



SECTION 1

# ADVANTAGE DENTAL PREVENTION AND EVIDENCE-BASED DISEASE MANAGEMENT MANUAL

Caries Risk Assessment . . . . .	2
Chair side Caries Risk Assessment . . . . .	3
Chair side Caries Risk Protocol . . . . .	3
Betadine with Fluoride Varnish Set-Up and Application . . . . .	4
Silver Diamine Fluoride Set-Up and Application . . . . .	5
SMART how-to (Silver Modified Atraumatic Restorative Treatment) . . . . .	6
Protocol reference list . . . . .	7

## ADVANTAGE DENTAL CARIES RISK ASSESSMENT

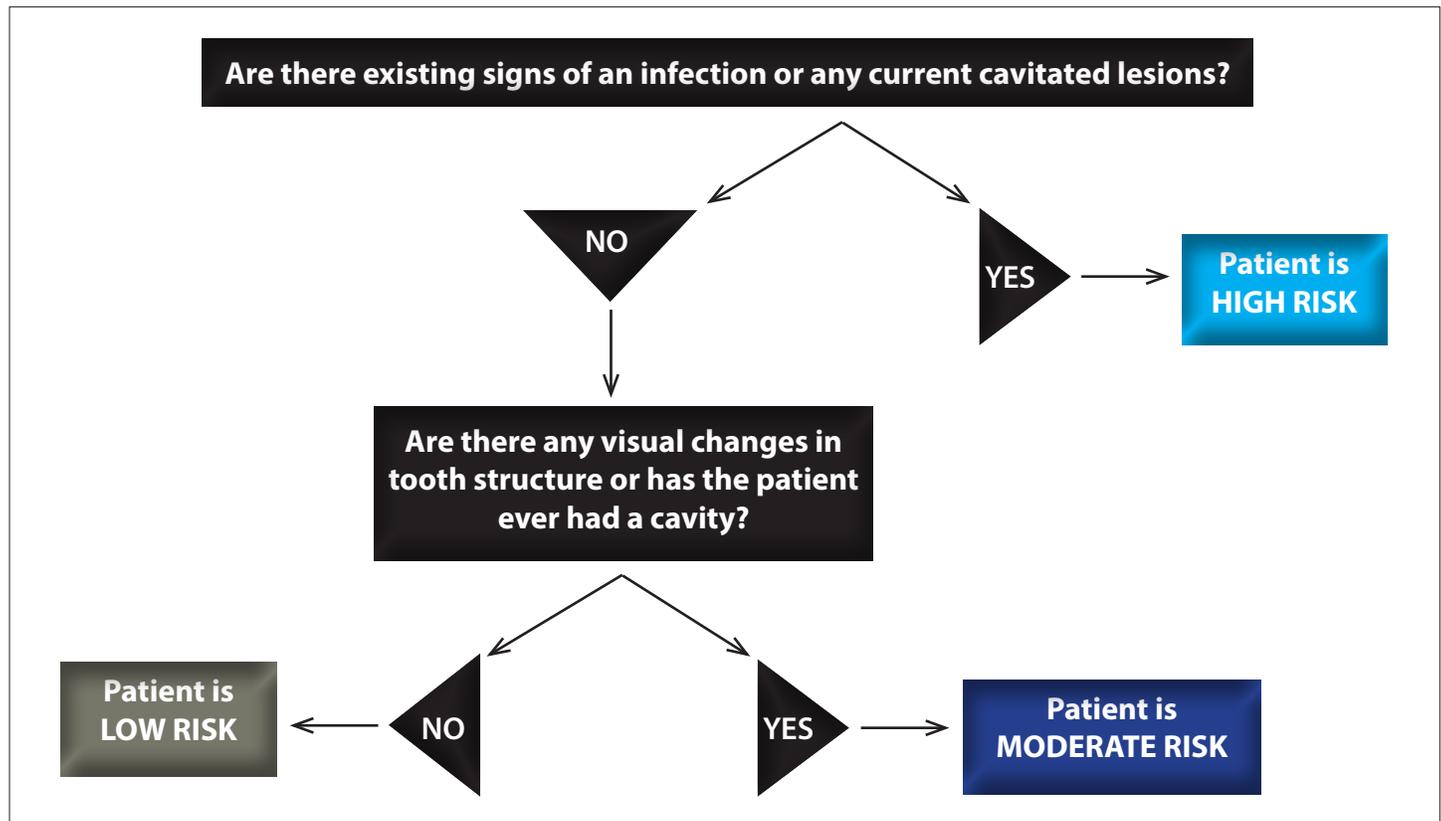
A Caries Risk Assessment assists the dental team in triaging the patient to appropriate care. The patient’s risk status and treatment plan are determined based on the answers to the caries risk questions. Below offers two visual examples to demonstrate which risk category a patient would fall, based on the answers to the caries risk questions. Make sure to document the information in the patient’s chart before moving on to the next question.

