

**93.8 LIVE**  
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Welcome

DM: We're talking about early dental decay, in today's edition and how this can now be much more reversible than in the past. We're talking about dental caries- that's one of the most common infectious diseases in the world today. It's not just about a tooth decay, or a hole in your tooth, how it's talked about of course it requires things such as a vulnerable host and a decay causing bacteria colony along with your high sugar diet and it'll cause absolute destruction of your tooth structure. As more is known about this, dentistry is actually moving away from the conventional drill and fill methods that have been talked about in the past to a more modern medical approach. We're going to give you an idea and an understanding of what that approach is and as the Singapore Dental Practitioners begin understanding it more and begin using it more, you are going to be in a better position because we're going to find out today how this could mean that early dental decay can be reversible.

We're joined on the programme today, we're very pleased to welcome to the programme, Associate Professor Bennett Ameachi who is an Associate Professor and Director of Cariology from the Community Dept of Dentistry at the University of Texas' Health Science Center in San Antonio. We're also joined by Dr Christina Sim who is a Senior Consultant leading the Minimal Intervention dentistry programme at NDC.

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Talk to us a little bit first and foremost about understanding what dental caries is. Your background, your specialty obviously.. A lot of us just think of it as a tooth decay, is it more than that?

BA: It's more than that. Dental decay is a transmissible infectious disease. Transmissible in the sense that it is caused by bacteria and that bacteria is transmitted early in childhood from mother or anybody taking care of the child into the mouth of the child. Every child is born with the mouth sterile, low bacteria, but it is the mother or the person taking care of the child that transmits the bacteria that cause tooth decay into the mouth of the child.

My goodness, that is a bacteria transmission.. Is it through breast-feeding or through anything in particular?

BA: No, anything that we make the saliva of the person to care come into that of the child. We know that many people accuse the children, they share utensils like spoon and plates with the adults. Our mothers used their mouths to check the temperature of the feeding bottle before giving it to the child. All these things we make the saliva of the mother to come into contact with the child's mouth. It transmits the bacteria and that is why one of the things that we are preaching now is that any mother that is pregnant to give birth to child should maintain good oral hygiene. Go to your dentist and have a good

cleaning and then continue cleaning your teeth at least two times a day to make sure that that level of bacteria is very low in the mother's mouth, or in the mouth of anybody that will be taking care of the child.

That's a good point, many mothers probably don't even factor that in to their pregnancy process at all.

BA: Yes, so any mother that is pregnant, should make sure that from the day of their pregnancy, till the time you are nursing the child, bringing up the child, you make sure that you keep a good oral hygiene. Clean your mouth very well, because if you have poor oral hygiene, you are transmitting it to your child. And studies have shown that if you transmit it to the child at the early stage of life, that child is going to have tooth decay at the early stage of life, and that would be very bad for the child.

IF we see young children with many tooth decay problems, more than likely they've had early exposure, Dr Amaechi ('early exposure from the caregiver or the mother'). So, the actual manifestation of it is that, the bacteria is centralized around the teeth, around the gum area?

BA: The bacteria gets into the mouth and then adhere to the tooth surface. The part on the top of the top surface which is what we call plaque and anytime that child takes any sugary food, the bacteria will now work on that sugary food and then release acid and it is this acid that destroys the teeth, and give to what we call dental decay.

So the key is the high sugar food content plus the bacteria in the mouth, you produce a decay. So if you keep the mouth of the child very clean and there is a low bacteria in the mouth and also the sugar level in the diet should be low, obviously the child would not get a decay.

What is that decay? The manifestation of the hole, is it literally eating away of the surface of the tooth?

BA: Yes, it is a sort of eating away of the tooth. The teeth inside our mouths are made up of calcium, all these calcium you see in the milk and in the bone. Calcium and phosphate, it is the eating away of that calcium and phosphate that dig that hole we call tooth decay. So it is our seed that dissolves calcium and phosphate out and it destroys the teeth.

IS this traditionally speaking, reversible? Once it's destroyed, it's destroyed.

