Caries Prevention and Management Chairside Guide

The goal is to reduce the impact of caries development by intervening as soon as possible to manage further tooth destruction, and reversing the caries process in favour of remineralization. Ideally, the management of early caries lesions should involve the least invasive approach capable of preventing disease progression and empowering the patient to improve and maintain their own oral health.

### Understanding Lesion Activity

The essential challenge is to differentiate between firstly a lesion which is active today and continuing to suffer net loss of mineral, with remineralization being out of balance with demineralization, as opposed to a lesion of similar severity which has been “switched off” and become inactive, i.e. arrested or remineralized. The clinical and economic implications of making the correct activity assessment are profound.

<table>
<thead>
<tr>
<th>ICDAS Dental Terms</th>
<th>Sound</th>
<th>First visual change in enamel</th>
<th>Distinct visual change in enamel</th>
<th>Localized enamel breakdown</th>
<th>Underlying dentine shadow</th>
<th>Distinct cavity with visible dentine</th>
<th>Extensive cavity with visible dentine</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICDAS Detection</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4*</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

*Lesions refer to carious lesions
*dentine shadow may require surgical treatment in some cases

### Determining Caries Risk

Assessing a patient’s caries risk is essential in determining the appropriate level of preventive care. Previous caries experience is often the best indicator but several other factors should be considered when assessing risk.

<table>
<thead>
<tr>
<th>Caries Risk Level</th>
<th>Lesion Activity</th>
<th>Additional Preventive Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIGH</td>
<td>3 or more incipient or cavitated primary or secondary caries lesions in the last 2 years</td>
<td>Patient education (oral hygiene, dietary counselling) + Protective factors (fluoride, seals, salivary stimulation)</td>
</tr>
<tr>
<td>MODERATE</td>
<td>1 or 2 incipient or cavitated primary or secondary caries lesions in the last 2 years</td>
<td>No additional interventions indicated</td>
</tr>
<tr>
<td>LOW</td>
<td>No incipient or cavitated primary or secondary caries lesions during the last 2 years and no change in the risk factors that may increase caries</td>
<td></td>
</tr>
</tbody>
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### Balancing Caries Pathological & Protective Factors

<table>
<thead>
<tr>
<th>Pathological Factors</th>
<th>Protective Factors</th>
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</thead>
<tbody>
<tr>
<td>Frequent consumption of dietary sugars</td>
<td>Tooth-healthy diet</td>
</tr>
<tr>
<td>Inadequate fluoride</td>
<td>Fluoride toothpaste twice daily</td>
</tr>
<tr>
<td>Biofilm homeostatic imbalance</td>
<td>Professional topical fluoride</td>
</tr>
<tr>
<td>Salivary dysfunction</td>
<td>Preventive and therapeutic sealants</td>
</tr>
<tr>
<td>Normal salivary function</td>
<td></td>
</tr>
</tbody>
</table>

### Action Points

- Assess lesion activity
- Assess caries risk
- Convert actively progressing lesions into arrested controlled ones
- Target appropriate level of intervention
- Favour preventive measures
- Improve patients’ oral health behaviours
- Prevent more damage
- Minimize surgical intervention

*The following caries risk assessment system is age-specific to account for varying risk factors throughout life*
Caries risk assessment

Universal risk factors

- Long-term consumption of sweetened medication
- Obesity
- Illness or disability > dexterity and/or compliance problems

- Alcohol and tobacco consumption
- Poor oral health knowledge
- Information about education/school system (canteen, boarding school)

- Genetic background
- Mouth piercing
- Drugs

- Cariogenic diet
- Unhealthy diet
- Eating disorders

- Medical history (existing condition or disability)
- Wisdom teeth eruption
- Mouth guard

- Medical history (general and oral health pathologies/comorbidities)
- Polypharmacy
- Suboptimal restorations, dental prosthesis and dentures

- Non-cavitated caries lesions: 22,600 ppm fluoride varnish application every 3 months during 1 year
- Fissure sealants should be placed upon eruption of first permanent molars

- In case of high caries risk, professional cleaning at least twice a year
- In case of high caries risk, first and second permanent molars sealing
- In case of high caries risk, 22,600 ppm fluoride varnish application every 3 months

- Non-cavitated caries lesions: 22,600 ppm fluoride varnish application 4 times a year
- Remineralization agents, resin infiltration techniques or therapeutic sealants as possible remedies
- Filling of sealants and lesions by bio-active fluoride seals

1. For all children aged 3 and above, 22,600 ppm fluoride varnish application at least twice per year up to 4 times a year for high-risk children

2. Professional maintenance

- Fissure sealants should be placed upon eruption of first permanent molars

- In case of high caries risk, professional cleaning at least twice a year
- In case of high caries risk, first and second permanent molars sealing
- In case of high caries risk, 22,600 ppm fluoride varnish application every 3 months during 1 year

- Non-cavitated caries lesions: 22,600 ppm fluoride varnish application 4 times a year
- Remineralization agents, resin infiltration techniques or therapeutic sealants as possible remedies
- Lesions requiring restoration: preserve tooth structure where possible; ensure topical fluoride (gel/foam/varnish) treatment is delivered after restoration
- Seal or repair defective restorations where possible. Replace only when necessary

3. Patient & education maintenance

- Fluoride mouthwash, dental floss and interdental brushes, tongue brushing and specific toothbrush

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- RANGE OF FLUORIDE TOOTHPASTE*: 1,500 ppm fluoride

- RANGE OF FLUORIDE TOOTHPASTE*: 2,800 ppm fluoride from 6–10 years old and up to 5,000 ppm fluoride (upon prescription or professional recommendations from 16–18 years old) in case of very high risks

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RECALL

2 times a year for children (please also consult European Academy of Paediatric Dentistry guidelines and national guidelines for high-risk children)

ALL PATIENTS: 1 time a year - High risks: 2 times a year to be adapted (please consult national guidelines for high-risk patients*)