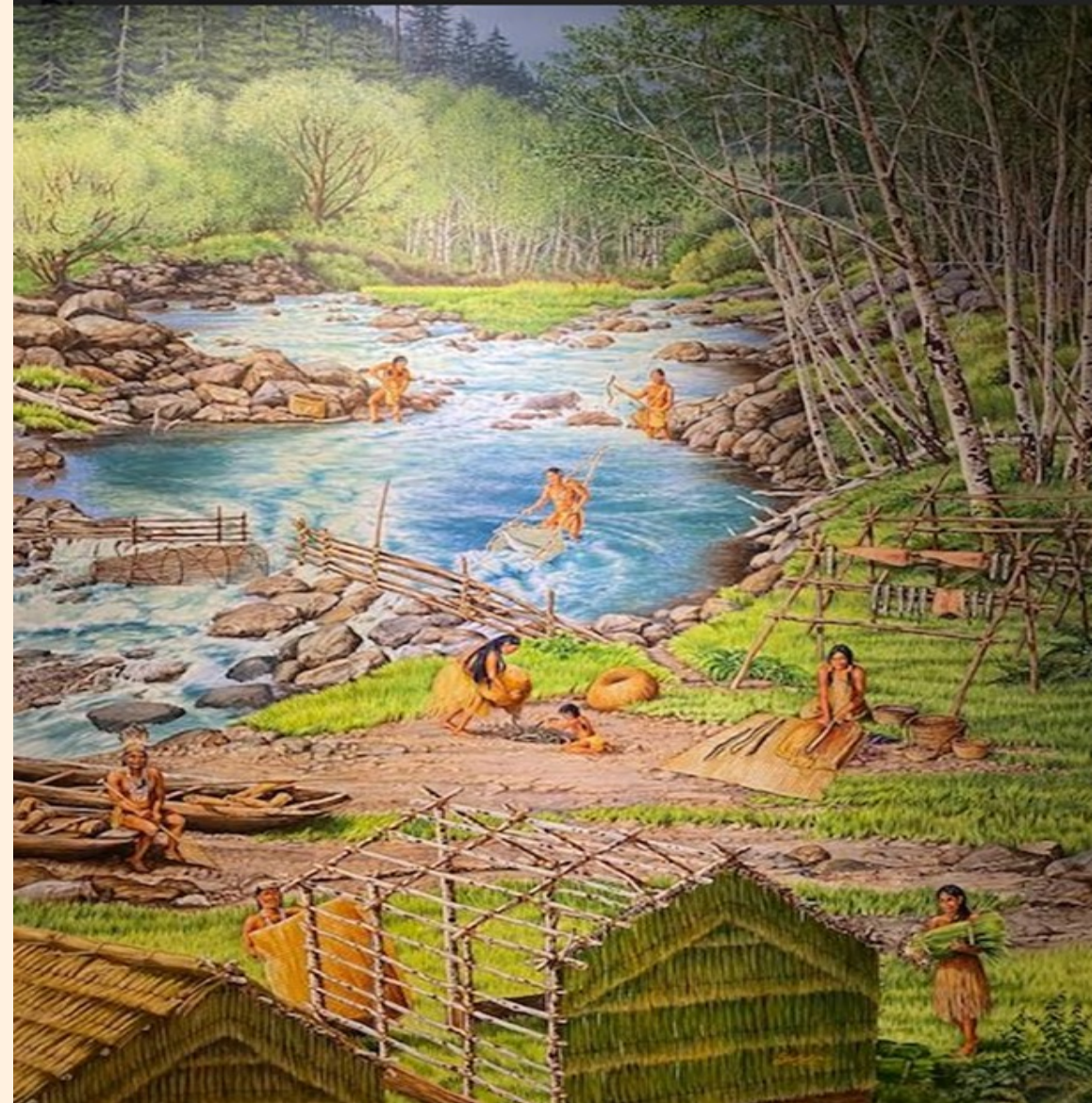


Indian Country Oral Health ECHO: Minimally Invasive Dentistry and Case Presentation

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Northwest Portland Area Indian Health Board

Established in 1972, the Northwest Portland Area Indian Health Board (NPAIHB or the Board) is a non-profit tribal advisory organization serving the forty-three federally recognized tribes of Oregon, Washington, and Idaho. Each member tribe appoints a Delegate via tribal resolution and meets quarterly to direct and oversee all activities of NPAIHB.

“Our mission is to eliminate health disparities and improve the quality of life of American Indians and Alaska Natives by supporting Northwest Tribes in their delivery of culturally appropriate, high-quality healthcare.”



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Indian Country Oral Health ECHO: Minimally Invasive Dentistry and Case Presentation

DISCLAIMER:

We have no financial disclosures or conflicts of interest with the information in this presentation.



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Indian Country Oral Health ECHO:

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Project Director



Objectives:

Upon completion of this course, participants will be able to:

1. Build minimally invasive dentistry skills.
2. Recognize risk factors and apply preventive measures, implementing a Caries Risk Management Protocol to reduce the occurrence of oral health disease.
3. Learn techniques on how to treat patients with holistic and culturally appropriate care.



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Outline:

1. Case Presentation
2. Didactic Presentation
 - Caries Risk Protocol & Management
3. Group Discussion and Q&A



“The evidence-base for survival of restorations clearly indicates that restoring teeth is a temporary palliative measure that is doomed to fail if the disease that caused the condition is not addressed properly.”

<https://pubmed.ncbi.nlm.nih.gov/15646587/>




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> Oral Health Prev Dent. 2004;2 Suppl 1:287-92.

What is minimally invasive dentistry?

Dan Ericson ¹

Affiliations + expand

PMID: 15646587

Abstract

Minimally Invasive Dentistry is the application of "a systematic respect for the original tissue." This implies that the dental profession recognizes that an artifact is of less biological value than the original healthy tissue. Minimally invasive dentistry is a concept that can embrace all aspects of the profession. The common delineator is tissue preservation, preferably by preventing disease from occurring and intercepting its progress, but also removing and replacing with as little tissue loss as possible. It does not suggest that we make small fillings to restore incipient lesions or surgically remove impacted third molars without symptoms as routine procedures. The introduction of predictable adhesive technologies has led to a giant leap in interest in minimally invasive dentistry. The concept bridges the traditional gap between prevention and surgical procedures, which is just what dentistry needs today. The evidence-base for survival of restorations clearly indicates that restoring teeth is a temporary palliative measure that is doomed to fail if the disease that caused the condition is not addressed properly. Today, the means, motives and opportunities for minimally invasive dentistry are at hand, but incentives are definitely lacking. Patients and third parties seem to be convinced that the only things that count are replacements. Namely, they are prepared to pay for a filling but not for a procedure that can help avoid having one.