If you allow it to get to this stage of destruction, once it is destroyed, it is irreversible.

The only thing that will be done is that it will be filled. That cavity that was done \_\_\_\_ \_\_\_\_ will be filled, to hold the progress, but the point is that, if you capture it at a very early stage that's not decayed, you can stop it at that point.

DR Sim, we talked about early exposure to some of these problems, we talked about children being at risk for this. Is this something that we're seeing very commonly in Singapore? The presence of tooth decay amongst young children particularly?

CS: Yes, when the young children do appear in our centre, and they have rampant caries, you will see a distinct group of young children. Either they have very good set of teeth or rampant caries. And usually even before the age of school going, they will come in and a lot of their milk teeth are destroyed and they would need to have them removed usually under General Anesthesia because there's too many to handle at any 1 sitting chair side. That is also an experience for the child that you wouldn't want a child to go through at a very early age. That is not a good introduction to the dentist.

A LOT of people think it's just a childhood thing, early exposure to this bacteria, you've mentioned, can lead to this, but adults do suffer from dental decay and tooth decay over long periods of time as well.

Yes, we are just managing the cavity and restoring that cavity. But we are not managing the disease process itself. So the disease process with its contributing factors is still going on in the mouth, in the oral environment, we haven't controlled that yet. And that is where we invited Professor Amaechi to help us, to share his expertise with us on how we can look out for these early signs and capture the disease at an early stage, so that we are able to rematerialize the non-cavitated lesion.

DR AMAECHI, quickly in your opinion, why are we seeing this now? And why has this not been a part of our understanding of dental health in the past? Is this a new realization? Or is it just a traditional method that people started employing- the drill and fill?

BA: The health profession, like all others, advance with research. The more research you do, the more things you discover that you can then apply to clinical practice. So, although we know that now that it is bacteria that is causing this disease long time ago, nobody has ever thought to start treating that disease from its cause – by eliminating the cause and then capturing the early ones, before they go into decay. But now we have realized it and we are now preaching (teaching) it, so every dentist will now go back and first of all, treat the disease by telling the patient what is the actual cause of it so that the patient will change his/her behaviour, and then we the dentist now look for those early ones that have not been cavitated. We will use some chemicals to stop it and reverse it.

We're finding out how early intervention or Minimal Intervention dentistry can be the best method/means to reverse the act of dental decay.

DR AMEACHI, the idea of a dental decay or dental carries rather, traditionally speaking, we have been trying to halt the progression with a filling. Has that worked well? Our traditional methods, is that good enough?

BA: I would not say that absolutely that is good enough. Once you fill a tooth, as long as that bacteria and all the factors that is causing decay is not controlled, that filling along the line will still fail. And that is why in the field of dentistry, we still talk about the lifetime of a filling. The filling is not permanent, it still fails along the line and what is failing it? That same bacteria and all the attitude that causes the decay in the first instance, and once it fails and is removed and replaced- when we are replacing it, we also

expand the cavity more and more. And before you know it, you end up having Root Canal, and from root canal, the tooth may end up being extracted! So it goes on and on! And what we are preaching now is that we should not even get to this stage that it should be filled. We should stop it at the early stage.

Phone lines

“ Yeah Doctor, I have bleeding gums....”

Dr Amaechi, is this a sign of dental caries?

No, this is not a sign of dental caries, more of a sign of gum disease.

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LET'S talk more on the early signs and symptoms. Minimal Intervention dentistry is the whole idea of getting in there and recognizing the early symptoms before it becomes this situation of dental caries, or cavity in the first place. So, in Singapore, what have you come to talk to out local practitioners about? In terms of identifying those early signs first of all.

BA: I've come to talk to them on how to manage the dental decay as a disease. Managing it as a disease means that we should start managing it by killing the bacteria that actually caused it in the first instance. And also move the step of identifying the early ones which have not decayed. But the early start of it, usually appears on the tooth surface as a whitish chalky spot, which if the dentist sees it, can put a chemical agent to reverse it or stop the progression before it gets to decay. I've been talking to them how to manage the bacteria and reduce the bacteria level and what to tell the patient- how to control their level of oral hygiene in order to reduce the level of bacteria. , the things that the dentist can prescribe, and the things that the patient can do in order to control it.

