



Dental Caries: A Guide for Dental Professionals

World Cavity-Free
Future Day

October 14th, 2019

Dental caries is a biofilm-mediated, sugar-driven, multifactorial, dynamic disease that results in the phasic demineralization and remineralization of dental hard tissues. The balance between pathological and protective factors influences the initiation and progression of caries. This interplay between factors underpins the classification of individuals and groups into caries risk categories allowing an increasingly tailored approach to care¹. We need to ensure a holistic and individual approach to caries management if we are to ensure that that we appropriately treat, and don't unnecessarily destroy the teeth. This guidance sheet is based on the ICDAS (International Caries Detection and Assessment System) and ICCMS™ (International Caries Classification and Management System™) guidelines for best practices in caries management². This system uses a 4D approach: **1 – Determine** patient level risk; **2 – Detect and Assess** caries; **3 – Decide** on a personalised care plan; **4 – Do** appropriate prevention and preservation interventions.

1. DETERMINE Patient Level Risk

Dental caries is the most common, preventable chronic disease on the planet, yet it remains largely untreated, resulting in high levels of cavities. According to the World Health Organization (WHO), 60–90% of school children and nearly 100% of adults worldwide have dental cavities. However, individuals have different levels of risk for developing new lesions and having existing lesions progress. There are a number of caries risk assessment systems which are supported by reasonable evidence and can be used within ICCMS™. These include Cariogram and CAMBRA protocols as well as the ICCMS™ recommendations.








2. DETECT AND ASSESS Caries

ICCMS™ offers a clear way of staging caries lesions. Each lesion is examined and graded depending on how advanced the lesion is, and also marked as 'active' or 'inactive', as well as assessing intra-oral risk factors. ICCMS™ is based on using three levels to assess caries: Initial Stage, Moderate Stage and Extensive Stage.

PATIENT-LEVEL CARIES RISK FACTORS

- **Head and neck radiation.**
- Dry mouth.
- Inadequate oral health practices.
- Deficient exposure to topical fluoride.
- High frequency/amount of sugar consumed.
- Symptomatic-driven appointment attendance.
- SES/access barriers.
- Mothers high caries experience.

Risk factors in red will always classify an individual as high caries risk.

SOUND SURFACES (ICDAS code 0)	INITIAL STAGE CARIES (ICDAS codes 1 and 2)
<p>Sound tooth surfaces show no evidence of visible caries when viewed clean and after prolonged air-drying (5 seconds).</p>  <p>Sound</p>	<p>First or distinct visual changes in enamel seen as a carious opacity or visible discolouration (white spot lesion and/or brown carious discolouration) not consistent with clinical appearance of sound enamel.</p>   <p>Initial Active Initial Inactive</p>
MODERATE STAGE CARIES (ICDAS codes 3 and 4)	EXTENSIVE STAGE CARIES (ICDAS codes 5 and 6)
<p>A white or brown spot lesion with localised enamel breakdown, without visible dentine exposure (ICDAS code 3), or an underlying dentine shadow (ICDAS code 4), which obviously originated on the surface being evaluated.</p>   <p>Moderate Active Moderate Inactive</p>	<p>A distinct cavity in opaque or discoloured enamel with visible dentine.</p>   <p>Extensive Active Extensive Inactive</p>

LESION ACTIVITY ASSESSMENT

	Signs of Active Lesions	Signs of Inactive Lesions
ICCMS™ Initial and Moderate Caries Stage	Surface of enamel is whitish/yellowish; opaque with lustre loss, rough. Lesion in a plaque stagnation area. The lesion may be covered by thick plaque prior to cleaning.	Surface of enamel is whitish, brownish or black; enamel may be shiny, hard and smooth. For smooth surfaces, the caries lesion is typically located at some distance from the gingival margin. Lesion may not be initially be covered by thick plaque.
ICCMS™ Extensive Caries Stage	Dentine feels soft or leathery on gentle probing.	Dentine is shiny and hard on gentle probing.

INTRA-ORAL RISK FACTORS

- **Hypo-salivation/dry mouth.**
- **PUFA- dental sepsis.**
- Caries experience.
- Thick plaque.
- Biofilm retention.
- Exposed root surfaces.

Risk factors in red will always classify an individual as high caries risk.

