Caries Management Competency:

*How to Implement this new CODA Requirement?*

Ideas from US Dental Schools

Sponsored by the ADEA Cariology Section
Cariology Section Contributors:

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Andrea Zandona D.D.S., MSD, Ph.D. Tufts University School of Dental Medicine
Webinar Overview:

Consensus Cariology Teaching Points

Competency Mechanisms from:
- Georgia
- Michigan
- Tufts
- Florida

Question and Answer Session by Panelists
Why a Competency in Caries Management?

Dental caries is the most common dental disease.

BUT previous CODA requirements focused only on the surgical treatment to excise caries and restore tooth structure

Caries education has changed from “just repair” to management!
Implementation of New Caries Evidence

Dr. Max Anderson summarized current evidence, proposing the **Medical Model of Caries** in JADA, 1994.

Worldwide curricular changes created support in the US for the **2015 Boston Caries Workshop** to develop a **Core Curriculum** framework, published in 2016 by JDE.

Modem Management of Dental Caries: The Cutting Edge is not the Dental Bur

Caries Curriculum Workshop 2015 recommended this competency statement on caries management:

“Upon graduation a dentist must be competent in:

• **Evidence-based detection and diagnosis of caries** (radiographs, clinical)
• **risk assessment** (many CRA forms)
• **Prevention** of future caries- (OHI, Nutrition, Behavior Mod, Fluorides)
• non-surgical and surgical management* of caries at individual and community levels and
• Ability to **reassess outcomes over time.**”

*minimally invasive
Final CODA statement:
CODA only added language to Standard 2-24d that states:
“graduates must be competent in health promotion and disease prevention, including caries management”
At a minimum, graduates must be competent in providing oral health care within the scope of general dentistry, as defined by the school, including:

a. Patient assessment, diagnosis, comprehensive treatment planning, prognosis, and informed consent
b. Screening and risk assessment for head and neck cancer
c. Recognizing the complexity of patient treatment and identifying when referral is indicated
d. Health promotion and disease prevention, including caries management
e. Local anesthesia, and pain and anxiety control, including consideration of the impact of prescribing practices and substance use disorder
f. **Restoration of teeth**
g. Communicating and managing dental laboratory procedures in support of patient care
h. Replacement of teeth including fixed, removable and dental implant prosthodontic therapies
i. Periodontal therapy
j. Pulpal therapy
k. Oral mucosal, temporomandibular, and osseous disorders
l. Hard and soft tissue surgery
m. Dental emergencies
n. Malocclusion and space management
o. Evaluation of the outcomes of treatment, recall strategies, and prognosis
Competency Statement ->
Mechanism to assess competence

New graduates must **demonstrate competence** to begin independent, unsupervised dental practice

• Each dental school **must create a mechanism (competency) that demonstrates student skill.**

• CODA lets each school develop their own competency method.
Core Caries Concepts for Curriculum
Caries as a Disease:

“Demin- Remin Cycle”
Caries as a Disease:

CAMBRA: Caries Management By Risk Assessment

Evidence shows:

• Caries is a **multi-factorial disease**

• Management of caries requires:
  • Individual risk assessment for each patient
  • Treatment plan **based on risk assessment**

The Caries Balance

Pathological Factors
- Acid-producing bacteria
- Frequent eating/drinking of fermentable carbohydrates
- Sub-normal saliva flow and function

Protective Factors
- Saliva flow and components
- Fluoride, Calcium, Phosphate: remineralization
- Antibacterials: chlorhexidine, xylitol, new?

Featherstone, Community Dent Oral Epidem, 1999
Diagnosis and Treatment Planning: How CAMBRA works

Tooth/Surface Diagnosis
- Detect lesions: Visual, radiographs
- Evaluate lesion activity (Color, hardness, etc)

Patient Diagnosis
- Caries Risk Assessment (in computer)
- Behavioral Assessment from evaluation of patient
- Dentition/Lesion History, What’s happened in the past?

Tooth Diagnosis

Tooth/Surface Prognosis

Treatment Plan

Thought process

Patient Prognosis

Patient Assessment

13
Smooth Surface Diagnosis

• Assessment of cavitation is critical:
• Until cavitated, lesions are generally not invaded by bacteria
• Demineralized enamel and dentin surfaces can re-mineralize if oral environment changes
Clinical Diagnosis and Use of the Explorer

Diagnostic tools for early caries detection
Andréa Ferreira Zandoná, DDS, MSD, PhD  Domenick T. Zero, DDS, MS
DOI: https://doi.org/10.14219/jada.archive.2006.0113

Visual cues!

Explorer used only to feel for cavitated areas
### American Dental Association Caries Classification System

<table>
<thead>
<tr>
<th>Clinical Presentation</th>
<th>Sound</th>
<th>Initial</th>
<th>Moderate</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Presentation</td>
<td>No clinically detectable lesion. Dental hard tissue appears normal in color, translucency, and gloss.</td>
<td>Earliest clinically detectable lesion compatible with mild demineralization. Lesion limited to enamel or to shallow demineralization of cementum/dentin. Mildest forms are detectable only after drying. When established and active, lesions may be white or brown and enamel has lost its normal gloss.</td>
<td>Visible signs of enamel breakdown or signs the dentin is moderately demineralized.</td>
<td>Enamel is fully cavitated and dentin is exposed. Dentin lesion is deeply/ severely demineralized.</td>
</tr>
<tr>
<td>Other Labels</td>
<td>No surface change or adequately restored</td>
<td>Visually noncavitated</td>
<td>Established, early cavitated, shallow cavitation, microcavitation</td>
<td>Spread/disseminated, late cavitated, deep cavitation</td>
</tr>
<tr>
<td>Infected Dentin</td>
<td>None</td>
<td>Unlikely</td>
<td>Possible</td>
<td>Present</td>
</tr>
</tbody>
</table>

The American Dental Association Caries Classification System for Clinical Practice: A report of the ADA Council on Scientific Affairs 2015
**Smooth Surface Approximal Caries: Diagnosing Radiographically**

