTORED  
WITH AMALGAM OR COMPOSITE AND  
GRADED

# RESTORATIVE MANIKIN PREPARATIONS

▶ TOOTH # 4 MESIAL OCCUSAL



UNPREPARED TOOTH    PREPARED TOOTH

▶ TOOTH # 9 DISTAL LINGUAL



UNPREPARED TOOTH    PREPARED TOOTH

▶ TOOTH #14 MESIAL OCCUSAL



UNPREPARED TOOTH    PREPARED TOOTH

Candidates are informed that decay extends to or beyond DEJ radiographically

CLASS II  
PREPARATION  
CRITERIA  
CATEGORIES

---

PROXIMAL CLEARANCE

---

GINGIVAL CLEARANCE

---

OUTLINE SHAPE/CONTINUITY/EXTENTION

---

ISTHMUS

---

CAVOSURFACE MARGIN

---

SOUND MARGINAL TOOTH STRUCTURE

---

INTERPROXIMAL CONTACT

---

ANATOMY/CONTOUR

---

AXIAL WALLS

---

PULPAL FLOOR

---

CARIES REMAINING

---

PROXIMAL BOX WALLS

---

PREPARED SURFACES

CLASS III  
PREPARATION  
CRITERIA  
CATEGORIES

---

OUTLINE EXTENTION

---

GINGIVAL CONTACT

---

MARGIN SMOOTHNESS/CONTINUITY/BEVELS

---

SOUND MARGINAL TOOTH STRUCTURE

---

AXIAL WALLS

---

INTERNAL RESISTANCE

---

CARIES REMAINING

# MANDIBULAR MANIKIN RESTORATIONS PLACED ON PRE-PREPARED TEETH

TOOTH # 18  
MESIAL OCCUSAL  
AMALGAM OR COMPOSITE



TOOTH # 29  
DISTAL OCCUSAL  
AMALGAM OR COMPOSITE



TOOTH # 23  
DISTAL LINGUAL  
COMPOSITE



CLASS II  
RESTORATION  
CRITERIA  
CATEGORIES

---

MARGIN DEFICIENCY

---

MARGIN EXCESS

---

GINGIVAL OVERHANG

---

SURFACE FINISH

---

CONTIGUOUS TOOTH STRUCTURE

---

INTERPROXIMAL CONTACT

---

CENTRIC/EXCURSIVE CONTACTS

---

ANATOMY/CONTOUR

CLASS III  
RESTORATION  
CRITERIA  
CATEGORIES

---

MARGIN DEFICIENCY

---

MARGIN EXCESS

---

GINGIVAL OVERHANG

---

SURFACE FINISH

---

CONTIGIOUS TOOTH STRUCTURE

---

SHADE SELECTION

---

INTERPROXIMAL CONTACT

---

CENTRIC/EXCURSIVE CONTACTS

---

ANATOMY/CONTOUR

---

# ALL MANIKIN EXAMINATION SCHEDULE

- ▶ PART II – ENDODONTIC PROCEDURES
  - ▶ 3 HOURS
- ▶ PART III – PROSTHODONTIC PROCEDURES
  - ▶ 4 HOURS
- ▶ PART IV – PERIODONTAL PROCEDURES
- ▶ PART V – RESTORATIVE PROCEDURES
  - ▶ Open Schedule Format 8-5 PM
- ▶ PERIODONTAL ONLY – 3 HOURS
- ▶ RESTORATIVE ONLY – 6 HOURS

CENTRAL REGIONAL DENTAL TESTING SERVICE  
ALL MANIKIN DENTAL  
EXAMINATION

QUESTIONS?

Kimber Cobb, Executive Director  
[info@crdts.org](mailto:info@crdts.org)  
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## **WREB Dental and Dental Hygiene Licensing Examination COVID-19 Options for 2020**

WREB is an independent testing agency that develops, administers, and reports the outcome of practical clinical examinations administered to candidates for licensing in dentistry and dental hygiene. While aware of the needs of students and dental education programs, WREB's sole purpose is to provide state boards with examinations that have high reliability and are supported by a strong validity argument—examinations state boards can rely on to inform licensing decisions. For this reason, WREB is highly responsive to the needs and wishes of state boards that recognize its examinations.

- WREB Dental Examination options are described below (pp. 1-4).
- WREB Dental Hygiene Examination options are described on pp. 5-6.

### **WREB Dental Licensing Examination COVID-19 Options for 2020**

Following are options state boards could consider in response to COVID-19:

#### Dental Examination without Change

WREB's standard dental examination which includes two simulations (Endodontics and Prosthodontics) and two patient-based sections (Operative Dentistry and Periodontics) in addition to the Comprehensive Treatment Planning (CTP) section will continue to be offered as soon as test sites again are able to schedule this type of examination. This option may not address the needs of state boards attempting to respond to the concerns of dental candidates and schools who wish to complete the licensure process within the next several months. Even when re-established, examination administration may be subject to interim restrictions. States that specifically require two patient-based restorative procedures and wish to reduce the burden on licensure candidates imposed by COVID-19 could safely accept WREB's Operative Section as it is scored and validated, which has demonstrated that candidate competency can be reliably assessed with more than 40% fewer patient-based procedures.<sup>i</sup>

#### CTP Only

WREB's CTP (Comprehensive Treatment Planning) Section<sup>ii</sup> is an ASCE (Authentic Simulated Clinical Examination) which requires the candidate to construct responses (as opposed to an OSCE in which the candidate selects responses from options, locations, or choices provided). The CTP ASCE is open-ended and graded by independent, anonymous examiners. It reveals candidate thinking and requires candidates to perform tasks that dentists perform and to make decisions that dentists make, all without choices they can select or cues of any kind. If acceptance of only an OSCE examination is being considered, then acceptance of WREB's CTP ASCE which is an even more authentic demonstration of relevant candidate knowledge, skill, and ability, should be considered.

## COVID-19 Alternative Performance-based Simulation

Patient-based assessment has high fidelity. WREB is not abandoning patient-based assessment but continues to evaluate the validity and viability of assessment alternatives, including simulation. WREB has been developing simulations that soon may be able to replace patient-based assessment for Operative Dentistry and Periodontics, the last two patient-based sections of its current dental examination. These simulations are in development and undergoing review.

In the meantime, the advent of COVID-19 has placed students and their education programs in a difficult and frustrating position. Students need to graduate, move on, obtain employment, or begin their advanced dental education residencies; their education programs need them to graduate and move on in order to accept a new entering class and appropriately advance the classes below them. COVID-19 associated risk and social distancing currently completely obstruct student ability to challenge the traditional, patient-based examination. While WREB understands that COVID-19 is creating a crisis for students, for dental education programs, and even for the profession, its singular purpose is to support the needs of state boards in their regulatory role and charge to protect the public.

Students and program directors recently have appealed to state boards and, not knowing exactly how long COVID-19 risk and need for social distancing might continue, state boards in a few states now have appealed to WREB for potential solutions they might consider along with suggestions they've received that include waiving clinical examination requirements altogether, waiving the patient-based sections of the clinical examination, granting a provisional license until the applicant is able to complete the full examination, acceptance of the DLOSCE in lieu of a practical demonstration of clinical skills, and variations of these.

In response and in addition, WREB has field-tested an alternative, performance-based simulation that could be required in lieu of its traditional patient-based Operative Section. This alternative included the field-testing of social distancing for both candidates and examiners.

In the simulation, each candidate is required to successfully perform both preparation and finish of a conventional Class II restoration on a molar and a Class III restoration on a central incisor. All procedures are performed, like they are for the Endodontics and Prosthodontics sections, in full simulation and with rubber-dam isolation. Results are assessed using established Operative Section criteria. Certain critical errors are preserved, and the passing cut-point remains unchanged. The simulation involves social distancing for both candidates and examiners and uses materials (simulation teeth and arches) which are readily available and with which candidates and their programs already are familiar.

This alternative for the Operative Section is intended to be a provisional solution for 2020 (COVID-19) only and is intended neither to replace WREB's patient-based Operative Section in 2020 for states that continue to require it nor to be the simulation WREB intends to offer in the future.

when social distancing is not a concern and the validity of a more realistic and involved simulation can be demonstrated.

The second patient-based section of the current WREB dental examination is the Periodontics Section. This section assesses a candidate's understanding of periodontal diagnosis and ability to physically perform initial periodontal therapy (periodontal scaling and root-planing). However, this section already is elective, is not required for licensing in some states, and tests a physical skill that, increasingly, dentists do not themselves perform.<sup>iii</sup> The Periodontics Section, while valued by many states, is, by far, the least discriminating section of the entire examination.<sup>iv</sup> Also, important aspects of periodontal diagnosis and treatment decision-making (things dentists do and are expected to know how to do) already are well covered in the unique CTP Section of WREB's dental examination. State boards may decide to waive or postpone the patient-based Periodontics section until such time as it again may become available to applicants.

These are dental examination options that WREB currently is making available for state board consideration in this highly unusual year. It is assumed that any waiver or exception a state grants due to COVID-19 might be restricted to matriculated students of CODA accredited dental education programs graduating in the spring of 2020 and would not necessarily set a precedent for future years or apply to any other group of applicants. WREB recognizes that all these and related decisions reside with the state and depend on the Board or on the Board's advice to the state authority empowered to grant a variance due to current, emergent COVID-19 circumstances.

Logistic detail regarding the implementation of WREB's dental examination or any of the described alternatives depends on the capacity, limitations, and COVID-19 restrictions imposed by or on any host site where an examination is conducted.

WREB's standard dental examination which includes the fidelity associated with two simulations (Endodontics and Prosthodontics) and two patient-based sections (Operative Dentistry and Periodontics) in addition to CTP will continue to be offered as soon as test sites again are able to host this type of examination.

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<sup>i</sup> Fewer patient-based procedures were required to determine 4,457 candidate pass/fail outcomes for the Operative Section in 2018 (42.0% fewer) and 2019 (41.1% fewer). No significant difference was found between first and second procedure performance for candidates who scored at or above the cut-score on the first procedure. The second procedure added no significant contribution to the assessment of these candidates. Only four of these candidates failed the section despite demonstrating competence on the first procedure; all four scored close to the cut-score and three have already passed upon retake.

<sup>ii</sup> The CTP Section is the most comprehensive section of the WREB Dental Examination. It tests candidate knowledge, skills and abilities that cannot be readily sampled in other ways and includes assessment of meaningful aspects of every other section of the Examination. The CTP Section is designed to integrate the disciplines of dentistry in a practical, clinical way. The construction of appropriately sequenced treatment plans and item responses requires broad understanding of diagnostic, preventive and restorative dentistry, of endodontics, periodontics, and prosthodontics, as well as oral surgical, radiological, pediatric dentistry, and patient-management procedures, and understanding of the relationships between these procedures and their clinical application under various patient conditions.

The CTP Section is open-ended; it's an authentic simulated clinical examination (ASCE)—a practical, performance-based examination. It requires candidates to construct their responses unaided by cues, choices, or locations they can select. In many instances it requires candidates to perform the very tasks dentists perform and, for this reason, has extraordinary fidelity for a computer-based examination. Rigorous examiner training and calibration contributes to high outcome reliability for the CTP examination. And the large reservoir of examination cases, frequent case modification, and the permutation of cases in the forms used every year significantly enhance test security for the CTP examination. All combine to create a strong validity argument for using results of WREB's CTP examination to inform licensing decisions.

<sup>iii</sup> In 2013 74.6% of general practitioners in solo practice employed one or more dental hygienists. For general practitioners in nonsolo practice (including various forms of group practice, "corporate" practice, etc.) 92.2% work in situations where dental hygienists perform scaling and root-planing services. -ADA, Science and Research – Health Policy Institute, Data Center, Dental Practice.

Authors Thomas Wall, M.A., M.B.A.; Albert H. Guay, D.M.D. in their article *Very Large Dental Practices Seeing Significant Growth in Market Share*. Health Policy Institute – Research Brief. August 2015. Point out that:

- From 2002 to 2012, market share increased for dental firms with 20 employees or more, while dental firms with fewer than five employees experienced a decline in market share.
- During the same period, very large dental firms – those with 500 employees or more – also saw increases in number of establishments, number of employees and annual receipts.

The national 2018 Dental Practice Analysis conducted jointly by WREB and CRDTS suggests that dentists, themselves, now are performing very few scaling and root-planing procedures compared to dental hygienists. The 2017 Dental Hygiene Practice Analysis survey specifically asked how often certain procedures were performed by the dentist and 84.6% of respondents said the dentist performed these tasks Rarely or Never.

The average of all general dentists employing dental hygienists in 2013 was 77.2%. From 1990 to 2013 the average number of dental hygienists per dentist in the primary practice (among dentists employing dental hygienists) steadily increased. This trend has been continuing. More and more dentists are having dental hygienists perform basic periodontal services and are using more dental hygienists per capita to do this. Dentists, themselves, are doing fewer and fewer of these tasks. Assessing these skills for dentists, now, may not be supported by the practice (task) analyses that underpin the design of a valid dental licensing examination.

