RECENT METHODS OF CARIES DIAGNOSIS AND CARIES RISK ASSESSMENT

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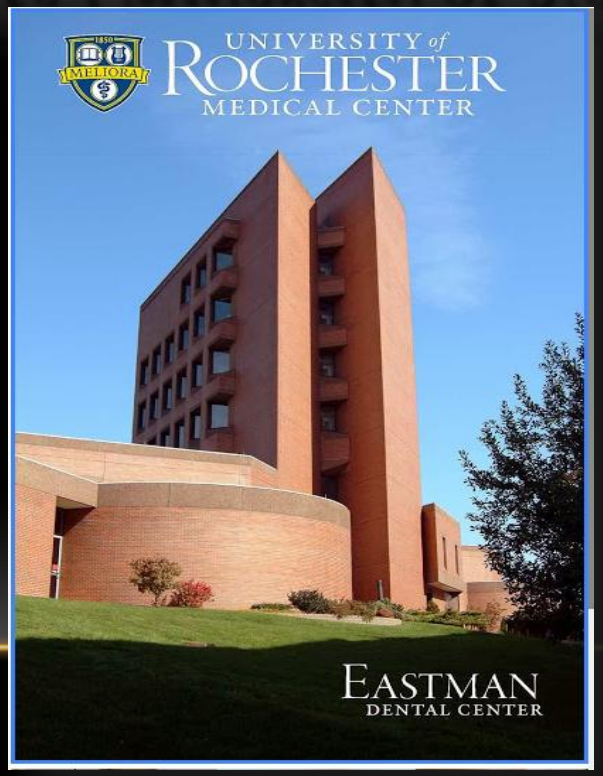
NYU Lutheran
NYU LANGONE
HEALTH SYSTEM
NYU LUTHERAN DENTAL MEDICINE



EARLY CHILDHOOD CARIES

- 1 or more decayed, missing or filled surfaces of primary teeth in a child < 6 yo
- Decayed = Non- Cavitated and Cavitated lesions

Dean, Jeffrey, Ralph McDonald, David Avery. McDonald and Avery Dentistry for the Child and Adolescent, 10th Edition.

SEVERE EARLY CHILDHOOD CARIES

- Ages 3-5 yo: 1 or more cavitated, missing or filled surfaces in the primary maxillary anterior teeth OR
- Age 3 ➔ dmfs ≥ 4
- Age 4 ➔ dmfs ≥ 5
- Age 5 ➔ dmfs ≥ 6

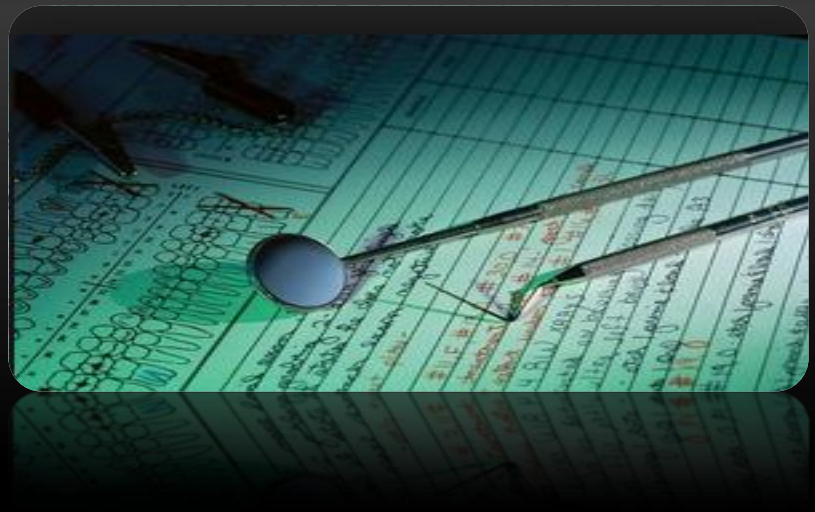
Dean, Jeffrey, Ralph McDonald, David Avery. McDonald and Avery Dentistry for the Child and Adolescent, 10th Edition.

CARIES DETECTION

- Conventional method: Radike technique
  - Visual, Tactile and Radiographic Analysis
- Involves visual identification of demineralized areas (typically white spots) and frank lesions

Radike AW. Criteria for diagnosing dental caries Chicago : American dental Association ;1968

CONVENTIONAL METHOD

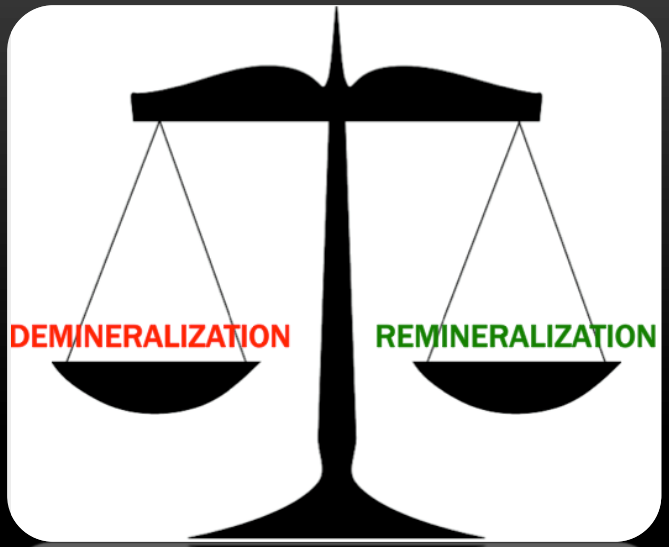


- Use of dental explorer to
  - Determine presence of a loss of continuity or breaks in enamel
  - Determine the softness or resilience of enamel

Radike AW. Criteria for diagnosing dental caries Chicago : American dental Association ;1968

- Radike (1968) enhanced Black's original diagnostic criteria by describing areas as carious when:
  - The explorer catches with moderate to firm pressure in the pits and fissures
  - Has translucency around the fissures
  - Evidence of demineralization or white spot, without softness or cavitation on smooth surfaces