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**American Dental Association Caries Classification System.**

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</tr>
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</table>

**Radiographic Presentation of the Approximal Surface**

- **E0**: No radiolucency
- **E1**: Radiolucency may extend to the dentinoenamel junction or outer one-third of the dentin. Note: radiographs are not reliable for mild occlusal lesions.
- **E2**: Radiolucency extends into the middle one-third of the dentin
- **E3**: Radiolucency extends into the inner one-third of the dentin

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The American Dental Association Caries Classification System for Clinical Practice: A report of the ADA Council on Scientific Affairs
# Diagnosing Pit and Fissure Caries

## American Dental Association Caries Classification System

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</table>

<table>
<thead>
<tr>
<th>Other Labels</th>
<th>Infected Dentin</th>
<th>Appearance of Occlusal Surfaces (Pit and Fissure)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No surface change or adequately restored</td>
<td>Unlikely</td>
<td>None</td>
</tr>
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<td>Possible</td>
<td>Unlikely</td>
</tr>
<tr>
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<td>Spread/disseminated, late cavitated, deep cavitation</td>
<td>Present</td>
</tr>
</tbody>
</table>
Caries Risk Assessment

• Many different mechanisms available
• Generally, all consider patient’s:
  • Exposure to simple carbohydrates
  • Salivary flow rate
  • Current and past caries experience
  • OH and Fluoride exposure
• Behavioral factors, ie patient concerns
Caries as a Disease: Management “over time”

Because the lesions of caries form slowly, *reassessment of caries risk* must be also performed *over time*.

Key Goals:
- Assess patient attitudes and challenges
- Reinforce and encourage needed behavioral changes
Competency in Caries Management

• Unlike single event competency evaluations, demonstrating these skills requires different strategies

• Must evaluate student’s ability to develop and perform complex critical thinking skills
Learning Objectives of this Webinar

1) Describe the elements of a caries management competency that evaluates the student’s ability to
   a. assess individual patient risk
   b. develop a personalized treatment plan
   c. reassess over time the patient’s caries risk and management plan

2) Guide development of a caries management competency using best practices from other institutions

This webinar will provide examples of how other dental schools meet this new CODA requirement in slightly different creative ways.
Caries Management Competency

The Dental College of Georgia System

Jan Mitchell, DDS, MEd (Ret)
Clinical Practice

- **D2- Clinic** - small panel- 3-4 patient for recall exam including a CRA*, prophy and simple operative as needed.

- **D3, D4- Clinic** - All patients get a CRA* as part of initial and annual exams. Factored into all treatment planning.

**CRA- Caries Risk Assessment.** Included in grading rubric for correct diagnosis and assessment of patient factors.
How DCG competency works

Part 1. Diagnosis and Caries Risk Assessment

- **Student adds the ADA CDT D0603 Code** to all high-risk patients examined. Only one will be the competency patients, but attrition (and good care!) makes it necessary to add to all high risk patient charts.

*When student has done enough cases to feel confident:*

- **Student declares the competency,** presents paperwork for patient exam
<table>
<thead>
<tr>
<th>Standard</th>
<th>Pass</th>
<th>No Pass: &gt;2 errors or any critical errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documentation</td>
<td>Paperwork correctly prepared in advance</td>
<td>No paperwork</td>
</tr>
<tr>
<td>Diagnosing caries</td>
<td>Correctly detect carious lesions present Lesions not present not charted (incipient or questionable lesions at faculty discretion)</td>
<td>&gt; 1-2 minor discrepancies. Incipient lesions at faculty discretion. <em>Critical error</em>: cavitated lesion &gt; 1 mm large not detected/charted</td>
</tr>
<tr>
<td>CRA Assessment</td>
<td>Caries Risk Assessment completed with accurate information, especially diet and salivary factors</td>
<td>CRA has inaccurate information or evaluation <em>Critical error</em>: Inaccurate evaluation of contributing diet or salivary concerns</td>
</tr>
<tr>
<td>Caries Risk Tx Plan</td>
<td>Patient recommendations appropriate for individual’s risk assessment (i.e., salivary reduction &gt; particular product choices) per current caries guidance</td>
<td>Patient recommendations not appropriate for individual’s risk (up to 1 error) <em>Critical error</em>: CRA Form not completed</td>
</tr>
<tr>
<td>Restorative Treatment planning</td>
<td>Restorative plan appropriate for patient's risk:</td>
<td>Restorative plan missed more than one of the following:</td>
</tr>
<tr>
<td></td>
<td>• Appropriate F &lt;br&gt;varn entries</td>
<td>• F &lt;br&gt;varn not treatment planned appropriately</td>
</tr>
<tr>
<td></td>
<td>• Appropriate material choice</td>
<td>• Surfaces planned correctly for lesion</td>
</tr>
<tr>
<td></td>
<td>• All primary caries planned for restoration</td>
<td>• Material choice inappropriate, or student not able to articulate rationale for choice</td>
</tr>
<tr>
<td></td>
<td>• Questionable pits and fissures planned for PRRs</td>
<td>• Identified caries not planned for appropriate restorative care.</td>
</tr>
<tr>
<td>Final Assessment</td>
<td>Pass</td>
<td>Fail: More than 2 errors or any critical errors</td>
</tr>
</tbody>
</table>
Treat patient’s caries -

Documentation of treatment

- Student treats the patient surgically and non-surgically for at least 6 months.
- Student adds caries treatment notes to D0603 code on all patients treated. Counselling notes, F varn, dry mouth issues, etc. by copy/paste from chart note, adding to D0603.