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Today's Clinical Faculty:



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Manager



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Case Presentation

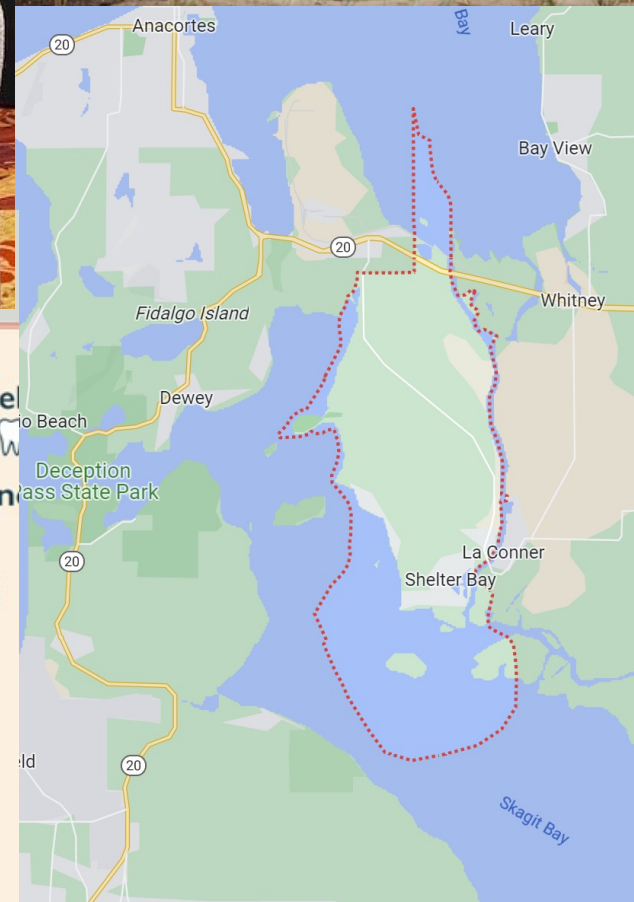


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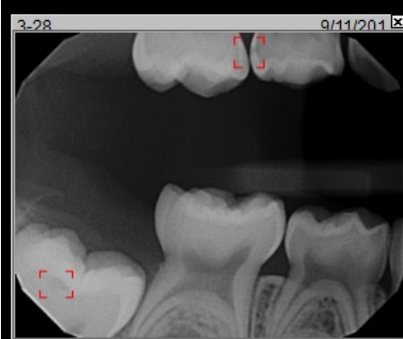
MID in Action

Indian Country Oral Health ECHO

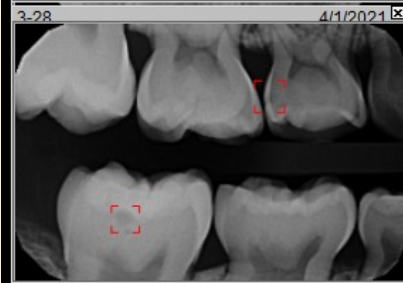
Provided by:
Sarah Chagnon, DHAT
Swinomish Dental Clinic



2018



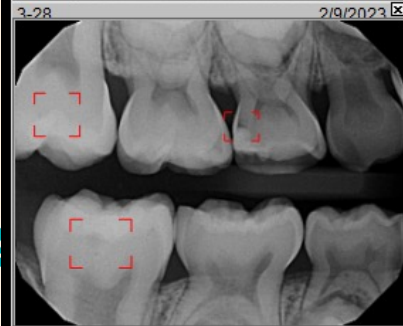
2021



2022



2023



9/11/2018: 5 year old female came in for hygiene

- Extra/Intra Oral Exam: WNL
- Exam Findings: multiple unsealed teeth with deep grooves. Small caries noted on B distal.
- Caries Risk: Moderate (did not say why)
- OH: Good
- Periodontal Description: Generalized Healthy Gingiva. Plaque: None.
- Calculus: Localized Class I, very slight on O and P.
- Treatment plan: SDF application on #B-D, did not apply at this visit.
- Placed sealants at visit.

2018



2021



2022

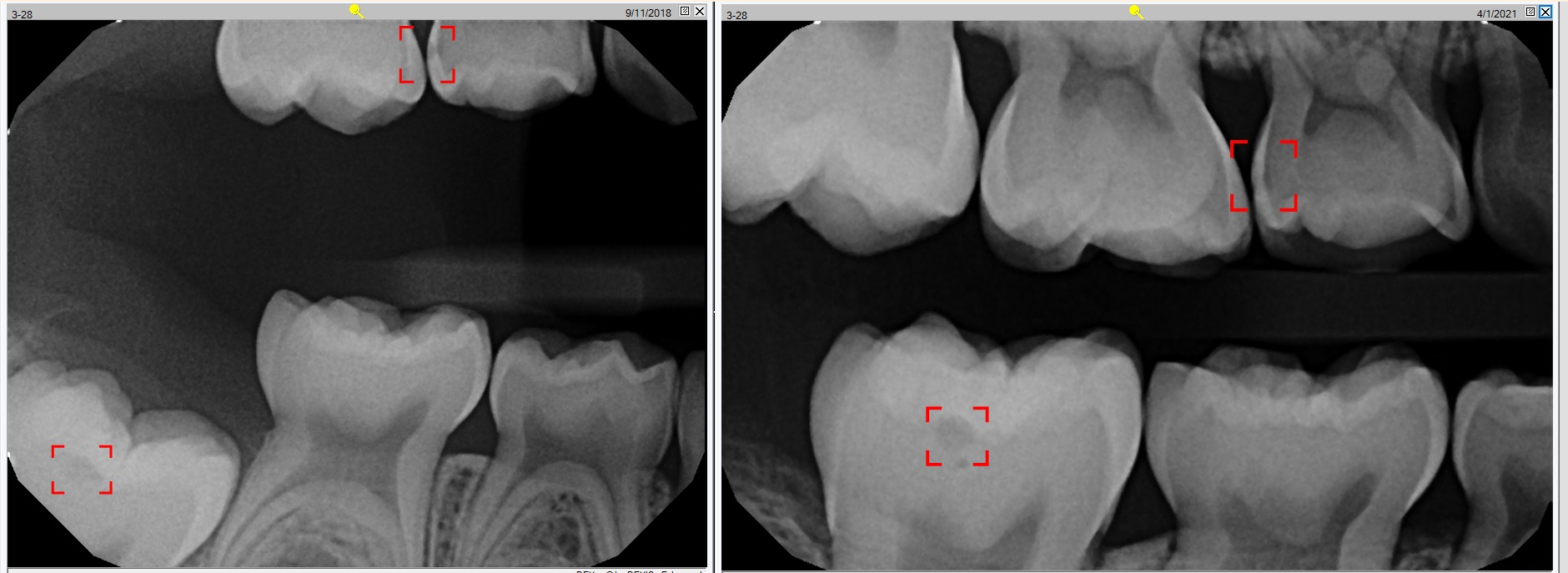


2023



2018

2021



3/26/2019: Appt. for hygiene. Returned for SDF application #B-D. No radiographs taken.

10/15/2019: Appt. for hygiene (now 6 y.o.). 2nd SDF application. No radiographs taken.

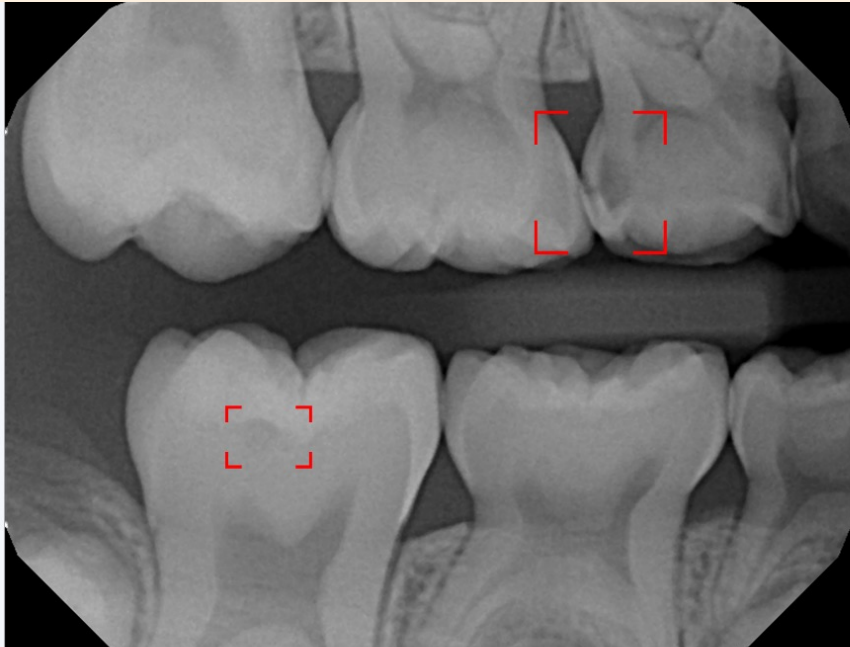
6/24/2020: Appt. for hygiene. 3rd SDF application applied to #B-D. No radiographs taken.