Example #1

	High Risk	Moderate Risk	Low Risk
Are there existing signs of an infection?	YES		NO
Are there any current cavitated lesions?	YES		NO
Are there any visual changes in tooth structure?		YES	NO
Has the patient ever had a cavity?		YES	NO

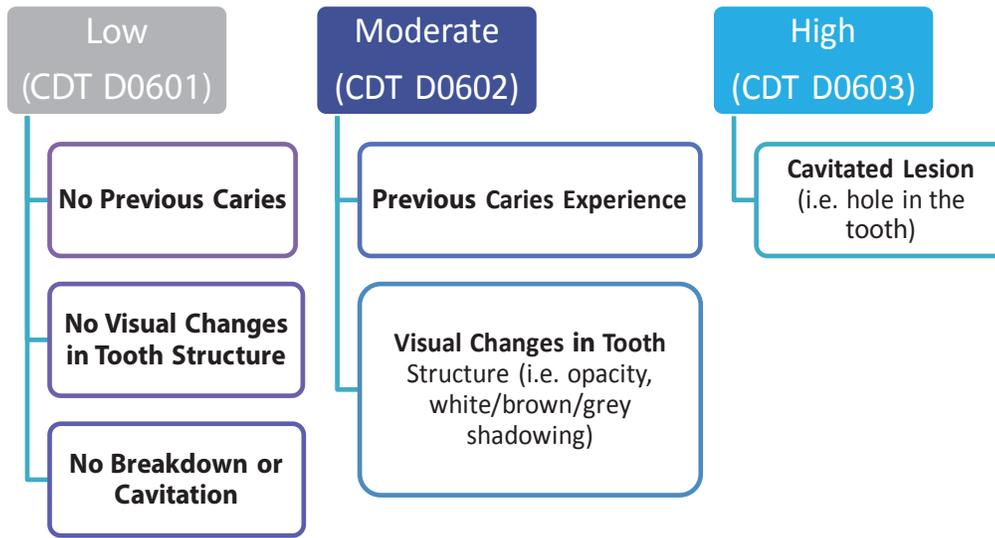
Note: If the patient is under the age of two, you will need to review the caries experience of the primary caregiver and any applicable siblings. Ask the primary caregiver if they, their mother, or their grandmother have experienced dental problems. If applicable, ask if any of their children had decay before the child was four years old. Make sure to document the information in the patient’s chart before moving on to the next question.

Example #2



## ADVANTAGE DENTAL CARIES RISK ASSESSMENT

Based on the answers to the caries risk questions, you can determine the patient’s risk factor, which can be low, moderate or high as listed below.



## ADVANTAGE DENTAL CARIES RISK PROTOCOL

Based on the patient’s risk factor, you can determine the appropriate treatment guidelines, as listed below. Guidelines are for all patients, regardless of age.