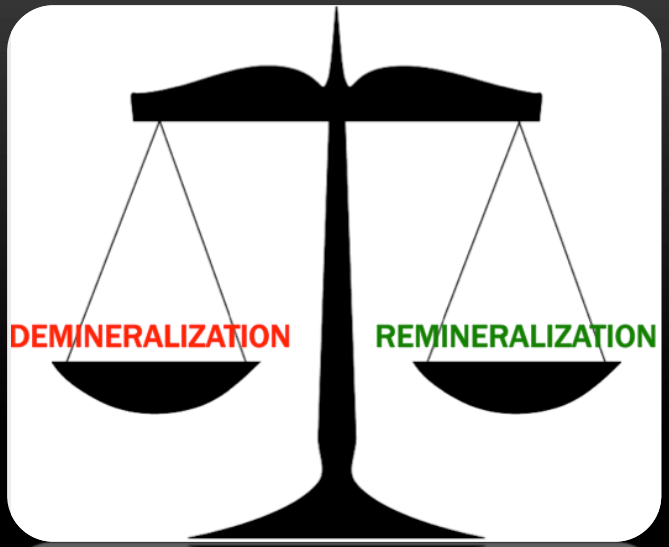
CARIES BALANCE



- No longer a linear process
- The process is dynamic
- Surface enamel functions as a diffusion matrix
- Equilibrium established between mineral loss and gain
- Carious lesions represent a continuum of net mineral loss

The Clinical, Environmental, and Behavioral Factors That Foster Early Childhood Caries: Evidence for Caries Risk Assessment
Author: *Fontana*

CONTINUUM



- Healthy state: when remineralization predominates and overcomes incipient demineralization
- Disease state: demineralization predominates, remineralization is inadequate despite being present
- CRA's risk factors vs. protective factors

ICDAS (INTERNATIONAL CARIES DETECTION AND ASSESSMENT SYSTEM)

- Non explorer visual system introduced in 2002
- Revised in 2003 to ICDAS II
- Histologic validity in predicting penetration of caries into dentin
- When combined with risk based assessment ideal treatment regimen can be determined

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ICDAS

0- Sound tooth surface No caries change after air drying (5 sec) or hypoplasia, wear, erosion and other non-carious phenomena.	1- First visual change in enamel seen only after air drying or colored change "thin" limited to the confines of the pit and fissure area	2-Distinct visual change in enamel; seen when wet, white or colored, wider than the fissure/fossa	3-Localized enamel breakdown with no visible dentin or underlying shadow, discontinuity of surface enamel widening of fissure	4-Underlying dark shadow form dentin with or without localized enamel breakdown	5-Distinct cavity with visible dentin, frank cavitation involving less than half of tooth surface	6-Extensive distinct cavity with dentin; Cavity is deep and wide involving more than half of the tooth structure.
	Lesion depth in P/F was 90% in the outer enamel with only 10% into dentin	Lesion depth in P/F was 50% inner enamel and 50% into the outer 1/3 outer dentin	Lesion depth in P/F with 77% in dentin	Lesion depth in P/F with 88% into dentin	Lesion depth in P/F with 100% in dentin	Lesion depth in P/F 100% reaching inner 1/3 dentin

ADA'S CLINICAL CLASSIFICATION SYSTEM

- Scoring of each surface of the dentition is based on:
  - Tooth surface
  - Presence or absence of a carious tooth
  - Anatomic site of origin
  - Severity of change
  - Estimation of lesion activity

ADA'S CLINICAL CLASSIFICATION SYSTEM

Characteristics of active and inactive caries lesions.*

ACTIVITY ASSESSMENT FACTOR	CARIES LESION ACTIVITY ASSESSMENT DESCRIPTORS	
	Likely to Be Inactive/Arrested	Likely to Be Active
Location of the Lesion	Lesion is not in a plaque stagnation area	Lesion is in a plaque stagnation area (pit/fissure, approximal, gingival)
Plaque Over the Lesion	Not thick or sticky	Thick and/or sticky
Surface Appearance	Shiny; color: brown-black	Matte/opaque/loss of luster; color: white-yellow
Tactile Feeling	Smooth, hard enamel/ hard dentin	Rough enamel/soft dentin
Gingival Status (If the Lesion Is Located Near the Gingiva)	No inflammation, no bleeding on probing	Inflammation, bleeding on probing

* Source: Ekstrand and colleagues.[28]

American Dental Association Caries Classification System tooth surface site definitions.*

SITE	DEFINITION
Pit and Fissure	Referring to the anatomic pits or fissures of teeth, such as occlusal, facial, or lingual surfaces of posterior teeth, or lingual surfaces of maxillary incisors or canines
Approximal	Referring to the immediate proximity to the contact area of an adjacent tooth surface; may exist on any surface of the tooth
Cervical and Smooth Surface	Referring to the cervical area or any other smooth enamel surface of the anatomic crown adjacent to an edentulous space; may exist anywhere around the full circumference of the tooth
Root	Referring to the root surface apical to the anatomic crown

* Source: Ismail and colleagues.[11]

SO WHAT HAS CHANGED IN HOW WE DIAGNOSE CARIES ?

- Concerns of probing with explorer:
  - The insertion of the probe into the suspected lesion inevitably disrupts the surface layer
  - The probing of lesions and suspected lesions results in the transport of cariogenic bacteria from one area to another
  - Frank lesions requiring restoration are generally apparent visually without the need for probing

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- In 2001 National Institutes of Health Consensus :
  - Supported use of visual and tactile techniques for detection of tooth decay
  - Use of explorer to detect occlusal caries not endorsed

- Use of sharp explorer in a compressive fashion produces irreversible traumatic defects
  - Favor lesion progression

Diagnosis and Management of Dental Caries Throughout Life National Institutes of Health Consensus Development Conference Statement March 26-28, 2001

- The recommended use of the dental explorer is to judiciously remove plaque and debris to permit visual inspection of pits and fissures.

Dean, Jeffrey, Ralph McDonald, David Avery. McDonald and Avery Dentistry for the Child and Adolescent, 10th Edition.

Ekstrand KR, Qvist V, Thylstrup A. Light microscope study of the effect of probing in occlusal surfaces. Caries Res

NEWER DIAGNOSTIC AIDS

- Digital Imaging
- Fiber-optic Trans illumination (DIFOTI)
- Quantitative Light Fluorescence (QLF)
- Laser Fluorescence (Diagnodent)
- Electrical Conductivity measurements (ECM)

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CARIES DIAGNOSIS

CARIES DIAGNOSIS

- Radiographs

  Bitewings have demonstrated the ability to identify caries in interproximal region earlier than the visual exam alone.

- ALARA

Bloemendal E, deVet HC, Bouter LM. The value of bitewing radiographs in epidemiological caries research. A systematic review of the literature. J Dent Educ 2004;32 255-64

CARIES DIAGNOSIS USING LIGHT

TRANS ILLUMINATION

- Whole spectrum high intensity light narrowly focused to use light to penetrate the tooth structure and permit the identification of varied tooth density and light scattering to identify caries.
- It appears darker as light scatters passing through caries.

