Introduction to Clinical Dentistry & Oral Diagnosis (Theory)

Year 3 – summer semester

- Screening, patients’ files and assigning patients to students
- Preparing, receiving, treating, and dismissing the patient
- Dispensary
- Instruments handling, transport, packaging, sterilization
- Lab work prescription, disinfection
- Clinical safety protocols and potential hazards
Caries Risk Assessment

✓ The determination of the likelihood of the incidence of caries (ie the number of new cavitated or incipient lesions) during a certain time period or the likelihood that there will be a change in the size or activity of lesions already present.

✓ Caries-risk assessment models currently involve a combination of factors including: diet, fluoride exposure, a susceptible host and microflora that interplay with a variety of social, cultural and behavioural factors.
<table>
<thead>
<tr>
<th>Caries Risk Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social history</td>
</tr>
<tr>
<td>Social class, dental awareness, dental aspirations, caries rate in siblings</td>
</tr>
<tr>
<td>Medical history</td>
</tr>
<tr>
<td>Medical condition, handicap, Cariogenic medication, Xerostomia</td>
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<tr>
<td>Dietary habits</td>
</tr>
<tr>
<td>Sugar intake, availability of snacks</td>
</tr>
<tr>
<td>Use of fluoride</td>
</tr>
<tr>
<td>Drinking water, toothpaste, supplements</td>
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<tr>
<td>Plaque control</td>
</tr>
<tr>
<td>Oral hygiene</td>
</tr>
<tr>
<td>Saliva</td>
</tr>
<tr>
<td>Flow rate, buffering capacity, S.mutans and Lactobacillus counts</td>
</tr>
<tr>
<td>Clinical evidence</td>
</tr>
<tr>
<td>New carious lesions, premature extractions, anterior caries/ restorations, multiple restorations, Partial dentures, orthodontics, presence/ absence of fissure sealant</td>
</tr>
</tbody>
</table>
Caries Risk Assessment

- It is now known that surgical intervention of dental caries alone does not stop the disease process. Additionally, many lesions do not progress, and tooth restorations have a finite longevity.

- Modern management of dental caries should be more conservative and includes:
  - early detection of noncavitated lesions
  - identification of an individual’s risk for caries progression
  - understanding of the disease process for that individual
  - application of preventive measures
Caries Risk Assessment

- NICE recall intervals and oral health – 2004
- Caries risk assessment form – American Dental Association 2009
- Guideline on Caries-risk Assessment and Management for Infants, Children, and Adolescents - AMERICAN ACADEMY OF PEDIATRIC DENTISTRY 2013
# Caries Risk Assessment Form (Age >6)

**Patient Name:**

**Birth Date:**

**Age:**

**Date:**

**Initials:**

## Contributing Conditions

<table>
<thead>
<tr>
<th>I. Fluoride Exposure (through drinking water, supplements, professional applications, toothpaste)</th>
<th>Low Risk</th>
<th>Moderate Risk</th>
<th>High Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primarily at mealtimes</td>
<td>Yes</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Frequent or prolonged between meal exposures/day</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>II. Sugary Foods or Drinks (including juice, carbonated or non-carbonated soft drinks, energy drinks, medicinal syrups)</th>
<th>Low Risk</th>
<th>Moderate Risk</th>
<th>High Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>No carious lesions in last 24 months</td>
<td>Yes</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Carious lesions in last 7-23 months</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carious lesions in last 6 months</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

## General Health Conditions

<table>
<thead>
<tr>
<th>I. Special Health Care Needs (developmental, physical, medical or mental disabilities that prevent or limit performance of adequate oral health care by themselves or caregivers)</th>
<th>Low Risk</th>
<th>Moderate Risk</th>
<th>High Risk</th>
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</thead>
<tbody>
<tr>
<td>Yes (over age 14)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Yes (ages 6-14)</td>
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</tbody>
</table>

## Clinical Conditions

<table>
<thead>
<tr>
<th>I. Cavitated or Non-Cavitated (incipient) Carious Lesions or Restorations (visually or radiographically evident)</th>
<th>Low Risk</th>
<th>Moderate Risk</th>
<th>High Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>No new carious lesions or restorations in last 36 months</td>
<td>Yes</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>1 or 2 new carious lesions or restorations in last 36 months</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 or more carious lesions or restorations in last 36 months</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>II. Teeth Missing Due to Caries in past 36 months</th>
<th>Low Risk</th>
<th>Moderate Risk</th>
<th>High Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visible Plaque</td>
<td>Yes</td>
<td></td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IV. Unusual Tooth Morphology that compromises oral hygiene</th>
<th>Low Risk</th>
<th>Moderate Risk</th>
<th>High Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interproximal Restorations – 1 or more</td>
<td>Yes</td>
<td></td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VI. Exposed Root Surfaces Present</th>
<th>Low Risk</th>
<th>Moderate Risk</th>
<th>High Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restorations with Overhangs and/or Open Margins; Open Contacts with Food Impaction</td>
<td>Yes</td>
<td></td>
<td>No</td>
</tr>
</tbody>
</table>

