



Module 15: Oral Health

Part 1: Introductions

Hello, I'm Hugh Silk, a family physician at the UMass Medical School. Today I'm going to do an Introduction to Oral Health and Oral Systemic Health.

This module is a part of a five-module series. Today I'll be covering the Introduction, and in Module Two we'll look at Oral Health for Pregnant Women and their Newborns; Module Three, Oral Health and Childhood; Module Four, Oral Health and Older Adults; and in Module Five we'll cover Oral Health Literacy.

Our learning objectives for today are to discuss issues related to oral health disparities, access, and health outcomes, to define mechanisms that connect oral health with overall health, and to discuss interprofessional oral health core competencies and how they can be integrated into healthcare.

Healthy People has made oral health one of its top nine leading health indicators, which clearly shows how important oral health is in overall health. There are 17 oral health objectives with numerous sub-objectives. The aim here is to reduce decay, caries, and extractions for all ages, but in adults specifically to reduce periodontitis and earlier detection of oral cancers.

Other aims include increasing access to care through non-traditional dental settings, like school-based programs; increasing prevention with interventions like sealants and water fluoridation, and improving surveillance in public health programs.

Let's start with focusing on oral health disparities, access, and health outcomes. There are many oral health disparities in the US and I'd like to look at just two quick examples. 44.5% of children under two years old had a dental visit in the past year. However, when we look at children living in poverty, this number drops to 30.2%, a considerable drop for this group, and clearly a disparity.

Why do we have this kind of drop? For some there are no dental insurance. For others who have dental insurance, like Medicaid, they may not be able to find a dentist, or even to find a dentist who takes young children.

When we look at the other extreme of life, adults with untreated cavities. These are folks with teeth that have the start of some kind of cavity process, 27.8% of all adults fall into this category. However, when we look at adults over age 75, the number increases to 37.9%. Again, why does something like this happen in this group of elderly seniors? Because 70% of our seniors do not have any dental health coverage; Medicare does not cover dental benefits.

When we think of access to care, we have to realize that 45 million Americans do not have easy access to a dentist; many of these people living in rural settings. The ADA reports that 184 million people this year will not see a dentist.

Healthy People 2020 has decided because of these disparities that we really need to look at non-traditional dental settings to increase access to care. One of these settings is school health centers; however, currently only 29% offer fluoride treatments, and fewer, 10% offer fillings and extractions. When we look at federally-qualified health centers, who often offer dental benefits, only 17% receive oral health services in these settings. Clearly there is room for improvement.

Let's now reflect on health outcomes, and one way to look at this is to maybe look at gaps in the system. A recent study showed that over four million emergency room visits in the timeframe of 2008 to 2010 were for oral reasons. During this time period 101 patients died in the emergency room and the charges for this care was \$2.7 billion.



When we look at those who were admitted into the hospital in the year 2008 alone, over 8,000 people were hospitalized for a dental abscess, resulting in 66 patient deaths over the eight-year span from 2000 to 2008. Again the costs were in the range of \$850 million.

And what do we get for this care? Definitive care does not occur in a medical setting. People get antibiotics, pain medications, but still need dental care. Again, clearly we can do better to shift our focus around prevention and making sure people get better access to dental care.

To put this all in perspective I'd now like to change our focus to mechanisms connecting oral health with overall health. Often what starts in the mouth as a local infection can spread. When the tooth gets decayed in the middle of the tooth we have an infection that starts, but can spread around the tooth to an intra-oral abscess. This then spreads outward to cellulitis of the face, upward into the sinus, like sinusitis, then downwards into the air space, which can result in significant illness, if not death, and also posteriorly into the cerebral fluid and meningitis.

Again, what starts local can become systemic. The blood supply of the tooth is right next to the infection, and bacteria starts to drift off and create bacteremia and even sepsis in severe situations. This is especially true for those who are immuno-compromised, like those with HIV, or those on medications that may be affecting their immune system.

Another way to think of systemic infections is that those infections that start in the mouth can spread downward into the respiratory system, and we often see this with hospitalized patients in settings like the ICU with ventilation-acquired pneumonias.

Another systemic effect is what happens with medications in the mouth. There are approximately a thousand medications that can have side effects on the mouth, including common medications like antihistamines, anticholinergic and diuretics causing xerostomia, or dry mouth; medications like phenytoin or calcium-channel blockers causing hyperplasia and red beefy gums. Those who are asthmatic or have COPD, their inhaled steroids can lead to yeast infections in the mouth. And those with osteoporosis requiring IV bisphosphonates can get osteonecrosis or breakdown of the bone in the jaw. It doesn't mean that we can't use these medications, but we need to inform our patients of the side effects, use the lowest possible dose, and when possible reduce use.

Inflammation is becoming more and more prominent in folks with illnesses and we're now realizing that this can start in the mouth. Something as simple as bacteria, like Strep mutans or anaerobic bacteria, use sugar to create acid, which builds up plaque in the mouth. The gums get inflamed; the gum gets deeper and deeper into the soft tissue, creating periodontitis or inflammation of the ligaments and bony structures. This creates a cascading effect throughout the body of macrophages, neutrophils, and interleukins floating around the body and wreaking havoc in soft tissues and other organs.

For example, blood vessels can thicken in heart disease. Joints can become inflamed. Blood sugar can get out of control, and we're seeing this in our rheumatoid arthritis patients, our heart disease patients, and diabetics who have uncontrolled periodontitis.