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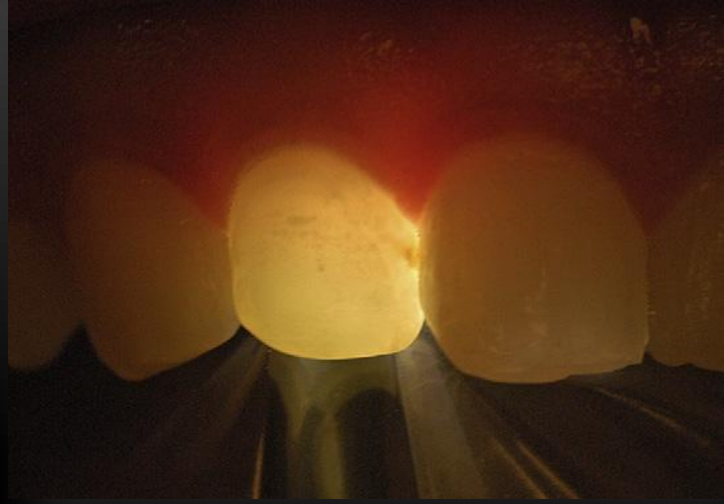
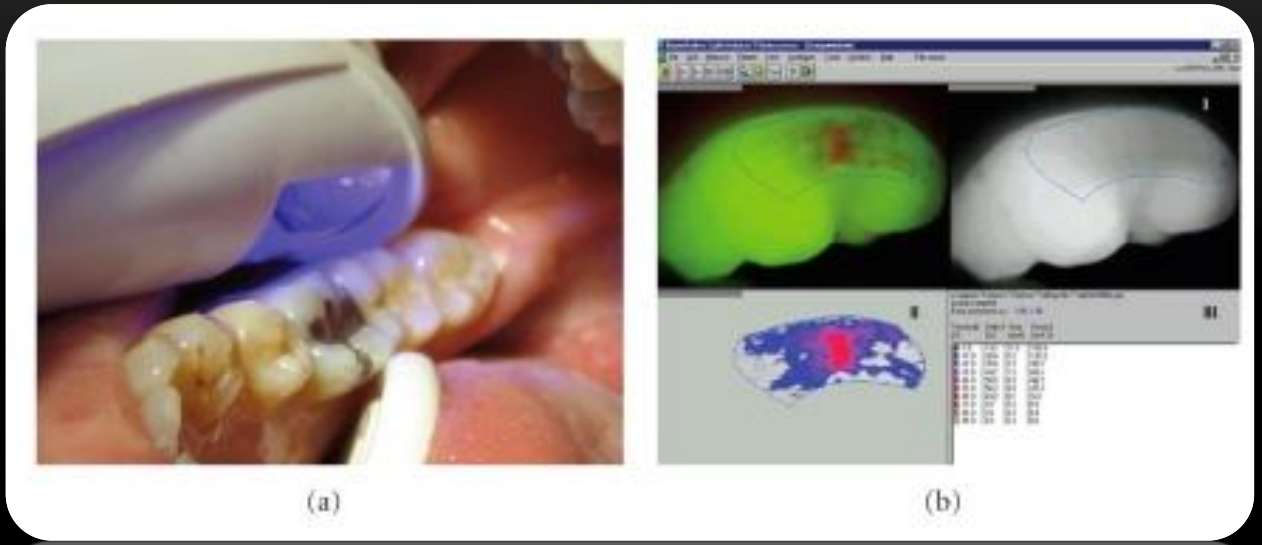


FOTI- Fiber optic Transillumination

- When used on the occlusal surfaces demonstrates its value with high co relation to visual and histological determinations
- Greatest difficulty in both sensitivity and specificity in lesions just penetrating through DEJ

Cortes DF,Ekstrand KR, Elias-Boneta AR et al. An in vitro comparison of the ability of fiber-optic transillumination , visual inspection and radiographs to detect occlusal caries and evaluate lesion depth

QUANTITATIVE LIGHT FLUORESCENCE



The quantitative light-induced fluorescence (QLF) is based on the principle that the auto fluorescence of the tooth alters as the mineral content of the dental hard tissue changes.

International Journal of Dentistry Volume 2010, Caries DetectionMethods Based on Changes in Optical Properties between Healthy and Carious Tissue Lena Karlsson Division of Cariology, Department of Dental Medicine, Karolinska Institutet, Box 4064, 141 04 Huddinge, Sweden

QLF

- Various in vitro and in situ studies .
- Co-relation seen between amount of fluorescence and mineral content
- Truly assess the progression or regression of caries lesions
- Practical usefulness shown in detection of occlusal and smooth surface lesions
- Limitation : Inability to determine interproximal lesions.

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QLF

- High sensitivity (95.5%) for demineralized regions
- If used without a visual examination the sensitivity was only 11%
- Indicating towards over diagnosis
- By utilizing an exam to eliminate obvious non carious teeth the specificity rose to 90.9%.

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LASER FLUORESCENCE (DIAGNODENT)

- Principle: monochromatic light source 655nm passes unhindered through a mature enamel crystal with little or no alteration

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- Ability to excite bacterial photoporphyrins resulting in fluorescence
- With change in enamel increasing amounts of the light are scattered
- Changes can be quantified to describe the presence and the severity of the caries

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CARIES DIAGNOSIS

- Confounding factors:
  - Presence of stains
  - Plaque
  - Restorative materials
- High sensitivity of detection
- Moderate specificity when readings used without other detection aids and techniques
- Potential of over diagnosis
- Able to detect dentinal lesions but unable to assess depth of lesions