<b>Low</b> (CDT D0601)	<ul style="list-style-type: none"> <li>• Annual exam with the provider, unless otherwise indicated by the provider.</li> <li>• “Pea” size application of <b>fluoride toothpaste</b> using toothbrush, twice daily.</li> </ul>
<b>Moderate</b> (CDT D0602)	<ul style="list-style-type: none"> <li>• Annual exam with the provider, unless otherwise indicated by the provider.</li> <li>• “Pea” size application of fluoride toothpaste using toothbrush, twice daily.</li> <li>• Twice-annual application of Silver Diamine Fluoride to the occlusal surfaces of posterior teeth for preventative treatment of future lesions (D1208).</li> </ul>
<b>High</b> (CDT D0603)	<ul style="list-style-type: none"> <li>• Annual exam with the provider, unless otherwise indicated by the provider.</li> <li>• “Pea” size application of fluoride toothpaste using toothbrush, twice daily.</li> <li>• Apply Silver Diamine Fluoride (D1354) and/or Silver Modified Atraumatic Restorative Treatment (D1354 &amp; D2940), SMART technique, if necessary, to stabilize the cavitated lesions</li> <li>• until definitive care can be provided.</li> <li>• Apply sealant to the permanent molars, if indicated.</li> <li>• Twice-annual application of Silver Diamine Fluoride to the occlusal surfaces of posterior teeth</li> <li>• for preventative treatment of future lesions (D1208).</li> <li>• Apply PVP Iodine and Fluoride varnish every 6 months alternating Silver Diamine Fluoride (D1206).</li> </ul> <p><b>Pregnant And Special Health Care Needs Patients (in addition to the above):</b></p> <ul style="list-style-type: none"> <li>• Xylitol 6-10gm/day: Mints, slowly dissolve 4 mints 3x a day, or Gum, chew 2 pieces for 5 minutes 3x a day.</li> </ul>



## BETADINE WITH FLUORIDE VARNISH: SET-UP AND APPLICATION

This document will review the set-up and steps to apply Betadine with Fluoride Varnish. You may also review the video “Betadine with Fluoride Varnish Set-Up and Application” for additional information and video demonstration.

### Tray Set Up

The following items should be set prior to seating the patient.

- Fluoride Varnish
- 2 x 2 cotton gauze
- Cotton rolls
- Dappen dish with a drop of Betadine
- Cotton tip applicator
- Disposable mirror



### Application Steps

Before starting treatment, make sure the **patient is wearing protective eyewear. Always wear gloves and protect the patient’s clothing with a bib.** Follow the steps below to apply Betadine with Fluoride Varnish.

1. Dry the tooth structure with the 2 x 2 cotton gauze.
2. Soak up the Betadine using the cotton tip applicator and paint it on the tooth structure.
3. Use a 2 x 2 cotton gauze to wipe off excess betadine from the tooth structure.
4. Apply the Fluoride Varnish over the tooth structure and have the patient swallow.





## SILVER DIAMINE FLUORIDE: SET-UP AND APPLICATION

This document will review the set-up and steps to apply Silver Diamine Fluoride (SDF). You may also review the video “Silver Diamine Fluoride Set-Up and Application” for additional information and video demonstration, available in the Catalog section of Advantage University.

### Equipment

- 2 x 2 cotton gauze
- Air water spray/cup of water
- Applicator brushes
- Cotton rolls
- Cotton tip applicators
- Disposable dappen dishes
- Disposable mirror
- Fluoride Varnish (FV)
- Gloves
- Headlamp
- Instrument Tray
- Masks
- Moulting mouth prop
- Patient napkins
- Patient protective eyewear
- Silver Diamine Fluoride (SDF)
- Super floss
- Vaseline

### Application Steps

Before starting treatment, make sure the **patient is wearing protective eyewear**. SDF will stain areas it comes into contact with, so **always wear gloves, protect the patient’s clothing with a bib**, and make sure to **properly isolate the tooth**, only getting SDF on the tooth/teeth needing treatment. Follow the steps below to apply SDF.

