CARIES RISK ASSESSMENT FORM FOR AGE 0 TO 5 YEARS

Patient Name:_____ **I.D. #** _____ **Age** ____ **Date** _____

Initial/baseline exam date_____ **Recall/POE date**_____

Respond to each question in sections 1, 2, and 3 with a check mark in the yes or no column	**Yes**	**No**	**Notes**
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 3b below)			
(c) Continual bottle use - contains fluids other than water			
(d) Child sleeps with a bottle, or nurses on demand			
(e) Frequent (greater than three times daily) between-meal snacks of sugars/cooked starch/sugared beverages			
(f) Saliva-reducing factors are present, including: 1. medications (e.g., some for asthma or hyperactivity) 2. medical (cancer treatment) or genetic factors			
(g) Child has developmental problems , Past Med Hx			
(h) Parent and/or caregiver has low SES (Socio-economic status) and/or low health literacy			
(i) No dental home/episodic dental care			
2. Protective Factors/Indicators – Parent Interview			
(a) Child lives in a fluoridated community or takes fluoride supplements by slowly dissolving or as chewable tablets			
(b) Teeth cleaned with fluoridated toothpaste (pea size) daily			
(c) Mother/caregiver has caries activity			
(d) Mother/caregiver chews/sucks xylitol chewing gum/lozenges 2-4 X daily or dissolving xylitol tablets			
(e) Child has a dental home and regular dental care			
3. Caries Risk Indicators - Clinical Examination of Child**			
(a) Obvious white spots, decalcifications, or obvious decay present on the child's teeth			
(b) Restorations placed in the last 2 years			
(c) Plaque is obvious on the teeth and/or gums bleed easily			
(d) Dental or orthodontic appliances present, fixed or removable: e.g., braces, space maintainers, obturators			
(e) Visually inadequate saliva flow - dry mouth			

****If yes to any one of 1(a), 1(b), 3(a) or 3(b) or any two of 1(c)-1(i), or 3(c)-3(e), consider performing bacterial culture on mother or caregiver and child. Use this as a baseline to follow results of antibacterial intervention.**	**Parent/Caregiver** **Date:**	**Child** **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)	**High**	**Moderate**	**Low**

Recommendations given: yes_____ **comments** _____**no:**
Date given:_____ or Date follow up:_____

Practitioner signature _____ Date: _____

Instructions for Caries Risk Assessment Form – Children Ages 0 – 5 Years

1. **Answer the questions:** Respond to questions 1(a)–1(i), 2(a)–2(e) and 3(a)-3(e) with yes or no answers. You can make special notations such as the number of caries present, the severity of the lack of oral hygiene, the brand of fluorides used, the type of bottle contents used, the type of snacks eaten, or the names of medications/drugs that may be causing dry mouth.
2. **Determine the overall caries risk of the child:** Add up the yes answers to the high risk indicators from categories 1. and 3. Add up the number of yes answers for the protective factors/indicators, category 2. Make a judgment as to low, medium or high overall caries risk based on the balance between the pathological factors (caries risk indicators) and the protective factors. **Note:** Determining the caries risk for an individual child requires evaluating the number and severity of the risk indicators, not just the number. Certainly a child with caries presently or in the recent past is at high risk for future caries. A patient with low bacterial levels would need to have several other risk factors present to be considered at moderate risk. Some clinical judgment is needed while also considering the protective factors to determine the risk.
3. **Treatment Plan:** Treatment plan the case and decide what antibacterial therapy and fluoride treatments to use. High risk generally indicates that antibacterial therapy as well as additional fluoride therapy are both needed.
4. If the answer is yes to any one of 1(a), 1(b), 3(a) or 3(b) strongly consider using antibacterial therapy for mother/caregiver and the child.
5. Decide what restorative work is needed.
6. **Bacteria testing:** If the answer is yes to any one of 1(a), 1(b), 3(a) or 3(b), or any two of 1(c)-1(i), or 3(c)-3(e), consider performing bacterial cultures on mother or caregiver and child (see **notes in the form). See separate sheet for instructions how to perform these tests. Use these results as a baseline to follow the results of antibacterial intervention and whether to carry out antibacterial therapy for the mother/caregiver or child.
7. **Homecare recommendations;** Fill out the parent/care giver recommendation sheet based on your clinical observations and the responses to the questions and discuss strategies for caries control and management. Give one copy to the parent/caregiver and keep one in the patient's chart. Give the parent/caregiver the sheet that explains how caries happens (on the back of the home care recommendation sheet).
8. Place the completed caries risk assessment form in the patient's chart.
9. **Bacteria test results:** After the tests have incubated (72 hours, see separate instructions) inform the parent/care giver of the results of the bacteria tests. e.g. showing the parent the bacteria grown from their mouth (CRT test result) can be a good motivator so have the culture tube handy at the next visit (or schedule one for this purpose - the culture keeps satisfactorily for some weeks), or give/send them a picture, as a photograph or digital image. If the parent/care giver has high cariogenic bacterial counts then work with them and their own dentist to bring them to low caries risk and get their caries under control to eliminate this source of infection and re-infection for the child.
10. **Follow up:** After the parent/care giver/child has been following your recommendations for 3-6 months, have them back to re-assess how well they are doing. Ask them if they are following your instructions – how often. If the bacterial levels were moderate or high initially, repeat the bacterial culture to see if bacterial levels have been reduced by antibacterial therapy. Make changes in your recommendations or reinforce protocol if results are not as good as desired or the patient is not compliant.