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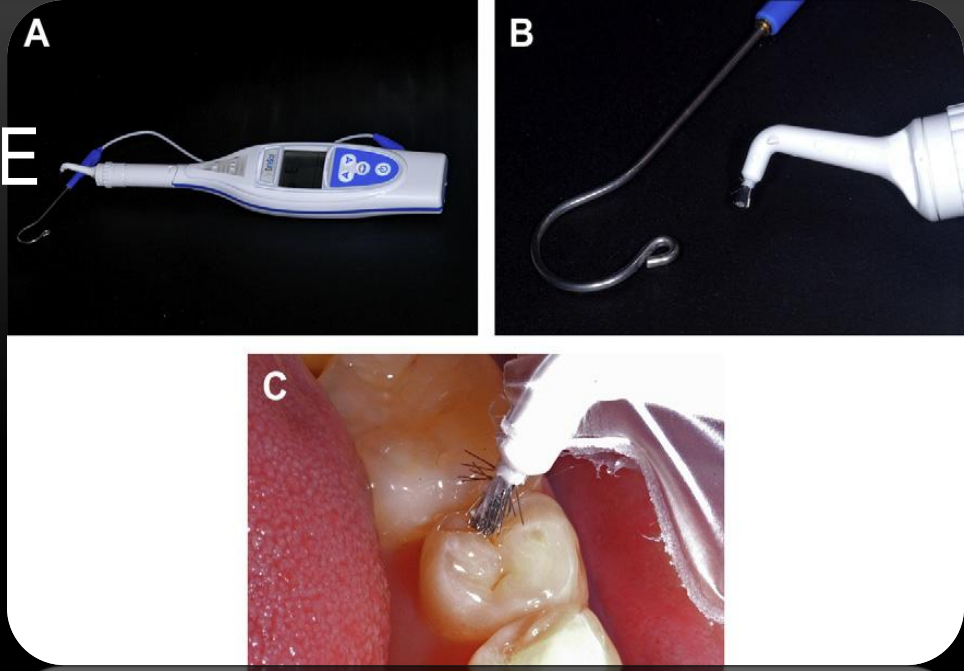
ELECTRICAL CONDUCTANCE MEASUREMENT



- Intact enamel surface has little conductance
- As thickness of dentin decreases and porosity of tooth structure increases, the resistance decreases and electrical conductance increases.
- ECM uses a single fixed frequency alternating current to measure resistance of the tooth structure

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ELECTRICAL CONDUCTANCE MEASUREMENT (ECM)

- Excellent co relation between
  - Comprehensive non explorer visual exam
  - ECM
  - Radiographic exam
  - Histological evaluation of the teeth
  - No hidden caries or demineralization in dentin was noted

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Each of these diagnostics techniques must be used along with detailed clinical examination and review of caries risk for each patient

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If the plan doesn't't work change the plan never change the goal


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Academic
Complex

DEFINING GOALS

- Redefining of caries as “measurable tissue change” rather than the traditional “cavitated lesion”.
- Level or time of caries detection vary by investigator

EPIDEMIOLOGY

MONITOR DISEASE PROCESS

PRE-CAVITATION

DENTISTRY

DIAGNOSIS OF ACTIVE DISEASE

RESTORATIVE TREATMENT

CRA

- Caries Risk Assessment
- Process of establishing the probability that an individual:
  - Develops new carious lesions over a certain period of time
  - Experiences a change in disease severity
  - Experiences a change in activity of currently present lesions

Fontana M. The clinical, environmental and behavioral factors that foster early childhood caries - Evidence for Caries

CARIES RISK ASSESSMENT

- Determination of the likelihood of the incidence of caries during a certain time period
- Likelihood that there will be a change in the size or activity of lesions already present

*Guideline on Caries Risk Assessment and Management for Infants, Children, and Adolescents. Adopted 2002 Revised*2006, 2010, 2011, 2013, 2014*

CRA

- Caries is a multifactorial and chronic disease
- Dentists subjective impression may have good predictive power
- Objective record of patient's risk is essential for monitoring
- CRA recording must be done
    - Objectively
    - Consistently
    - Intentionally

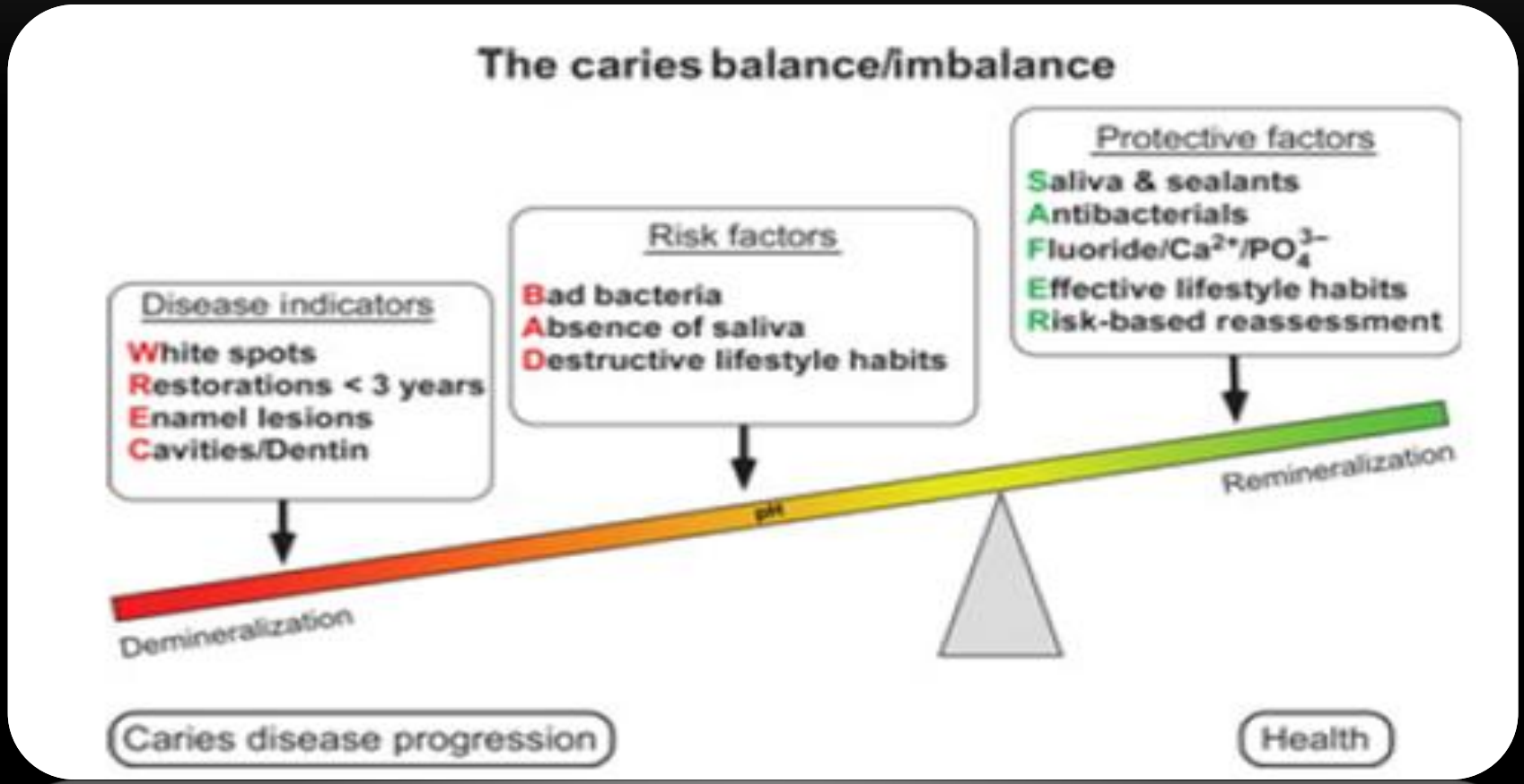
Fontana M. The clinical, environmental and behavioral factors that foster early childhood caries - Evidence for Caries Risk Assessment, Ped Dent Apr 2015.

