Hello and welcome to module three of the global health starter kit back to basics primary care co-authored with Lisa Simon Hughes silk and Carlos Faerron. This module introduces the connection between oral health and overall health, including oral and systemic disease associations, the integration of oral health and primary care, and workforce and policy implications.

While there are numerous references and resources available about these topics, for the purpose of this module, we have curated a small sample of high quality resources to support your learning outcomes. We encourage you to explore the literature further beyond what is contained in this module.

This module is related to the competencies shown here from the global oral health competency matrix. While these competencies cannot be met through a single teaching module, the module is working toward competency based best practices in global health for dental education.

We aim to meet the following learning objectives through this module. Explain why there is a continued interest in primary care since the original Alma Ata. Define how primary care can assist with successful health promotion and disease prevention, including oral diseases. Describe how primary care can be designed to meet current and emerging global health needs, including through workforce design and development. And discuss how oral health care and primary care services can be integrated.

So let's begin with a warm up activity I want you to take a minute and think about how you would define primary care. And in fact, I'm going to ask you to pause this video and actually do just that. But instead of writing a list or an actual written definition, I want you to draw a picture that represents primary care to you.

Drawing can expand your thinking in creative ways and open your mind to even more imaginative ideas. There are no right or wrong answers right now. This is merely an exercise to get you thinking about what primary care looks like in practice beyond words on a page.

I think you'll find it interesting to compare your initial thoughts in your drawing to what we cover for the rest of this module. So let's see how you stack up. Are you right on or do you perhaps have some preconceived notions that may not actually be completely accurate? OK. So go ahead and pause me right now.

All right. Welcome back. What did you draw? In the past, my students have drawn a house to represent a medical or dental care home for patients, or two figures holding hands to represent the important long term relationship between patient and provider, or a vaccine to represent prevention of disease, or a person growing from infancy to old age representing continuity of care throughout one's life. All of these are great examples of primary care. So

what did you draw? I'd love to hear from you. And maybe I'll even include your drawing next time as an example for others.

The global health and development agenda presents numerous opportunities for improved oral health. This module focuses on one example, the integration of oral health and primary care. We will narrow the broad focus of global development down from the global trends, which we discuss in module 1, to the specific target for universal health coverage that we discussed in module 2, to universal health coverage as essential component of primary care, and, finally, to the integration of oral health.

Although this module narrows the focus of global development to one highly specific component, this example is anything but small. So a key message here is, in fact, the integration of oral health in primary care is an enormous task that requires substantial shifts in how we think about financing and payment for health care services and dental services, workforce development, and scope of practice and policy. Each of these subcomponents is in and of itself a monumental undertaking. And detailing these is beyond the scope of this module. But I encourage you to explore these subjects further on your own.

This timeline is covered in more detail in module 2. For the purpose of this module 3, we will discuss how key events in the timeline have led to the current need for primary care services and oral health integration. As a reminder from module two, or if you're just joining me for the first time in this module, let's briefly review.

The first global burden of disease data dates back to 1990 when data about the risks and determinants of morbidity and mortality, so death rates and burden of disease, were systematically collected across eight regions of the world through 1990. The 1993 World Development Report grounded in this disease data has become highly influential because it was among the early data and evidence linking an investment in health to improved economic outcomes. And it introduced new methods for measuring the burden of disease.

In September of 2000, world leaders convened for the United Nations Millennium Summit, where the Millennium Development Goals were born, several of which had a direct focus on investing in health care in order to eliminate poverty. The Institute for Health Metrics and Evaluation and other academic partners collaborated on a follow up global burden of disease study in 2010. And data continues to be updated today.

As evidence continues to mount from the global burden of disease studies among other sources, global leaders began to recognize that non-communicable diseases required more attention and a place on the global stage. The UN High Level Summit for Non-communicable Diseases was held in September 2011 and included a side session specifically devoted to oral health.

In 2015, world leaders convened at the UN headquarters in New York City for the UN Sustainable Development

Summit and a new set of goals emerged, designed to carry forward the global development agenda as it moved from the MDG era, which was 2000 to 2015, to the sustainable era, which is 2015 to 2030. And these are known as the sustainable development goals. Initiated with the Millennium Development Goals and continued through the sustainable development goals, investing in implementing and monitoring poverty reduction strategies with a direct focus on health has led to remarkable progress globally.

Although gains have been uneven between and within countries, the global goals have resulted in unprecedented coordination among world leaders, a surge in global funders of development assistance for health, and impressive political prioritization of risks and causes of morbidity and mortality around the world. Although none of the goals, targets, or indicators specifically addressed the burden of oral diseases, all eight of the MDGs and many of the SDGs have links to oral health.

The MDGs provided valuable opportunities to the global oral health community regarding the importance of identifying common linkages between oral health and the global health and development agenda. Even when oral health was not explicitly recognized by global leadership charged with setting the MDG agenda at the time, the success of these efforts was clear. For example, when a side session at the summit on non-communicable diseases had a specific focus on oral health and the resulting UN declaration stated that oral diseases are a major global problem.