## Overall assessment of dental caries risk:

<table>
<thead>
<tr>
<th>Low</th>
<th>Moderate</th>
<th>High</th>
</tr>
</thead>
</table>

**Patient Instructions:**
<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Diagnostics</th>
<th>Interventions</th>
<th>Diet</th>
<th>Sealants</th>
<th>Restorative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low risk</td>
<td>Recall every six to 12 months</td>
<td>Twice daily brushing with fluoridated toothpaste</td>
<td>No</td>
<td>Yes</td>
<td>Surveillance&lt;sup&gt;x&lt;/sup&gt;</td>
</tr>
<tr>
<td>Moderate risk patient/parent engaged</td>
<td>Recall every six months, Radiographs every six to 12 months</td>
<td>Twice daily brushing with fluoridated toothpaste, Fluoride supplements, Professional topical treatment every six months</td>
<td>Counseling</td>
<td>Yes</td>
<td>Active surveillance&lt;sup&gt;e&lt;/sup&gt; of incipient lesions, Restoration of cavitated or enlarging lesions</td>
</tr>
<tr>
<td>Moderate risk patient/parent not engaged</td>
<td>Recall every six months, Radiographs every six to 12 months</td>
<td>Twice daily brushing with toothpaste, Professional topical treatment every six months</td>
<td>Counseling, with limited expectations</td>
<td>Yes</td>
<td>Active surveillance&lt;sup&gt;e&lt;/sup&gt; of incipient lesions, Restoration of cavitated or enlarging lesions</td>
</tr>
<tr>
<td>High risk patient/parent engaged</td>
<td>Recall every three months, Radiographs every six months</td>
<td>Brushing with 0.5 percent fluoride, Fluoride supplements, Professional topical treatment every three months</td>
<td>Counseling, Xylitol</td>
<td>Yes</td>
<td>Active surveillance&lt;sup&gt;e&lt;/sup&gt; of incipient lesions, Restoration of cavitated or enlarging lesions</td>
</tr>
<tr>
<td>High risk patient/parent not engaged</td>
<td>Recall every three months, Radiographs every six months</td>
<td>Brushing with 0.5 percent fluoride, Professional topical treatment every three months</td>
<td>Counseling, with limited expectations, Xylitol</td>
<td>Yes</td>
<td>Restore incipient, cavitated, or enlarging lesions</td>
</tr>
</tbody>
</table>
The NICE guidelines 2004:

- For adult patients, NICE recommends a recall between three months and two years, based on a risk assessment, taking into account a checklist of risk factors, such as alcohol and tobacco use.
- The recommended interval for children is between three and 12 months.
- The actual interval should be a clinical decision by the dentist based on the patient’s needs.
Treatment planning – clinical cases:
PERSONAL DETAILS
Initials: G.S.
Sex: Male
Date of birth: 10/09/1949
Age at presentation: 62

PATIENT’S COMPLAINTS
1) “I lost my front bridge and I’m not happy with how my teeth look”
2) “I sometimes struggle to chew steaks”

RELEVANT MEDICAL HISTORY
Fit and well.
No allergies.
No medication.
DENTAL HISTORY

- Regular attender/ every 1 year.
- Brushes once-twice daily/ occasional flossing.
- Unaware of teeth grinding.
- Lost his maxillary right incisors (UR1&2) 30 years ago due to trauma. The edentulous space was restored with a five-unit fixed-fixed bridge (13–22) which was decemented recently after it became progressively loose.
- Never worn RPD before.
SOCIAL HISTORY:

- Lives with his wife
- Full-time employed lorry driver/ no attendance issues.
- Non-smoker/ never smoked
- 10 units alcohol/ week
Extra-oral examination:

**TMJ:** NAD

**Muscles of Mastication:** NAD

**Facial symmetry:** NAD

**Lips:** competent and low maxillary lip line.

Intra-oral examination:

**Soft tissues:** Labial discharging sinus tract (UL1).

**Hard tissues:** 6-7mm Torus palatinus

<table>
<thead>
<tr>
<th>BPE</th>
<th>2</th>
<th>1</th>
<th>2</th>
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<tbody>
<tr>
<td></td>
<td>2</td>
<td>1</td>
<td>1</td>
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</table>