A recent study showed that when we intervene around this condition, periodontitis, and get proper care, we can dramatically save health dollars and improve outcomes. One group in a large study received dental care; the other group did not. And as you can see in this graph for diabetics, for example, a cost saving of \$3,291 for one year can save hospitalization, office visits, and medications. And you can see the savings for other conditions.

But there are other personal public costs that don't always get mentioned, and don't always get thought about. For example the self-esteem of an individual who has had bad teeth, perhaps has had to have the teeth pulled, or are decayed, and this effects getting things as important as a job or even maintaining friendships. Perhaps equally important are looking at the morbidity effect of those who suffer edentulism, either losing their upper teeth, all of their lower teeth, or all the teeth of the mouth before the age of 65, results in a 1.5 increased risk of death from all causes.

With that in mind, let's now look at specific roles for non-dental providers, while we look at inner-professional oral health core competencies, and how they can be integrated into healthcare in a practical manner for each of our patients.



Public Health Learning Modules

Using **Healthy People 2020**
to Improve Population Health



ASSOCIATION FOR PREVENTION TEACHING AND RESEARCH

Health and Human Services is very clear on this. They wish to expand the primary oral healthcare team and promote models that incorporate new providers, expand the scope of existing providers, and the utilization of medical providers to provide evidence-based oral health preventive services where appropriate. It is clear from this statement that all of us who are non-dental health professionals, but are a member of healthcare team have a role.

HRSA helped create a document called the Integration of Oral Health in Primary Care Practice recently. In this document they had outlined what non-dental professionals should do, including oral health risk evaluations in the form of history and physical exams, asking simple questions like do you brush your teeth twice a day, do you floss daily, commenting on dietary practices and sugar between meals, and also access to fluoride, looking at the teeth for early changes of the teeth, like white spots; doing preventive interventions, like smoking and tobacco cessation, counseling, and also doing a bi-manual exam where you actually feel inside the mouth for lumps and bumps and early forms of oral cancer. Health education, where as we've discussed today describing the patient's relationship of mouth and systemic health, and finally interprofessional collaborative practice.

Previously HRSA had defined very clear interprofessional core competencies. And they used three spectrums; knowledge, skills, and attitudes. HRSA would like us to further define our roles and responsibilities when it comes to oral health, so we can understand how to maximize each other's skills; use a common language so that we can communicate more effectively, and use a group process, rather than trying to go it alone in offering respectful feedback along the way.

Of course each member of the team can do their form of assessment, but this becomes very important to have clear transitions and handoffs. For example, when a physician assistant sees a patient in the office with a cavity, and makes sure that that patient gets into care in a dental office. And lastly, expanding that into community outreach, and becoming more of an expanded team, with new team members like Head Start and Wick.

They also thought that in terms of attitudes we need to appreciate each other's strengths, both dental to medical, medical to dental, and then within our individual professions.

With the HRSA Core Competencies in mind, it's important that we define our role on the healthcare team. For example, pharmacists should discuss medication effects on the mouth with each patient. Nurses, for example, in the ICU should be offering bundled care where the mouth gets cleaned daily to avoid descending of bacteria into the respiratory tract and creating pneumonias.

For primary care providers in their offices, such as physicians, nurse practitioners, and physician assistants, it's important to discuss the effect of the mouth on the body and vice versa. And also participating in preventive services, as I mentioned earlier, about talking about brushing twice a day, flossing daily, and making referrals to the dentist.

Medical assistants can apply fluoride varnish to young children, as this is now proved in 43 states to be reimbursed by Medicaid. And the US Preventive Service Task Force has made this a Level B recommendation.

Dental hygienists can be checking blood pressures in the offices, and referring those with abnormal readings to the primary care provider, thus creating a two-way street of referrals from medical to dental and dental back to medical.

For our dentists, improving communication with primary care physicians is essential, especially for high-risk patients.

Lastly, our public health colleagues can continue to work on advocacy for issues like water fluoridation, and expanding access for folks to get into dental care.

I want to conclude by highlighting a couple of key resources. Smiles for Life is an award-winning national curriculum that has an interprofessional component and can be found at www.smilesforlifeoralhealth.org. This is an eight-module and course series that can either be done online for continuing education credit, or it can be downloaded by educators, complete with speaker notes, for giving lectures or reviewing cases.



Public Health Learning Modules

Using **Healthy People 2020**
to Improve Population Health



ASSOCIATION FOR PREVENTION TEACHING AND RESEARCH

It also comes with a set of downloadable apps that can be used on electronic devices for care at the bedside. These modules include topics such as geriatric oral health, prenatal oral health, urgent care, pediatrics, adult lesions, oral exam, and fluoride varnish.

In addition to Smiles for Life, the Institute of Medicine has put out two reports in the last couple of years, which are highlighted on this slide. They clearly define the role for interprofessionalism as well as the specifics for each member of the healthcare team when it comes to addressing oral health.

So in summary, the U.S. is still facing many oral health disparities and access issues, despite recent improvements. Poor oral health affects overall health outcomes for both individuals and society. Using an interprofessional approach, we can expand the workforce and improve disparities and access issues, eventually creating an environment of better oral health for our patients for each community, and for the United States.

Thanks for listening today.