CRA

- Purpose is to effect change in the risk designation even if it's a relative improvement
- CRA should translate into individualized preventive plan.

Fontana M. The clinical, environmental and behavioral factors that foster early childhood caries - Evidence for Caries Risk Assessment, Ped Dent Apr 2015.

CARIES BALANCE/IMBALANCE MODEL



Dent Clin North Am. 2010 Jul;54(3):495-505.Implementing caries risk assessment and clinical interventions. Young DA1, Featherstone JD.

CRA

- Informal Risk assessment (most common used in the US)
- Formal Risk Assessments include:
    - Caries Risk Assessment Tool (CAT) of the American Academy of Pediatric Dentistry
    - CAT of the American Dental Association for children
    - CAMBRA forms California Dental Association

CAT FORM FOR 0-5 YEAR OLDS (FOR DENTAL PROVIDERS)

Factors	High Risk	Moderate Risk	Low Risk
Biological			
Mother/primary caregiver has active caries	Yes		
Parent/caregiver has low socioeconomic status	Yes		
Child has >3 between meal sugar-containing snacks or beverages per day	Yes		
Child is put to bed with a bottle containing natural or added sugar	Yes		
Child has special health care needs		Yes	
Child is a recent immigrant		Yes	

*Guideline on Caries Risk Assessment and Management for Infants, Children, and Adolescents. Adopted 2002 Revised*2006, 2010, 2011, 2013, 2014*

RISK FACTORS THAT ELEVATE CARIES RISK IN PRE SCHOOL CHILDREN (0-5 YEARS OLD)

- Multivariate risk models generally proven more accurate than using a single factor
- Dentists subjective judgment of new lesions over time
- No consensus as to which tool is most effective
- High oral levels of Mutans Streptococci in biofilms

Fontana M. The clinical, environmental and behavioral factors that foster early childhood caries- Evidence for Caries Risk Assessment, Ped Dent Apr 2015.

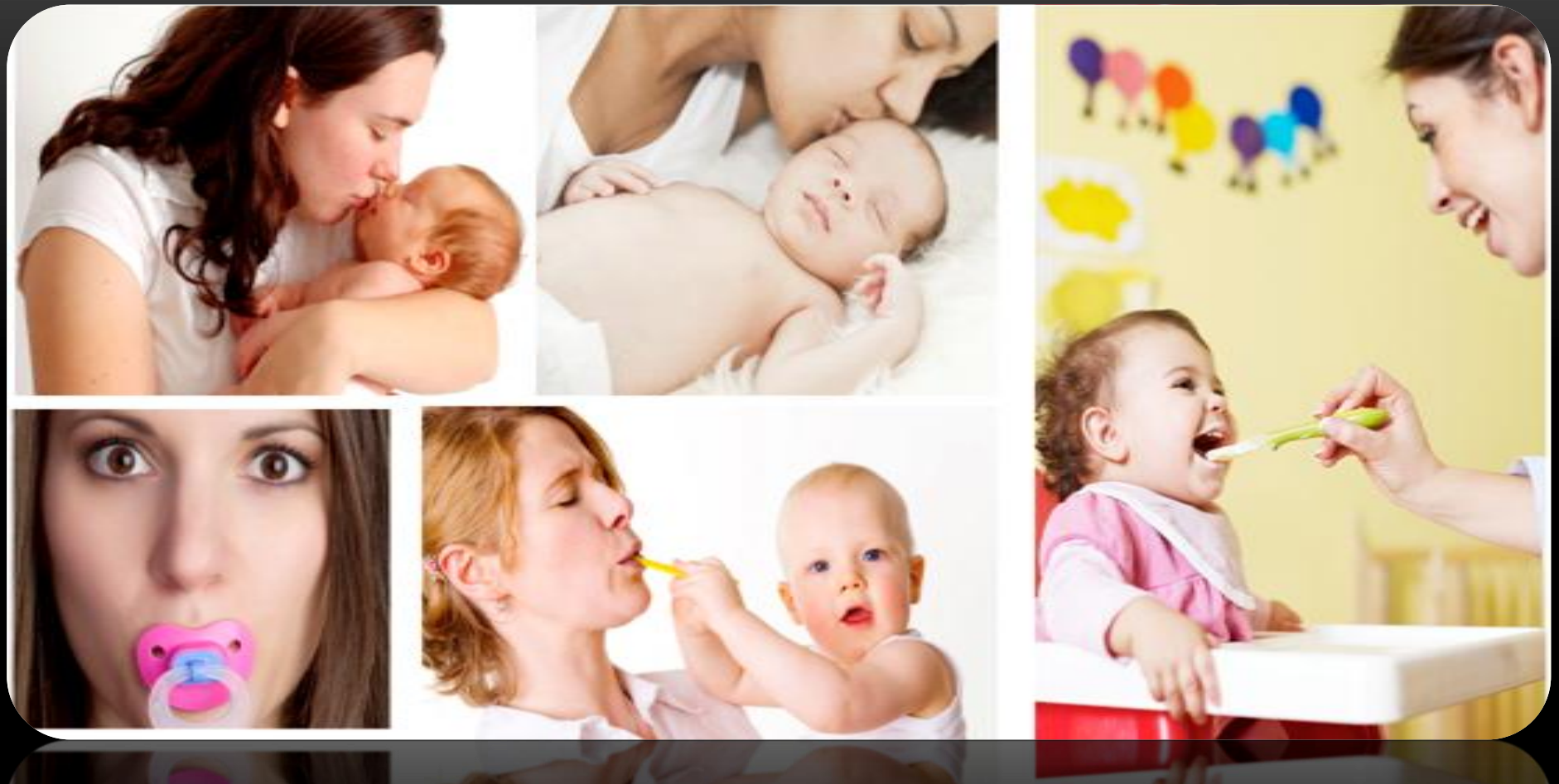
RISK FACTORS THAT ELEVATE CARIES RISK

- Children living in low SES families- Children with immigrant backgrounds have 3 times higher caries risk than non immigrants
- Sugar exposure/dietary habits in pre school children since fluoride exposure is limited
- Night time use of the bottle associated with ECC
- Low Salivary flow – Weak evidence

Fontana M. The clinical, environmental and behavioral factors that foster early childhood caries - Evidence for Caries Risk Assessment, Ped Dent Apr 2015.