<sup>iv</sup> Evidence in favor of non-requirement includes exceptionally high proportions of candidates performing extremely well on the Periodontics section. Most of the candidates who do fail the Periodontics section multiple times have also failed at least one other section multiple times. Only four (4) out of almost 13,000 (i.e., 0.03%) candidates from 2011 to 2016 remained unsuccessful due to Periodontics Section failure.

## **WREB Dental Hygiene Licensing Examination COVID-19 Options for 2020**

The following are options state boards could consider in response to COVID-19:

### Dental Hygiene Clinical Examination (patient-based)

WREB's standard dental hygiene examination includes the following components:

- Patient Qualification
- Extraoral/Intraoral Examination
- Calculus detection and removal
- Tissue Management
- Periodontal Assessment
- Professional judgment

Many Candidates are still faced with completing educational requirements and CODA has approved alternative methods to have students complete their didactic and clinical requirements. The COVID-19 pandemic has touched everyone; however, some dental hygiene programs are seeing more restrictive state policies being implemented than similar programs in other states. Because of these inconsistencies, the time period for completion of dental hygiene requirements will vary by state; some programs are being postponed for several weeks and others for several months.

In the interim, and at the request of educators, WREB has rescheduled all Dental Hygiene, Local Anesthesia, and Restorative examinations. Taking a clinical examination is still a viable option, as WREB anticipates Candidates will still want an examination that allows them greater portability than licensure in a single state.

WREB is acutely aware of the risks associated with COVID-19 but is well prepared and capable of adjusting our exam protocol to adhere to national and state regulations without risking the integrity of the exam or the safety of the candidates, patient, and examiners.

### Comprehensive Written Dental Hygiene OSCE Component

WREB understands that for many states, the current patient-based clinical examination may not fit the current needs of state boards seeking alternative pathways for dental hygiene licensure. COVID-19 associated risks along with social distancing, impede a student's ability to challenge the traditional, patient-based examination. WREB understands that COVID-19 is creating a crisis for students, for dental hygiene education programs, and even for the profession, and is prepared to serve as a resource for our member state boards and committees during this crisis and provide alternative testing methods while still maintaining the fidelity of our examinations.

WREB is developing a dental hygiene written OSCE that includes dental hygiene components that are essential for safe practice while testing a candidate's knowledge about dental hygiene care. This examination is an accumulation of beta-tested dental hygiene items that have been used in

other WREB examinations and are psychometrically sound. The examination may serve as an alternative to a patient-based examination for licensure. WREB is prepared to administer this examination on site at each school with our own equipment utilizing social distancing protocols. Utilizing testing centers will not be necessary.

The process of treating a patient's oral health not only requires good instrumentation skills, but also possessing an aptitude for making correct treatment decisions. Critical thinking skills are important in the assessment of the patient's needs and to accurately develop a care plan that reflects a patient's individualized care. These steps form the foundation for dental hygiene treatment which ultimately leads to healthy outcomes and improvement in health.

The WREB Dental Hygiene OSCE is a multiple-choice written component that assesses these multi-faceted components of dental hygiene care. This is a comprehensive overview of dental hygiene knowledge, radiographic interpretation, AAP staging and grading, extra and intra oral assessment and risk assessment, care plan development, and assessment and treatment of the periodontium. The exam is an avenue to test the skills of an entry-level student, either replacing the current clinical examination or in conjunction with a clinical licensure exam should a state board want an additional assessment examination.

### WREB Dental Examination Options Under COVID-19

Option	Exam Type	Description	Availability
WREB Comprehensive Treatment Planning Exam	Written Authentic Simulated Clinical Examination(ASCE)	Constructed response exam requiring students to perform tasks and make decisions with high fidelity to dental practice. For states considering an OSCE examination only as a pathway to licensure WREB's CTP ASCE is a more authentic demonstration of relevant candidate knowledge.	Most candidates completed this exam in the Fall of 2019. For those that have not, they can complete it as soon as Prometric Testing Centers open again. Projected to be May 1, 2020.
Traditional WREB Patient Based Examination	Traditional exam requiring demonstration of skills on a mannikin for Endodontic and Prosthodontics and on a patient for Periodontics and Operative and the written CTP (ASCE) exam.	Although many states require completing two procedures for the Operative section WREB has demonstrated that candidate competency can reliably assessed with 1 patient. For states that require 2 procedures currently they could relax the requirement to require only one procedure.	Depends on the event line of COVID-19; circumstances will vary widely across sites and require willing patients and available volunteers, freedom of air travel, available lodging, etc.
COVID-19 Alternative Performance Based Simulation	Written Authentic Simulated Clinical Examination(ASCE) exam and mannikin based Operative, Endodontics and Prosthodontics sections	Candidate is required to successfully perform both preparation and finish of a conventional Class II restoration on a molar and a Class III restoration on a central incisor. All procedures are performed, like they are for the Endodontics and Prosthodontics sections, in full simulation and with rubber-dam isolation. Results are assessed using established Operative Section criteria. Certain critical errors are preserved, and the passing cut-point remains unchanged.	Can begin as soon as June depending on CDC recommendations, local conditions, etc. Will be administered utilizing appropriate social distancing protocols

### WREB Dental Hygiene Examination Options Under COVID-19

Option	Exam Type	Description	Availability
Dental Hygiene Clinical Examination	Patient Based Examination	WREB's standard dental hygiene examination includes the following components: Patient Qualification; Extraoral/Intraoral examination, Calculus detection and removal, Tissue Management, Periodontal Assessment and Professional Judgment.	Depends on the event line of COVID-19; circumstances will vary widely across sites and require willing patients and available volunteers, freedom of air travel, available lodging, etc.
Comprehensive Dental Hygiene OSCE	Written Exam	The WREB Dental Hygiene OSCE is a multiple-choice written component that assesses these multi-faceted components of dental hygiene care. This is a comprehensive overview of dental hygiene knowledge, radiographic interpretation, AAP staging and grading, extra and intra oral assessment and risk assessment, care plan development, and assessment and treatment of the periodontium. The exam is an avenue to test the skills of an entry-level student, either replacing either replacing the current clinical examination or to be administered in conjunction with a clinical licensure exam should a state board want an additional assessment examination.	Can be administered beginning in June of 2020.

## Interim Dental Hygiene Comprehensive OSCE for COVID-19

Hello Dental Hygiene Directors and Educators,

Many of you have reached out to WREB requesting information about the WREB Dental Hygiene Objective Structured Clinical Examination (OSCE), and specific content of the examination. WREB is working on finalizing a Candidate Guide that will be available for educators and students.

The WREB OSCE has been developed to address the need for an alternative to the patient-based clinical examination, in response to the COVID-19 pandemic. A Candidate should confirm that the OSCE is a pathway for licensure in the state where they are seeking employment.

This multiple-choice written examination will be administered onsite by WREB personnel at designated dental hygiene schools. Proctoring the examination at a school will allow Candidates to take the examination earlier and also eliminate the burden of having to register and travel to a testing center. Social distancing and infection prevention protocols will be followed in the exam's administration.

The WREB base fee for the examination is \$450.00. In addition to the base fee, each school may also assess a school use fee, which may be different site to site. Candidates already registered for the patient-based exam will receive a refund of the difference in fees. If not registered, Candidates will need to email the WREB office ([hygieneinfo@wreb.org](mailto:hygieneinfo@wreb.org)) to assist them with registration. WREB staff will send notifications via email with details regarding their schools schedule and testing session information.

The exam will be administered in sessions, with the actual examination time scheduled for two hours. Initially, results will not be available onsite. Candidates will generally have access to their results within a few days after completing the examination. **However, the timing for receiving results may be 4-8 weeks longer in the earliest part of the examination season, until a sufficient quantity of data has been collected to confirm the adequacy of equating, which ensures fairness across multiple test forms.** Candidates will receive an email notification that results have been posted to their confidential profile.

### CONTENT

The OSCE is comprised of multiple-choice items that include dental hygiene components that are essential for safe practice. The topics tested are based on the protocols and concepts required as educational and performance standards by the American Dental Association, the American Dental Hygiene Association and the Council on Dental Accreditation. A Candidate should be familiar with these principles and be able to demonstrate entry-level competency in identifying common intraoral conditions, as well as the extent and severity of bone loss.

Treating a patient's oral health not only requires good instrumentation skills, but also possessing an aptitude for making correct treatment decisions. Critical thinking skills are important in the assessment of the patient's needs and to accurately develop a care plan that reflects a patient's individualized care. The following categories (including an overview of topics within the categories) reflect the components of dental hygiene care that are important and tested on the examination.

Category
<b>Medical History</b> <ul style="list-style-type: none"> <li>• Interpretation of medical history and systemic conditions</li> <li>• Systemic conditions (i.e., diabetes, heart)</li> </ul>
<b>Risk Assessment</b> <ul style="list-style-type: none"> <li>• ASA Classifications</li> <li>• Caries</li> <li>• Risk factors</li> </ul>
<b>Extraoral and Intraoral Assessment (Images)</b> <ul style="list-style-type: none"> <li>• Recognition of oral conditions</li> </ul>
<b>Periodontal Assessment</b> <p>Periodontal Evaluation</p> <ul style="list-style-type: none"> <li>• AAP (staging and grading)</li> <li>• Classification of furcation</li> <li>• Clinical attachment loss</li> <li>• Types of gingival diseases</li> </ul> <p>Dentition Evaluation</p> <ul style="list-style-type: none"> <li>• Abscesses</li> <li>• Occlusal trauma</li> </ul> <p>Radiographic Interpretation (Images)</p> <ul style="list-style-type: none"> <li>• Recognition of types of bone loss</li> <li>• Extent of bone loss</li> </ul>
<b>Dental Hygiene Care Plan</b> <p>Dental Hygiene Diagnosis</p> <ul style="list-style-type: none"> <li>• Documentation</li> <li>• Patient recare</li> <li>• Dental hygiene aids</li> <li>• Non-surgical periodontal treatment</li> <li>• Outcomes</li> <li>• Fluoride, fluoride varnish</li> <li>• Local anesthesia</li> <li>• Teeth whitening</li> </ul>
<b>Instrumentation</b> <ul style="list-style-type: none"> <li>• Instrumentation technique</li> <li>• Ultrasonic instrumentation</li> <li>• Implants</li> <li>• Air and rubber cup polishing</li> </ul>
<b>Tissue Management</b>



**WREB Interim Clinical Dental Examination:  
COVID-19 Performance-Based Simulation Examination**

**Psychometric Overview**

**May 6, 2020**



**WREB Interim Clinical Dental Examination:  
COVID-19 Performance-Based Simulation Examination  
Psychometric Overview**

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**WREB Interim Clinical Dental Examination:  
COVID-19 Performance-Based Simulation Examination**

**Psychometric Overview**

**Introduction**

Results from standardized assessments are one source of evidence used by licensing bodies to make decisions about a candidate's readiness for practice. Licensing examinations must be developed and administered in a valid, reliable, and legally defensible manner. The purpose of this report is to provide test users with an overview of descriptive and technical documentation regarding the nature and quality of the WREB Interim Clinical Dental Examination to support inferences based on examination results.

WREB examinations are developed, administered, and scored in accordance with the *Standards for Educational and Psychological Testing* (AERA, APA, NCME; 2014) and *Guidance for Clinical Licensure Examinations in Dentistry* (AADB, 2005). An overview and description of activities conducted to evaluate the technical quality of the WREB Interim Clinical Dental Examination, with a focus on the new Operative Simulation Section, are provided, including psychometric and statistical results of field-testing. Details of additional activities and research studies relevant to the Interim Clinical Dental Examination are also maintained and available for review by test users, test takers, and other stakeholders.

**Background and Overview of the Interim Examination**

WREB has been researching and evaluating the validity and viability of alternatives to patient-based assessment for several years. For example, simulations that could substitute for Operative Dentistry and Periodontics, the two patient-based sections of WREB's standard dental examination, are currently in development and undergoing review. WREB had not planned to implement any of these assessment alternatives during the 2020 dental examination season.

The advent of health risks due to the COVID-19 (SARS-CoV-2) virus and the social-distancing directives that have been in place since March of 2020 has put pressure on many state licensing boards to consider temporary alternatives to the traditional patient-based dental

examination. Several state licensing boards have requested that WREB propose temporary examination alternatives that could be administered during the COVID-19 crisis.

WREB has developed an interim alternative examination that includes existing simulation sections (i.e., Comprehensive Treatment Planning [CTP], Endodontics, and Prosthodontics) and a new, field-tested, restorative dentistry simulation that can serve as a temporary replacement for the patient-based Operative Section while the challenges posed by COVID-19 limit patient-based options. A brief overview of temporary changes to existing examination sections will be provided, followed by a more detailed description of the development and collection of validity evidence for the new Operative Simulation Section.

