

Module 1: The Caries Balance

Time: 60 minutes



Learning Objective:

Identify pathological and protective factors for dental caries.

Additional Materials Needed:

- Flipchart and markers
- PowerPoint presentation
- PowerPoint handout

Brainstorming Session

•Write on board or newsprint “What Causes Cavities?” and ask participants to brainstorm all of the things that they think cause cavities.

•Next, write “What Prevents Cavities?” and ask participants to brainstorm all of the ways that they think cavities can be prevented.



Training Tip: You don't have to correct their answers, just leave them posted for now. This gives you clues to misconceptions and knowledge of the group you are training. You can refer back to specific responses as you present this module.



Training Tip: If there are 2 trainers, one can write the answers while the other is talking. If people don't provide answers quickly, just wait because someone will almost always volunteer eventually and get the ball rolling. Write down all answers, whether you think they are right or wrong. Let this go on for 5-10 minutes or until there are no more new ideas.

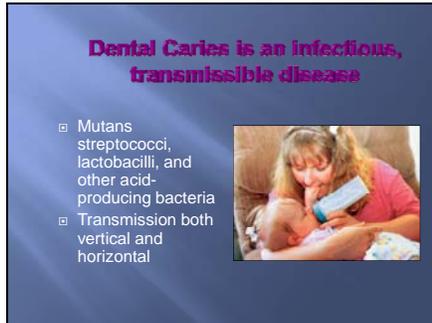
As the brainstorming begins to slow down, begin the PowerPoint presentation by stating, “Now, let's learn more about what causes cavities and how to prevent them.”

Slide 1



Tooth decay is not a simple infection, but rather a process that involves a balancing act between pathological factors (what causes the disease) and protective factors (what prevents the disease). Some of the information that we will be discussing in this module requires a shift in how we think about tooth decay, how we treat it, and how we prevent it.

Slide 2



Children are not born with the bacteria that cause dental caries. Dental caries is an infectious, transmissible disease caused by mutans streptococci, lactobacilli, and other acid-producing bacteria. While the transmission is primarily vertical between mothers or other primary caregivers and infants for the majority of children, studies have also demonstrated horizontal transmission from infants to infants, as well as from older children to infants.

Slide 3



We now know that the organisms that cause dental caries can begin to colonize in the mouth of an infant even before the eruption of teeth.

Slide 4

Acidogenic Bacteria

- ❑ Acidogenic bacteria produce acids from carbohydrates
- ❑ Demineralization
- ❑ Visible tooth decay



Back to those bacteria. They are called acidogenic because they produce acids from carbohydrates, which causes demineralization of the enamel and eventually, visible tooth decay.

Slide 5

White Spot Lesions

- ❑ The first visible sign of tooth decay



The first visible sign of tooth decay or demineralization is a chalky “white spot” lesion. So when we look at babies, we are looking for both white and brown spot lesions.

Slide 6

Remineralization

- ❑ Calcium and phosphate in saliva can “heal” early tooth decay
- ❑ Enhanced by fluoride
- ❑ Stronger than before
- ❑ Ongoing process



The reversal of demineralization is remineralization, which happens when the tooth heals from the calcium and phosphate provided by saliva. This natural tooth repair is enhanced by fluoride if it is present in the mouth, and the renewed fluoride enhanced mineral is more resistant than before to acid from the bacteria. The process of demineralization and remineralization is going on in most of our mouths as part of our daily eating, snacking and oral hygiene activities.

Slide 7

Treatment of Tooth Decay

- "Treat" enamel lesions with fluoride and antimicrobials until lesion is into the dentin
- Treat with traditional methods only when lesion is into the dentin.



It is important to rethink the way we “treat” dental caries.

We want to intervene at a stage where we can prevent the disease or “treat” white spot lesions with fluoride.

Slide 8

Can ECC be Prevented?



Tooth Decay

No Tooth Decay

Can dental caries be prevented?

Slide 9

Yes!

- Interventions with pregnant women and mothers of infants
- Interventions with babies and young children



Yes! Through interventions with families, we can reduce the pathological factors and strengthen the protective factors.

Let’s talk about how to prevent dental caries...

Slide 10

Fluoride

- ❑ Inhibits demineralization
- ❑ Enhances remineralization
- ❑ Inhibits plaque bacteria



Fluoride is a key factor in the prevention and reduction of tooth decay. Fluoride works by inhibiting demineralization, enhancing remineralization, and inhibiting plaque bacteria. In other words, it works in many different ways to prevent cavities!

Slide 11

Salt Fluoridation

- ❑ Experience has shown that putting fluoride in salt can reduce dental caries by as much as 84 percent at a cost of 6 cents per person per year.

The practice is extremely cost effective, saving an average of \$250 per person per year in dental treatment for every \$1 spent. It is also highly equitable, benefiting equally rich and poor, young and old, urban and rural dwellers, those with access to professional dental services and those without.



A book from the Pan American Health Organization (PAHO) shows how salt fluoridation has proven to be one of the most cost-effective public health interventions in history and shows how countries can implement their own programs.

Promoting Oral Health: The Use of Salt Fluoridation to Prevent Dental Caries was written by Saskia Estupiñán-Day, head of PAHO's Oral Health Program. The book traces the history of salt fluoridation, and explains why the practice is better suited to countries in Latin America and the Caribbean than fluoridation of water.

We'll learn more about salt fluoridation later in the workshop.

Slide 12

Fluoride Toothpaste

- Encourage daily use for babies, children, and adults!