Bacterial testing:

Bacterial tests for cariogenic bacteria: There are two test kits currently available in the USA for "chair-side" testing for cariogenic bacterial challenge. One is the Caries Risk Test (CRT) marketed by Vivadent/Ivoclar (Amherst, NY). The other is the "Dentocult SM" and "Dentocult LB" test, marketed by Edge Dental (www.edgedental.com). Both are is sufficiently sensitive to provide a level of low, medium or high cariogenic bacterial challenge separately for mutans stereptococci (MS) and for lactobacilli species (LB). Each has selective media culture "sticks" that test MS and LB levels in saliva sampled from the patient. The CRT kit has a single "media stick" with selective media for MS on one side and LB on the other. The Dentocult slides come as two separate sticks. The results obtained from the test sticks from either supplier can also be used as a motivational tool for patient compliance with an antibacterial regimen. Other bacterial test kits will likely be available in the near future.

The following is the procedure for administering the currently available CRT test. Results are available after 72 hours.
The kit comes with two-sided selective media sticks that assess mutans streptococci on the blue side and lactobacilli on the green side. A starter kit , which includes plastic beakers, incubator and kits of 6 tests is available (Ivoclar catalog #NA 6556001). Manufacturers instructions are provided with each kit of 6 "media sticks". However, incubation for 72 hours rather than the recommended 48 hours, gives better results. The procedure can readily be done in a dental office or community clinic setting.

a) For mother/caregiver and for children old enough to spit (probably 4 or 5 years old), then a bacterial culture should be taken, as follows: The subject chews on the chewing gum (wax) provided in the kit for 3 minutes (accurately timed) and spits all mixed saliva into a measuring beaker. Measure the volume {in ml) and divide by 3 to give ml/minute stimulated saliva flow rate. Normal flow is greater than 1 ml/minute and low is less than 0.7 ml/minute.
b) Remove the selective media stick from the culture tube. Peel off the plastic sheet covering each side of the stick. Pour the collected saliva over the media on each side until it is entirely wet.
c) Place one of the sodium bicarbonate tablets (included with the kit) in the bottom of the tube.
d) Replace the media stick in the culture tube, screw the lid on and label the tube with the patient's name, number, and date.
e) Place the tube in the incubator at 37 ˚C for 72 hours. (Incubators suitable for a dental office are sold by the company).
f) Collect the tube after 72 hours and compare the densities of bacterial colonies with the pictures provided in the kit indicating relative bacterial levels, ranging from low to high. Colony densities in the middle of the range are medium. The dark blue agar is selective for mutans streptococci and the light green agar is selective for Lactobacilli. Record the level of bacterial challenge in the patient's chart, as low medium or high.

Bacteria testing for young children: For children not old enough to spit (aged 3 years or less) the bacterial levels of the parent/caregiver should be used as a rough estimate of the child's likely bacterial challenge. Children aged 0-3 years are difficult to culture reliably in the fashion described above. However a good approximate indication for the child can be obtained by using a cotton swab to sample the surfaces of all teeth and gums in the mouth, thoroughly dispersing the sample in about 1-2 ml of sterile saline in a test tube (Fisher Scientific), and dispersing it for 1 minute on a laboratory vortex (Fisher Scioentific, catalog 12-813-52). The suspension is then coated on the CRT stick as described above for saliva samples, and incubated for 72 hours. This will give a good estimate of the MS and LB challenge in the young child (Fujino et al, 2004).