Emphasizes importance of documentation in management of high-risk caries patients!
### Recommended documentation:

<table>
<thead>
<tr>
<th>Item</th>
<th>Initial documentation</th>
<th>Follow up documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diet concerns</td>
<td>In CRA, list specific simple carb items that may contribute to caries</td>
<td>Treatment chart notes include comments on dietary status-improving or no. These are copy/pasted into notes attached to D0603.</td>
</tr>
<tr>
<td>OHI</td>
<td>In CRA treatment planning section</td>
<td>Treatment chart notes on teaching efforts and products/tools recommended. These are copy/pasted into notes attached to D0603.</td>
</tr>
<tr>
<td>F varnish</td>
<td>Frequency in Phase 1,2 Treatment Plan</td>
<td>Do F varnish at recommended intervals. Attach note to D0603 when procedure performed.</td>
</tr>
<tr>
<td>F Toothpaste</td>
<td>Rx in Medication Form</td>
<td>Check “Transactions” icon to see that patient has purchased the toothpaste. Ideally, will be purchased every 3-4 months if patient is using it.</td>
</tr>
<tr>
<td>Add’l Product suggestions</td>
<td>In CRA treatment planning section or chart note. Ex: arginine chews, xylitol or sugarless gum.</td>
<td>Ask patient to bring product to appointment “to make sure you’ve got the items that will work for you” and document in chart note. Copy/paste into notes attached to D0603.</td>
</tr>
</tbody>
</table>
Treat patient’s caries- documentation sample

**Med Hx review:** No changes Pt presents for restoration #4, 5. **Anes:** Administered lidocaine 2% 34 mg, 0.017 mg epi. **Shade selected:** A3
**Isolation:** Rubber dam placed


**Non-surgical caries tx:** Patient has switched to diet soda, using Rx 5000 ppm F at bedtime daily. Will need refill next appt.

*Pt dismissed doing well.*
Treat patient’s caries- documentation sample

Med Hx review: No changes Pt presents for restoration #4, 5.

Anes: Administered lidocaine 2% 34 mg, 0.017 mg epi. Shade selected: A3

Isolation: Rubber dam placed


Non-surgical caries tx: Patient has switched to diet soda, using Rx 5000 ppm F at bedtime daily. Will need refill next appt.

Pt dismissed doing well.

Student copies non-surgical caries notes, pastes into new note attached to the D0603 code: ADA CDT code for High Caries Risk Patient

Faculty swipes both codes to complete
Sample chart entries:

<table>
<thead>
<tr>
<th>Date</th>
<th>Prov./User</th>
<th>Code</th>
<th>Site</th>
<th>Surf.</th>
<th>Stat</th>
<th>Phase</th>
<th>Location</th>
<th>Discipline</th>
<th>Diagnoses</th>
<th>Appr. User</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/15/16</td>
<td>J. Mitchell</td>
<td>D0603</td>
<td>I</td>
<td>0</td>
<td>MCGC14</td>
<td>DIAG</td>
<td>J. Mitchell</td>
<td>Caries risk assessment</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>12/08/16</td>
<td>J. Mitchell</td>
<td>Note</td>
<td>0</td>
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<td>J. Mitchell</td>
<td>Last Modified: 0</td>
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<td></td>
</tr>
<tr>
<td>01/25/17</td>
<td>J. Mitchell</td>
<td>Note</td>
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<td>MCGC14</td>
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<td>J. Mitchell</td>
<td>Last Modified: 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02/07/17</td>
<td>J. Mitchell</td>
<td>Note</td>
<td>0</td>
<td>MCGC14</td>
<td></td>
<td></td>
<td>J. Mitchell</td>
<td>Last Modified: 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03/01/17</td>
<td>J. Mitchell</td>
<td>Note</td>
<td>0</td>
<td>MCGC14</td>
<td></td>
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<td>J. Mitchell</td>
<td>Last Modified: 0</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>04/21/17</td>
<td>J. Mitchell</td>
<td>Note</td>
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<tr>
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<td>J. Mitchell</td>
<td>Note</td>
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<td>MCGC14</td>
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<td></td>
<td>J. Mitchell</td>
<td>Last Modified: 0</td>
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<td></td>
<td></td>
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<tr>
<td>06/05/17</td>
<td>J. Mitchell</td>
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Chart notes also attached to the D0603. Not long but personalized and effective!
How competency works

Part 2. Completing the competency- Chart Review

- **Student chooses a patient** with documented management of caries. Does not have to be same patient as used in Part 1.

- **Student sends email to faculty:**
  - Chart number and patient initials of chosen case
  - Student attaches a **one-page reflective essay** per structured prompt

- **Faculty reviews chart, essay** against the rubric.
How competency works

Part 2. Completing the competency

Essay Prompt: Write a few pithy, self-reflective paragraphs on what you learned from doing this competency:

1. Why was it important to do this competency over time?
2. What elements were easy to remember, and which were the most challenging for you to complete? Any insight into your thoughts?
3. How did your patient react to your advice, and how did you manage your own reaction to that, and theirs?
4. Did you try Motivational Interviewing techniques, and did they help?
Competency Part 2 Checklist:

- Attached to the D0603 code, notes documenting:
  - All recommended F varnish done at the correct intervals?
  - Documented history of patient counselling on diet and oral hygiene?
  - Product recommendations for additional items like arginine chews, green tea products, adhesive xylitol melts for overnight use documented in chart.
  - If indicated, patient evaluated for new caries after 6-9 months?
- Prescription for 5000 ppm F toothpaste in place?
- All minimally invasive treatment completed (as time permits)?
<table>
<thead>
<tr>
<th>Part 2- Completing</th>
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### Rubric for Caries Competency Part 2

- **Documentation of patient counseling, CRA**
- **Prescribed F varn completed**
- **Thoughtful self-reflection**