4/1/2021: Appt. hygiene/exam (now 7 y.o.). Radiographic findings: incipient lesion #B-D, lesion remains same Treatment: SDF application.

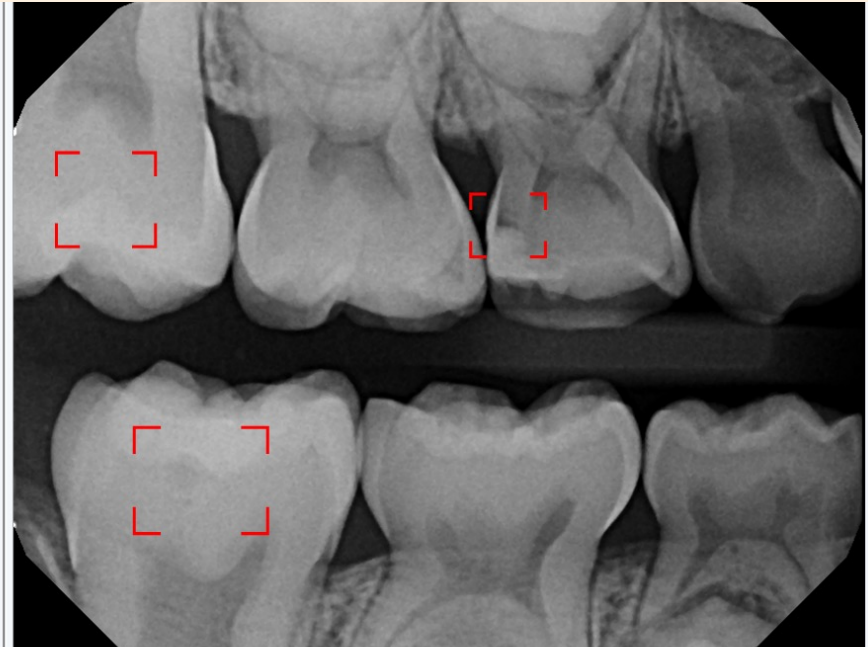


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2022



2023



6/20/2022: 8 year old female Radiographic findings: #B-D large carious lesion.
Treatment plan: #B-DO restoration. #30-radiolucency still present

2/9/2023: 9 year old female Radiographic findings: #B-DO restoration with radiolucency, #5 permeant tooth visible
Treatment plan: SDF treatment and watch

Successful treatment?

Yes! MID + SDF

**Monitored child since she was 5 years old
Child had a good experience**

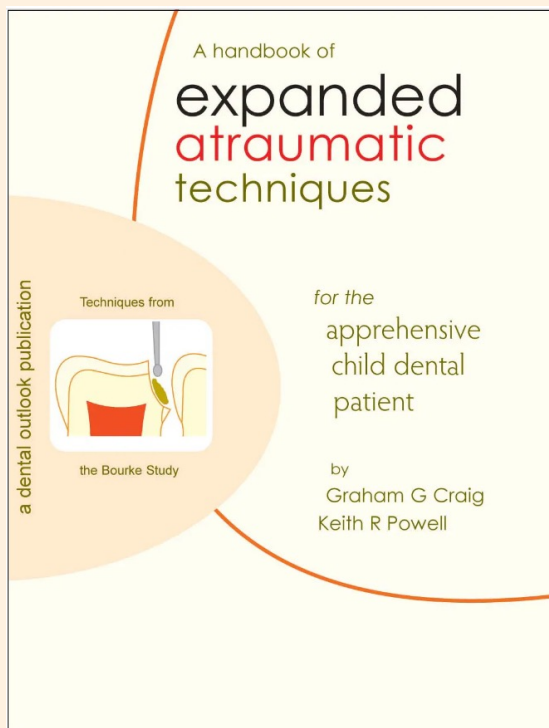
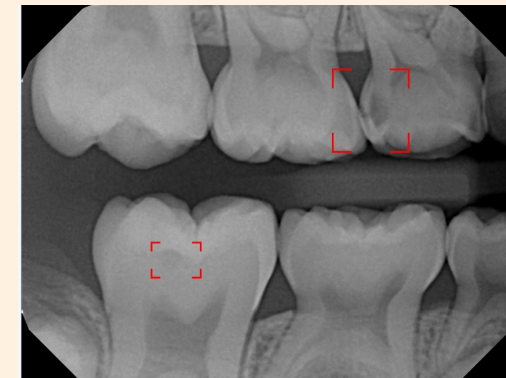
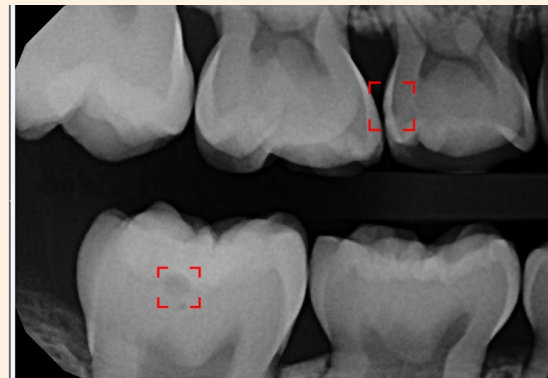
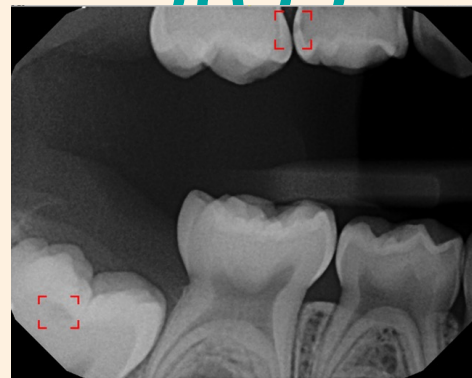


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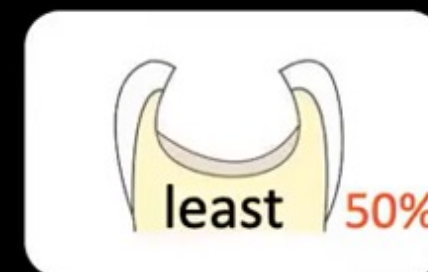
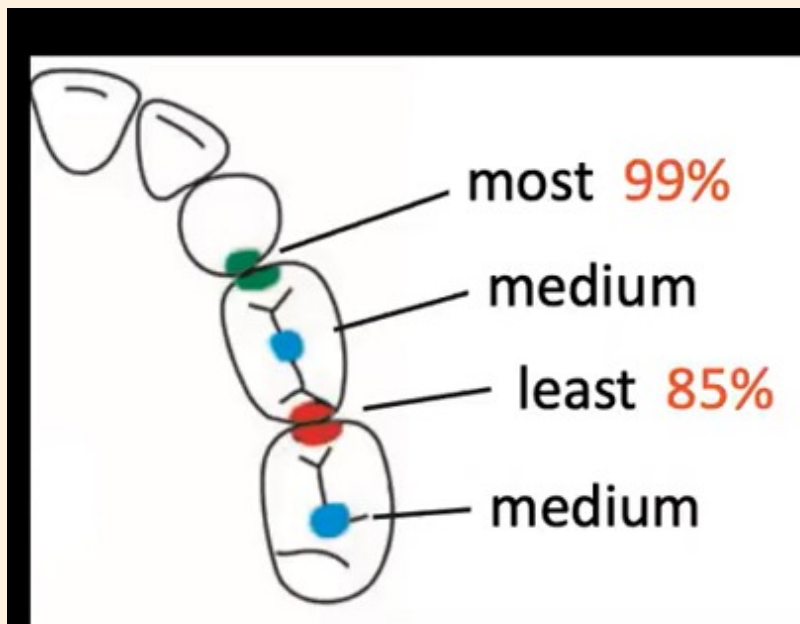
2018

