Author notes
Please check these figures carefully and return any comments/amendments that you might have to me as soon as possible. In particular, we would like you to check the following:

- Do the figures convey the intended message?
- Are all the labels accurate and in the right place?
- Are all the arrows in the right place?
- Are any chemical structures correct?
- Have shapes and colours been used consistently and accurately throughout the figures?
- Have any of the figures been previously published, or have they been supplied by a colleague(s) who is not a named author on the article?

To mark up any corrections, please use the commenting tools in the PDF, or print and draw by hand, rather than directly editing the PDFs.
Pathological factors
- Frequent consumption of dietary sugars
- Inadequate fluoride
- Poor oral hygiene
- Salivary dysfunction

Protective factors
- Healthy diet
- Brushing with fluoride toothpaste twice daily
- Professional topical fluoride
- Preventive and therapeutic sealants
- Normal salivary function

Demineralization
Disease
Lesion progression
High caries risk
Moderate caries risk
Low caries risk
Remineralization
Health
Lesion arrest or regression

Demineralization
Remineralization

Disease
Lesion progression

Healthy diet
Flushing with fluoride toothpaste twice daily
Professional topical fluoride
Preventive and therapeutic sealants
Normal salivary function

Caries progression
Decay with pulp involvement
CDHS code 3
ICDAS code 6
Cavitated dentine caries
CDHS code 2C
ICDAS code 5
Visual dentine caries
CDHS code 2V
ICDAS code 4
Enamel change with cavitation
CDHS code AC
ICDAS code 3
Visual change in enamel
ICDAS code AV
ICDAS codes 1 and 2
Subclinical decay

Decay with pulp involvement
CDHS code 3
ICDAS code 6
Cavitated dentine caries
CDHS code 2C
ICDAS code 5
Visual dentine caries
CDHS code 2V
ICDAS code 4
Enamel change with cavitation
CDHS code AC
ICDAS code 3
Visual change in enamel
ICDAS code AV
ICDAS codes 1 and 2
Subclinical decay

Proportion of caries depending on the detection threshold used
- Sound
- Moderate caries
- Extensive caries
- Initial-stage caries
- Subclinical decay

11%
21%
25%
52%
Increased sugar intake
Neutral pH
S. sanguinis, S. gordonii
Health
Increased low pH challenges
Mutans streptococci, lactobacilli and bifidobacteria
Caries

Risk-based recall interval

Detect and assess Caries staging and activity (classification and intra-oral risk)

Determine Patient-level caries risk (history)

ICCMS™ 4D Caries management

Risk-based recall interval

Detect and assess Caries staging and activity (classification and intra-oral risk)

Determine Patient-level caries risk (history)

ICCMS™ 4D Caries management

Risk-based recall interval

Detect and assess Caries staging and activity (classification and intra-oral risk)

Determine Patient-level caries risk (history)

ICCMS™ 4D Caries management

Risk-based recall interval
**Fig 6**

Sound (ICDAS 0)  Initial lesion (ICDAS 1–2)  Moderate lesion (ICDAS 3–4)  Extensive lesion (ICDAS 5–6)

**Fig 7**

Management
- Personalised caries prevention; control and tooth preserving operative care

Caries lesions and activity by tooth surface  Likelihood for new caries and/or progression

- Extensive active caries lesions
- Moderate active caries lesions
- Initial active caries lesions
- All inactive caries lesions

Management of individual lesions  Management at the patient level

Risk management
- Tooth preserving operative care of lesions
- Non-operative care of lesions (control)
- Sound (preventing new caries)

→ Leads to, in most cases  → Leads to, in some cases