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<td>Documentation</td>
<td>Paperwork correctly prepared in advance: Competency form prepared correctly, Self-eval submitted per instructions</td>
<td>□ Competency paperwork not completed in advance</td>
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</table>
| Chart documentation       | Show documentation attached to D0603 of caries related items during active treatment: Dietary counselling (ideally 1/mo), comments on patient attitudes to changes (ideally 1/mo). F varnish applications at prescribed intervals. Oral hygiene adjunct, but not the only type of preventive interventions. Smoking cessation, while admirable for period/ oral cancer, NOT related to caries experience. | □ Evidence in chart but not attached to D0603. Student must provide a list of items by date to facilitate chart review. *Critical errors:*
| CRA Assessment            | Caries Risk Assessment completed with accurate updated information, especially diet and salivary factors. | □ CRA out of date (>12 months) □ CRA re-eval significantly incorrect (Ex: pt put in low risk because not completed, if >3 lesions, pt stays in High Risk for 3 yrs) |
| Maintenance Rx Plan       | Patient recommendations appropriate for individual’s risk assessment (ie. salivary reduction > particular product choices) per current caries guidance | □ Patient recommendations not appropriate for individual’s risk (up to 1 error) □ Critical error- Preventive plan not completed/updated within 12 months |
| Self-evaluation           | Self-evaluation submitted per instructions that includes reflection on lessons learned, items student would do differently, skills in patient management and motivational interviewing learned | *Critical Errors:*
| Final Assessment          | Pass                                                                 | Fail: More than 2 errors or any *critical errors |

*Critical Errors:*
- F varn not done in timely manner.
- Documentation of patient counselling and progress not documented every 1-3 months, or does not address patient’s caries risk factors.
Exam - Start at least 3-5 patients, follow for minimum 6 months

PART 1
Initiate competency by demonstrating skills:
- Diagnose caries
- Caries risk assessment and preventive tx planning, ie F varnish if appropriate
- Restorative care treatment planning

Enter D0603 “In Process”

PART 2
After at least 6 months, email a request for chart review of documentation of appropriate counselling and treatment.

Include a reflective self-evaluation on management of the case. See prompt questions.

Course director completes competency. Move D0603 to Complete

Overview of Competency Process

Manage patient’s caries

Treat lesions, including sealants and PRRs
Prescribe high dose F toothpaste if appropriate
Document monthly appropriate follow up:
- Dietary counselling with specific recommendations based on CRA findings.
- F varnish per schedule
- OHI, products as needed
- Dry mouth products by linking copy of chart notes to D0603

Complete competency

Course director completes competency. Move D0603 to Complete

Summer Fall Spring
Caries Management Competency: Implementation of this new CODA requirement

University of Michigan Cariology Curriculum and Assessment

Margherita Fontana, DDS, PhD
Clifford Nelson Endowed Professor of Dentistry
University of Michigan School of Dentistry
Department of Cariology, Restorative Sciences and Endodontics

mfontan@umich.edu
4-Year Curriculum Map

Cariology 1

Cariology 2

Didactic, laboratory and clinical learning (Formative and Summative Assessments Didactic and preclinic)

Technical Skills (Restorative Courses)

Clinical Assessment
(Mandatory: Risk assessment and caries management treatment plan that is reassessed for every patient at the school to manage disease risk)

+ OSCEs

+ Test Cases
(Caries Detection and Risk Assessment Test Case)

(Comprehensive Clinical Courses)
Case-based clinical decision making and assessment

- Assessment of student’s ability to ANALYZE AND EVALUATE...

Critical thinking and clinical decision making based on evidence in caries detection, risk and management
For every patient **in clinic** complete and reevaluate periodically:
Predictive Validity of a Caries Risk Assessment Model at a Dental School

Emily Brons-Piche, George J. Eckert, Margherita Fontana

Model (AUC: 0.82); Significant (p<0.001) factors:
- Past/current caries experience (OR 23.7)
- Dietary risk factors (OR 3.2)
- Visible plaque (OR 2.6)
- Salivary risk factors (OR 2.6)
- Conditions that affect compliance (OR 2.4)
- Lack of adequate protective factors (OR 2.1)
Cariology:
Pass Cariology courses and Assessments:
Midterm, Final, Practical exam, and Clinical Test Cases (D1)
+ Pass D3 and D4 OSCEs
+ Pass Caries Risk Assessment and Management Test Cases in Clinic (D3 and D4)
(currently under change, and considering audit of patient cases to further demonstrate competency)

Assessment (initial and at re-assessment) of:

Caries diagnosis (clinical and radiographic)
Risk Assessment and justification
Disease Management and Prevention

(Note: Assessment of Restorative skills is separate)
**Example rubric**

- Patient must at least 1 active caries lesion and be a new patient at the school at start
- A grade below 68 or and/or evaluation with 1 V or >2 T’s will result in a failure and a need for a passing performance on a retake. A successful retake will have a score of 75 used to as the final grade for that test case.

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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnosis: Clinical and radiographic caries</td>
<td>• All cavitated, non-cavitated (active), and/or carious root surface lesions detected and diagnosed correctly</td>
<td>• 1 - 2 (if they have 4 or more lesions) cavitated, or non-cavitated (active), or carious root surface lesions missed</td>
<td>• Half of cavitated, or non-cavitated, or carious root surface lesions missed</td>
<td>• More than half of existing cavitated, or non-cavitated, or carious root surface lesions missed</td>
</tr>
<tr>
<td>Risk Assessment</td>
<td>• Assessment is accurate and complete</td>
<td>• Assessment is accurate and complete</td>
<td>• Assessment is inaccurate or incomplete</td>
<td>• Assessment is inaccurate or incomplete</td>
</tr>
<tr>
<td>• Risk category accurate</td>
<td>• Risk category inaccurate</td>
<td>• Risk category accurate</td>
<td>• Risk category inaccurate</td>
<td>• Risk category inaccurate</td>
</tr>
<tr>
<td>Disease Prevention and Management</td>
<td>• Management plan is comprehensive, appropriate and personalized to patient’s needs</td>
<td>• Management plan has 1 or 2 missing areas</td>
<td>• Management plan has 3 missing areas</td>
<td>• Management plan has 4 or more missing areas or is grossly inadequate</td>
</tr>
<tr>
<td>• Or plan does not include fluoride (at home and in office) and it is not justified</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reassessment</td>
<td>• Treatment plan was completed</td>
<td>• Treatment plan was completed</td>
<td>• Treatment plan was completed</td>
<td>• Treatment plan was not implemented</td>
</tr>
<tr>
<td>• A reassessment of risk and treatment plan at appropriate interval</td>
<td>• A reassessment of risk and treatment plan was done at inappropriate interval</td>
<td>• No reassessment of risk and treatment plan at appropriate interval</td>
<td>• No reassessment of risk and treatment plan at appropriate interval</td>
<td></td>
</tr>
</tbody>
</table>
Implementation Factors (Internal and External) To Consider To Facilitate Success