2021

2022



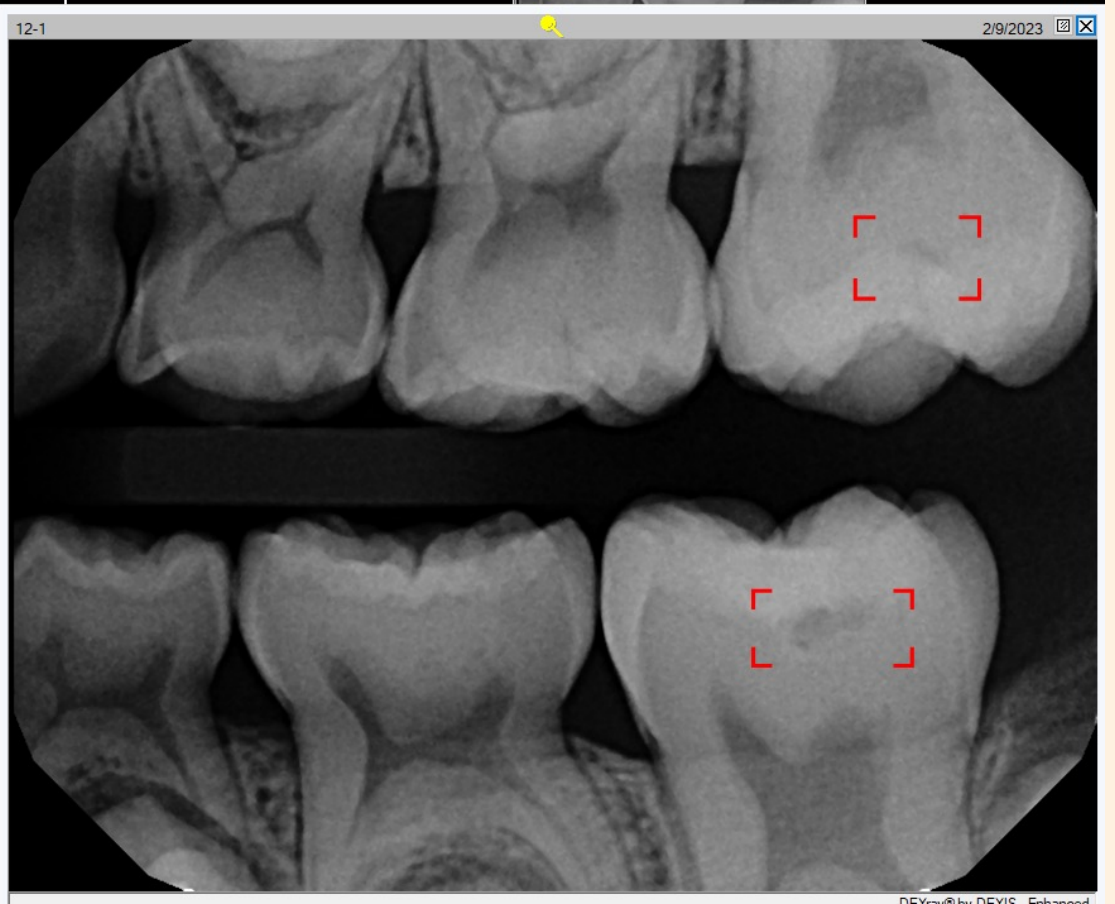
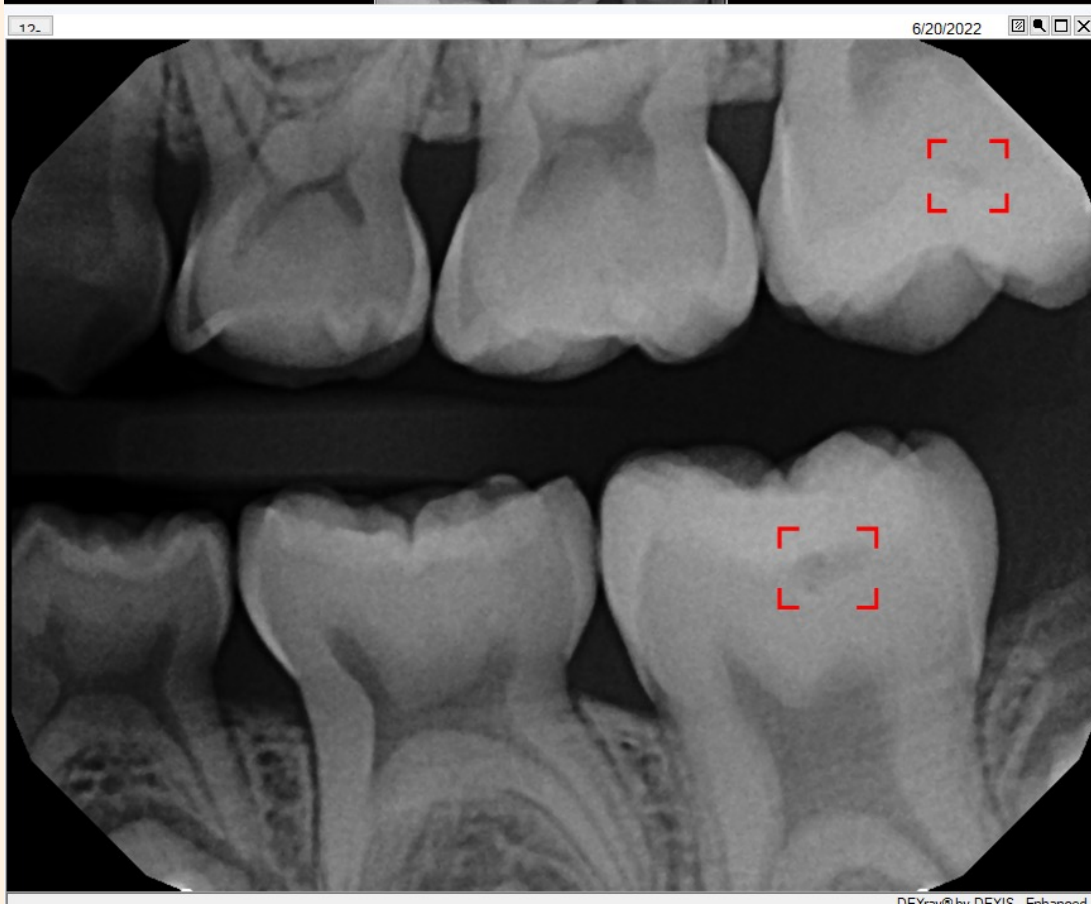
Likelihood of SDF Caries Arrest = Cleansability



**Craig and Powell,
Dental Outlook. 2013**



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Thank You!



Provided by:
Sarah Chagnon, DHAT
Swinomish Dental Clinic



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Didactic Presentation



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Caries Risk Protocol & Management



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Caries Risk Protocol & Management...

...but first which Caries Risk Assessment to use?

One of the questions that remains unanswered is which CRA tool (CRAT) to use and which CRATs are validated with clinical studies.

[Front Oral Health](#). 2021; 2: 656558.