### **Existing Examination Sections**

**Comprehensive Treatment Planning (CTP) Section.** WREB's existing Comprehensive Treatment Planning (CTP) Section is a performance-based ASCE (Authentic Simulated Clinical Examination) which requires the candidate to construct responses (as opposed to an OSCE in which the candidate selects responses from options, locations, or choices provided). The CTP Section is open-ended and graded by independent, anonymous examiners. It reveals candidate thinking and requires candidates to perform tasks that dentists perform and to make decisions that dentists make, all without choices they can select or cues of any kind. The construction of appropriately sequenced treatment plans and item responses requires broad understanding of diagnostic, preventive, restorative, endodontic, periodontal, prosthodontic, oral surgical, radiological, pediatric dentistry, and patient-management procedures, as well as the relationships between these procedures and their clinical application under various patient conditions. The CTP examination can result in failure if a candidate commits a critical error, i.e., constructs a response that could result in life-threatening harm, such as administering more than the upper limit of a safe dose of local anesthetic for the weight of a pediatric patient. The CTP Section has been administered to dental licensure candidates since 2014 and will be a required, unchanged section on the WREB Interim Clinical Dental Examination. Details and results of technical analyses and candidate results for the CTP Section have been documented in annual technical reports (e.g., WREB, 2019a).

Over 2,000 dental candidates have already completed the CTP examination for the 2020 season, including 179 from dental schools in states that border Connecticut (i.e., Massachusetts

and New York). For any candidates who have not yet challenged the CTP Section, Prometric testing centers are opening for testing in May 2020 and have established guidelines for social distancing and safety (<https://www.prometric.com/corona-virus-update>).

**Endodontics Simulation Section.** WREB’s existing Endodontics Section is a performance-based clinical simulation examination. The candidate is required to perform two endodontic procedures on simulated teeth mounted in a segmented arch which is mounted in a manikin that is positioned to simulate working on a patient. Candidates must maintain the simulated patient position and adhere to Standard (Universal) Precautions throughout the examination. The anterior tooth procedure requires treatment of a maxillary central incisor simulated tooth, including access, instrumentation and obturation. The posterior tooth procedure requires access of a mandibular first molar simulated tooth. Access of the posterior tooth must enable grading examiners to identify all canal orifices. Like all WREB Dental Examination sections, the Endodontics Section is graded by independent, anonymous examiners. The Endodontics Section has been administered since 1985 and will be a required section on the WREB Interim Clinical Dental Examination. Details and results of technical analyses and candidate results for the Endodontics Section have been documented in annual technical reports (e.g., WREB, 2019a).

The only changes to the Endodontics Section are specific COVID-19-related social distancing and infection prevention protocols that must be followed to ensure the safety of all individuals involved in the examination and examination-related activities. Besides adhering to the simulation protocol for patient position and Standard (Universal) Precautions, candidates also are required to follow any additional social-distancing and infection-prevention protocols imposed by the exam site.

**Prosthodontics Simulation Section.** WREB’s existing Prosthodontics Section is a performance-based clinical simulation examination. The candidate is required to perform two prosthodontic procedures (three preparations) on simulated teeth in a mounted articulator and manikin that is positioned to simulate working on a patient. Candidates must maintain the simulated patient position and adhere to Standard (Universal) Precautions throughout the examination. Candidates are required to prepare an anterior tooth for a full-coverage crown and prepare two abutments to support a posterior three-unit fixed partial denture prosthesis (i.e., bridge). The three-unit bridge

must have a path of insertion that allows full seating of the restoration. Like all WREB Dental Examination sections, the Prosthodontics Section is graded by independent, anonymous examiners. The current version of the clinical Prosthodontics Section has been administered since 2018 and is required by most states accepting the WREB Interim Clinical Dental Examination. Details, technical analyses, and candidate results are documented in annual technical reports (e.g., WREB, 2019a).

As with the Endodontics Section, the only changes to the Prosthodontics Section specific COVID-19-related social-distancing and infection-prevention protocols that must be followed to ensure the safety of all individuals involved in the examination and examination-related activities. Besides adhering to the simulation protocol and Standard (Universal) Precautions, candidates also are required to follow any additional social-distancing and infection-prevention protocols imposed by the exam site.

**Periodontics Patient-Based Section.** WREB subject matter experts (SMEs) on the Operative and Periodontics Examinations Committee have recommended that due to COVID-19 the patient-based Periodontics Section of the Clinical Dental Examination be waived for 2020 since WREB is unable to demonstrate that a valid replacement is viable. The following evidence supports the decision to recommend temporary waiver or postponement of the Periodontics Section: a) critical aspects of periodontal diagnosis and treatment decision-making are covered throughout the CTP examination, b) the patient-based Periodontics section is the least discriminating section of the Dental Examination due to the very high rate of examination success, and c) recent practice analyses conducted jointly by WREB and CRDTS (WREB, 2019b; WREB, 2020) found that while the practices assessed on WREB's Dental patient-based Periodontics Section and Dental Hygiene Examination continue to be rated as frequently performed and important, these practices are most frequently performed by dental hygienists and rarely or never performed by dentists. Still, the ability of dental candidates to demonstrate competence on a valid, clinical examination of Periodontics continues to be valued by many states, and the patient-based Periodontics Section of WREB's standard patient-based Dental Examination will be available again when it can be administered safely.

## **Operative Simulation Section: Development and Field Testing**

WREB has field-tested an alternative, performance-based restorative dentistry simulation (i.e., Operative Simulation Section) that could be required temporarily in lieu of the traditional patient-based Operative Section. The validation process for the simulated examination included the field-testing of social distancing for both candidates and examiners. The pre-planning and guidelines practiced with the social-distancing and infection-prevention protocols employed in the Operative Simulation Section field tests are described later and will be applied to other simulation sections (i.e., Endodontics and Prosthodontics) of the WREB Interim Clinical Dental Examination.

In the Operative Simulation Section, each candidate is required to successfully perform both preparation and finish of a conventional Class II restoration on a molar and a Class III restoration on a central incisor. All procedures are performed, like they are for the Endodontics and Prosthodontics sections, on simulated teeth, mounted in arches on a manikin with proper operational posture, appropriate employment of Standard (Universal) Precautions including Personal Protective Equipment (PPE), and with rubber-dam isolation. Results are assessed using established Operative Section scoring criteria. Certain critical errors are preserved, and the passing cut-point remains unchanged. The simulation involves social distancing for both candidates and examiners and uses materials (simulation teeth and arches) which are readily available and with which candidates and their programs are already familiar.

WREB maintains the position that any clinical restorative simulation testing, at this time, remains limited with respect to fidelity, which is a critical type of validity evidence. Even with a simulated tooth that attempts to replicate the hardness, texture, disease process, and internal anatomy of human teeth, the simulation does not fully replace the spontaneous judgments, patient management skill, and cognitive-motor coordination involved in treating a live human patient who exhibits an authentic response to local anesthesia, unpredictable movements, and has the ability to feel pain and discomfort. The alternative Operative Simulation Section that WREB is offering for 2020 is intended to be a provisional solution for COVID-19 only and is intended neither to replace WREB's patient-based Operative Section in 2020 for states that continue to require it nor to be the simulation WREB may offer in the future when the validity of a more realistic and involved simulation can be demonstrated.

The following sections will describe several aspects of the Operative Simulation Section, including a) administration procedures reflecting the additional precautions required to minimize

exposure to the COVID-19 virus, b) restorative content assessed, c) grading and scoring, d) examiner preparation and evaluation, and e) the results of field-testing conducted in early 2020.

### **Interim Social Distancing and Infection Prevention Protocol**

Preventing infection by COVID-19 that may arise from airborne transmission or contact with potentially virulent surfaces is critical to ensuring the safety of candidates, dental school personnel, examiners and agency personnel during examination and examination-related activities. Field-testing for the Operative Simulation Section included broad attention to ensuring that a) individuals participating in the examination were sufficiently distant from each other at all times, b) individuals used appropriate PPE, and c) materials and areas remained clean and disinfected. Social-distancing and infection-prevention protocols were field tested for the Operative Simulation Section and will be implemented for all clinical sections of the WREB Interim Clinical Dental Examination. These protocols include but are not limited to the following examination features:

- Limits on numbers of personnel and candidates assigned to the examination at one time and in one location
- Distribution, required completion, and collection/review of a self-assessment survey instrument immediately prior to the examination (e.g., regarding symptoms, recent contact with suspected or known patient with COVID-19, and recent travel)
- Required capture and logging of each participant's temperature
- Assignment of separated arrival times
- Set-up, preparation, and monitoring for entry to the facility and examination area (e.g., survey completion and approval, donning face mask and eye protection, temperature capture, hand sanitization, etc.)
- Installation of floor and location markings throughout examination areas to ensure adherence to social distancing
- Location of assigned simulation stations that conform to social distancing guidelines
- Pre-provision of supplies and examination materials at simulation stations to reduce unnecessary movement

- Specific instructions regarding how to move around laboratory when necessary, how to turn in materials, and how to leave space and building upon completion without congregating
- Monitoring of social distancing, use of PPE, and contact with objects and surfaces throughout the simulation
- Appropriate cleaning and disinfection of all simulation stations and involved surfaces immediately before and following every simulation session

The features described reflect protocols that were in place for the March 30 – April 2 field-tests. These examination protocols may be augmented according to updates for infection prevention from the Center for Disease Control (CDC) or more stringent school-specific requirements. In any case the protocols employed will reflect or exceed CDC guidelines. If the test site has stricter guidelines than the CDC, then the protocol employed will reflect the test site requirements. For example, the CDC guidelines for social distancing stipulated maintaining a minimum distance of at least six feet from other individuals; one of the field-test sites required a minimum distance of ten feet, which was implemented throughout the field test.

WREB will coordinate with each site hosting an examination to develop a document communicating the social-distancing and infection-prevention protocol for that examination site. Prior to the exam this document will be provided to candidates, on-site examiners, and any other individuals who will be involved in examination. Candidates will be expected to conform to the social distancing and infection prevention protocol and may risk dismissal and failure of the examination for gross, willful, or repeated protocol violation.

Scoring sessions where grading examiners evaluate candidate performance on the submitted arches also will be subject to social-distancing and infection-prevention protocols. Similar safety features, including self-assessment and screening, number of grading examiners per room and building, social distancing, surface and material disinfection, and specific instruction regarding safe entry, movement, task performance, and exit of the facility will be provided.

### **Administration and Security**

Time allocated for the simulation is three and one-half (3.5) hours. Candidates are allowed an additional 30 minutes to set up before the session begins.

At the exam site, candidates must provide two valid, non-expired forms of personal identification. Admittance to the exam does not imply that the identification presented was valid. If it is determined that a candidate's identification is fraudulent or otherwise invalid, WREB will report to the appropriate governing agencies or board. Any candidate or other individual who has misreported information or altered documentation in order to fraudulently attempt an examination, will be subject to dismissal and reporting.

Candidates report to the assigned simulation area at the appointed time and must bring with them their personal handpieces, burs, and anything else needed to complete preparations or restorations on the simulated teeth, including the ModuPRO® One opposing arch or equivalent needed to complete the simulation.

Candidates may bring the Operative Simulation Candidate Guide and Dental Exam Candidate Guide into the simulation lab for reference. Notes, textbooks, or other informational material must not be brought into the simulation lab. No magnification other than loupes is allowed. All electronic devices, including cell phones and smart watches, are prohibited in the simulation lab. Unique markings are applied to each arch to prevent manipulation and reinforce examination security.

Assistants are not permitted for the Operative Simulation Section. Candidates may not assist each other. This includes critiquing another candidate's work or discussion of treatment. All candidates are expected to pass the examination on their own merit without assistance.

WREB provides the maxillary arches containing the teeth needed for preparation and restoration. The candidate provides everything needed that is not provided by the test site (school), including a suitable opposing arch. Following preparation, the arch containing the prepared teeth is submitted for grading and a second arch is provided with teeth already prepared for restoration. When placement of the finish restorations is completed, the second arch is submitted for finish grading.

Candidates are to work independently, observe Standard (Universal) Precautions, and work in a manner that simulates performing procedures on a patient throughout the simulation. Any unprofessional, unethical, or inappropriate behavior could result in immediate dismissal and failure of the Operative Simulation. If, after receiving notice of a violation, a candidate repeatedly violates simulation protocol, Standard (Universal) Precautions, or the social distancing and infection

prevention protocol for the exam site, they will be dismissed from the simulation and will fail the Operative Simulation Section.

Additional details of administration procedures and security guidelines are included in the Operative Simulation Candidate Guide, Dental Exam Candidate Guide, Operative Simulation Examiner Manual, and Dental Exam Examiner Manual.