1. Apply Vaseline to the lips and gingiva to keep SDF from staining these areas.
  - If tissue staining occurs, explain to the patient that it is temporary and will wear off naturally in a few days.
2. Apply cotton around the tooth/teeth to isolate and keep them dry.
3. Dry the tooth/teeth using air or 2 x 2 cotton gauze. Make sure to remove all saliva from the caries.
  - The tiny fluoride ions in SDF cannot penetrate through any amount of saliva in a caries lesion, therefore, dry, dry, dry! Without paying close attention to this step, you will not succeed in arresting caries.
4. Dip the applicator brush in SDF and rub onto the tooth/teeth; make sure SDF only gets into the caries lesion(s).
  - For interproximal lesions: Completely dry the affected interproximal space and then draw a piece of Super floss between the teeth. Using the applicator brush, put a drop of SDF on the floss either buccally or lingually and then draw the floss interproximally stretching it to release the SDF into the interproximal lesion(s). Hold everything in place for one minute to allow the SDF to soak into the tooth.
5. Apply Vaseline or FV over area between the tooth/teeth to prevent salivary dilution and to mask the taste of SDF.
6. Remove cotton from mouth and dismiss the patient with instructions not to eat or drink for one (1) hour and to return for two (2) additional SDF application appointments.
  - Two additional SDF application appointments are necessary to completely arrest the caries lesion(s).





# SMART TECHNIQUE: GENERAL OVERVIEW

This document will review the set-up and steps for the SMART Technique (Silver Modified Automatic Restorative Treatment), which combines Silver Diamine Fluoride (SDF) and Glass Ionomer (GI). You may also review the video “SMART Technique” for additional information and video demonstration, available in the Catalog section of Advantage University.

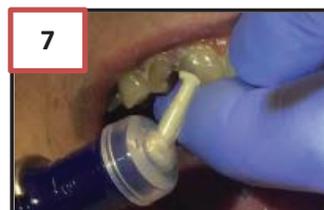
## Equipment

- 2 x 2 cotton gauze
- Air water spray/cup of water
- Applicator brushes
- Cotton rolls
- Cotton tip applicators
- Disposable dappen dishes
- Disposable mirror
- Dry angles
- Explorer
- Fluoride Varnish (FV)
- Cotton roll holders (R/L)
- Glass Ionomer Capsules (GI) and applicator
- Gloves
- Headlamp
- Instrument Tray
- Large/small fuzzy tip applicators
- Masks
- Moulting mouth prop
- Patient napkin
- Patient protective eyewear
- Silver Diamine Fluoride (SDF)
- Super floss
- Triturator
- Vaseline

## Application Steps

Before starting treatment, add one drop of SDF in a dappen dish. Make sure the **patient is wearing protective eyewear**. SDF will stain areas it comes into contact with, so **always wear gloves, protect the patient’s clothing with a bib**, and make sure to **properly isolate the tooth**, only getting SDF on the tooth needing treatment.