PMCID: PMC8757708

Published online 2021 Apr 28. doi: [10.3389/froh.2021.656558](https://doi.org/10.3389/froh.2021.656558)

PMID: [35048004](https://pubmed.ncbi.nlm.nih.gov/35048004/)

A Comparison of Four Caries Risk Assessment Methods

[John D. B. Featherstone](#),^{1,*} [Yasmi O. Crystal](#),^{2,3} [Pamela Alston](#),⁴ [Benjamin W. Chaffee](#),¹ [Sophie Doméjean](#),^{5,6,7,8}
[Peter Rechmann](#),¹ [Ling Zhan](#),⁴ and [Francisco Ramos-Gomez](#)⁹

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[https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8757708/#:~:text=Introduction%3A%20Caries%20risk%20assessment%20\(CRA,Pediatric%20Dentistry%20\(AAPD\)%20CRAs.](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8757708/#:~:text=Introduction%3A%20Caries%20risk%20assessment%20(CRA,Pediatric%20Dentistry%20(AAPD)%20CRAs.)

Carries Risk Protocol & Management:

One of the questions that remains unanswered is which CRA tool (CRAT) to use and which CRATs are validated with clinical studies.

D0601 caries risk assessment with a finding of **low risk**.

D0602 caries risk assessment with a finding of **moderate risk**.

D0603 caries risk assessment with a finding of **high risk**.

Table 1

Caries risk assessment (CRA) tools-partial listing.

CRA title	Source name (Reference)
ADA	American Dental Association [19, 20]
AAPD	American Academy of Pediatric Dentistry [21]
AAPD-CAT (old version)	American Academy of Pediatric Dentistry [22]
AAP	American Academy of Pediatrics [23]
CAMBRA- "Caries Management by Risk Assessment"	University of California, San Francisco [24-28]
CDHCS-Domain #2 CRA Form	California Department of Health Care Services [29]
CariFree	CariFree, Oregon [30, 31]
CMS - Caries Management System	University of Sydney, NSW, Australia [32]
Cariogram (Internet-based Program)	Malmö University, Sweden [33]
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EBH now-Online Search Engine for CRA	McGill University, Canada [35]
FDI	Fédération Dentaire Internationale-World Dental Federation [36]
MSB - My Smile Buddy (Electronic iPad based program)	Columbia University College of Dental Medicine [37, 38]
NUS - Caries Risk Assessment Tool	National University of Singapore [39]
PreViser electronic Caries Risk Assessment Tool	PreViser [40]
Texas Health and Human Services	Texas Health and Human Services [41]
UCC	University College Cork (Ireland) [42]

[https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8757708/#:~:text=Introduction%3A%20Caries%20risk%20assessment%20\(CRA,Pediatric%20Dentistry%20\(AAPD\)%20CRAs.](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8757708/#:~:text=Introduction%3A%20Caries%20risk%20assessment%20(CRA,Pediatric%20Dentistry%20(AAPD)%20CRAs.)



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Caries Risk Protocol & Management:

U.S. Department of Health and Human Services
Indian Health Service
 The Federal Health Program for American Indians and Alaska Natives

Search IHS

A to Z Index

The Indian Health Service is working closely with our tribal partners to coordinate a comprehensive public health response to both COVID-19

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Welcome: Sean Kelly
[Logoff before closing browser](#)

Dental Portal

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 Continuing Dental Education
 Dental Directory
 Initiatives
Clinic
 Annual Competencies
 Caries Risk
 Dental Specialities Manual

Caries Diagnosis, Risk Assessment and Management

Caries Intervention using Silver Ion Antimicrobials (SIA) – Demonstration Video Series

SIA therapy (either 38% silver diamine fluoride [SDF] or 25% silver nitrate) is a useful caries intervention when the right circumstances (i.e. young children, root caries, etc.). The following videos demonstrate the proper set up of SIAs on patients, and one possible complication – the staining of the lip. More details on the use of SIAs are available on the “Clinic” tab in the [Oral Health Program Guide, chapter 4, section V](#). [be patient – they make it look easy]

SDF Setup, Example 1
 Watch later | Share

From a national health authority

The IHS - Division of Oral Health's Dental Portal has a Caries Risk Classification and Recall Intervals guide. It is found under the "Clinic" tab. (Login is required) AND.....



Indian Health Service Division of Oral Health Caries Risk Classification and Recall Intervals – Oct. 1, 2017



Overview: The IHS Division of Oral Health recommends that all dentate patients be assessed for caries risk at examination appointments or annually and that a preventive recall schedule be customized to each patient based upon their caries risk. The below guide can be printed and placed in each dental operator to provide recommendations to the dental health care professional regarding an appropriate risk classification, preventive recall interval, and prevention strategies that can be employed.

0-5 Years of Age (only two risk classifications) Corresponding ADA Caries Risk Code	Low D0601	High D0603
Risk Determination:		
• Cavitated or non-cavitated lesion (any number), active	None	Any
• Any caries experience	None	Yes
• Positive family caries history (high caries in family)	No	Yes
• Poor oral hygiene/moderate to heavy plaque	No	Yes
Preventive/Early Intervention Strategies:		
• Community water fluoridation exposure	X	X
• Fluoride varnish application	1-2x/yr	3-4x/yr
• Emphasis on fluoridated toothpaste (supervised)	X	X
• Dental sealants, resin and/or glass ionomer, at time of exam if possible	X	X
• Motivational interviewing (parent)	X	X
• Nutritional counseling, as indicated		X
• Interim therapeutic restorations		X
• Crowns, including Hall technique		X
• Silver ion antimicrobials		X
• Traditional restorations (amalgam/composite/glass ionomer)		X
Recall Interval Suggested:	6-12 mos.	3-4 mos.

6 Years and Over (three risk categories; "very high" has been removed) Corresponding ADA Caries Risk Code	Low D0601	Moderate D0602	High D0603
Risk Determination:			
• Cavitated or non-cavitated lesion (any number), active	None	1-2	3+
• Smooth surface lesion	None	No	Possible
• Any caries experience	Possible	Yes	Yes
• Poor oral hygiene/moderate to heavy plaque	No	Possible	Yes
Preventive/Early Intervention Strategies:			
• Community water fluoridation exposure	X	X	X
• Fluoride supplements, as indicated	X	X	X
• Fluoride varnish application	1-2x/yr	1-2x/yr	2-4x/yr
• Emphasis on fluoridated toothpaste (supervised)	X	X	X
• Dental sealants, resin, at time of exam	X	X	X
• Xylitol or sugar-free gum			X
• Assess <i>Mutans Streptococci</i> , <i>Lactobacillus</i> levels			X
• Nutritional counseling, as indicated			X
• Interim therapeutic restorations			X
• Silver ion antimicrobials			Possible
• Traditional restorations (amalgam/composite)		X	X
• Motivational interviewing		X	X
Recall Interval Suggested:	12 mos.+	6-12 mos.	3-6 mos.

[IHS DOH Caries Risk Classification and Recall Intervals \(PDF - 512KB\)](#)



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<https://www.ih.gov/doh/>

Caries Risk Protocol & Management:

The IHS OHS metric is available for use by all IHS federal, tribal and urban clinics using the IHS version of Dentrix Enterprise 8.0.9 (CU1). **The IHS OHS Classification [status] score is determined by provider data entry of four objective,**

standardized oral health parameters:

1. **Caries**; both number of active carious lesions as well as maximum depth of carious lesion[s].
2. Soft tissue evaluation / condition (oral cancer, indication for biopsy, etc.)
3. Periodontal disease.
4. Presence of abscessed teeth

[https://www.ihs.gov/doh/edr/documents/Introduction and Use of The IHS OHS Metric v6 19.08.12.pdf](https://www.ihs.gov/doh/edr/documents/Introduction_and_Use_of_The_IHS_OHS_Metric_v6_19.08.12.pdf)



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Patient Oral Health (Dental Provider [objective] Observations)

1. Was a complete examination including charting of abscessed teeth, carious lesions and needed restorations completed at this appointment? No Yes

2. Are any teeth identified for extractions due to caries, periodontal disease or abscesses? No Yes

Soft Tissue Exam

3a. Any definitively diagnosed oral or pharyngeal cancer? No Yes

3b. Any abnormal oral lesions indicated for biopsy? No Yes

4. Community Periodontal Index (CPI)
Accept Previous Entry? No Yes

CPI Status

1-5	6-11	12-16
2	2	2
28-32	22-27	17-21
2	2	2

Last Update: 7/10/2019

5. Active Caries Depth Metric
Accept Previous Entry? No Yes

Active Caries Depth

1-5	6-11	12-16
2	2	0
28-32	22-27	17-21
0	0	0

Last Update: 7/10/2019

Patient Oral Health Risk Factors

6. Caries Risk:

7. Smoking:

8. Diabetes?

9. Dry Mouth?

OHS 4
Poor
Updated: 7/10/2019

Caries Risk Protocol & Management:

One of the questions that remains unanswered is which CRA tool (CRAT) to use and which CRATs are validated with clinical studies.