### **Operative Simulation Test Specifications and Grading Criteria**

The Operative Simulation Section consists of one extended examination session during which two (2) operative (restorative) procedures are performed on simulated teeth. The procedures are:

1. Preparation and restoration of a conventional Class II (MO) in tooth 14.
  - The candidate may choose the restorative material (amalgam or composite).
  - The preparation can but need not cross the tooth's oblique ridge.
2. Preparation and restoration of a Class III (ML) in tooth 9 with composite.

The procedures are performed on simulated teeth mounted in a manikin positioned to simulate working on a patient. The simulated tooth has the same anatomy and polymers as the teeth that are required for the Prosthodontics Simulation Section. Vendor supply is available for both testing and candidate practice despite current factory closures. The teeth have no artificial decay that could introduce testing variables not encountered in candidates' current curriculum and training. Additional field testing and candidate clinical experience will be necessary for reliable implementation with artificial decay.

No modification requests are needed, which supports social distancing and infection prevention measures by reducing the handling of materials and number of examiners required to be onsite. Candidates are asked to prepare the teeth as they ideally would for minimal caries requiring restoration and so that their preparations satisfy WREB criteria for a score of "5" and then stop. The Class II preparation design must be conventional and include a pulpal floor. Both preparation and restoration (placement of the restorative material) must be accomplished with a rubber dam. When treatment is completed the arch containing the prepared or restored teeth is submitted for grading. Occlusion is not functionally evaluated.

Current dental terminology (CDT) codes that reflect the range of procedures that may be attempted are listed in Table 1.

Table 1. *Simulated Operative Section Procedure Options with CDT Codes*

<b>Operative Section Restorative Procedure</b>	<b>CDT Code(s)</b>
Direct posterior Class II amalgam restoration (MO, DO or MOD)	D2150, D2160
Direct posterior Class II composite restoration (MO, DO or MOD)	D2392, D2393
Direct anterior Class III composite restoration (ML, DL, MF, DF)	D2331, D2332

WREB examines candidates with varying educational backgrounds and schools may teach different preparation and restoration techniques. WREB does not look for one specific technique and scores performance according to the Operative Simulation scoring criteria described later in this section.

The scoring criteria are based on the scoring criteria employed for the conventional patient-based Operative examination section, with minor revisions, reviewed and approved by the SMEs on the Operative examination committee. The preparation criteria are Outline and Extension, Internal Form, and Operative Environment. The finish criteria are Anatomical Form, Margins, and Finish, Function and Damage. Each grading criterion is defined at five levels of performance for each procedure, with a grade of "3" representing minimal competence. A grade of "5" is defined generally to represent optimal performance, with grades of 4, 3, 2, and 1 corresponding to appropriate, acceptable, inadequate, and unacceptable performance, respectively. The performance level definitions for each type of preparation (i.e., Class II amalgam, Class II composite, and Class III composite) and for the restoration finish are published in the candidate guide and provided in Figures 1 through 4.

OPERATIVE SIMULATION CLASS II – COMPOSITE PREPARATION					
SCORING CRITERIA RATING SCALE					
	5–Optimal	4–Appropriate	3–Acceptable	2–Inadequate	1–Unacceptable
OUTLINE & EXTENSION	Outline is generally smooth and flowing and does not weaken tooth in any manner.	Outline is slightly irregular but does not weaken tooth. Isthmus is slightly wider than required.	Outline moderately weakens marginal ridge or a cusp. Isthmus is too wide or too narrow.	Outline severely weakens marginal ridge or a cusp. Outline is misshapen and/or forces improper angle of exit.	Outline is grossly improper and/or lacks any definite form.  Unapproved surface prepared.
	Proximal and gingival extensions are visually open less than 1.0 mm	Proximal and/or gingival extensions are slightly overextended.	Proximal and/or gingival extensions are moderately overextended.	Proximal and/or gingival extensions are in contact or obviously overextended.	Proximal and/or gingival extensions are grossly overextended.
	Optimal treatment of fissures.	Near optimal treatment of fissures.	Adequate treatment of fissures. Neither the tooth nor restoration is compromised.	Inadequate treatment of fissures will compromise the tooth or restoration.	Lack of treatment of fissures will seriously compromise the tooth and restoration.
	Proximal cavosurface angles are equal to or slightly greater than 90°. The integrity of both tooth and restoration is maintained.	Cavosurface angles are not optimal, but do not compromise the integrity of the tooth or restoration. Cavosurface has small areas of minor roughness.	Cavosurface angles possibly compromise the integrity of the tooth or restoration. Cavosurface is moderately rough but will not adversely affect the final restoration.	Improper cavosurface angles or rough cavosurface will cause the final restoration to fail.	Cavosurface angles are grossly improper. Cavosurface has multiple major areas of roughness and/or enamel weakness that will cause the restoration to fail.
INTERNAL FORM	Pulpal floor depth as determined by the lesion or defect does not exceed 2.0 mm from the cavosurface. Axial wall depth at the gingival floor is 1.0 mm-1.5 mm.	Pulpal floor and/or axial wall is slightly shallow or deep.	Pulpal floor and/or axial wall is moderately shallow or deep.	Pulpal floor and/or axial wall is critically shallow or critically deep.	Wells and/or floors are grossly deep. Gross removal of tooth structure jeopardizes the tooth or pulp.  Unapproved surface prepared.
	<b>Conventional design:</b> Internal form is smooth and flowing and has no sharp angles that could weaken or cause voids in the final restoration.	<b>Conventional design:</b> Internal form is mostly smooth and flowing, but some minor roughness and/or sharp angles are present.	<b>Conventional design:</b> Internal form is generally smooth and flowing, but some moderate roughness and/or sharp angles are present.	<b>Conventional design:</b> Internal form is rough and unfinished with major areas of roughness or sharp angles that will lead to restoration failure.	<b>Conventional design:</b> Internal form is grossly rough and/or has gross sharp angles that will lead to restoration failure.
OPERATIVE ENVIRONMENT	No damage to the adjacent tooth.	Minor damage to the adjacent tooth can be removed by polishing without changing the shape of the contact.	Damage to the adjacent tooth can be removed by polishing, but the shape of the contact will be changed.	Damage to the adjacent tooth will be difficult to polish out and still maintain appropriate proximal contour. The adjacent tooth will likely require restoration.	Damage to the adjacent tooth will require restoration.

Figure 1. Scoring criteria definitions for the Simulation Class II Composite Preparation, 2020.

OPERATIVE SIMULATION CLASS II – AMALGAM PREPARATION					
SCORING CRITERIA RATING SCALE					
	5–Optimal	4–Appropriate	3–Acceptable	2–Inadequate	1–Unacceptable
OUTLINE & EXTENSION	Outline is generally smooth and flowing and does not weaken tooth in any manner.	Outline is slightly irregular but does not weaken tooth. Isthmus is slightly wider than required.	Outline moderately weakens marginal ridge or a cusp. Isthmus is too wide or too narrow.	Outline severely weakens marginal ridge or a cusp. Outline is misshapen and/or forces improper angle of exit.	Outline is grossly improper and/or lacks any definite form.  Unapproved surface prepared.
	Proximal and gingival extensions are visually open less than 1.0 mm	Proximal and/or gingival extensions are slightly overextended.	Proximal and/or gingival extensions are moderately overextended.	Proximal and/or gingival extensions are in contact or obviously overextended.	Proximal and/or gingival extensions are grossly overextended.
	Optimal treatment of fissures.	Near optimal treatment of fissures.	Adequate treatment of fissures. Neither the tooth nor restoration is compromised.	Inadequate treatment of fissures will compromise the tooth or restoration.	Lack of treatment of fissures will seriously compromise the tooth and restoration.
	Proximal cavosurface angles are approximately 90°. The integrity of both tooth and restoration is maintained.	Cavosurface angles are not optimal, but do not compromise the integrity of the tooth or restoration. Cavosurface has small areas of minor roughness.	Cavosurface angles possibly compromise the integrity of the tooth or restoration. Cavosurface is moderately rough but will not adversely affect the final restoration.	Improper cavosurface angles or rough cavosurface will cause the final restoration to fail.	Cavosurface angles are grossly improper. Cavosurface has multiple major areas of roughness and/or enamel weakness that will cause the restoration to fail.
INTERNAL FORM	Proximal walls are clearly convergent occlusally.	Proximal walls are barely convergent occlusally.	Proximal walls are parallel or divergent in one area.	Proximal walls are critically divergent occlusally.	Proximal walls are grossly divergent occlusally.
	Pulpal floor is 1.5 mm-2.0 mm from the cavosurface and provides adequate bulk for strength of restorative material. Axial wall depth at the gingival floor is 1.0 mm-1.5 mm.	Axial wall and/or pulpal floor is slightly shallow or deep, but still provides adequate bulk for strength of restorative material.	Axial wall and/or pulpal floor is moderately shallow or deep, but still provides adequate bulk for strength of restorative material.	Axial wall and/or pulpal floor is critically shallow or deep and does not provide adequate bulk for strength of restorative material.	Walls and/or floors are grossly deep. Gross removal of tooth structure jeopardizes the tooth or pulp.  Unapproved surface prepared.
	<b>Conventional design:</b> Internal form is smooth and has no sharp angles. Retentive grooves, if placed, are near ideal. Axial wall follows external contour of the tooth.	<b>Conventional design:</b> Internal form is mostly smooth, but some minor roughness and/or sharp angles are present. Retentive grooves, if placed, are adequate. Axial wall contour is near optimal.	<b>Conventional design:</b> Internal form is generally smooth, but some moderate roughness and/or sharp angles are present. Retentive grooves, if placed, are too deep or too shallow, or placed in an incorrect location. Axial wall contour is not optimal.	<b>Conventional design:</b> Internal form is rough and unfinished with major areas of roughness or sharp angles that will lead to restoration failure. Retentive grooves, if placed, are too deep or too shallow, or placed in an incorrect location, and will compromise the tooth or restoration.	<b>Conventional design:</b> Internal form is grossly rough and/or has gross sharp angles that will lead to restoration failure. Gross disregard for proper placement of retentive features will compromise the tooth and restoration.
OPERATIVE ENVIRONMENT	No damage to the adjacent tooth.	Minor damage to the adjacent tooth can be removed by polishing without changing the shape of the contact.	Damage to the adjacent tooth can be removed by polishing, but the shape of the contact will be changed.	Damage to the adjacent tooth will be difficult to polish out and still maintain appropriate proximal contour. The adjacent tooth will likely require restoration.	Damage to the adjacent tooth will require restoration.

Figure 2. Scoring criteria definitions for the Simulation Class II Amalgam Preparation, 2020.

OPERATIVE SIMULATION CLASS III – COMPOSITE PREPARATION									
SCORING CRITERIA RATING SCALE									
5–Optimal		4–Appropriate		3–Acceptable		2–Inadequate		1–Unacceptable	
OUTLINE & EXTENSION	Outline provides optimal convenience form (access for caries removal and insertion of restorative material).	Outline is slightly over or under extended.	Outline is moderately over or under extended. Outline is moderately irregular but does not weaken the tooth.	Outline is severely over or underextended.	Outline is grossly improper and/or lacks any definite form.				
	Gingival extension is visually open up to 0.5 mm. Facial (or lingual) extension may break proximal contact up to 0.5 mm.	Outline is slightly irregular but does not weaken the tooth.	Gingival margin is moderately overextended.	Gingival wall is in contact or obviously overextended.	Gingival wall is grossly overextended.				
	Incisal contact is not broken. Includes proximal contact area.	Includes proximal contact area with slight variation.	Includes proximal contact area with moderate variation.	Incisal extension has broken contact.	Unapproved surface prepared.				
	Cavosurface forms a smooth continuous curve with no sharp angles.	Cavosurface is slightly irregular and rough; no sharp angles.	Cavosurface is moderately irregular and rough. A few sharp angles are present.	Mostly below proximal contact area where caries would be expected.	Wholly below proximal contact area where caries would be expected.				
There are no acute cavosurface angles.	Cavosurface angles are not optimal, but do not compromise the integrity of the tooth or restoration.	Cavosurface angles possibly compromise the integrity of the tooth or restoration.	Cavosurface angles will lead to enamel fracture or fracture of the restoration.	Cavosurface angles are grossly inappropriate for the situation and will lead to fracture of the restoration.					
INTERNAL FORM	Axial wall follows external contour of tooth.	Axial wall generally follows external contour of tooth.	Axial wall does not follow contour of tooth.	Axial wall depth exceeds 2.0 mm beyond the DEJ.	Gross removal of tooth structure jeopardizes the tooth or pulp.				
	Depth does not exceed 1.0 mm beyond the DEJ.	Depth does not exceed 1.5 mm beyond the DEJ.	Depth does not exceed 2.0 mm beyond the DEJ.		Unapproved surface prepared.				
	Internal line angles are rounded and smooth.	Internal walls are well defined and rounded but have some slight irregularities.	Internal walls are rounded, but moderately rough, irregular, and not defined.	Internal walls are severely irregular and not defined.	Grossly irregular and sharp line angles show total disregard for the health of the tooth.				
Internal walls are well defined.		Moderately sharp line angles are present.	Angle of walls undermines enamel, jeopardizes incisal angle, or encroaches on the pulp.						
OPERATIVE ENVIRONMENT	No damage to the adjacent tooth.	Minor damage to the adjacent tooth can be removed by polishing without changing the shape of the contact.	Damage to the adjacent tooth can be removed by polishing, but the shape of the contact will be changed.	Damage to the adjacent tooth will be difficult to polish out and still maintain appropriate proximal contour. The adjacent tooth will likely require restoration.	Damage to the adjacent tooth will require restoration.				