**Bleeding index:** 30%

**Plaque index:** 30%

**Oral hygiene:** Fair with some visible plaque and calculus deposits.
Charted teeth present:

- **Comp**: composite filling
- **Amg**: amalgam filling
- **MC-Cr**: metal-ceramic crown
- **#**: fractured crown
- **TSL**: tooth surface loss
Occlusal features:

- Class I skeletal pattern.
- Pseudo class III incisor relationship (habitual position).
- Overjet: 1 mm
- Overbite: 1 mm
- 1.5mm anterior slide From RCP to ICP.
- Lateral excursion: Canine guidance on both sides.
SPECIAL INVESTIGATIONS:

- Sensibility testing: (Endo frost and electric pulp tests):
  - Negative response:
    | 1 2 |
    |----|
    | 8  1  1 |

- Baseline records: maxillary and mandibular impressions, jaw registration in CR and face-bow record.
RADIOGRAPHIC EXAMINATION
DIAGNOSES AND CLINICAL FINDINGS

SUMMARY:

1. Generalized tooth surface loss (TSL).

2. Failing direct and indirect restorations:
   - 7 6 5 4 3
   - 4
   - 8 7

3. Caries:
   - 7 6 5 3
   - 1 2 3
   - 8 7

4. Necrotic pulp:
   - 8
   - 1

5. Chronic apical periodontitis:
   - 12

6. Missing teeth:
   - 8 2 1
   - 12 6 7 8
   - 6
   - 5 6
TREATMENT OPTIONS:

1- Extraction of existing teeth and provision of complete dentures.

2- Restore the existing teeth with direct and indirect restorations and:
   a) accept edentulous spaces.
   b) restore edentulous spaces with a removable partial denture(s).
   c) Restore the edentulous spaces with fixed partial bridges.
   d) Restore the edentulous spaces with implant supported prostheses.
TREATMENT PLAN

1. Stabilization and prevention:
   a- Improve oral hygiene and dietary habits.
   b- Stabilize active caries and periodontal disease.
   c- Extraction of teeth with hopeless prognosis.

2. Transitional:
   a- Increase the OVD.
   b- Improve function and aesthetics using direct restorations.

3. Definitive:
   Restore the existing teeth with direct and indirect restorations at the new OVD.

4. Maintenance:
   Maintain a healthy dentition and oral tissues.
Stabilization phase:

- Oral hygiene instructions.
- Dietary analysis and advice.
- Fluoride advice.
- Supra-gingival scaling and polishing.
- Extraction of the non-restorable tooth 17.
- Review oral hygiene: improvement noted in bleeding and plaque indices (13% & 10% respectively)
- Stabilization and temporization of carious lesions: 7 6 5 4 1 3 4
- Endodontic debridement: 1 2

1 1
Intermediate phase:

- Reassessment of the outcomes from the stabilization phase (i.e.: assessment of oral hygiene, bleeding & plaque indices and dietary habits)
- Full arch functional and aesthetic diagnostic wax-up at 3mm increased OVD.
- Completion of root canal treatment 21, 22, 31, 41, 48
- Composite coronal seal and decoronation of teeth 21, 22.
- Composite build-up at 3mm increased OVD using lab-made vacuum matrix of existing teeth.
- Maxillary acrylic partial denture restoring 12, 11, 21, 22, 26, 27
Definitive phase:

Maxillary definitive restorations:

1- Co-Cr RPD design.
2- Milled metal-ceramic crowns: teeth 13 and 23.
3- Milled gold crown: tooth 16.
4- Maxillary Cr-Co RPD insertion.
Definitive phase:

Mandibular definitive restorations:

1- Full gold crown: LR7.

2- Fixed-fixed metal-ceramic bridge from LL4 – LL7

(Edentulous 46 space was accepted and no restoration was planned).
Maintenance phase:

At the 6-month review appointment:

- Patient presented with good oral hygiene and healthy gingivae
  
  *(bleeding and plaque indices 11% and 10% respectively).*

- His occlusion was stable.

- Periapical radiographs taken *(after 1 year of completion of root canal treatments)* showed satisfactory periradicular healing
<table>
<thead>
<tr>
<th>Tooth</th>
<th>Pre-operative</th>
<th>Post-operative</th>
<th>1 year review</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
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<tr>
<td>21, 22</td>
<td><img src="image4.png" alt="Image" /></td>
<td><img src="image5.png" alt="Image" /></td>
<td><img src="image6.png" alt="Image" /></td>
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<tr>
<td>31, 41</td>
<td><img src="image7.png" alt="Image" /></td>
<td><img src="image8.png" alt="Image" /></td>
<td><img src="image9.png" alt="Image" /></td>
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<tr>
<td>47, 48</td>
<td><img src="image10.png" alt="Image" /></td>
<td><img src="image11.png" alt="Image" /></td>
<td><img src="image12.png" alt="Image" /></td>
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