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Parent/Caregiver Recommendations for Control of Dental Decay in Children 0-5 years

Daily Oral Hygiene/Fluoride Treatment (These procedures reduce the bacteria in the mouth and provide a small amount of fluoride to guard against further tooth decay, as well as to repair early decayed areas)

___ brush child's teeth with a fluoride-containing toothpaste (small smear or pea-sized amount on a soft small infant sized toothbrush) twice daily (gently brushed by parent or caregiver)

___ selective daily flossing of areas with early caries (white patches)

___other: _____

Diet (The aim is to reduce the number of between meal sweet snacks that contain carbohydrates, especially sugars. Substitution by snacks rich in protein, such as cheese will also help)

____ OK as is
____ limit bottle/nursing (to avoid prolonged contact of milk with teeth)
____replace juice or sweet liquids in the bottle with water
____ limit snacking (particularly sweets)
____replace high carbohydrate snacks with cheese and protein snacks
____ other _____

Xylitol (Xylitol is a sweetener that the bacteria can not feed on. It limits the transfer of decay-causing bacteria from parent/caregiver to baby/toddler . Parents/caregivers with dental decay place their children at high risk. Parent/caregiver requires antibacterial treatment (see below). Using xylitol-containing chewing gum or mints/lozenges is a way that parents/caregivers of high risk children can use to reduce the transfer of decay-causing bacteria. This is most effective when used starting shortly after the child's birth.)

____ Parents of children 3 and under with high bacterial levels should use xylitol mints or xylitol gum 2–4 times daily

Antibacterial rinse (parents/caregivers)

____ Parents/caregivers of children 3 years and under with high bacterial levels should rinse with 10 ml of Chlorhexidine gluconate 0.12% (***Periogard, Peridex, Oral Rx*** by prescription only). Rinse at bedtime for 1 minute 1X/day for one week. Repeat each month for one week until infection is controlled. Continue for 6 months, or until bacterial levels remain controlled.

Practitioner signature _____ Date: _____

Parent/caregiver signature _____ Date: _____

How Tooth Decay Happens

Tooth decay is caused by certain types of bacteria (bugs) that live in your mouth. When they stick to the film on your teeth called dental plaque, they can do damage. The bacteria feed on what you eat, especially sugars (including fruit sugars) and cooked starch (bread, potatoes, rice, pasta, etc.). Within about 5 minutes after you eat, or drink, the bacteria begin making acids as they digest your food. Those acids can break into the outer surface of the tooth and melt away some of the minerals. Your spit can balance the acid attacks if they don't happen very often. However if: 1) your mouth is dry, 2) you have a lot of these bacteria, or 3) you snack frequently; then acid causes loss of tooth minerals. This is the start of tooth decay and leads to cavities.

Methods of Controlling Tooth Decay

Diet: Reducing the number of sugary and starchy foods, snacks, or drinks can help reduce tooth decay. That does not mean you can never eat these types of foods. You should limit the times you eat these foods between main meals. A good rule is 3 meals per day and no more than 3 snacks per day.

***Fluorides*:** Fluorides help to make teeth stronger and to protect against tooth decay, and to heal tooth decay if it has not gone too far. Fluorides are available from a variety of sources such as drinking water, toothpaste and rinses you can buy in the supermarket or drug store. They may also be prescribed by your dentist or applied in the dental office. Daily use of fluoride is very important to help protect against the acid attacks.

***Plaque removal*:** Plaque is a yellowish film that sticks to the surface of teeth. Tooth brushing removes plaque and should be done every day. Bacteria live in plaque, so removing the plaque from your teeth on a daily basis helps to control tooth decay. Plaque is very sticky and may be hard to remove from between the teeth and in grooves on the biting surfaces of back teeth. If your child has an orthodontic retainer be sure to remove it before brushing your child's teeth. Brush all surfaces of the retainer also.

Spit: Spit (saliva) is important for healthy teeth. It balances acids, and provides other ingredients that protect the teeth. If you cannot brush after a meal or snack, you can chew sugar-free gum. This will stimulate the flow of saliva to help reduce the effect of acids. Sugar-free candy or mints can also be used, but some of these contain acids themselves. Acids in sugar-free candy will not cause tooth decay, but can slowly dissolve the tooth surface over time (a process called erosion). Some sugar-free gums are made to help fight tooth decay. Some gums contain baking soda that neutralizes the acids produced by the bacteria in plaque. **Gum that contains Xylitol as its first listed ingredient is the gum of choice**. This type of gum has been shown to protect against tooth decay and to reduce the decay causing bacteria.

Antibacterial mouth rinses: Rinses that your dentist can prescribe are able to reduce the numbers of bacteria that cause tooth decay and can be useful in patients at high risk for tooth decay. These rinses are only recommended for children who can rinse and spit.

Sealants: Sealants are plastic coatings brushed onto the biting surfaces of back teeth to protect the deep grooves from decay. In some people the grooves on the surfaces of the teeth are too narrow and deep to clean with a toothbrush. They may decay even if you brush them regularly. Sealants are an excellent preventive measure used for children and young adults at risk for this type of decay.