Figure 3. Scoring criteria definitions for the Simulation Class III (Composite) Preparation, 2020.

OPERATIVE SIMULATION FINISH RESTORATION									
SCORING CRITERIA RATING SCALE									
5–Optimal		4–Appropriate		3–Acceptable		2–Inadequate		1–Unacceptable	
ANATOMICAL FORM	Anatomical form is consistent and harmonious with contiguous tooth structure.	Slight variation in normal anatomical form is present.	Moderate variation in normal anatomical form is present.	Anatomical form is improper. Marginal ridge is poorly shaped.	There is gross lack of anatomical form.				
	Proper proximal contour and shape are restored.	There is slight variation of proximal contour and shape.	There is moderate variation of proximal contour and shape.	Anatomy is too deep or too flat.	Grossly improper proximal contour or shape.				
	Normal proximal contact area and position are restored.	There is slight variation of normal contact area and position.	There is moderate variation of normal contact area and position.	Proximal contour is poor. Embrasures are severely over or under contoured.	Contact is grossly open; contour terminates far from the adjacent tooth or the restoration is bonded to the adjacent tooth.				
	Contact is visually closed and resists the passage of lightly waxed floss.	Contact is visually closed and resists the passage of lightly waxed floss.	Lightly waxed floss will pass through the contact with slight resistance.	Contact is visually open; contour is pointed and sharp; or so broad, flat or tight that floss will not pass easily pass through the contact.					
MARGINS	There are no excesses or deficiencies anywhere along margins.	Slight marginal excesses and/or deficiencies are present.	Moderate marginal excesses and/or deficiencies are present.	A deep open margin is present, or critical excesses or deficiencies are present.	Multiple open margins, or gross excesses, or deficiencies, are present.				
				A marginal overhang catches floss.	A gross marginal overhang shreds floss.				
FINISH, FUNCTION & DAMAGE	The surface is smooth with no pits, voids or irregularities.	Slight surface irregularities, pitting, or voids are present.	Moderate surface irregularities, pitting, or voids are present.	Critical surface irregularities, pitting, or voids are present.	Gross surface defects are present and/or the restoration is grossly fractured.				
	There is no damage to hard or soft tissue.	Minor damage to hard or soft tissue is evident.	Moderate damage to hard or soft tissue is evident.	Severe damage to hard or soft tissue is evident. Open contact risks trapping food debris or overly tight contact makes flossing difficult.	Gross mutilation of hard or soft tissue is evident. Grossly open contact exposes interdental col to potential trauma or fused teeth make flossing impossible.				

Figure 4. Scoring criteria definitions for the Simulation Class II and Class III Finishes, 2020.

### Scoring and Results Reporting

Performance for each preparation and finish, is graded by three independent and anonymous examiners who are calibrated to the scoring criteria prior to every examination. Each preparation or finish is scored on the applicable criteria according to rating scales presented above. Examiners are trained to assign a particular grade on the scale only when *all* aspects of performance described for that level have been demonstrated. For example, if performance on the criterion under review meets most aspects of the definition for a grade of “3” but does not quite meet the standard for even one aspect of the definition, then the grade assigned will be a “2,” at most. This holds for all six criteria per restoration.

The median of the three examiner grades is computed for each criterion and is weighted to reflect the level of criticality relevant to minimally competent treatment, e.g., Outline and Extension accounts for 46% of the preparation score and Operative Environment accounts for only 15%. The criterion weights are provided in Tables 2a and 2b.

Tables 2a and 2b. *Operative Simulation Scoring Criteria and Weighting: Preparation, Finish*

Preparation Criteria and Weighting		Finish Criteria and Weighting	
Outline & Extension	46%	Anatomical Form	36.5%
Internal Form	39%	Margins	36.5%
Operative Environment	15%	Finish, Function & Damage	27%

The mean of the preparation and finish scores is the restoration procedure score. The mean of the two procedure scores, after any applicable penalties or deductions, is the final Operative Simulation Section score.

The passing cut score on the Operative Simulation Section is 3.00, which reflects minimally competent performance within the five-point rating scale for all criterion grades that contribute to the final section score. Each performance level definition for a score of 3.00 on a criterion has been worded to describe performance that would be deemed minimally competent via consensus of the subject matter experts on the Operative section examination committee. While methods of standard setting applied to selected-response assessment often rely on SMEs evaluating each test question based on how each SME believes a minimally competent examinee would

perform, standard setting for many performance-based assessments involves defining minimum expectations that can be observed directly in the candidate's performance. The performance level definitions (Figures 1 through 4), as developed by the examination committee, are critical to guiding examiner grading. The definitions are used to describe examples of clinical performance reviewed during examiner training and calibration, which provides performance benchmarks to facilitate examiner adherence to the criteria and a high degree of examiner agreement.

While limitations on travel and group activity size due to COVID-19 remain in effect, the grading of candidate performance will take place in grading sessions after the examination. While this reduces the number of examiners traveling to and grading at the examination site, it also prevents candidates from receiving onsite results immediately. Candidates and state licensing boards will receive results as soon as possible after grading sessions are held. Results reports will indicate clearly whether the Operative Examination was a simulation or involved the treatment of a patient. As with all WREB examinations, results of all examination attempts, regardless of pass or fail outcome, will be available to state licensing boards.

### **Examiner Training and Calibration**

Most examiners are members or designees of their state boards. A small proportion (e.g., approximately twenty percent of examiners in 2019) are dental educators. All examiners must be actively licensed and in good standing, with no license restrictions, and submit proof of license renewal annually. Under social distancing restrictions, the only examiners that may be present at the Operative Simulation Section may be the Chief Examiner and one or more Floor Examiners, depending on the layout and size of the examination environment. There will not be any grading examiners at the examination site unless social distancing and travel guidelines have been eased enough to allow this. Under the current restrictions, grading examiners will grade candidate performance in grading sessions, separate from the examination environment. Grading examiners still will need to complete examiner self-assessments and calibration testing prior to grading.

Clinical examination scores are dependent upon the judgments of grading examiners. A high degree of examiner agreement is critical to assessing candidate ability in a reliable and fair manner. As with the conventional Operative Examination, scoring judgments on the Operative Simulation Section are made by three independent examiners. The median of the three grades

assigned contributes to the candidate's score. The median is more robust to extreme grades assigned than the mean (i.e., conventional average).

Having multiple examiners helps to moderate the effects of varying levels of examiner severity; however, it is essential that all examiners are trained and calibrated to an acceptable level of agreement with respect to the scoring criteria for the examinations in which they participate. Examiners must participate in orientation and calibration sessions that take place before every examination or grading session. During calibration, examiners take assessments (tests) in which they grade examples of clinical performance according to the grading criteria. Their judgments are compared to scores that have been previously selected by the examination committees as representative of the defined levels in the criteria. The examiner team completes calibration tests until they each have demonstrated that they understand and can consistently apply WREB criteria in their assessments. All calibration tests are reviewed regularly for content and psychometric quality by WREB examination committees.

Examiners receive feedback on their performance after each examination. Examiners with low percentages of agreement, high percentages of harshness or lenience, or erratic grading patterns are counseled, remediated, and monitored to ensure increased understanding of criteria definitions. Continued lack of agreement results in dismissal from the examination pool.

The two main approaches employed to evaluate examiner performance include a review of examiner agreement which reflects the degree of exact and adjacent agreement and an estimation of examiner severity employing a probabilistic statistical model which is designed to account for and quantify potential sources of construct-irrelevant variance such as rater bias and error. With three examiners there are multiple ways to define and track examiner agreement. WREB uses a conservative computation of exact and adjacent agreement which involves comparing each examiner rating, i.e., each individual grade assigned to a particular criterion, to the mean of the other two raters' grades assigned for the same criterion, within the same examination attempt. Examiner ratings that may be adjacent to the rating of another rater may still be categorized as harsh or lenient since agreement is defined as the rating falling within one scale point of the *mean* of the other two ratings. Examiner severity is estimated using the Many-faceted Rasch Model (Linacre, 1994; Rasch, 1960/1980) and allows examiner performance to be compared to the performance of all other examiners within the examiner pool along a continuum of harshness to lenience and provides statistical information regarding rater errors such as erratic grading or

grading that shows too little discernment among performance levels (e.g., assigning all or mostly “3”s). Additional details regarding methods and results of examiner evaluation are provided in the WREB Dental Examination Technical Report (WREB, 2019a)

### **Field Testing of the Operative Simulation Section: Overview**

Two Operative Simulation field-tests were planned and conducted between March and May of 2020. A total of 79 dental students from two dental schools participated; three students attempted the examination twice resulting total of 82 attempts. These students planned in advance to challenge the field test examination twice.

The planning of the field tests included the review and revision of the Operative scoring criteria, creating a candidate guide for field test candidates, coordinating with each school to produce social distancing and infection prevention protocols, and developing examiner training and calibration materials.

One field test was conducted on March 30, 2020 at the University of Oklahoma with 20 dental students. A second field test was held on April 1 and 2, 2020 at the University of Utah with 59 dental students. WREB has already been conducting conventional clinical dental examinations at these two schools and their campuses were reasonably accessible to WREB’s dental consultants, given the limitations and recommendations regarding travel due to COVID-19. Oklahoma and Utah are the states of residence of WREB’s two consulting SME dentists, who oversee examination development and administration. The field test conducted at the University of Oklahoma used a simulated tooth constructed of a harder material which generated student concerns reflected in the post-examination candidate survey comments. The second field test, conducted at University of Utah, employed the final choice of material which did not elicit these concerns.

### **Initial Field Test Results: Faculty-graded**

The performance of the 20 field test candidates who attempted the Operative Simulation at the University of Oklahoma were initially graded by their faculty to partially fulfill program competency requirements. The 20 scores based on the University of Oklahoma faculty grading ranged from 2.94 to 4.37, with a mean score of 3.72 ( $SD = 0.41$ ). Candidate scores ( $N = 57$ ) from the same university taking the WREB Operative section during the 2019 season ranged from 3.13

to 4.87, with a mean score of 3.90 ( $SD = 0.40$ ). The field test results were not as high as the examination results from 2019, but an independent samples  $t$ -test conducted to compare the results indicated that the difference is not significant, with a value of  $t (df = 75; \alpha = 0.05) = 1.67$  and mean difference of 0.17 ( $p = 0.10$ ; 95% CI: -0.03, 0.38). The comparison is based on a small sample but provides an initial indication of comparability. There was also no notable difference between mean scores of the anterior tooth (3.73,  $SD = 0.51$ ) and the posterior tooth (3.71,  $SD = 0.44$ ) for the faculty-graded teeth.

After the examination and the grading conducted by faculty, some of the teeth that had been treated by the candidates at the University of Oklahoma field test were modified to reflect specific descriptors in the scoring criteria. These modified teeth and examples of candidate performance were then used in developing examiner training materials. The resulting preparations and finished restorations were photographed and used as exemplars in examiner training and calibration testing. The modified teeth will be graded along with the field-test performances from the other field test examination site, but will also be analyzed separately, as they do not represent the candidates' original performance.

### **Treatment Times**

Candidates were allowed up to four hours to complete the Operative Simulation Field Test. The time spent preparing the preparations and the finishes was recorded for each field-test attempt to determine if the initial time allotted was sufficient. The average total time used for the 82 field test attempts was 2 hours, 10 minutes (130 minutes). The least amount of time needed was 1 hour, 22 minutes and the longest amount of time needed was 3 hours, 52 minutes. All but four candidates (4.8%) completed their procedures in less than 3 hours and 30 minutes. The University of Oklahoma site used more treatment time due to additional time needed for set-up between the preparation and finish procedures. The need for this additional time was eliminated with the use of a single tooth material for the second field test. The time allotted for the examination going forward was reduced to 3 hours and 30 minutes. Table 3 shows the treatment times per field test site.

Table 3. Operative Simulation Treatment Times in Minutes by Field Test Site.