Table 1

Caries risk assessment (CRA) tools-partial listing.

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Caries Risk Protocol & Management:

One of the questions that remains unanswered is which CRA tool (CRAT) to use and which CRATs are validated with clinical studies.

Introduction: Caries risk assessment (CRA) is essential as the basis for successful management of dental caries. Of the many published CRA tools, four well-known ones are CAMBRA, Cariogram, American Dental Association (ADA), and American Academy of Pediatric Dentistry (AAPD) CRAs.



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[https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8757708/#:~:text=Introduction%3A%20Caries%20risk%20assessment%20\(CRA,Pediatric%20Dentistry%20\(AAPD\)%20CRAs.](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8757708/#:~:text=Introduction%3A%20Caries%20risk%20assessment%20(CRA,Pediatric%20Dentistry%20(AAPD)%20CRAs.)

Caries Risk Protocol & Management:

One of the questions that remains unanswered is which CRA tool (CRAT) to use and which CRATs are validated with clinical studies.

The outcomes of preventive and restorative treatment, whether surgical or non-surgical, greatly depend on the patient's understanding of their individual risk factors and their behavior changes that will allow them to tip the caries balance toward health. Using a system that combines all the information gathered during risk assessment to empower the patient with knowledge of factors relevant to them personally can be very helpful to lead them to improve their health choices, especially when reinforced periodically. The validity of the Cariogram and CAMBRA tools is supported by clinical outcomes evidence [14, 54, 55, 67]. Health care providers can expect to obtain similar risk classifications from the previously published CAMBRA and Cariogram CRAs in determining caries risk for both age groups.



Caries Risk Protocol & Management:

One of the questions that remains unanswered is which CRA tool (CRAT) to use and which CRATs are validated with clinical studies.

In conclusion, the present paper offers a review of the successful CAMBRA CRA tool that can be the foundation for caries management systems for the age groups 0–6 years and 6 years through adult. Both the Cariogram and the CAMBRA CRA methods are equally useful for identifying the future risk of dental caries.

It is important to use a CRA form or electronic tool not only as a checklist to determine caries risk but also to use the details to create a caries management plan [43, 44, 67, 71, 72].



Caries Risk Protocol & Management:

57 CRA factors identified, however 15 of them were determined to be predictive of risk and able to be effectively operationalized into a clinical tool.

https://www.ada.org/-/media/project/ada-organization/ada/ada-org/files/resources/research/dqa/Educational%20Resources/CRA_Report.pdf



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GUIDANCE ON CARIES RISK ASSESSMENT IN CHILDREN

**A REPORT OF THE EXPERT PANEL FOR USE BY THE DENTAL QUALITY
ALLIANCE**

June 2018

Caries Risk Protocol & Management:

Observations & Recommendations on Risk Assessment, for Practitioners:

1. Despite limited evidence on whether assessing caries risk by itself results in improved oral health, it is important to assess caries risk to educate patients and manage modifiable risk factors based on the best available evidence.
2. Frequently used CRA tools include most of the 15 factors identified in this report.
3. Current tools have derived various methods to categorize risk based on expert consensus. The categorization of risk differs between the tools. However, all tools appear to qualify “low risk” in a similar manner: lack of disease and presence of protective factors. Current CRA tools could be effectively used in identifying “low risk” patients.¹⁵
4. Current or recent history of carious lesions is the most valid predictor of elevated caries risk.
5. The most important use of a CRA is to measure the effectiveness of an intervention to reduce future caries risk and predict the occurrence of new carious lesions.
6. One or more carious lesions in younger children (3 years) or soon after tooth eruption is indicative of increased risk.¹⁶



Caries Risk Protocol & Management:

CAMBRA for 0-6 year olds

<https://www.frontiersin.org/articles/10.3389/froh.2021.657518/full>



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TABLE 3 | Care pathways for caries management based upon risk assessment for ages 0–6 years.

Risk category	Diagnostic			Preventive interventions			Restoration
	Periodic oral exams	Radiographs	Fluoride	Diet counseling	Self-management goals	Sealants	Existing lesions
CARE PATHWAYS FOR CARIES MANAGEMENT BASED ON RISK FOR CHILDREN 0-6 YEARS OF AGE							
Low	6–12 mos	12–24 mos	Brush twice daily with F toothpaste [¥]	No	No	No	
Moderate	6 mos	6–12 mos	Brush twice daily with F toothpaste [¥] optimize F intake [£] FV every 6 mos	Yes	Yes	On enamel defects and pits & fissures at-risk	Active surveillance for developing lesions
High	3 mos	6 mos	Brush twice daily with F toothpaste [¥] optimize F intake [£] FV every 3 mos	Yes	Yes	On enamel defects and pits & fissures at-risk	Remineralize enamel-only lesions with FV; restoration of cavitated lesions, or non-surgical caries management with ITR or SDF as appropriate.
Very high: with extensive existing disease	Monthly	6 mos	Brush three times daily with F toothpaste [¥] optimize F intake [£] FV every 1–3 mos Consider additional therapies for caries control*	Yes	Yes	All pits and fissures	Consider caries control prior to surgical tx. Remineralize enamel-only lesions with FV; restoration of cavitated lesions, or non-surgical caries management with ITR or SDF as appropriate

[¥] Smear of 1,000 ppm fluoride toothpaste for 0–2 year-olds, pea-size of fluoride toothpaste for 3–6 year-olds (or equivalent for specific area).

[£] Recommend drinking fluoridated water (from tap or bottled), parental brushing, spit and don't rinse toothpaste.

*Wipe with baking soda/xylitol, use casein phosphopeptide–amorphous calcium phosphate (ACP/CPP) paste.

FV, fluoride varnish; ITR, interim therapeutic restoration; SDF, silver diamine fluoride; mos, months.

