Dependent adults: The key is biofilm reduction

How can dental professionals decrease the complications of teeth in the dependent adult population without adding stress to caregivers?

By Shirley Gutkowski, RDH, BSDH, FACE

I think it’s safe to say that, in general, the oral care of dependent adults is bad. Perhaps the word horrible is more accurate, or abysmal, shameful, poor, dreadful, terrible or awful and possibly even “awful full!”

The teeth, broken, misaligned and stained, are covered with a thick coating of biofilm, once called plaque. Caregivers think this is normal. They don’t make a connection between nice teeth and their dependent charges.

There are a multitude of reasons for this disconnect. The people who study these types of things found a couple of interesting insights. For one, as the dental IQ of the caregiver increases, the oral health of his or her charges increases.

They also find that a dental health care professional on-site increases oral care incidence for the resident. The third finding shows that oral care in-service meetings (regardless of the duration) increase oral care over a short term, but the benefits fade away quickly.

It’s time to shift our thinking. The quickest and easiest thing to do is remove all teeth. No teeth, no biofilm, no dental problems. Many a care provider has uttered this wish.

They don’t know what we know about the decrease in the quality of life these dependents undergo once their teeth are removed. The caregivers have a gut feeling that teeth are a locus of infection and removing them will surely help their clients. They’re right.

Oral health care providers must answer this question: How can dental professionals decrease the complications of teeth in the dependent adult population without adding stress to caregivers?

The answer is to shift the thinking down a notch from mechanical means of biofilm reduction to biofilm disruption, period. It is possible to do one without the other.

Recent research has given us a list of ways to address biofilm without the use of caustic chemicals. Many of the tools we’ve been trying to use to address oral biofilm aren’t really penetrating.

If they do, they penetrate a short distance into the film and never affect the dormant or persistent microbes deep inside. Most typical rinses, pastes and creams affect the free floating, planktonic bacteria. However, the biofilm re-establishes itself quickly after the danger is past.

Many microbes contribute to the film part of biofilm. For the most part, they use sucrose and convert it, not only to acids, but to the polysaccharide covering as well.

This covering makes it easy for the biofilm to adhere to the tooth, and protects the microbes from attack. If the microbes are not sheltered by the polysaccharide, they are easy to kill.

Science has found ways to interfere with the adhesion process of oral pathogens. They are lactoferrin, cranberry, licorice root extract and xylitol. Including any of these into the diet of those dependent adults will decrease the microbes’ ability to adhere to the hard or soft tissue.

Let’s see how swapping these ingredients in a normal routine will work.

Breakfast. Provide only cranberry juice in place of the traditional rotation of juices (orange, apple and cranberry); hot or cold cereal sweetened with xylitol.

Lunch. Applesauce sweetened with xylitol to help swallow the daily round of medication.

Snack. Finish with xylitol gum or a mint.

Dinner. Finish with xylitol candy or mint.

Evening Snack. Licorice root sucker.

Daily oral care routine. Xylitol toothpaste, xylitol mouthwash, xylitol dry mouth spray. Lactoferrin is not a viable product for this type of use yet. Currently it is being used in chronic wound care mixed with xylitol.

The biofilm associated with dental disease is very sensitive to pH changes. Using products to change the pH will also shift the biofilm to a more homeostatic one.

The shift can be accelerated by using a bicarbonate rinse, but is poorly tolerated. Mixing xylitol into drinking water is a way to increase oral pH and help hydrate the dependent adult.

Recaldent and NovaMin in pastes have a great track record of increasing oral pH for hours after application. Arginine compound pastes share that benefit as well. Even if these pastes are put onto the finger of the residents for them to apply themselves, pH shift will occur, stopping biofilm growth on a dime.

We know that xylitol has residual effects for years after use. It’s prudent for clinicians to advise all patients approaching declining age to start using xylitol products as a preventive.

Use of these products, with an eye toward biofilm reduction as opposed to brush and floss education, may be the answer everyone has been waiting for.

About the author
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