Standard of Care

Population Health / Public Expectations

Diagnostic Codes

Health Care system

Calibration + Assessment

Health Outcomes

Accreditation Standards

Reward EHR

Quality, Safety, Policy

Information Technology

Reimbursement

Thank you!
The Cariology Curriculum at Tufts School of Dental Medicine

Andrea Ferreira Zandona, DDS, MSD, PhD
Professor and Chair
Department of Comprehensive Care
PATIENT-CENTERED CARE:

Graduates must be competent to provide comprehensive patient-centered care across all age groups, that includes individual health needs, financial perspectives, and psychosocial background in oral health assessment and management.

DIAGNOSIS:

Graduates must be competent to formulate differential or definitive diagnoses by collecting and interpreting findings from medical and psychosocial histories, clinical and radiographic examinations, and other diagnostic tests.

TREATMENT PLANNING:

a. Graduates must be competent to develop comprehensive, evidence-based, properly sequenced treatment plans based on diagnosis and risk assessment as well as financial considerations.

b. Graduates must be competent in effective communication with the patient or parent/guardian the risks and benefits of the proposed treatment plans.

ORAL HEALTH PROMOTION:

a. Graduates must be competent to promote optimal oral health to diverse patient populations through individualized interventions, behavior change counseling, and plain language education.

b. Graduates must be competent to communicate and collaborate with dental team members and other health care professionals to prevent disease and promote oral and oral-systemic health.

Caries Management:

Graduates must be competent to assess patient caries risk and design an appropriate evidence-based preventive and management plan.
## Classification System Used at TUSDM

<table>
<thead>
<tr>
<th>ADA CCS</th>
<th>Sound</th>
<th>Initial</th>
<th>Moderate</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICDAS</td>
<td>0</td>
<td>1, 2</td>
<td>3, 4</td>
<td>5, 6</td>
</tr>
</tbody>
</table>

### Clinical Appearance
- **0**: No evidence of visible caries (no or questionable change in enamel translucency).
- **1**: A carious opacity or visible discoloration (white spot lesion and/or brown carious discoloration) not consistent with clinical appearance of sound enamel and which show no evidence of surface breakdown or underlying dentin shadowing.
- **2**: A white or brown spot lesion with localized enamel breakdown, without visible dentin exposure, or an underlying dentin shadow, which obviously originated on the surface being evaluated.
- **3**: A distinct cavity with visible dentin.

### Clinical Presentation
- **Active**: Opaque, whitish or brownish, rough, in plaque stagnation area.
- **Inactive**: Translucent, smooth, shiny, not in plaque stagnation area.

### Activity
- Dentin is soft or leathery on gentle probing.
- Dentin is shiny and hard on gentle probing.

### Radiographic Appearance
- No radiolucency.
- Radiolucency may extend to the DEJ or outer 1/3 of dentin.
- Radiolucency extends into the middle 1/3 of dentin.
- Radiolucency extends into the inner 1/3 of dentin.

### Radiographic Presentation
- No radiolucency.
- Radiolucency may extend to the DEJ or outer 1/3 of dentin.
- Radiolucency extends into the middle 1/3 of dentin.
- Radiolucency extends into the inner 1/3 of dentin.

---

**Tufts University**  
**School of Dental Medicine**  
**Department of Comprehensive Care**
Year 1
- Craniofacial Biology (DI, DII, DIII, DV)
- Dental Anatomy (DI)
- Introduction to Research (DV)

Fall Semester
- Oral Health Promotion/Population Oral Health (DI)

Spring Semester
- Ethics & Professionalism (DI, DIII)
- Introduction to the Dental Patient (IDP) (DI)

Both Semesters (All 1st Year)
- Community Service Learning Externship (CSLE) Program Rotation (DII, DIII, DIV)
- Comprehensive Care Clinic Rotations (DII, DIII, DIV)
- Pediatric Rotation (DII, DIII, DIV)
- Radiology Rotation (DII)

Year 2
- Epidemiology (DV)
- Introduction to the Operative Materials (DIII, DIV)
- Oral and Maxofacial Radiology (OMF Rad) (DII)

Fall Semester
- Operative Prep Workshop (DIV)

Spring Semester
- Community Service Learning Externship (CSLE) Program Rotation (DII, DIII, DIV)
  - Sim. WS Caries (DII)
  - Sim. WS Operative (DIV)
  - Sim. WS Pediatric (DIV)

Both Semesters (All 2nd Year)
- BaSiCcsss (DII)
- Comprehensive Care Clinic Rotations (DII, DIII, DIV)
- Geriatric Community Service-Learning Rotation (DII, DIII)
- Pediatric CSL Rotation (DII, DIII, DIV)
- Pediatric Rotation (DII, DIII, DIV)

Year 3
- Endodontics (DIII)
- Geriatric Dentistry (DI, DII, DIII)
- Management of Medically Complex Patients (MCP) (DII, DIII, DIV)

Fall Semester
- Oral and Maxofacial Radiology (OMF Rad) (DII)

Spring Semester
- MPE CAMBRA Workshop (DII, DIII)
- Operative Dentistry (DIII)
- Radiology Rotation (DII)

Both Semesters (All 3rd Year)
- Introduction to Clinical Protocols (ICP) (DII)

Year 4
- Operative Prep Workshop (DIV)