Caries Risk Protocol & Management:

1. AAPD for 0-5 year olds

https://www.aapd.org/globalassets/medial/policies_guidelines/bp_cariesriskassessment.pdf?v=new



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Table 3. Example of Caries Management Pathways for 0-5 Years Old

Risk category	Diagnostics	Preventive interventions			Restorative interventions
		Fluoride	Dietary counseling	Sealants	
Low risk	<ul style="list-style-type: none"> – Recall every six to 12 months – Radiographs every 12 to 24 months 	<ul style="list-style-type: none"> – Drink optimally-fluoridated water – Twice daily brushing with fluoridated toothpaste 	Yes	Yes	– Surveillance
Moderate risk	<ul style="list-style-type: none"> – Recall every six months – Radiographs every six to 12 months 	<ul style="list-style-type: none"> – Drink optimally-fluoridated water (alternatively, take fluoride supplements with fluoride-deficient water supplies) – Twice daily brushing with fluoridated toothpaste – Professional topical treatment every three months 	Yes	Yes	<ul style="list-style-type: none"> – Active surveillance of non-cavitated (white spot) caries lesions – Restore cavitated or enlarging caries lesions
High risk	<ul style="list-style-type: none"> – Recall every three months – Radiographs every six months 	<ul style="list-style-type: none"> – Drink optimally-fluoridated water (alternatively, take fluoride supplements with fluoride-deficient water supplies) – Twice daily brushing with fluoridated toothpaste – Professional topical treatment every three months – Silver diamine fluoride on cavitated lesions 	Yes	Yes	<ul style="list-style-type: none"> – Active surveillance of non-cavitated (white spot) caries lesions – Restore cavitated or enlarging caries lesions – Interim therapeutic restorations (ITR) may be used until permanent restorations can be placed

Caries Risk Protocol & Management:

Notes for caries management pathways table:

1. **Twice daily brushing:** Parental supervision of a “smear” amount of fluoridated toothpaste for children under age three, pea-size amount for children ages three through five.
2. **Surveillance:** Periodic monitoring for signs of caries progression; active surveillance: active measures by parents and oral health professionals to reduce cariogenic environment and monitor possible caries progression.
3. **Silver diamine fluoride:** Use of 38 percent silver diamine fluoride to assist in arresting caries lesions; informed consent: particularly highlighting expected staining of treated lesions.
4. **Sealants:** The decision to seal primary and permanent molars should account for both the individual-level and tooth-level risks.



Caries Risk Protocol & Management:

1. AAPD for ≥ 6 year olds

https://www.aapd.org/globalassets/medial/policies_guidelines/bp_cariesriskassessment.pdf?v=new



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Table 4. Example of a Caries Management Pathways for ≥ 6 Years Old

Risk category	Diagnostics	Preventive interventions			Restorative interventions
		Fluoride	Dietary counseling	Sealants	
Low risk	<ul style="list-style-type: none"> – Recall every six to 12 months – Radiographs every 12 to 24 months 	<ul style="list-style-type: none"> – Drink optimally-fluoridated water – Twice daily brushing with fluoridated toothpaste 	Yes	Yes	– Surveillance
Moderate risk	<ul style="list-style-type: none"> – Recall every six months – Radiographs every six to 12 months 	<ul style="list-style-type: none"> – Drink optimally-fluoridated water (alternatively, take fluoride supplements with fluoride-deficient water supplies) – Twice daily brushing with fluoridated toothpaste – Professional topical treatment every six months 	Yes	Yes	<ul style="list-style-type: none"> – Active surveillance of non-cavitated (white spot) caries lesions – Restore cavitated or enlarging caries lesions
High risk	<ul style="list-style-type: none"> – Recall every three months – Radiographs every six months 	<ul style="list-style-type: none"> – Drink optimally-fluoridated water (alternatively, take fluoride supplements with fluoride-deficient water supplies) – Brushing with 0.5 percent fluoride gel/paste – Professional topical treatment every three months – Silver diamine fluoride on cavitated lesions 	Yes	Yes	<ul style="list-style-type: none"> – Active surveillance of non-cavitated (white spot) caries lesions – Restore cavitated or enlarging caries lesions – Interim therapeutic restorations (ITR) may be used until permanent restorations can be placed

Caries Risk Protocol & Management:

Notes for caries management pathways table:

1. **Twice daily brushing:** Parental supervision of a pea-size amount of fluoridated toothpaste for children six years of age.
2. **Surveillance:** Periodic monitoring for signs of caries progression; active surveillance: active measures by parents and oral health professionals to reduce cariogenic environment and monitor possible caries progression.
3. **Silver diamine fluoride:** Use of 38 percent silver diamine fluoride to assist in arresting caries lesions; informed consent: particularly highlighting expected staining of treated lesions.
4. **Sealants:** Although studies report unfavorable cost/benefit ratio for sealant placement in low caries-risk children, expert opinion favors sealants in permanent teeth of low-risk children based on possible changes in risk over time and differences in tooth anatomy. The decision to seal primary and permanent molars should account for both the individual-level and tooth-level risks.



Caries Risk Protocol & Management:

The IHS OHPG (2007) emphasized the need for arresting and preventing disease using a medical model, and to do so prior to completing restorations or extractions.

https://www.ihs.gov/doh/clinicmanagement/ohpgpdf/Chapter%204/12IHS-OPHS790-DEN_HNB_Chapter4_SectionE.pdf




Management

Treatment planning and management of active carious lesions involves three steps:


1. Arresting the infectious disease process and preventing disease using a medical model (**Preventive Regimen**).
2. Completing restorations and/or extractions (**Surgical Treatment**).
3. Evaluating the outcome of the chosen preventive regimen and surgical treatment (**Recall**).

It is imperative that the prevention strategies based on risk assessment are initiated prior to completing restorations or extractions. The prevention regimen should be based on the patient's risk category. If there is a high demand for services and few resources, preventive regimens should be focused on strategies proven to be effective like fluoride and sealants (35–39).

Caries Risk Protocol & Management:



Indian Health Service Division of Oral Health
Caries Risk Classification and Recall Intervals – Oct. 1, 2017



Overview: The IHS Division of Oral Health recommends that all dentate patients be assessed for caries risk at examination appointments or annually and that a preventive recall schedule be customized to each patient based upon their caries risk. The below guide can be printed and placed in each dental operatory to provide recommendations to the dental health care professional regarding an appropriate risk classification, preventive recall interval, and prevention strategies that can be employed.

0-5 Years of Age (only two risk classifications) Corresponding ADA Caries Risk Code	Low D0601	High D0603
Risk Determination:		
• Cavitated or non-cavitated lesion (any number), active	None	Any
• Any caries experience	None	Yes
• Positive family caries history (high caries in family)	No	Yes
• Poor oral hygiene/moderate to heavy plaque	No	Yes
Preventive/Early Intervention Strategies:		
• Community water fluoridation exposure	X	X
• Fluoride varnish application	1-2x/yr	3-4x/yr
• Emphasis on fluoridated toothpaste (supervised)	X	X
• Dental sealants, resin and/or glass ionomer, at time of exam if possible	X	X
• Motivational interviewing (parent)	X	X
• Nutritional counseling, as indicated		X
• Interim therapeutic restorations		X
• Crowns, including Hall technique		X
• Silver ion antimicrobials		X
• Traditional restorations (amalgam/composite/glass ionomer)		X
Recall Interval Suggested:	6-12 mos.	3-4 mos.

6 Years and Over (three risk categories; "very high" has been removed) Corresponding ADA Caries Risk Code	Low D0601	Moderate D0602	High D0603
Risk Determination:			
• Cavitated or non-cavitated lesion (any number), active	None	1-2	3+
• Smooth surface lesion	None	No	Possible
• Any caries experience	Possible	Yes	Yes
• Poor oral hygiene/moderate to heavy plaque	No	Possible	Yes
Preventive/Early Intervention Strategies:			
• Community water fluoridation exposure	X	X	X
• Fluoride supplements, as indicated	X	X	X
• Fluoride varnish application	1-2x/yr	1-2x/yr	2-4x/yr
• Emphasis on fluoridated toothpaste (supervised)	X	X	X
• Dental sealants, resin, at time of exam	X	X	X
• Xylitol or sugar-free gum			X
• Assess <i>Mutans Streptococci</i> , <i>Lactobacillus</i> levels			X
• Nutritional counseling, as indicated			X
• Interim therapeutic restorations			X
• Silver ion antimicrobials			Possible
• Traditional restorations (amalgam/composite)		X	X
• Motivational interviewing		X	X
Recall Interval Suggested:	12 mos.+	6-12 mos.	3-6 mos.