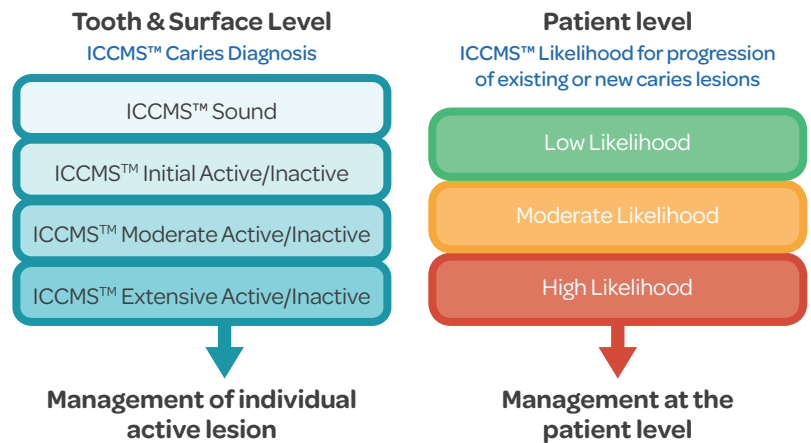
1. Pitts, N. B. et al. (2017) Dental caries Nat. Rev. Dis. Primers doi:10.1038/nrdp.2017.30

2. ICDAS Foundation, <https://www.icdas.org/>, 2017

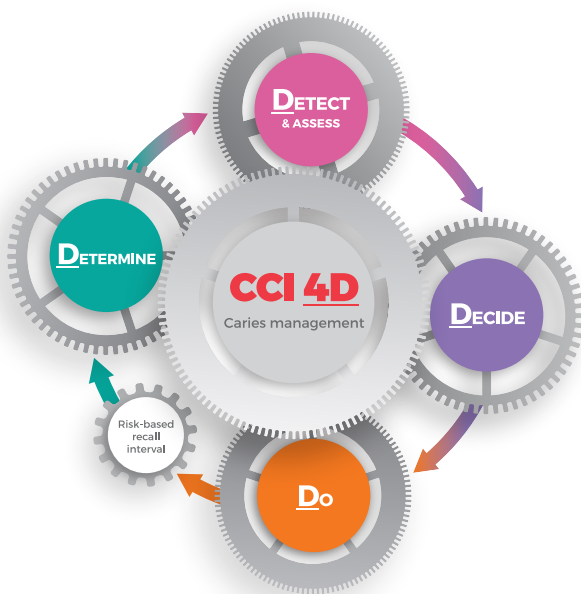
3. DECIDE on a Personalised Care Plan

Collected information should be synthesised and decisions should be made based on the current status of any existing lesions, and also at a patient level based on the patients caries risk level. The patient can then be assessed on their level of likelihood for the progression of existing, or development of new lesions.

The care plan includes elements at BOTH the Tooth Surface level AND the Patient Level.



4. DO Appropriate Prevention and Preservation Interventions

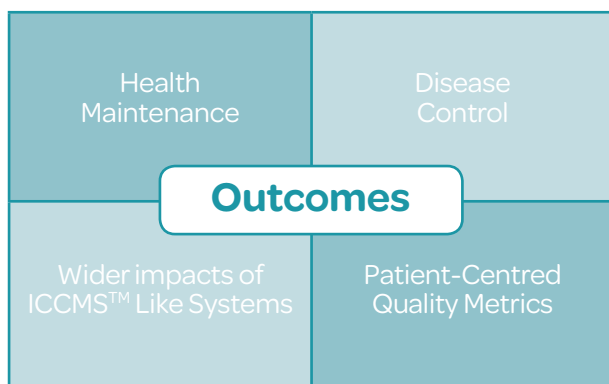


There are many interventions that may be applied to existing lesions following, many of which can be non-operative. The overriding principal of care is to maintain health and preserve tooth structure with a focus on long-term outcomes.

To be fully successful, caries treatment must be progressive and more holistic long-term, patient-centred, tooth-preserving preventive care. Having considered the scientific, clinical and public health aspects of caries, it is important to encourage patients to appreciate the impact that the disease has on quality of life across the life course, and to take appropriate action to prevent and manage caries for themselves and their families. This can be as simple as advising the patient on:

- Diet.
- Oral hygiene and tooth brushing with a fluoride toothpaste.
- Regular check-ups at a suitable recall interval (*recall frequency to be based on caries risk assessment and reviewed*).
- Preventative Treatment Intervention (*e.g. sealants/varnish/gels*).

Four Dimensions of the OUTCOMES of Caries Care



For further information about ICCMS™ please visit www.icdas.org where you can find access to the full guides.

About the Alliance for a Cavity-Free Future (ACFF)

The ACFF is a Global not-for-profit organisation which seeks to promote integrated clinical and public health action to confront the disease burden of caries, fight caries initiation and progression, and, along with a global community of supporters, progress towards a Cavity-Free Future for all age groups. The ACFF was established in collaboration with a worldwide panel of experts in dentistry and public health who share a fervent belief in joining together across professional, geographic, and stakeholder lines, to create a unified global movement dutifully committed to combating caries in communities around the world.

web: www.allianceforacavityfreefuture.org/www.acffglobal.org email: admin@acffglobal.org



Stop Caries NOW for a Cavity-Free Future