Fall Semester
- Community Service Learning Externship (CSLE) Program Rotation (DII, DIII, DIV)
  - Sim. WS Caries (DII)
  - Sim. WS Operative (DIV)
  - Sim. WS Pediatric (DIV)

Spring Semester
- BaSiCcsss (DII)
- Comprehensive Care Clinic Rotations (DII, DIII, DIV)
- Geriatric Community Service-Learning Rotation (DII, DIII)

Both Semesters (All 4th Year)
- Pediatric CSL Rotation (DII, DIII, DIV)
- Pediatric Rotation (DII, DIII, DIV)
- Pediatric CSL Rotation (DII, DIII, DIV)
- Pediatric Rotation (DII, DIII, DIV)
Student’s Patient Care Sequence in Comprehensive Care Clinic

1. New Patient Encounter (NPE) in group practices
   - Screening Medical, Dental and Social History and Informed Consent
   - Radiography, Assessment of Chief Complaint and Patient Assignment

2. Comprehensive Examination
   - Comprehensive Health, Medical, Dental, and Social history
   - Assessment of need for medical consultation and evaluation of lab test results
   - Consultation with Periodontology and other needed dental specialties
   - Needed Referrals
   - Caries risk assessment

3. Phased Comprehensive Treatment Plan
   - Phase I: Preventative Procedures
   - Phase II: Restorative and Periodontal and Endodontic Treatment
   - Phase III: Fixed Prosthodontics Treatment
   - Phase IV: Removable Prosthodontics Treatment

4. Comprehensive Treatment
   - Periodontal management followed by phased treatment

5. Recare
   - Periodic Risk-based on-going Care
# Clinical Experiences in Caries Management

<table>
<thead>
<tr>
<th>Year</th>
<th>Clinical Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/3/4</td>
<td>Comprehensive Care Clinics</td>
</tr>
<tr>
<td>3</td>
<td>Diagnostic Sciences Rotation: Maxillofacial Pathology/ Oral and Maxillofacial Radiology/Oral Medicine/Craniofacial Pain</td>
</tr>
<tr>
<td>3</td>
<td>Geriatrics Dentistry Community Service-Learning Rotation</td>
</tr>
<tr>
<td>3</td>
<td>Medically Complex Patients Rotation</td>
</tr>
<tr>
<td>3</td>
<td>Pediatric Community Service-Learning Rotation</td>
</tr>
</tbody>
</table>
## Comprehensive Care Clinical Experience Assessment

### Comprehensive Care Clinical Requirement Completion Roster

<table>
<thead>
<tr>
<th>Patient</th>
<th>Consultation (1)</th>
<th>Diet &amp; Fluoridation (1)</th>
<th>Post-Treatment Care (1)</th>
<th>Bleaching (2)</th>
<th>Occlusal Guard (2)</th>
<th>Caries Risk Assessment (2)</th>
<th>Prevention Care (3)</th>
<th>Risk Management (15% of ODCR)</th>
<th>Restorations (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient 1</td>
<td>Complete</td>
<td>Complete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Complete</td>
<td>Incomplete</td>
<td>Incomplete</td>
</tr>
<tr>
<td>Patient 2</td>
<td>Complete</td>
<td>Complete</td>
<td>Complete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Complete</td>
<td>Incomplete</td>
<td>Incomplete</td>
</tr>
<tr>
<td>Patient 3</td>
<td>Complete</td>
<td>Complete</td>
<td>Complete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Complete</td>
<td>Incomplete</td>
<td>Incomplete</td>
</tr>
<tr>
<td>Patient 4</td>
<td>Complete</td>
<td>Complete</td>
<td>Complete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Complete</td>
<td>Incomplete</td>
<td>Incomplete</td>
</tr>
<tr>
<td>Patient 5</td>
<td>Complete</td>
<td>Complete</td>
<td>Complete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Incomplete</td>
<td>Complete</td>
<td>Incomplete</td>
<td>Incomplete</td>
</tr>
</tbody>
</table>

---

**Medical Consultation** | **Diet & Fluoridation** | **Post-Treatment Care** | **Bleaching** | **Occlusal Guard** | **Caries Risk Assessment** | **Prevention Care** | **Risk Management** | **Restorations** | **Comprehensive Care** | **Research**

---

**Tufts University**

Department of Comprehensive Care
Comprehensive Care Clinical Experience Assessments

Tufts University School of Dental Medicine

Comp Care Clinical Procedure Requirements

John Doe, UXXXX, GPXX

- **Diagnosis & Treatment Planning**
  - Code: D0150
  - Required: 5
  - Completed: 9

- **Post Treatment Exams**
  - Code: D0104
  - Required: 5
  - Completed: 0

- **Bleaching**
  - Code: D9975
  - Required: 2
  - Completed: 0

- **Oral Guard**
  - Codes: D9940 + D9940T + D9944 + D9945 + D9946
  - Required: 2
  - Completed: 7

- **Medicine Consultation**
  - Code: MCMED4
  - Required: 4
  - Completed: 4

- **Caries Risk Assessment**
  - Codes: D5001 + D5002 + D5003
  - Required: 80% of (D0120 + D0150: 28)
  - Completed: 1

- **Preventive Caries**
  - Codes: D1206 + D1351 + D1354 + D1355
  - Required: 6
  - Completed: 9

- **Caries Risk Management**
  - Codes: D1206 + D5986 + D1354 + D1355
  - Required: 80% of (D6603: 0)
  - Completed: 9

- **Restorations**
  - Codes: D2140 + D2159 + D2160 + D2161 + D2330 + D2331 + D2332 + D2335 + D2351 + D2352 + D2353 + D2394
  - Required: 40
  - Completed: 31

  Externship (Max.: 10): 0
## Caries Management Clinical and Simulated Competencies