0-5 years of age

Preventive/Early Intervention Strategies:	Low	High
• Community water fluoridation exposure	X	X
• Fluoride varnish application	1-2x/yr	3-4x/yr
• Emphasis on fluoridated toothpaste (supervised)	X	X
• Dental sealants, resin and/or glass ionomer, at time of exam if possible	X	X
• Motivational interviewing (parent)	X	X
• Nutritional counseling, as indicated		X
• Interim therapeutic restorations		X
• Crowns, including Hall technique		X
• Silver ion antimicrobials		X
• Traditional restorations (amalgam/composite/glass ionomer)		X
Recall Interval Suggested:	6-12 mos.	3-4 mos.

6 years and over

Preventive/Early Intervention Strategies:	Low	Moderate	High
• Community water fluoridation exposure	X	X	X
• Fluoride supplements, as indicated	X	X	X
• Fluoride varnish application	1-2x/yr	1-2x/yr	2-4x/yr
• Emphasis on fluoridated toothpaste (supervised)	X	X	X
• Dental sealants, resin, at time of exam	X	X	X
• Xylitol or sugar-free gum			X
• Assess <i>Mutans Streptococci</i> , <i>Lactobacillus</i> levels			X
• Nutritional counseling, as indicated			X
• Interim therapeutic restorations			X
• Silver ion antimicrobials			Possible
• Traditional restorations (amalgam/composite)		X	X
• Motivational interviewing		X	X
Recall Interval Suggested:	12 mos.+	6-12 mos.	3-6 mos.

https://www.ihs.gov/doh/clinicmanagement/ohpgpdf/Chapter%204/12IHS-OPHS790-DEN_HNB_Chapter4_SectionE.pdf



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Caries Risk Protocol & Management:

An old example (2014) when I was a dental director, this my first Caries Risk Protocol/Management Plan. Each higher assessed risk builds upon the treatment of the previous (lower) risk. Though outdated the key is to have a guide for your staff that is simple to follow. AND if you can program your EDR so to automate your treatment plan based on the CRA, then that may assist in maintaining consistency in your clinic and in the care of your community. It may also assist in gathering data on the effectiveness of your Caries Risk program.



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Appendix – A: Caries Risk Assessment Flow Chart

The Risk Categories

- **Low Risk = 0 cavitated lesions (no white spots for 0-5 year olds)**
 - **Moderate Risk = 1 cavitated lesion (does not apply to 0-5 year olds)**
 - **High Risk = 2-5 lesions (if ≤ 5 y.o.; 1 or more/white spots)**
 - **Very High Risk = 6 or more cavitated lesions (does not apply to 0-5 y.o.)**
- (Note, as determined by the dentist, modifiers may either lower or increase the patients risk category. The “Modifiers”, which are other factors that predispose one to dental decay are: white spot/decalcified lesions, tooth morphology, age, fluoride exposure, oral hygiene, frequency of dental visits, medical condition, medications, root exposure, saliva flow, orthodontics, dental work, diet and Strep mutan levels.)

Low Risk

- Education/Reinforcement/OHI
- Sealants
- Diet and Nutritional Counseling

Moderate Risk

- Same as low risk, plus...
- Home fluoride rinses, dispense or recommend ACT to the patient (age/behavior appropriate)/ FI Supplements PRN
- Professionally applied FI semi-annually
- Appropriate restorative tx

High Risk

- Same as moderate risk, plus...
- Appropriate restorative tx/ May include Interim Therapeutic Restorations
- Apply FI varnish at each appointment/Schedule OHI w/FI Varnish Appts
- RX Peridex (CHX) (12 yrs old or older)
- Recommend or dispense Xylitol gum

Very High

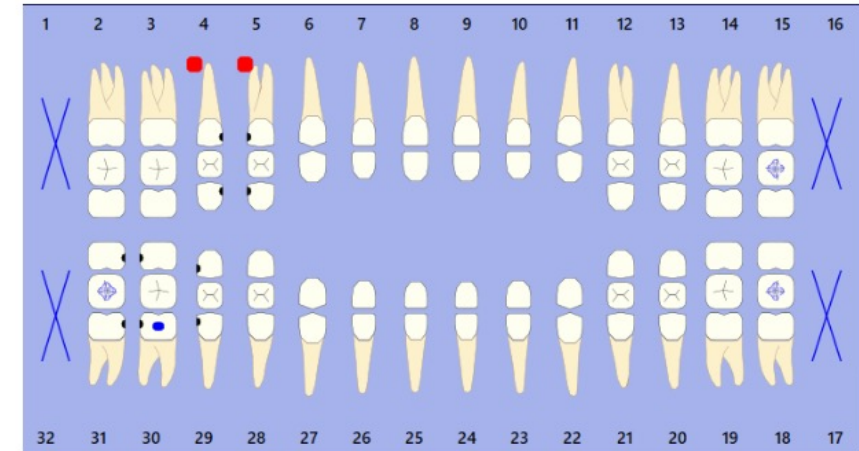
- Same as high risk, plus...
- Toothbrushing with CHX 2x/day (≥ 12 y.o.)
- Eliminate cavitated lesions ASAP
- Pre-tx rinse w/ Peridex each appoint. (≥ 12 y.o.)

Caries Risk Protocol & Management:

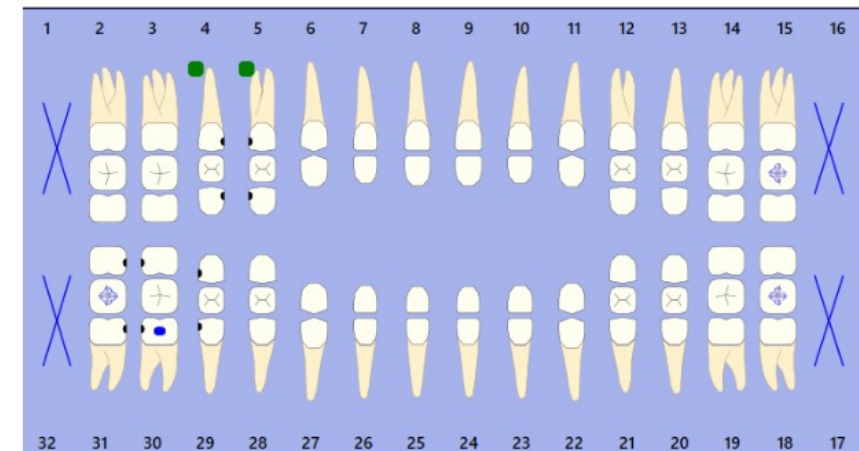
We rely a lot on the EDR odontogram to tell a story. Visually we gather a lot of information and here is an example of a clinic (Grand Ronde) using a tool in their EDR to designate the planning and the treatment using SDF.

We need more tools to simplify the CRA process and the Management of Caries.

- Red dot: Teeth planned for SDF treatment



- Green dots: Teeth treated with SDF



Caries Risk Protocol & Management:

Observations & Recommendations on Risk Assessment, for Practitioners:

1. Despite limited evidence on whether assessing caries risk by itself results in improved oral health, it is important to assess caries risk to educate patients and manage modifiable risk factors based on the best available evidence.
2. Frequently used CRA tools include most of the 15 factors identified in this report.
3. Current tools have derived various methods to categorize risk based on expert consensus. The categorization of risk differs between the tools. However, all tools appear to qualify “low risk” in a similar manner: lack of disease and presence of protective factors. Current CRA tools could be effectively used in identifying “low risk” patients.¹⁵
4. Current or recent history of carious lesions is the most valid predictor of elevated caries risk.
5. The most important use of a CRA is to measure the effectiveness of an intervention to reduce future caries risk and predict the occurrence of new carious lesions.
6. One or more carious lesions in younger children (3 years) or soon after tooth eruption is indicative of increased risk.¹⁶



Caries Risk Protocol & Management:



Perhaps a Caries Risk Assessment and a Caries Management approach would have prevented the excessive cutting of tooth #15, which included an indirect pulp cap.



Group Discussion and Q & A



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Questions?



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Thank You!



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