Field Test Site	<i>N</i> Attempts	Minimum Treatment Time	Maximum Treatment Time	Mean Treatment Time ( <i>SD</i> )
Univ. of Oklahoma	20	106 min	232 min	174 min (37.5)
Univ. of Utah	62	82 min	190 min	116 min (20.7)
Total	82	82 min	232 min	130 min (35.6)

### Field-Test Candidate Survey Results

Students who participated in one of the two Operative Simulation field tests were sent a link to an online survey. The response rate was 53% (42 out of 79 individual field-test candidates); with a slightly higher response rate for University of Oklahoma participants (65%) than University of Utah participants (49%). Survey responses assisted the development of the examination by prompting improvements to the Candidate Guide and examination schedule and by supporting the final determination of simulated tooth material.

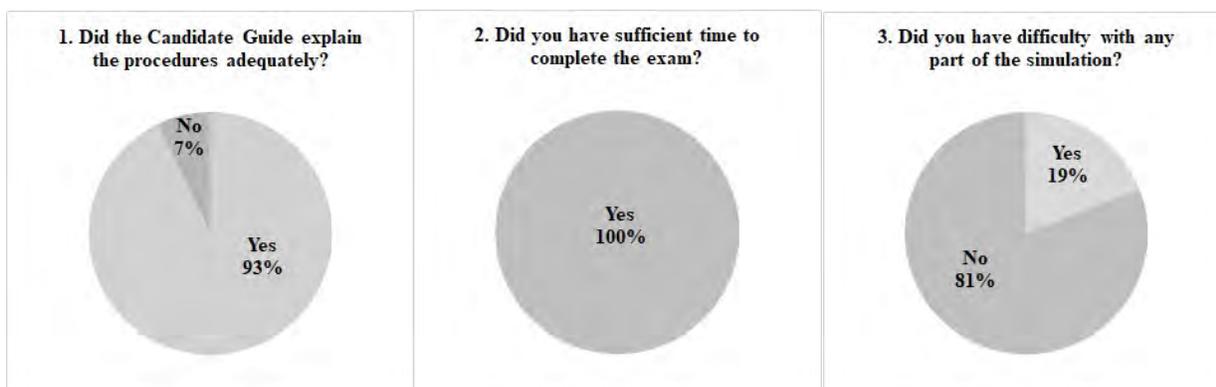
There were seven main questions and all questions offered the option to provide comments. There was a section for additional comments or suggestions at the end. Results for the seven questions are listed below, with a summary of responses and examples of comments.

The first three questions asked about the Candidate Guide, time allotted and whether the field-test candidate had any difficulty with any part of the simulation:

1. Did the Candidate Guide explain the procedures adequately?
2. Did you have sufficient time to complete the exam?
3. Did you have difficulty with any part of the simulation?

Only three of the 42 field-test candidates (93%) responded “No” to Question 1 (Figure 5a) regarding the Candidate Guide. All three noted that the guide could be more clear regarding the depth and extension of the preparation without needing to request extensions and wording to make this clear has been added to the Candidate Guide. All 42 field-test candidates responded that they

had sufficient time to complete the examination (Figure 5b). Eight of the 42 respondents (19%) expressed difficulty with part of the simulation (Figure 5c). In the optional comments, most of these concerns were about the difficulty of adjacent teeth having differing degrees of hardness; all were from field-test candidates at the University of Oklahoma, where a different tooth material was tested. The material that was employed at the second field test did not elicit these concerns and is the final choice of material planned for the Operative Simulation Section.



Figures 5a, b, c. Proportion of Yes or No responses to Field-Test Survey Questions 1, 2 and 3.

Question 4 asked about the level of challenge posed by the examination, overall.

4. Overall, was the exam easy, moderate, or difficult?"

Most respondents (37 of 42 or 88%) answered “Moderate” to Question 4 (Figure 6). Most comments offered regarding Question 4 compared the simulated teeth to natural teeth, e.g., “Going back to cutting on typodonts is always a readjustment! But definitely a valid test of hand skills. Certain aspects are more difficult and certain aspects are less difficult compared to treating human patients” and “The teeth were much softer, so probably required more dexterity than doing it on an actual person but very doable.”

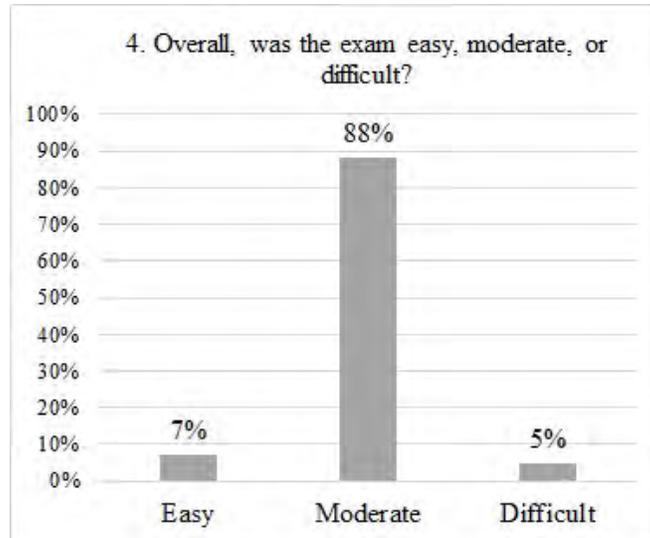


Figure 6. Proportion of different responses to Field-Test Survey Question 4.

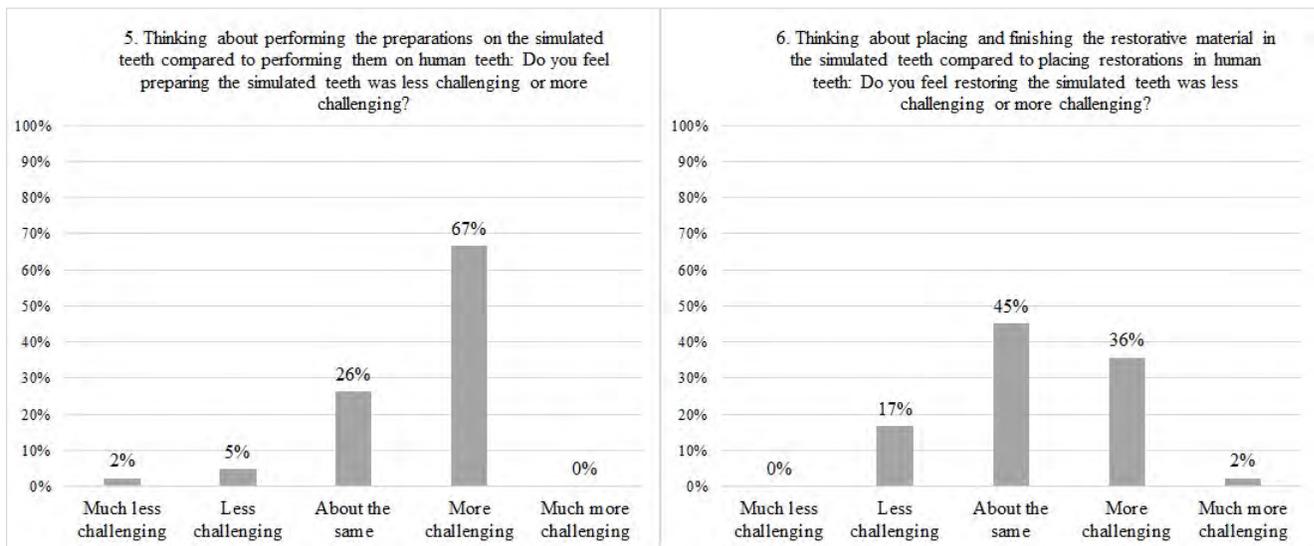
Questions 5 and 6 asked about the degree of challenge specifically regarding the preparation and the finish, respectively. Five response options were provided, ranging from Much Less Challenging to Much More Challenging.

5. Thinking about performing the preparations on the simulated teeth compared to performing them on human teeth: Do you feel preparing the simulated teeth was less challenging or more challenging?
6. Thinking about placing and finishing the restorative material in the simulated teeth compared to placing restorations in human teeth: Do you feel restoring the simulated teeth was less challenging or more challenging?

Many field-test candidates responded “About the Same” or “More Challenging” to Questions 5 and 6, with 93% (Question 5 regarding preparations) and 81% (Question 6 regarding placing and finishing) responding in one of these two categories (Figures 7a and 7b). The preparations were considered “More Challenging” by 28 of 42 (67%) and respondents’ comments were similar to those made about tooth material on Question 4, e.g., “Because simulated teeth are much softer, I feel it takes more skill, accuracy and care to complete the exam” and “You have to have a lot better hand skills on the typodont teeth due to the fact that they are softer. You have to really be good at placement and control of the burr. It also requires better restorative placement as it's easier to

accidentally remove tooth while finishing and polishing.” An example comment from one of the eleven (26%) respondents who selected “About the Same” stated, “More challenging due to the lack of recent practice on teeth with this hardness, but less challenging due to known parameters and no need for modifications.”

Nineteen of 42 (45%) respondents felt that the placing and finishing of the teeth was “About the Same” but only a few offered comments, e.g., “Less challenging due to no need for etching, more challenging from the difference in stability (possible loose screws, extremely tight contacts, no wedging ability).” The source of the loose screws was identified and remedied prior to the second field test. Most comments were associated with the fifteen (36%) responses of “More Challenging,” and involved the tooth material, e.g., “I felt placing the material was the same but polishing and removing flash was much more difficult on typodont teeth” and “Polishing composite on real teeth is MUCH easier than polishing on typodont teeth.” The few comments that accompanied the seven (17%) responses of “Less Challenging” reflected dryness and isolation, e.g., “Obviously, there isn’t any saliva, so keeping a dry field is simple” and “Better isolation.”



Figures 7a, b. Proportion of different responses to Field-Test Survey Questions 5 and 6.

Question 7 asked about the ability to maintain social distancing at the examination.

7. How difficult was it for you to maintain social distancing during the examination?

Most field-test candidates (39 of 42 or 93%) responded that it was “Easy” to maintain social distancing during the examination (Figure 8). All but one comment were associated with responses of “Easy.” Examples include “Really strict and functional rules in place. Wasn’t a problem at all” and “I was at least ten feet away from anyone else in the room at all times.” The other comment, associated with a response of Moderate, stated, “During the announcement portion of the exam, prior to the beginning, it was moderately difficult to maintain social distancing and adequately hear the announcements and questions.” Plans have been implemented for additional information to be provided early to candidates, allowing for questions by phone or email prior to the examination to reduce the need for multiple announcements and possible reasons to encourage crowding.

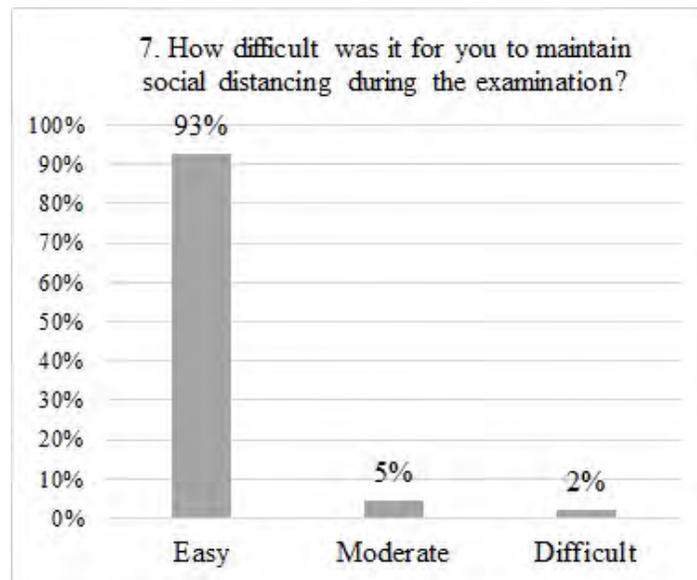


Figure 8. Proportion of different responses to Field-Test Survey Question 7.

Field-test candidates could offer additional comments or suggestions at the end of the survey. Many comments were generally positive or expressed thanks, e.g., “Overall it was great!” and several expressed their interest that this type of restorative examination be an acceptable option

going forward, e.g. “Replace patient exams with typodonts!” Some comments were concerned with the current situation related to COVID-19, e.g., “I think this is a great way to test in a safe environment given the circumstances of the class of 2020.” Most comments reinforced earlier comments regarding tooth material that, as noted above, will not apply, given the final choice of tooth material for the simulation examination. Suggestions regarding the schedule of treatment within the examination were offered by field-test candidates at the first field test; the timing in the second field-test was structured without interruption between the completion of preparations and finishes and is the final schedule planned for the examination.

### **Field-Test Grading Session Overview**

Seven examiners participated in the April 30 – May 1 Operative Simulation field-test grading session, completing calibration exercises and tests prior to grading. Social distancing and infection prevention measures were followed, to ensure the safety of examiners and staff while using electronic scoring equipment and handling arches during grading.