Fluoride toothpaste is effective at preventing dental caries and daily use should be encouraged for babies, children, and adults. You are never too old to benefit from fluoride toothpaste. As long as you have teeth, using fluoride toothpaste is a good idea

Slide 13

Fluoride Toothpaste

- For babies, as soon as the first tooth comes in, begin using a small smear of fluoride toothpaste daily.
- For children 3 and older, use a pea-size dab of fluoride toothpaste daily.



Read slide

You might tell parents to put the toothpaste on the width of the toothbrush, not the length. This results in a much smaller dab of toothpaste. A pea-size dab of fluoride toothpaste is enough fluoride toothpaste for everyone three years of age and older.

Slide 14

Fluoride Mouthrinses

- Not for babies and young children
- Child must be able to effectively spit



Fluoride Mouthrinse

Fluoride mouthrinses like ACT or Fluorigard are effective at-home regimens when used daily, but they cannot be recommended for children under 6; until they can effectively spit to assure that they don't routinely swallow it.

Used effectively, fluoride mouthrinses can decrease dental caries in high-risk populations over 30 percent.

Slide 15

Fluoride Varnish

- ❑ Professionally applied topical fluoride treatment
- ❑ Safe for babies and young children



Fluoride varnish is a highly-concentrated fluoride product that can be beneficial for use with babies and young children.

Slide 16

More on Fluoride Varnish

- ❑ Use 3 times in a 2-week period for remineralization of white spot lesions
- ❑ Apply 3-4 times a year for high-risk babies and young children

Fluoride varnish can be used 3 times in a two-week period for remineralization of white spot lesions. For prevention purposes, it can be applied 3-4 times a year.

We'll be talking more about fluoride varnish throughout the day.

Slide 17

Dental Sealants or PRAT

- ❑ Prevent cavities on the biting surfaces of teeth.
- ❑ Work best in combination with fluoride to protect the smooth surfaces of teeth.



Dental sealants are plastic coatings applied to the biting surfaces of teeth to protect them from cavities.

In Central America, we often use PRAT, which involves putting a fluoride-releasing material on the biting surfaces of teeth to prevent cavities and also to treat small cavities. We'll be talking more about this later in the Community Workshop.

Slide 18

Limiting Fermentable Carbohydrates

- ❑ Sugary foods and drinks
- ❑ Simple carbohydrates like white crackers
- ❑ Need to limit both frequency and total sugar intake



What about diet?

It is important that we talk with families about limiting the frequency of ingestion of simple carbohydrates, including sugary foods and drinks, and foods like white crackers and potato chips. Remember, it is the frequency of fermentable carbohydrate intake that contributes to dental caries.

Slide 19

Limit Total Sugar Intake

- ❑ Tell families to limit the sugar in their diets.
- ❑ Increased obesity and diabetes among children requires limiting both frequency and total sugar intake



We have a responsibility to counsel families to limit both total sugar intake and the frequency of exposures per day to enhance both general overall health as well as oral health.

Slide 20

Weaning

- ❑ Recommend using a cup at 6 months of age
- ❑ Consider weaning at 12-14 months of age
- ❑ Don't let baby sleep with the bottle or walk around with a bottle or sippy cup all day



Furthermore, children should begin using a cup at 6 months of age. Parents should consider weaning from the bottle at 12-14 months of age, transitioning to an open cup that isn't easily carried around all day. It is important to counsel families not to let their babies sleep with a bottle or sippy cup because this greatly increases the exposure to carbohydrates, thus upsetting the caries balance. Prolonged exposure to the bottle effectively produces an acid bath around the teeth.

Slide 21

Summary

<p>For all babies and young children</p> <ul style="list-style-type: none">▫ Salt fluoridation▫ Daily use of fluoride toothpaste▫ Limit sugar and other simple carbohydrates	<p>For high-risk patients</p> <ul style="list-style-type: none">▫ Fluoride Varnish▫ Consider anti-microbials for mothers and older children▫ Fluoride Mouthrinse when child can spit▫ Dental Sealants or PRAT
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To summarize, prevention of dental caries consists of salt fluoridation if available, daily use of fluoride toothpaste, and fluoride varnish treatments, especially for high-risk children. High-risk children would also benefit from dental sealants or PRAT and, as soon as they can spit, daily use of a fluoride mouthrinse. We'll learn more about who is at high-risk in the next module. Finally, we can counsel families about the role of carbohydrates in the caries balance and encourage them to limit the child's exposure to fermentable carbohydrates.

Slide 22

Which of these prevention strategies do you think will work in your community???



Turn off projector

Discussion

- Which of these prevention strategies do you think might work in your communities?
- Are there any questions about the material covered in this module?
- Did you learn anything new?



Training Tip: If you are comfortable with the discussion, you might refer back to the brainstorming list and ask the group “How does the list of “what causes cavities” we generated compare to the information you learned from the presentation?” You can also ask “How does the list of “how to prevent cavities” compare to what you just learned? If the issue of oral hygiene comes up, stress that it is the fluoride toothpaste that is the greatest weapon against tooth decay. This is especially helpful if the beginning lists had items that are not backed up by science. You can do some “myth busting” here.



Training Tip: We are asking some open-ended questions here and you don’t have to feel awkward if you don’t know all of the answers. When you don’t have an answer, you can do a couple of things. You can ask the other trainees if anyone else knows the answer, or you can tell the person that you would like her email address at the break, and you will get back to her/him.