1. Apply Vaseline to the lips and gingiva to keep SDF from staining these areas.
  - If tissue staining occurs, explain to the patient that it is temporary and will wear off naturally in a few days.
2. Apply cotton around the tooth/teeth to isolate and keep them dry.
3. Dry the tooth/teeth using air or 2 x 2 cotton gauze. Make sure to remove all saliva from the caries.
  - The tiny fluoride ions in SDF cannot penetrate through any amount of saliva in a caries lesion, therefore, dry, dry, dry! Without paying close attention to this step, you will not succeed in arresting caries.
4. Dip the applicator brush in SDF and rub onto the tooth/teeth; make sure SDF only gets into the caries lesion(s).
  - For interproximal lesions: Completely dry the affected interproximal space and then draw a piece of Super floss between the teeth. Using the applicator brush, put a drop of SDF on the floss either buccally or lingually and then draw the floss interproximally stretching it to release the SDF into the interproximal lesion(s). Hold everything in place for one minute to allow the SDF to soak into the tooth.
5. Allow SDF to soak into the tooth for one minute.
6. Place the GI capsule in the triturator, run for 10 seconds, and then place the capsule in the applicator.
7. Apply GI over the tooth to add a layer of protection and isolate the SDF application.
  - Apply the material quickly as it only has approximately 2-minute working time.
8. Condense the GI into any defect or groove and trim the excess.
  - If your finger is too big, use a wetted cotton tip applicator for this purpose, then remove any excess material.
  - Keep the GI moist with water either from the air water syringe or with saliva drawn with a gloved finger from the patient’s mouth.
  - Never let the GI surface turn dry or chalky while the material is setting; keep it moist, but not saturated.
  - GI takes 2.5 to 5 minutes to set depending on material.
9. After 3-4 minutes, remove cotton from mouth and rinse off the tooth using water.
10. Apply FV over the tooth to add a layer of protection and mask the taste of SDF and GI.
11. Instruct the patient to not eat or drink anything for one hour and only eat soft foods for the next 24-hours.



**AFTER**



**COMING SOON**  
 Documents detailing specific SMART techniques such as,  
 “Ideal SMART Steps for Occlusal Lesion”  
 “Ideal SMART Steps for Class II Lesions”

## ADVANTAGE DENTAL PROTOCOL REFERENCE LIST

### PREGNANT WOMEN

American Academy of Pediatrics and the American College of Obstetricians and Gynecologists. October 2007 Guidelines for Perinatal Care, Sixth Edition, pp. 123-124; <http://www.acog.org/publications/guidelinesForPerinatalCare/gpc-83.pdf>

CDA Foundation. 2010. Oral Health During Pregnancy and Early Childhood: Evidence-Based Guidelines for Health Professionals. [http://www.cdafoundation.org/library/docs/poh\\_guidelines.pdf](http://www.cdafoundation.org/library/docs/poh_guidelines.pdf)

New York State Department of Health. 2006. Oral Health Care During Pregnancy and Early Childhood: Practice Guidelines. New York, NY

Northwest Center to Reduce Oral Health Disparities. 2009. Guidelines for Oral Health Care in Pregnancy. Seattle, WA: School of Dentistry, University of Washington.

[http://depts.washington.edu/nacrohd/sites/default/files/oral\\_health\\_pregnancy\\_0.pdf](http://depts.washington.edu/nacrohd/sites/default/files/oral_health_pregnancy_0.pdf)

### SILVER DIAMINE FLUORIDE

UCSF Protocol for Caries Arrest Using Silver Diamine Fluoride: Rationale, Indications and Consent

Jeremy A. Horst, DDS, PhD; Hellene Ellenikiotis, DDS; and Peter L. Milgrom, DDS. CDA JOURNAL, VOL 44, No 1

Silver Diamine Fluoride: A Caries "Silver-Fluoride Bullet"

A. Rosenblatt, T.C.M. Stamford and R. Niederman  
J DENT RES 2009 88: 116

Randomized clinical trial on arresting dental root caries through silver diammine fluoride applications in community-dwelling elders

R. Lia, E.C.M. Loa,, B.Y. Liub, M.C.M. Wonga, C.H. Chua a Faculty of Dentistry, University of Hong Kong, Hong Kong, China b School of Stomatology, Zhengzhou University, Zhengzhou, China. *Journal of Dentistry* 51 (2016) 15–20

Clinical Trials of Silver Diamine Fluoride in Arresting Caries among Children: A Systematic Review

S.S. Gao, I.S. Zhao, N. Hiraishi, D. Duangthip, M.L. Mei, E.C.M. Lo, and C.H. Chu

JDR Clinical & Translational Research; Vol. XX • Issue X

Silver Diamine Fluoride: A Review and Current Applications  
Shalin Shah, Vijay Bhaskar, Karthik Venkatraghavan, Prashant Choudhary, Ganesh M., Krishna Trivedi  
*Journal of Advanced Oral Research/Jan-Apr 2014 /Vol. 5 No.1*