DENTAL HOME

- Starts at birth or even before
- Recommended 1st dental visit:
  - 6 months after 1st tooth erupts
  - No later than 12 months of age
- More likely to provide comprehensive oral health care
- Focus is on prevention and anticipatory guidance



- Bacterial acquisition in infants influenced by maternal factors.
- Mothers oral health is a strong predictor of the oral health status of their children

CAT form for 0-5 year olds (for Dental Providers)

Protective			
Child receives optimally-fluoridated drinking water or fluoride supplements			Yes
Child has teeth brushed daily with fluoridated toothpaste			Yes
Child receives topical fluoride from health professional			Yes
Child has dental home/regular dental care			Yes
Clinical Findings			
Child has >1 decayed/missing/filled surfaces	Yes		
Child has active white spot lesions or enamel defects	Yes		
Child has elevated mutans streptococci levels	Yes		
Child has plaque on teeth		Yes	

Circling those conditions that apply to a specific patient helps the practitioner and parent understand the factors that contribute to or protect from caries. Risk assessment categorization of low, moderate, or high is based on preponderance of factors for the individual. However, clinical judgment may justify the use of one factor (eg, frequent exposure to sugar-containing snacks or beverages, more than one dmfs) in determining overall risk.

Overall assessment of the child's dental caries risk: High ☐ Moderate ☐ Low ☐

PAST CARIES EXPERIENCE

- Children with previous caries experience are at an increased risk of future caries.
- Past caries experience is the best tool to predict future caries
- Not particularly useful in young children due to the importance of determining caries risk before the disease can manifest
- White spot lesions ➡ indicate caries activity ➡ High risk

*Guideline on Caries Risk Assessment and Management for Infants, Children, and Adolescents. Adopted 2002 Revised*2006, 2010, 2011, 2013, 2014*

Table 3. Caries-risk Assessment Form for ≥6 Years Olds [60-62]

(For Dental Providers)

Factors	High Risk	Moderate Risk	Low Risk
Biological			
Patient is of low socioeconomic status	Yes		
Patient has >3 between meal sugar-containing snacks or beverages per day	Yes		
Patient has special health care needs		Yes	
Patient is a recent immigrant		Yes	
Protective			
Patient receives optimally-fluoridated drinking water			Yes
Patient brushes teeth daily with fluoridated toothpaste			Yes
Patient receives topical fluoride from health professional			Yes
Additional home measures (eg, xylitol, MI paste, antimicrobial)			Yes
Patient has dental home/regular dental care			Yes
Clinical Findings			
Patient has ≥1 interproximal lesions	Yes		
Patient has active white spot lesions or enamel defects	Yes		
Patient has low salivary flow	Yes		
Patient has defective restorations		Yes	
Patient wearing an intraoral appliance		Yes	

Circling those conditions that apply to a specific patient helps the practitioner and patient/parent understand the factors that contribute to or protect from caries. Risk assessment categorization of low, moderate, or high is based on preponderance of factors for the individual. However, clinical judgment may justify the use of one factor (eg, ≥1 interproximal lesions, low salivary flow) in determining overall risk.

Overall assessment of the dental caries risk: High ❒ Moderate ❒ Low ❒

CARIES RISK ASSESSMENT FORM BY ADA AGE 0-6

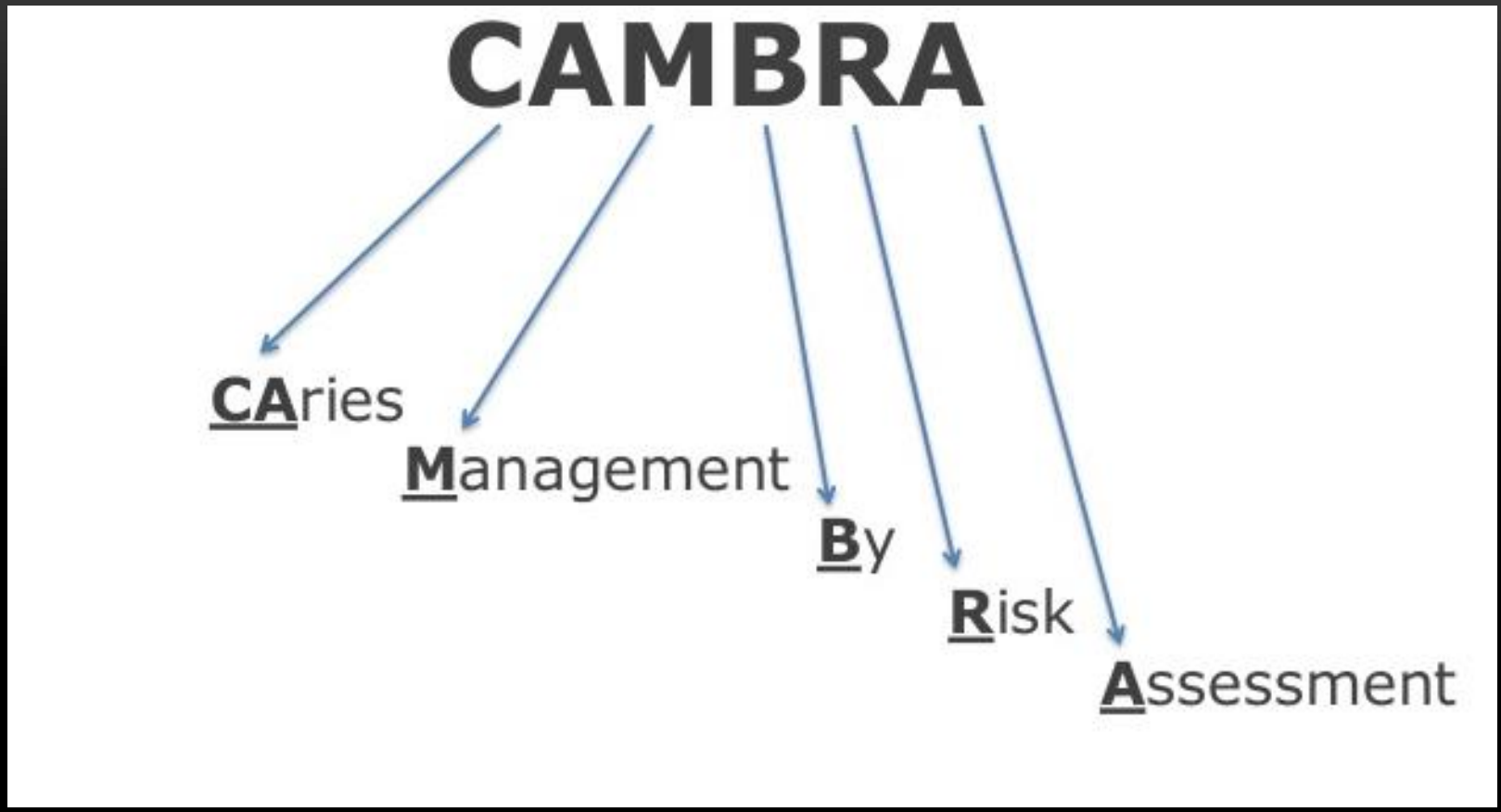
atient Name:				
Birth Date:			Date:	
Age:			Initials:	
		Low Risk	Moderate Risk	High Risk
Contributing Conditions		**Check or Circle the conditions that apply**		
I.	**Fluoride Exposure** (through drinking water, supplements, professional applications, toothpaste)	☐ Yes	☐ No	
II.	**Sugary Foods or Drinks** (including juice, carbonated or non-carbonated soft drinks, energy drinks, medicinal syrups)	Primarily at mealtimes ☐	Frequent or prolonged between meal exposures/day ☐	Bottle or sippy cup with anything other than water at bed time ☐
III.	**Eligible for Government Programs** (WIC, Head Start, Medicaid or SCHIP)	☐ No		☐ Yes
IV.	**Caries Experience of Mother, Caregiver and/or other Siblings**	No carious lesions in last 24 months ☐	Carious lesions in last 7–23 months ☐	Carious lesions in last 6 months ☐
V.	**Dental Home**: established patient of record in a dental office	☐ Yes	☐ No	
General Health Conditions		**Check or Circle the conditions that apply**		
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)	☐ No		☐ Yes
Clinical Conditions		**Check or Circle the conditions that apply**		
I.	**Visual or Radiographically Evident Restorations/ Cavitated Carious Lesions**	No new carious lesions or restorations in last 24 months ☐		Carious lesions or restorations in last 24 months ☐
II.	**Non-cavitated** (incipient) **Carious Lesions**	No new lesions in last 24 months ☐		New lesions in last 24 months ☐
III.	**Teeth Missing Due to Caries**	☐ No		☐ Yes
IV.	**Visible Plaque**	☐ No	☐ Yes	
V.	**Dental/Orthodontic Appliances Present** (fixed or removable)	☐ No	☐ Yes	
VI.	**Salivary Flow**	Visually adequate ☐		Visually inadequate ☐
Overall assessment of dental caries risk:		☐ Low	☐ Moderate	☐ High