<table>
<thead>
<tr>
<th>Year</th>
<th>Clinical Competency Examinations (CCE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4</td>
<td>Diagnosis and Treatment Planning Competency (1)</td>
</tr>
<tr>
<td>3/4</td>
<td>Diagnosis and Treatment Planning Competency (2)</td>
</tr>
<tr>
<td>3/4</td>
<td>Diagnosis and Treatment Planning Competency (3)</td>
</tr>
<tr>
<td>3</td>
<td>CAMBRA Assessment</td>
</tr>
<tr>
<td>4</td>
<td>CAMBRA Management</td>
</tr>
<tr>
<td>4</td>
<td>Pediatric Dentistry Diagnosis and Treatment Planning</td>
</tr>
<tr>
<td>4</td>
<td>Pediatric Prevention and Oral Health Promotion</td>
</tr>
<tr>
<td>4</td>
<td>Pediatric Pit and Fissure Sealants</td>
</tr>
<tr>
<td>4</td>
<td>Caries Detection Simulated Practical Competency Examination</td>
</tr>
<tr>
<td>Criteria</td>
<td>3</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---</td>
</tr>
<tr>
<td><strong>Technical/Clinical Skills</strong></td>
<td>🟢</td>
</tr>
<tr>
<td>Independent skill in preventing individualized preventive treatment plan; all CAMBRA best practices incorporated.</td>
<td>🟢</td>
</tr>
<tr>
<td>Interprets relevant dental, medical, and nutritional history prior to the telehealth visit with minimal errors/emissions.</td>
<td>🟢</td>
</tr>
<tr>
<td><strong>Knowledge</strong></td>
<td>🟢</td>
</tr>
<tr>
<td>No errors or omissions in oral risk level analysis or comprehensive prevention plan.</td>
<td>🟢</td>
</tr>
<tr>
<td>Demonstrates exceptional knowledge of CDA and prevention planning.</td>
<td>🟢</td>
</tr>
<tr>
<td><strong>Organisation</strong></td>
<td>🟢</td>
</tr>
<tr>
<td>Exceptional management of all aspects of the telehealth visit, including organization and time management.</td>
<td>🟢</td>
</tr>
<tr>
<td>Independently conducts telehealth visit and follows telehealth guidelines.</td>
<td>🟢</td>
</tr>
<tr>
<td>Organises and manages time poorly.</td>
<td>🟢</td>
</tr>
<tr>
<td><strong>Professionalism/Practice Management</strong></td>
<td>🟢</td>
</tr>
<tr>
<td>Maintains composure under challenging stressors.</td>
<td>🟢</td>
</tr>
<tr>
<td>Exceptional attention to patient needs in a complex situation.</td>
<td>🟢</td>
</tr>
<tr>
<td>Respects patients, staff, faculty, and fellow students during a challenging situation.</td>
<td>🟢</td>
</tr>
<tr>
<td>Attentive to patient needs.</td>
<td>🟢</td>
</tr>
<tr>
<td>Accepts constructive feedback.</td>
<td>🟢</td>
</tr>
<tr>
<td>Adheres to TUSD guidelines and policies, including but not limited to informed consent and HIPAA.</td>
<td>🟢</td>
</tr>
<tr>
<td><strong>Patient-Centered Communication</strong></td>
<td>🟢</td>
</tr>
<tr>
<td>Establishes shared agenda.</td>
<td>🟢</td>
</tr>
<tr>
<td>Open-ended questions.</td>
<td>🟢</td>
</tr>
<tr>
<td>Asks about barriers to OH care.</td>
<td>🟢</td>
</tr>
<tr>
<td>Plain language.</td>
<td>🟢</td>
</tr>
<tr>
<td>Behavior-change strategies.</td>
<td>🟢</td>
</tr>
<tr>
<td>Prompts teach back.</td>
<td>🟢</td>
</tr>
</tbody>
</table>
Clinical Protocols

The clinical protocols created by the Ad-Hoc Operative Calibration Committee for the Department of Comprehensive Care include:

- **Operative Procedures: Guide for Faculty and Students for Initiation of Restorative Phase of the Treatment Plan**
- **Use of Silver Diamine Fluoride in Predoctoral Clinics – Department of Comprehensive Care – Approved August 2019**
- **Caries Excavation Guidelines – Approved April 24, 2020**
- **Threshold of Surgical Intervention for Caries Management of Primary Lesions Guidelines – Approved May 1, 2020**
- **Indications for repairing versus replacing restorations – Department of Comprehensive Care – Approved May 6, 2020**
- **Indications for direct versus indirect restorations – Department of Comprehensive Care – Approved August 8, 2020**
- **Caries Detection and Assessment – Approved March 11, 2021**
- **Non-Surgical Management of Dental Caries – Approved April 1, 2021**
Caries Management Competency

Marcelle M. Nascimento, DDS, MS, PhD
Ana Paula Ribeiro, DDS, MS, PhD
Rebecca M. Sikand, DDS
Deborah A. Dilbone, DMD
Student experiences related to health promotion and disease prevention, including caries management include the following preclinical courses:

Preclinical Courses

1st year: Cariology and Preventive Dentistry

2nd year: Introduction to Clinical Diagnosis and Treatment Planning

Clinical Courses

3rd year: Clinical Operative Dentistry 1-3

4th year: Clinical Operative Dentistry 4-6
Competency Assessments

How overall competency is assessed to determine the graduate’s readiness:

Preclinical Assessments

1st year: Cariology and Preventive Dentistry
2nd year: Introduction to Clinical Diagnosis and Treatment Planning

Clinical Assessments

3rd year & 4th year: Caries Management Skills Assessments
Clinical Assessments

How overall competency is assessed to determine the graduate’s readiness:

Clinical Courses

3\textsuperscript{rd} year: \textit{Clinical Operative Dentistry 1-3}

\hspace{6cm} \rightarrow \text{Caries Risk Assessment and Management Skills Assessment}

4\textsuperscript{th} year: \textit{Clinical Operative Dentistry 4-6}

\hspace{6cm} \rightarrow \text{Caries Management Case Completion Skills Assessment}
Caries Risk Assessment and Management

3rd year Skills Assessment

Comprehensive Oral Examination

Axium Electronic Forms:
- Caries Risk Assessment
- Caries Management

Caries Diagnosis*

Risk Factors*
Caries Risk Assessment and Management
Caries Risk Assessment and Management

3rd year Skills Assessment

Assessment Criteria

1. *Should* be completed prior to any other skills assessment and **MUST** be completed during 3DN Junior year in clinic.