DR Sim, what other things can patients do in order to control the situation? Prof Amaechi talked to us about finding the early signs using the remineralizing agent, but also, in terms of what parents and patients can do about controlling the situation, we were talking about diet during the break, what is the role of diet in this?

CS: It's not only the type of food that you eat, I think that all of us know that sugary items will cause food for the bacteria to thrive on. But it's also the frequency of snacking- like the number of sugar exposures inbetween meals, and the number of acids exposure between meals. Because acid will definitely lower the PH level, which is the oral environment, which means you increase the acidity environment in the oral cavity and the plaque bacteria thrives in an acidic environment. So what you'd want is to neutralize, have a neutral environment, that's 1 aspect. And of course the frequency of snacking, because once you consume your sugar items, it takes a while for that PH level to be restored to neutrality. But before it can be restored to neutrality and if you consume another round of snacks, which lowers the acidity level, you are actually having a depressed level or an acidic level, which allows the tooth structure to dissolve away. You just think of it, if you have battery acid, and you put something on it and you can see that melting away because of the acidity so it's the same with the tooth structure. So we're actually providing an acidic environment for the tooth structure to be dissolved away.

PROF AMAECHI, if I can talk to you a little on the role of saliva. What is the link between our saliva and perhaps an increased risk for dental caries?

BA: Our saliva is very rich and very protective. It contains ingredients that can kill bacteria and ingredients that actually neutralize the acid that is produced by bacteria from our food to dissolve our teeth . It also contains ingredients that can go ahead and repair the damage that is caused by that acid. So whoever that does not have enough saliva in the mouth, suffers a lot of problems. After eating, when the bacteria works on the sugary food and produces acid, it is our saliva that would then neutralize it and prevent it from destroying our teeth. Also if you have saliva, the little damage that has been done, it is the saliva that produces the ingredients which is calcium and phosphate, that repairs that. So actually, what really happens is that, if you want saliva to do this job more effectively, after eating, you should find a way of increasing the flow of your saliva. And one of the easiest way to do it, is to chew sugarless gum for 15-20 mins after every meal. That would increase the flow of saliva and it will bring those ingredients that will neutralize the acid and repair the damage that has already been done by the acid. Just as we are talking about diet a few seconds ago, when you eat continuously (every half hour), you have not given saliva enough time to neutralize the acid of the one you've eaten, to repair the damage that was done in your first eating before you start eating again, So all you're having is demineralization, that is acid attack. Continuous acid attacks is what lead to tooth decay and that starts with the whitish chalky signs, which is the early sign. There are certain areas on the teeth which these whitish signs appear – areas that are difficult to brush, which is the neck of all teeth and the top of the molars at the back and in-between the teeth- hard to reach areas. Which is why we always advise people to floss the inbetween spaces of their teeth so that you remove the plaque in between the teeth. So those pits and fissures, are those places where you see those early spots, that are early decay.

Prof Amaechi, we can actually take the grim reverse(??).

BA: Yes we can reverse early dental decay and prevent it from progressing.

Dr Sim, are we going to see this in Singapore, Prof Amaechi is bringing to us. Are we going to see more of our dental practitioners start adopting Minimal Intervention Dentistry?

CS: Yes, I think that as more dentists are aware of it and also when patients are aware, they come in to ask about it. Like for example in our centre now at NDC, we have an MI dentistry program where we identify patients who are at high risk of caries or patients who already have high caries activity. So we will identify the factors contributing to their caries disease because not everyone has the same factors. For some, it is a diet problem, for others, a saliva problem, a plaque problem or a bacteria problem, not all have the same type of problems. These are risk factors but not all may have the same risk factors. And once we have identified these factors, we would be able to do a personalized planning, a regime, that's tailored for them, and I think that's very important. Then we look at managing the disease and not the cavity.