Silver compounds used in dentistry for caries management: A review. J.J.-Y. Peng, M.G. Botelho, J.P. Matinlinna  
*Journal of Dentistry* 40 (2012) 531-541

### SMART

Silver Modified Atraumatic Restorative Technique (SMART): An Alternative Caries Prevention Tool  
Alvear Fa B, Jew JA, Wong A, Young D. *StomaEduJ*. 2016;3(2)  
<http://www.stomaeduj.com/wp-content/uploads/2016/08/Art-ALVEAR-FA.pdf>

### FLUORIDE

A randomized controlled trial of the efficacy of supervised toothbrushing in high-caries-risk children. Curnow MM, Pine CM, Burnside G, Nicholson JA, Chesters RK, Huntington E. *Caries Res*. 2002 Jul-Aug;36(4):294-300

Professionally applied topical fluoride: evidence-based clinical recommendations. American Dental Association Council on Scientific Affairs. *J Am Dent Assoc*. 2006 Aug;137(8):1151-9. <http://jada.ada.org/cgi/pmidlookup?view=long&pmid=16873333>. Chair side reference: [http://ebd.ada.org/fluoride\\_chairside.pdf](http://ebd.ada.org/fluoride_chairside.pdf)

Topical Fluoride Recommendations for High-Risk Children. Development of Decision Support Matrix. Recommendations from MCHB Expert Panel. October 22-23, 2007, Altarum Institute, Washington, DC. <http://mchoralhealth.org/PDFs/Topical-FluorideRpt.pdf>

### RADIOGRAPHS

American Dental Associations, US Food and Drug Administration. The selection of patients for dental Radiographs Examination. [http://www.ada.org/sections/professionalResources/pdfs/topics\\_radiography\\_chart.pdf](http://www.ada.org/sections/professionalResources/pdfs/topics_radiography_chart.pdf)

### XYLITOL

Dental plaque formation and salivary mutans streptococci in schoolchildren after use of xylitol-containing chewing gum. Holgerson PL, Sjöström I, Stecksén-Blicks C, Twetman S. *Int J Paediatr Dent*. 2007 Mar;17(2):79-85.

Effect of xylitol on an in vitro model of oral biofilm. Badet C, Furiga A, Thébaud N. *Oral Health Prev Dent*. 2008;6(4):337-41. Source Laboratoire de Microbiologie, UFR d'Odontologie, Université Victor Ségalen Bordeaux 2, 33082 Bordeaux cedex, France.

Effect of maternal use of chewing gums containing xylitol,

chlorhexidine or fluoride on mutans streptococci colonization in the mothers' infant children. Thorild I, Lindau B, Twetman S. *Oral Health Prev Dent*. 2003;1(1):53-7.

Guideline on Xylitol Use in Caries Prevention. Available at: [www.aapd.org/media/Policies\\_Guidelines/G\\_XylitolUse.pdf](http://www.aapd.org/media/Policies_Guidelines/G_XylitolUse.pdf)

The potential of dental-protective chewing gum in oral health interventions. Ly KA, Milgrom P, Rothen M. *J Am Dent Assoc*. 2008 May;139(5):553-63.

Xylitol in the prevention of oral diseases. Kitchens DH. *Spec Care Dentist*. 2005;25(3): 140-4

An examination of the advances in science and technology of prevention of tooth decay in young children since the Surgeon General's Report on Oral Health.

Milgrom P, Zero DT, Tanzer JM. *Acad Pediatr*. 2009 Nov-Dec;9(6):404-9.

### **PVP IODINE**

Adjunctive chemotherapeutic suppression of mutans streptococci in the setting of severe early childhood caries: an exploratory study. Berkowitz RJ, Koo H, McDermott MP, Whelehan MT, Ragusa P, Kopycka-Kedzierawski DT, Karp JM, Billings R. *J Public Health Dent* 2009; 69: 163–167.