2. Must call operative faculty for evaluation at least **30 minutes** before patient dismissal time and patient must be present in the chair.

3. Must be completed on one of your own assigned COE patients. This skills assessment cannot be completed on another student’s patient.

4. Must be done on a patient with **High Caries Risk**.

5. Patient needs to have **12+ teeth** remaining that are not planned for immediate extractions.

6. Codes and Forms that need to be completed independently:
   a. Hard Tissue Code (D00085) and Physical Form
   b. Caries Risk Assessment Code (D2070) and axiUm Form

7. Radiographic interpretation must be completed and then reviewed by faculty as part of the hard tissue examination.

8. Caries Risk Assessment axiUm Form: must recognize and diagnose patient’s needs from hard tissue exam and translate the risks and protective factors into a correct caries risk diagnosis.

9. Must develop a caries management plan for patient to reduce risks and increase protective factors.
Assessment Rubric

3rd year

<table>
<thead>
<tr>
<th>Question</th>
<th>Grade</th>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRADE: Professionalism</td>
<td>P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case Selection</td>
<td>P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence-based judgment</td>
<td>P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compliance with infection control stds</td>
<td>P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpersonal Skills</td>
<td>P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time Management</td>
<td>P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caries Risk Assessment Competency</td>
<td></td>
<td></td>
<td>Caries Risk Assessment Competency</td>
</tr>
<tr>
<td>Any &quot;Fail&quot; will fail the competency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Successfully presented complete case</td>
<td>P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detect/diagnose clinically/xray</td>
<td>P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify risk factors</td>
<td>P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify protective factors</td>
<td>P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balance indicator/factors to assess risk</td>
<td>P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop proper caries plan</td>
<td>P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify conditions</td>
<td>P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attempt to educate patient on caries</td>
<td>P</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Procedure: D2070  
Site: C  
Surf:  
Stat:  
Description: Caries Risk Ass...  
RVU: 30.00  
Question: Competency pass or fail?  
Grade: P  
User: CM  
Other Forms: 
Caries Management Case Completion

4th year Skills Assessment

Comprehensive Oral Examination

Caries Diagnosis*

Electronic Forms:
- Caries Risk Assessment
- Caries Management

Risk Factors*

Case Presentation

Disease Management*
Caries Management Case Completion

4th year Skills Assessment

1. Must be completed on a patient assigned to you as the primary provider.
2. Patient must have been diagnosed initially as High or Extreme Caries Risk Status with 12+ teeth.
3. Must have completed at least:
   a. An initial Caries Risk Assessment
   b. A second Caries Risk Assessment (any number of additional assessments can be completed within the minimum time frame of 6 months)
   c. A final Caries Risk Assessment (must be at least 6 months out from the initial assessment)
4. All Caries Risk Assessments that are presented MUST be completed by the student calling competency and ideally should have been completed by operative faculty.
5. Must be presented as a power point presentation with the patient present in the chair. See Canvas for examples.
6. The final Hard Tissue and Caries Risk Assessment can be completed on the day of the presentation and added to the power point.
7. The focus of the presentation must be on how the patient’s caries risk has been managed via balance between risk factors and protective factors
8. Ideally, the caries risk status should be lowered, however, this is not required as long as the student can demonstrate that they have balanced the risk factors and protective factors.
9. Must be graded as a competency in axiUmd using the Skills Assessment paperwork. The carbon copy stays with the student and the white page goes into the clinical forms box in each clinic.
## Assessment Rubric

### 4th year

### Clinical Skills Assessment
Caries Management - Case Completion Form

**Student Name:**

**Chart #:**

**Date of Initial Caries Risk Assessment:** / /  (must be completed by the same student)

**Date of Caries Risk Re-Assessment:** / /  2nd Caries Risk Re-Assessment: / /  (if done).

**Date of Case Completion Caries Management Assessment:** / /  (minimum 6 months after initial CRA)

**Initial Risk Level:** HIGH EXTREME

**Current Risk Level:** LOW MODERATE HIGH EXTREME

---

| Main goals of initial caries management plan: |
| Problems encountered during re-assessments & changes made on management plan: |

---

### Case Presentation
- The student successfully presented the completed case, which included documented changes in: carious active lesions, risk factors, and risk level (circle): YES NO. If no, explain:  

### Change in the Activity of Carious Lesions
- The student was able to detect changes in the activity of carious lesions and/or to detect and diagnose new active lesions: noncavitated, cavitated, and recurrent.

### Change in Risk Factors
- The student was able to identify new, changed and/or unchanged risk factors and contributing conditions such as amount of plaque formation, oral hygiene habits, dietary habits, defective restorations, appliances, medical risk factors, dry mouth, etc.

### Change in Risk Level
- The student was able to modify the initial caries management plan based on the patient's specific needs and risk level. In addition, behavior modification techniques have been incorporated to balance the disease indicators, risk factors and protective factors which decreased the patient's caries risk (circle): YES NO. If no, explain:  

### Professionalism and Patient Management
- The student demonstrated a conceptual understanding and insightful application of relevant scientific evidence.
- The student utilized universal precautions and complied with regulations regarding infection control, hazard communication and medical waste disposal.
- The student was prepared and was familiar with the patient's dental and medical history and dental needs. The student demonstrated acceptable interpersonal skills while interacting with faculty, staff and the patient; including the appropriate use of effective techniques to manage anxiety, distress, discomfort and pain associated with this procedure.
- The student managed time appropriately. The examination was completed by 11:00 AM or 4:30 PM.

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*One “F” in any category is a failure for the exam.*
Panel Discussion and Questions