On the first day, five examiners were able to complete the grading of all 82 attempts on the Operative Simulation field tests, with three sets of grades per attempt. On the second day, two additional examiners regraded the attempts, resulting in a total of four sets of grades per attempt. Candidate results and examiner performance were analyzed for the first day, which reflects conventional grading procedures, i.e., three examiners per attempt, as well as with the additional sets of grades from the second day combined, to obtain additional information, statistics and feedback regarding e.g., the effectiveness of calibration, the generalizability of grading criteria, and the performance of field-test candidates.

### **Field-Test Examiner Performance**

Field-test examiner performance was evaluated via two approaches: examiner agreement statistics and examiner severity estimation. Examiner agreement was computed on the examiner team that completed grading on the first day. Examiner severity was conducted with and without the additional grades assigned on the second day. An overview of methods are described above on page 15 and in additional detail in technical reports, e.g., WREB Dental Examination Technical Report (WREB, 2019a).

Percentages of agreement were computed for the three sets of grades assigned on the first day of grading, as would be conducted for an actual examination after all three sets of grades per attempt have been assigned. Over the past ten years, percentages of agreement for the standard Operative Section have ranged from 88.4% to 89.9%, with comparatively balanced percentages of harshness and lenience. Examiner agreement over the years reflects examiner grading teams that have been selected for each examination based on their past examiner performance to ensure an optimal balance of examiner severity level. While nearly all examiners perform within recommended ranges of harshness and lenience percentages, to assign all the examiners that have performed at one end of that continuum to a single examination could introduce a systematic bias. The examiners who participated in the field-test grading session were scheduled based on location and convenience, given the conditions posed by COVID-19. The field-test examiners also included two relatively new examiners, who would not be assigned to the same examination under conventional conditions. Despite these potential threats to optimal examiner team performance, examiner agreement statistics for the field-test grading session were comparable to percentages of agreement, harshness, and lenience for the standard Operative section in previous years. Table 4 provides examiner agreement percentages for the standard Operative Section from the 2019 season and for the Operative Simulation field test grading session.

Table 4. *Percentages of Examiner Agreement, Harshness, and Lenience: Standard Operative Section and Operative Simulation Field Test*

	<i>N</i> Examiners	% Harsh	% Lenient	% Agreement
Standard Operative Section 2019 Season	110	5.5%	5.3%	89.2%
Operative Simulation Field Test Day 1	5	5.6%	5.7%	88.7%

Examiner severity estimated with the many-faceted Rasch model, is reported in Table 5, which provides summaries of results in logit, i.e., log-odds, units. High negative logits reflect more lenience and high positive logits reflect more harshness. For the standard Operative Section examination, most examiners fall within one logit unit of the mean, i.e., between -1.00 and 1.00, and within recommended ranges with respect to infit and outfit mean-square fit statistics, i.e.,

between 0.50 and 1.50. Examiner severity estimates for the first day of the Operative Simulation field test and for all Operative Simulation field-test examiners reflect smaller ranges with no outlying values. Additional details of the Many-faceted Rasch Model analyses are provided later with the results of field-test candidate performance.

Table 5. *Many-Faceted Rasch Model Examiner Severity Analysis Indicators in Logits: Standard Operative Section and Operative Simulation Field Test (Number of examiners provided below each header)*

Indicator	Standard Operative Section 2019 Season ( $N_E = 110$ )	Operative Simulation Field Test Day 1 ( $N_E = 5$ )	Operative Simulation Field Test All ( $N_E = 7$ )
Severity Measure Logit (Range)	-0.88 – 1.06	-0.41 – 0.44	-0.33 – 0.52
Standard Error (Range)	0.05 – 0.16	0.05 – 0.07	0.05 – 0.07
Severity Measure Logit Mean <sup>a</sup>	0.0	0.0	0.0
Severity Measure Logit <i>SD</i>	0.42	0.33	0.31
Infit Mean-Square (Range)	0.54 – 1.77	0.71 – 1.25	0.66 – 1.38
Outfit Mean-Square (Range)	0.52 – 1.72	0.72 – 1.22	0.66 – 1.32

<sup>a</sup> Mean of examiner severity parameters constrained at 0.

### Field-Test Examiner Survey Results

The seven examiners who participated in the Operative Simulation field test grading session were sent a link to an online survey. The response rate was 100%. There were eight main questions and all questions offered the option to provide comments. There was a section for additional comments or suggestions at the end. Results for the eight questions are listed below, with a summary of responses and examples of comments.

Examiners responded unanimously to the first five questions, which asked about materials, instrumentation provided, difficulty of the grading tasks, as well as their understanding of, and ability to follow, the social distancing protocol. Possible responses to the first five questions were

Yes or No, except for Question 3, with possible responses of Easy, Moderate, or Difficult. The first five questions and the common responses are provided in Table 6.

Table 6. *Operative Simulation Grading Session Field-Test Examiner Survey Questions 1 to 5 with Responses*

Questions 1 to 5	Unanimous Response
1. Did the Candidate Guide and Examiner Manual adequately explain the simulation and grading procedures?	Yes, 100%
2. Were the social (physical) distancing instructions clear and easy to understand?	Yes, 100%
3. How difficult was it for you to maintain appropriate social (physical) distancing while serving as an examiner?	Easy, 100%
4. Did you have difficulty with any of the grading tasks?	No, 100%
5. Was the instrumentation provided for your use, everything you needed?	Yes, 100%

Optional comments associated with the first five questions were positive, e.g., regarding ability to maintain social distancing, (Question 3), “I felt very safe” and regarding grading tasks (Question 4), “Calibration was well orchestrated and provided the preparation necessary for us as examiners to perform efficiently and effectively. Nice job!”

Question 6 asked the field-test examiners about how well the calibration exercises prepared them for grading. Figure 9 illustrates the percentages of each response. Five examiners (71%) responded “Very well.” One commented, “It was my first time actually grading so it was very helpful to me.” Two (29%) responded “Well enough” accompanied by the following two comments, “Too detailed which sometimes can create more issues than being useful” and “This was a new exam but we made do,” which suggest that continued review and refinement may be useful. The criteria has already been evaluated and edited based on examiner feedback.

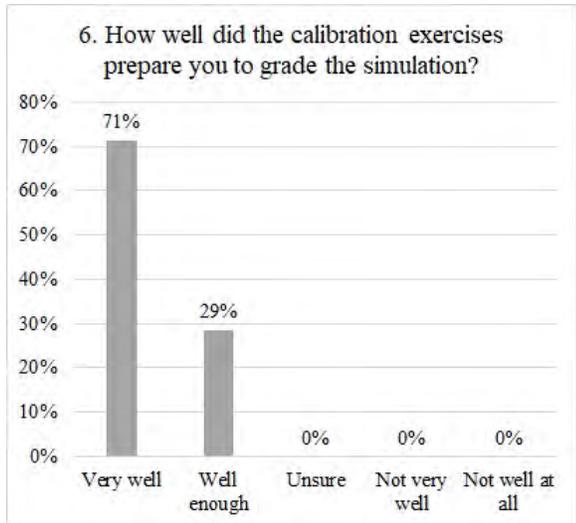


Figure 9. Proportion of different responses to Examiner Survey Question 6.

The grading criteria are nearly the same as the criteria used for the standard Operative Section, except for the removal of a few items, such as caries, pulp exposure and rubber dam isolation that do not apply for the Operative Simulation section. Question 7 asked the field-test examiners how well the modified criteria work for the simulation. Figure 10 shows the percentages of each response. Six examiners (86%) responded “Very well” or “Well enough,” evenly split between the two responses. One examiner responded “Unsure.” Only one comment was offered, “I think it’s easier to see mistakes on a manikin than in the mouth.”

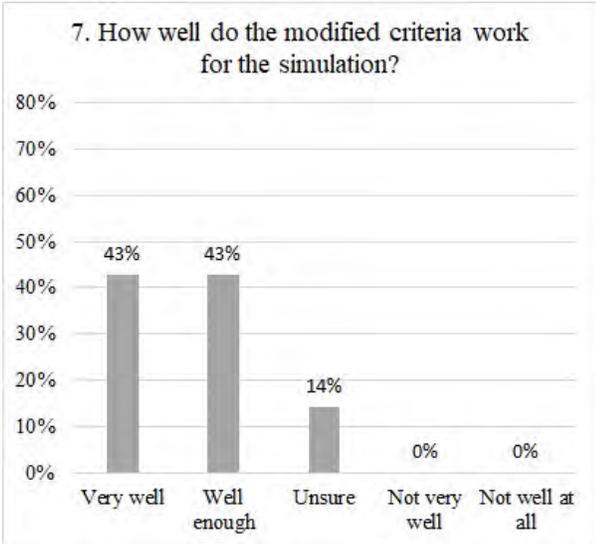


Figure 10. Proportion of different responses to Examiner Survey Question 7.

Question 8 asked field-test examiners whether they felt it was easier or more difficult to assess candidate performance with each candidate having received the same preparations. Figure 11 shows the percentages of each response. Five examiners (71%) felt it was easier, with four of them responding “Definitely easier” and one, “Somewhat easier.” Two examiners (29%) responded “About the same.” Comments included, “I would say that it levels the playing field and we still saw plenty of variation in performance for the finished restoration. Good simulation”, “It was more fair to the candidates!”, “Loved that part” and “As you see the same procedures over and over it becomes easy to compare and evaluate.”

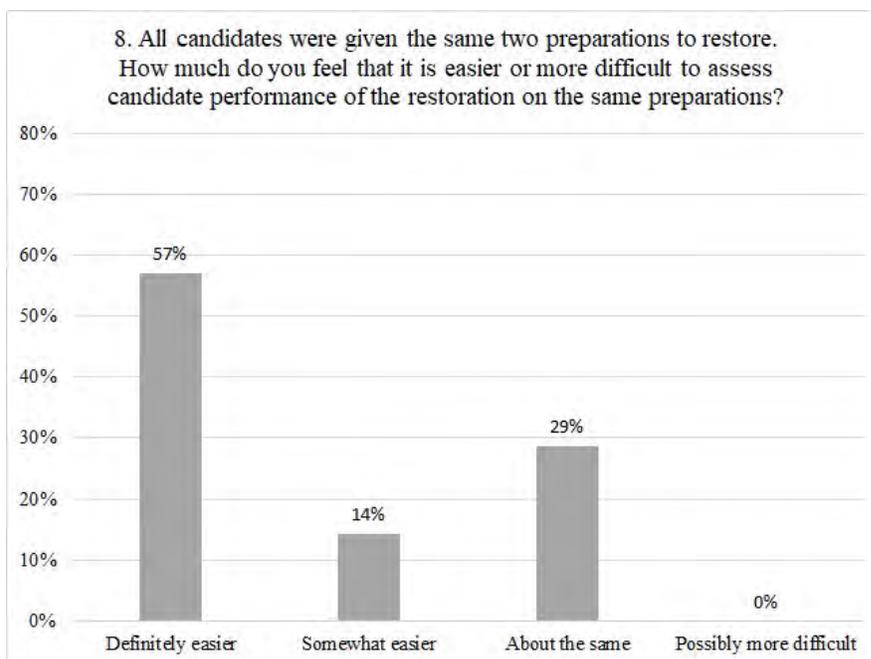


Figure 11. Proportion of different responses to Examiner Survey Question 8.

The section at the end inviting other comments or suggestions elicited one generic positive comment and two substantive comments suggesting that the Operative Examination Committee should consider including a means of failing or deducting points for examiner-validated gross open contact, e.g., “Grading for open contact is somehow still passing the candidate which I think it needs to be one of the automatic failure situations.” Changes to criteria descriptors that will impact scoring and address the suggestions made in the comments have been prepared and recommended to the committee for implementation.

### **Field Test Results: Candidate Performance and Test Quality**

Table 7 provides basic descriptive statistics for the raw and weighted means of medians computed from the three sets of examiner grades for each criterion. Direct comparisons to the standard Operative Section, particularly regarding criterion scores, are limited due to three factors. One is that only 5.5% of procedures performed for the standard Operative Section in 2019 were Class III procedures. All field-test attempts on the Operative Simulation Section included a Class III procedure. Since 2018, most states are accepting the results of performance on one Class II procedure if competence is demonstrated, so many candidates are completing Class II procedures. Years of Operative Section data have shown that the Class III is slightly, but significantly, less challenging than any Class II procedure and therefore, if completed, must be in combination with a Class II procedure. The second limiting factor is that many arches completed in the first, smaller field test, were modified to create additional exemplars of grading criteria performance levels during the development calibration materials and some performance levels may not be distributed within the sample in a comparable manner. The third factor is that the field-test host schools, which were chosen for location and convenience, given the conditions posed by COVID-19 and their students may not be a representative sample of all potential candidates.