CARIES RISK ASSESSMENT FORM BY ADA AGE >6

Patient Name:				
Birth Date:			**Date:**	
Age:			**Initials:**	
		Low Risk	**Moderate Risk**	**High Risk**
	Contributing Conditions	**Check or Circle the conditions that apply**		
I.	**Fluoride Exposure** (through drinking water, supplements, professional applications, toothpaste)	☐ Yes	☐ No	
II.	**Sugary Foods or Drinks** (including juice, carbonated or non-carbonated soft drinks, energy drinks, medicinal syrups)	**Primarily at mealtimes** ☐		**Frequent or prolonged between meal exposures/day** ☐
III.	**Caries Experience of Mother, Caregiver and/or other Siblings** (for patients ages 6–14)	**No carious lesions in last 24 months** ☐	**Carious lesions in last 7–23 months** ☐	**Carious lesions in last 6 months** ☐
IV.	**Dental Home**: established patient of record, receiving regular dental care in a dental office	☐ Yes	☐ No	
	General Health Conditions	**Check or Circle the conditions that apply**		
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)	☐ No	**Yes (over age 14)** ☐	**Yes (ages 6–14)** ☐
II.	**Chemo/Radiation Therapy**	☐ No		☐ Yes
III.	**Eating Disorders**	☐ No	☐ Yes	
IV.	**Medications that Reduce Salivary Flow**	☐ No	☐ Yes	
V.	**Drug/Alcohol Abuse**	☐ No	☐ Yes	
	Clinical Conditions	**Check or Circle the conditions that apply**		
I.	**Cavitated or Non-Cavitated** (incipient) **Carious Lesions or Restorations** (visually or radiographically evident)	**No new carious lesions or restorations in last 36 months** ☐	**1 or 2 new carious lesions or restorations in last 36 months** ☐	**3 or more carious lesions or restorations in last 36 months** ☐
II.	**Teeth Missing Due to Caries in past 36 months**	☐ No		☐ Yes
III.	**Visible Plaque**	☐ No	☐ Yes	
IV.	**Unusual Tooth Morphology** that compromises oral hygiene	☐ No	☐ Yes	
V.	**Interproximal Restorations – 1 or more**	☐ No	☐ Yes	
VI.	**Exposed Root Surfaces** Present	☐ No	☐ Yes	
VII.	**Restorations with Overhangs** and/or **Open Margins**; **Open Contacts** with Food Impaction	☐ No	☐ Yes	
VIII.	**Dental/Orthodontic Appliances** (fixed or removable)	☐ No	☐ Yes	
IX.	**Severe Dry Mouth (Xerostomia)**	☐ No		☐ Yes

Overall assessment of dental caries risk: ☐ Low ☐ Moderate ☐ High

Patient Instructions:


CAMBRA
CAries
Management
By
Risk
Assessment

CAMBRA for Dental Providers (0-5) Assessment Tool

Caries Risk Assessment Form for Age 0 to 5

Patient name:_____ I.D.#_____ Age_____ Date_____

Initial/base line exam date_____ Caries recall date_____

Respond to each question in sections 1, 2, 3, and 4 with a check mark in the "Yes" or "

Caries risk indicators- Parent interview

1. Caries Risk Indicators — Parent Interview**			
(a) Mother or primary caregiver has had active dental decay in the past 12 months			
(b) Child has recent dental restorations (see 5b below)			
(c) Parent and/or caregiver has low SES (socioeconomic status) and/or low health literacy			
(d) Child has developmental problems			
(e) No dental home/episodic dental care			

Caries risk factors (Biological)- Parent interview

2. Caries Risk Factors (Biological) — Parent Interview**			
(a) Child has frequent (greater than three times daily) between-meal snacks of sugars/cooked starch/sugared beverages			
(b) Child has saliva-reducing factors present, including: 1. Medications (e.g., some for asthma or hyperactivity) 2. Medical (cancer treatment) or genetic factors			
(c) Child continually uses bottle - contains fluids other than water			
(d) Child sleeps with a bottle or nurses on demand			