Causes, treatment and prevention of early childhood caries: a microbiologic perspective. Berkowitz RJ. *J Can Dent Assoc* 2003; 69(5):304-307.

Northwest Center to Reduce Oral Health Disparities. 2010. *Oral Health For Pregnant Women, Infants, and Toddlers: A Dental Professional's Plan for Good Oral Health in Pregnancy & Cavity-Free Young Children*. Seattle, WA: School of Dentistry, University of Washington.

Prevention-centered caries management strategies during critical periods in early childhood.

Milgrom P, Chi DL. *J Calif Dent Assoc*. 2011 Oct; 39(10):735-41.

Prophylaxis with povidone-iodine against induction of oral mucositis by radiochemotherapy. Adamietz IA, Rahn R, Bottcher HD, Schafer V, Reimer K, Fleischer W. *Support Care Cancer*. 1998;6:373–377.

Topical antimicrobial therapy in the prevention of early childhood caries. Lopez L, Berkowitz R, Zlotnik H, Mass M, Weinstein P. *Pediatr Dent*. 1999;21:9-11.

Topical antimicrobial therapy in the prevention of early childhood caries: A follow-up report. Lopez L, Berkowitz R, Spiekerman C, Weinstein P. *Pediatr Dent*. 2002;24:204-206.

Suppression of *Streptococcus mutans* in the mouths of humans by a dental prophylaxis and

topically-applied iodine. Caufield, P. W., and R. J. Gibbons. 1979. *J. Dent. Res.* 58:1317-1326.

Topical Iodine and Fluoride Varnish Effectiveness in the Primary Dentition: A Quasi-experimental Study

Milgrom, Peter M.1; Tut, Ohnmar K.2; Mancl, Lloyd A.3 *Journal of Dentistry for Children*, Volume 78, Number 3, September/December 2011 , pp. 143-147(5)

Topical iodine and fluoride varnish combined is more effective than fluoride varnish alone for protecting erupting first permanent molars: a retrospective cohort study. Tut O, Milgrom P. *J Public Health Dent*. 2010 Summer;70(3):249-52.

### **CARIES RISK ASSESSMENT**

AAPD "Guideline on Caries-risk Assessment and Management for Infants, Children, and Adolescents: Revised 2010" [http://www.aapd.org/media/Policies\\_Guidelines/G\\_CariesRiskAssessment.pdf](http://www.aapd.org/media/Policies_Guidelines/G_CariesRiskAssessment.pdf)

Caries risk assessment and management for the prosthodontic patient. Featherstone JD, Singh S, Curtis DA. *J Prosthodont*. 2011 Jan;20(1):2-9.

Caries management by risk assessment: implementation guidelines. Young DA, Featherstone JD, Roth JR, Anderson M, Autio-Gold J, Christensen GJ, Fontana M, Kutsch VK, Peters MC, Simonsen RJ, Wolff MS. *J Calif Dent Assoc*. 2007 Nov;35(11):799-805

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

Nonfluoride caries-preventive agents: executive summary of evidence-based clinical recommendations. Rethman MP, Beltrán-Aguilar ED, Billings RJ, Hujoel PP, Katz BP, Milgrom P, Sohn W, Stamm JW, Watson G, Wolff M, Wright JT, Zero D, Aravamudhan K, Frantsve-Hawley J, Meyer DM; American Dental Association Council on Scientific Affairs Expert Panel on Nonfluoride Caries-Preventive Agents. *J Am Dent Assoc*. 2011 Sep;142(9):1065-1071.

### **Knee-to-Knee exam for the Pediatric Patient**

Bright Smiles from Birth Training Video. American Academy of Pediatrics Illinois Chapter. 2010. <http://illinoisaaap.org/2010/08/bright-smiles-from-birth-training-video>