Despite field-test limitations to direct comparison, three criteria and final scores (which include point deductions from penalties and loss of all points due to critical errors) were highly comparable. The slightly higher final score mean reflects a more negatively skewed distribution in the field test data; the passing percentage is actually somewhat lower for the field test than the standard Operative section in 2019. The significantly higher means of raw scores and some criteria for the field-tests may be related to the difference in procedure type in the comparison, particularly for Anatomical Form and Margins, which have traditionally scored significantly higher for the Class III procedure. Recent additions, since the field-test, to the criterion definitions for Internal Form related to grading examiner feedback are also expected to result in higher comparability.

Table 7. *Grading Criteria and Section Scores for Standard Operative Section and Operative Simulation Field Test: Means and Standard Deviations of Raw Unweighted Class II Median Criterion Scores, Raw and Final Scores, with t-Tests. Included are t values, probability values (p), effect size values (Cohen's d) degrees of freedom (df), and alpha level ( $\alpha$ ), i.e., significance below 0.05. Number of procedures noted as  $N_p$ , number of attempts noted as  $N$ .*

	Standard Operative Section 2019 $N_p = 2,553^a$		Operative Simulation Field Test 2020 $N_p = 164^a$		t-tests $df = 2,715; \alpha = 0.05$		
	Mean	SD	Mean	SD	t value	p value	Cohen's $d^b$
Outline and Extension	3.63	0.75	3.65	0.85	-0.27	0.79	0.02
Internal Form	3.62	0.74	3.85	0.65	-3.90	<0.01	0.33
Operative Environment	4.27	0.67	4.19	0.76	1.42	0.16	0.11
Anatomical Form	3.60	0.70	3.99	0.81	-6.86	<0.01	0.52
Margins	3.65	0.66	3.99	0.72	-6.32	<0.01	0.49
Finish, Function, & Damage	3.94	0.59	3.88	0.85	1.23	0.22	0.08
	$N = 2,166$		$N = 82$		$df = 2,246$		
Overall Raw Score	3.74	0.46	3.88	0.44	-2.76	0.01	0.31
Overall Final Score (with Penalties)	3.71	0.53	3.75	0.75	-0.69	0.49	0.06

<sup>a</sup> Only 5.5% of procedures performed in 2019 were Class III; 50% of Field test Procedures were Class III

<sup>b</sup> Generally accepted interpretations of Cohen's  $d$  effect size values are small,  $d = 0.2$ , medium,  $d = 0.5$  and large,  $d = 0.8$  (Cohen, 1988)

Table 8 provides field-test summary results from the many-faceted Rasch model (MFRM) analysis for graded criteria in logit, i.e., log-odds, values, with results from the 2019 standard Operative Section for reference. The MFRM analysis reported in Table 8 reflects the first day of grading, with complete sets of three grades per examination attempt. Mean-square fit statistics and discrimination parameter estimates are within suggested ranges. Since the criteria have multi-point

rating scales they were also assessed for category functioning, as well, in accordance with Linacre’s (2002) rating scale guidelines to assess, e.g., that average parameter estimates of candidate ability increase with each category scale point.

Table 8. *Standard Operative Section and Operative Simulation Field Test: Many-Faceted Rasch Model Criterion Analysis Indicators in Logits.*

	Standard Operative Section 2019 <i>N</i> = 2,166	Operative Simulation Field Test 2020 <i>N</i> = 82
Criterion Measure Logit (Range)	-0.78 – 0.39	-0.37 – 0.43
Standard Error (Range)	0.02 – 0.02	0.08 – 0.10
Criterion Measure Logit Mean <sup>a</sup>	0.0	0.0
Criterion Measure Logit <i>SD</i>	0.50	0.25
Many-Facet Point-Biserial <i>r</i> <sup>b</sup> (Range)	0.25 – 0.32	0.23 – 0.37
2pl Discrimination Estimate <sup>c</sup> (Range)	0.92 – 1.08	0.76 – 1.10
Infit Mean-Square (Range)	0.93 – 1.07	0.85 – 1.19
Outfit Mean-Square (Range)	0.92 – 1.08	0.85 – 1.21

<sup>a</sup> Mean of criterion parameters constrained at 0

<sup>b</sup> Correlation between observations and corresponding average observations, excluding current observation

<sup>c</sup> Estimate of discrimination parameter, as calculated for two-parameter logistic IRT model; Rasch (c.f., one-parameter IRT) model fit requires values close to 1.00 (i.e., between 0.5 to 1.5 logits)

Table 9 provides summary statistics for overall test functioning, with 2019 standard Operative Section results for reference. The MFRM analysis reported in Table 9 also reflects the first day complete sets of three grades per examination attempt. Results are highly comparable, even with the large difference in sample size and limitations regarding comparisons noted earlier. The reliability estimate for the Operative Simulation Field Test is quite high for a performance-based assessment, at 0.91, which likely reflects the uniformity of the simulated teeth, in addition to high levels of examiner agreement. An additional MFRM analysis was conducted including all

examiner grades from both days of grading, yielding similar results and an even higher reliability estimate of 0.93, providing additional evidence of calibration effectiveness. (The Rasch person separation reliability estimate is the same or lower than Cronbach’s alpha coefficient estimates of internal consistency reliability [Cronbach, 1951]. Minimum and maximum scores are excluded, if applicable; note that in the Many-faceted Rasch Model analysis, minimum and maximum refers to all raw grades, not median grades). Final score statistics include zero scores, which result from validated critical errors.

Table 9. *Standard Operative Section and Operative Simulation Field Test: Overall Test Summary Statistics*

Indicator	Standard Operative Section 2019	Operative Simulation Field Test 2020
<i>N</i> Attempts	2,166	82
Final Score Mean	3.71	3.75
Final Score <i>SD</i>	0.53	0.75
Minimum; Maximum	0.00; 5.00	0.00; 4.68
Standard Error of Measurement ( <i>SEM</i> )	0.21	0.23
Conditional <i>SEM</i> at Passing Score	0.08	0.09
<i>Indicators below are reported in logits.</i>		
Candidate Ability Estimate Mean	1.54	1.08
Candidate Ability Estimate <i>SD</i>	0.87	0.80
Candidate Ability Estimate Min.; Max.	-2.02; 5.04 (-5.59 <sup>a</sup> ; 5.04)	-0.71; 2.89
Person Separation Reliability Estimate <sup>b</sup>	0.85	0.91

<sup>a</sup> If minimum score(s) included: Facets software flags minimums and maximums and estimates test statistics with and without extremes

<sup>b</sup> Equivalent to alpha coefficient internal consistency reliability estimate (Cronbach, 1951), or lower than alpha, since minimum (zero) and maximum (perfect) scores are excluded

The percentage of candidates that scored at or above the passing cut score on the Operative Simulation field tests was 92.7% (76 out of 82). The passing percentage for the second, larger field test was lower than that of the first, due to penalties, including two attempts with validated critical errors (e.g., treated the wrong tooth) that lost all points. Table 10 provides passing percentages for the two Operative Simulation field tests, with the 2019 standard Operative Section passing percentage for reference.

Table 10. *Standard Operative Section and Operative Simulation Field Test: Passing Percentages*

	<i>N</i> Attempts	Passing Count	Failing Count	Passing Percentage
Standard Operative Section 2019 Season	2,166	2,079	87	96.0%
Operative Simulation Field Test 2020 - Total	82	76	6	92.7%
Field Test First Site March 30, 2020 (U. of OK)	20	19	1	95.0%
Field Test Second Site April 1-2, 2020 (U. of UT)	62	57	5	91.9%

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June 9, 2020

Dr. Peter S. Katz, Chair  
Connecticut State Dental Commission  
410 Capitol Avenue, MS #13PHO  
P. O. Box 340308  
Hartford, CT 06134-0308

Dear Dr. Katz,

The Joint Commission on National Dental Examinations (JCNDE) is aware of recent actions taken by the Connecticut State Dental Commission (CSDC) in accordance with Public Act 19-72 to consider alternative dental licensure examinations that do not require single encounter, procedure-based patient examinations. Representatives of the JCNDE would be pleased to speak with members of the CSDC to discuss the JCNDE's new dental clinical examination—the Dental Licensure Objective Structured Clinical Examination (DLOSCE)—which will be available for use by US dental boards effective June 15, 2020.

On April 2, 2020, the JCNDE released an announcement (attached) to all US dental boards concerning the launch of this new examination. The DLOSCE is a content-valid examination built specifically for clinical licensure purposes that assesses candidates' clinical judgment and skills using sophisticated 3-D models, without the need to involve patients. On April 22, the JCNDE conducted a webinar on the DLOSCE specifically for state dental board members, and was pleased that representatives of 24 dental boards attended.

The JCNDE website includes additional information about the [DLOSCE](#) which may be of interest to members of the CSDC, including the DLOSCE candidate guide, practice questions, and 3-D model tutorial. The JCNDE is confident that the DLOSCE is a strong examination that is well-suited for use in addressing the clinical examination licensure requirements of dental boards, and is particularly responsive to pressing needs in today's challenging times.

Representatives of the JCNDE, including myself, would welcome the opportunity to speak with the CSDC at its next meeting to further discuss acceptance of the DLOSCE for licensure purposes in Connecticut. Dr. David Waldschmidt, director of the JCNDE, would be pleased to work with Dental Commission staff and you regarding meeting arrangements.

Sincerely,



Cataldo W. Leone, DMD, DMedSc, FACD, FICD, Chair  
Joint Commission on National Dental Examinations

Cc: Mr. Jeffrey A. Kardys, Administrative Hearings Specialist, Board Liaison, Connecticut State Dental Commission  
Ms. Carol Dingeldey, Executive Director, Connecticut State Dental Association  
Dr. David Waldschmidt, Director, Joint Commission on National Dental Examinations

To: US Dental Boards, the Dental Education Community, Dental Licensure Candidates

From: Dr. Cataldo Leone, Chair of the Joint Commission on National Dental Examinations (JCNDE)

Date: April 2, 2020

Subject: Official Release of the JCNDE's Dental Licensure Objective Structured Clinical Examination (DLOSCE)

The Joint Commission on National Dental Examinations (JCNDE) has a long and distinguished track record of providing valid and reliable high-stakes examinations for licensure purposes, to protect the public health. We continue to innovate in our efforts to serve the needs of those who use our examinations to inform their decisions. This innovation and drive for excellence is more important than ever given these uncertain times, the challenges that face all of us, and the implications of JCNDE examinations for stakeholders, communities of interest, and the public.

In light of the preceding, **I am pleased to announce that on March 31, 2020 the JCNDE approved a resolution to make its newest examination—the Dental Licensure Objective Structured Clinical Examination (DLOSCE)—available for use in 2020 by dental boards in the US.** The DLOSCE is a content-valid examination built specifically for clinical licensure purposes that assesses candidates' clinical judgment and skills using sophisticated 3-D models, without the need to involve patients. **The JCNDE is targeting Monday, June 15, 2020 as the official date of release, pending test center availability.**

The DLOSCE is comprehensive in its assessment of clinical judgment, including content in the following areas: Restorative Dentistry; Prosthodontics; Oral Pathology, Pain Management and TMD; Periodontics; Oral Surgery; Endodontics; Orthodontics; Medical Emergencies; and Prescriptions. Diagnosis, Treatment Planning, and Occlusion are assessed across the aforementioned topic areas. DLOSCE content has been developed by teams of highly qualified subject matter experts, working together to build examination questions that are capable of accurately and reliably identifying those who possess the clinical skills necessary to safely practice dentistry. Use of the DLOSCE is supported by content validity arguments, the same type of validity evidence that is used to support the JCNDE's other examination programs—the National Board Dental Examinations Parts I and II, the National Board Dental Hygiene Examination, and the Integrated National Board Dental Examination. The DLOSCE complements these other examination programs, advancing the work of the JCNDE as it pursues its vision to serve as the nation's leading resource for supporting standards of oral healthcare professionals through valid, reliable and fair assessments for licensure and certification.

The JCNDE understands that stakeholders and communities of interest will have many questions concerning the DLOSCE. With this in mind, the JCNDE will be conducting webinars in coming weeks, to share additional information in preparation for the release of this important new examination program. Each webinar will focus on a particular stakeholder group or community of interest (dental boards, dental educators, and students), answering questions and providing each group with information that is directly relevant to their specific needs. In the

meantime, updates on the DLOSCE will continue to be shared through the JCNDE's DLOSCE webpage ([ada.org/dlosce](http://ada.org/dlosce)).

In closing, the JCNDE would like to take this opportunity to thank dental boards for their continued reliance on the examinations of the JCNDE. The JCNDE is confident that the DLOSCE is a strong examination that is well-suited for use in addressing the clinical examination licensure requirements of each board, and is particularly responsive to their pressing needs in these challenging times. The JCNDE looks forward to working closely with all boards interested in accepting the DLOSCE for licensure purposes in 2020 and beyond.

**The Joint Commission on National Dental Examinations**

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