Protective factors (Non biological)- Parent interview

3. Protective Factors (Nonbiological) — Parent Interview			
(a) Mother/caregiver decay-free last three years			
(b) Child has a dental home and regular dental care			

Protective factors (biological)- Parent interview

4. Protective Factors (Biological) — Parent Interview			
(a) Child lives in a fluoridated community or takes fluoride supplements by slowly dissolving or as chewable tablets			
(b) Child's teeth are cleaned with fluoridated toothpaste (pea-size) daily			
(c) Mother/caregiver chews/sucks xylitol chewing gum/lozenges 2-4x daily			

Caries risk indicators- clinical exam of child

5. Caries Risk Indicators/Factors — Clinical Examination of Child**			
(a) Obvious white spots, decalcifications, or obvious decay present on the child's teeth			
(b) Restorations placed in the last two years in/on child's teeth			
(c) Plaque is obvious on the child's teeth and/or gums bleed easily			
(d) Child has dental or orthodontic appliances present, fixed or removable: e.g., braces, space maintainers, obturators			
(e) Risk Factor: Visually inadequate saliva flow - dry mouth			

Bacterial culture

****If yes to any one of 1(a), 1(b), 5(a), or 5(b) or any two in categories 1, 2, 5, consider performing bacterial culture on mother or caregiver and child. Use this as a base line to follow results of antibacterial intervention.**		Parent/Caregiver Date:	
(a) Mutans streptococci (Indicate bacterial level: high, medium, low)			
(b) Lactobacillus species (Indicate bacterial level: high, medium, low)			
Child's overall caries risk status: (CIRCLE) Extreme	Low	Moderate	High
Recommendations given: Yes_____ No_____ Date given_____		Date follow up: _____	

SELF-MANAGEMENT GOALS 1) _____ **2)** _____

Practitioner signature_____ Date_____

AS PER CAMBRA BACTERIAL CULTURE INDICATIONS

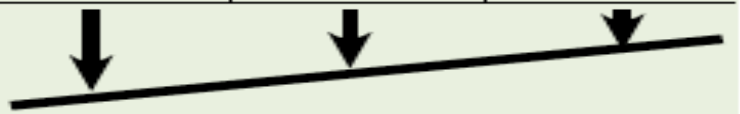
- Caries experience of parent/caregiver in last 12 months
- Child has recent dental restorations
- On exam obvious white spots/ decalcifications or obvious decay
- Restorations in child placed in past 2 years

aries Risk Assessment Form — Children Age 6 and Over/Adults

Patient Name:_____ Chart #:_____ Date:_____

Assessment Date: Is this (please circle) base line or recall

Disease Indicators (Any one "YES" signifies likely "High Risk" and to do a bacteria test)**	**YES = CIRCLE**	**YES = CIRCLE**	**YES = CIRCLE**
Visible cavities or radiographic penetration of the dentin	**YES**		
Radiographic approximal enamel lesions (not in dentin)	**YES**		
White spots on smooth surfaces	**YES**		
Restorations last 3 years	**YES**		
Risk Factors (Biological predisposing factors)		**YES**	
MS and LB both medium or high (by culture**)		**YES**	
Visible heavy plaque on teeth		**YES**	
Frequent snack (> 3x daily between meals)		**YES**	
Deep pits and fissures		**YES**	
Recreational drug use		**YES**	
Inadequate saliva flow by observation or measurement (**If measured, note the flow rate below)		**YES**	
Saliva reducing factors (medications/radiation/systemic)		**YES**	
Exposed roots		**YES**	
Orthodontic appliances		**YES**	
Protective Factors			
Lives/work/school fluoridated community			**YES**
Fluoride toothpaste at least once daily			**YES**
Fluoride toothpaste at least 2x daily			**YES**
Fluoride mouthrinse (0.05% NaF) daily			**YES**
5,000 ppm F fluoride toothpaste daily			**YES**
Fluoride varnish in last 6 months			**YES**
Office F topical in last 6 months			**YES**
Chlorhexidine prescribed/used one week each of last 6 months			**YES**
Xylitol gum/lozenges 4x daily last 6 months			**YES**
Calcium and phosphate paste during last 6 months			**YES**
Adequate saliva flow (> 1 ml/min stimulated)			**YES**
****Bacteria/Saliva Test Results: MS: LB: Flow Rate: ml/min. Date:**			



VISUALIZE CARIES BALANCE
(Use circled indicators/factors above)
(EXTREME RISK – HIGH RISK + SEVERE SALIVARY GLAND HYPOFUNCTION)
CARIES RISK ASSESSMENT (CIRCLE): EXTREME HIGH MODERATE LOW

ctor signature/#: _____ Date:_____

INSTRUCTIONS FOR USING CAMBRA FORM 0-5

- Answer the questions
- Determine the overall caries risk of the child
- Bacteria Testing
- Plan for caries intervention and prevention
- Home care recommendations
- Bacteria Test results
- Follow up

Caries Risk Assessment Appropriate for the Age 1Visit (Infants and Toddlers) Francisco j. Ramos-gomez, dds, ms, mph; james crall, dds, scd; stuart a. Gansky, drph; rebecca l. Slayton, dds, phd;and john d.B. Featherstone, msc, ph

MOTIVATIONAL INTERVIEWING

SET TWO MANAGEMENT GOALS

COMMIT TO THE GOALS

FOLLOW UP DURING RECALL

Regular dental visits for child

Family receives dental treatment

Healthy snacks

Brush with fluoride tooth-paste at least twice daily

No soda

Less or no juice

Wean off bottle (At least no bottle for sleeping)

Only water or milk in sippy cup

Chew gum with xylitol

Drink tap water

Less or no candy and junk food

IMPORTANT:
The last thing that touches your child's teeth before bed-time is the tooth-brush with fluoride toothpaste.

MOTIVATIONAL INTERVIEWING

- AAPD provides a set of guidelines to assess the risk of patients
- AAPD has developed caries management protocols based on these risk assessments
- Useful in determining the direction of patient care
- Initiate a comprehensive preventive program for the child
- Reassess risk status periodically to detect changes

Casamassimo , Paul. Pediatric Dentistry: Infancy Through Adolescence, 5th Edition.

Pinkham et. Pediatric Dentistry: Infancy Through Adolescence, 4th Edition. Mosby, 2005.

Risk assessment tools can aid in the identification of reliable predictors and allow dental practitioners, physicians and other non dental health care providers to become more actively involved in identifying and referring high risk children.

CARIES RISK ASSESSMENT

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THANK YOU