As with the MDGs, oral health is not explicitly addressed in the SDGs. Global oral health leaders continue to draw links in their political and advocacy efforts between oral diseases and the global goals. This work to integrate the MDGs, SDGs, and oral health is paving the way for recognition and improved political and financial prioritization of oral health at the global level. So the key message here is oral health is linked to the global goals in many important ways.

The goals focus on many social determinants of health, which are covered in module four by the way, that are also relevant for oral health, including the ability to attend school and get an education, improved maternal and child health, and improved nutrition. Furthermore, the goals focus on addressing common risk factors for multiple diseases, particularly NCDs such as tobacco, alcohol, and sugar.

The global goals underscore the specific links between poor oral health and systemic disease. Evidence demonstrates clear linkages between oral and systemic health. And if the global goals are to be achieved, oral health must be included in the efforts underway. In other words, the global goals are not achievable without addressing poor oral health. So this is where we as oral health care providers come in.

So let's go through a couple examples just to underscore this importance. Let's take Millennium Development Goal number five, maternal and child health. Mothers with untreated periodontal disease are at increased risk for

preterm birth, lower birth weight babies, and pre-eclampsia. If we want to improve maternal health, we must address oral diseases in pregnant women.

So let's think about oral health and NCDs, for example diabetes. People with diabetes are more likely to develop periodontal disease. Those who receive periodontal treatment are better able to control their blood sugar levels, less likely to be admitted to the hospital for their diabetes, and see reduced annual health care costs for their diabetes.

Another example, cardiovascular disease. Those with periodontal disease are at increased risk for cardiovascular disease. And periodontal treatment has been shown to improve cardiovascular health. And then let's think again about the global trends in aging, which we covered in module 1. So you might recall that the world, on average, is aging. So people are living longer.

And so for the first time we now have more people over the age of 65 than under the age of five in the world. And we know that older people with poor oral health and edentulism have poor nutritional status. So these examples of how evidence based advocacy efforts are working to build upon existing global health priorities in order to ensure oral health is included.

The evidence is mounting that poor oral health results in higher health care costs overall. In the United States, for example, over $1 billion is spent every year managing dental infections in hospital emergency rooms. People living with chronic illnesses have fewer hospitalizations and their total medical costs are lower if they received regular dental care.

So let's tie this to SDG goal 3, target 8, achieve universal health coverage. Universal health coverage is defined by the World Health Organization as all people having the ability to access health care services without incurring financial hardship. The overall aim of universal coverage is to reach as many people as possible with essential health services, particularly people who otherwise do not have access, to include coverage for as many services as possible, and to cover as much of those services as possible. These aims overall will assist to reduce out-of-pocket spending on health care by individuals, especially those who can least afford it. This concept is also discussed in more detail in module 2.

And now we begin to make connections. In order to achieve universal health coverage, a well functioning health system is necessary where cost of care to individuals is kept to a minimum and cost to the health care system are reduced through a tiered approach to care delivery. So a well functioning health care system capable of delivering universal coverage to its population must rest on a foundation of prevention and health promotion.

This foundation mitigates costs by addressing preventable illnesses before they occur and sustains these cost

reductions through ongoing health promotion efforts. The World Health Organization has identified essential packages of population based interventions designed to tackle the main common risk factors for many diseases and conditions, including sugar and poor diet, tobacco, alcohol, and physical inactivity.

So in other words, how can we get the most bang for our buck? How can we address a few specific risks like tobacco and prevent many costly diseases down the line? When preventive efforts are not enough and individuals show preliminary signs of or are at risk for illness, they can then seek early efficient care in a primary care center. The World Health Organization has also identified essential packages of clinical interventions, nicknamed best buys, due to their cost effectiveness, effects on health, feasibility, and low implementation costs.

When early clinical intervention is insufficient and more advanced care is needed, this then is available at local hospitals by specialists. As needs progress and become increasingly complex, further specialized care is available at district and university hospitals. So in an ideal model, though health care costs increase at each tier higher on the pyramid, the demand for these more costly services is reduced because much of the costly treatment by expensive specialists is prevented from being necessary in the first place. So now you can begin to see the importance of primary care in global poverty reduction efforts.

In fact, in 1978, the International Conference on primary health care was held to urge governments and other global actors, such as the WHO and UNICEF, to increase support for primary care services through increased technical and financial resources. The declaration of Alma Ata, which is the name of the city where the meeting was held, focused on redefining health not just as the absence of disease but as a state of complete physical, mental, and social well-being. It described health as a human right that requires collaboration between multiple sectors, including but not limited to the health sector.

The Declaration of Alma Ata created a paradigm shift in how we think about health and health care. The values placed on whole person health over the course of their lifetime through ongoing patient provider relationships, and a proper balance between prevention and clinical care have resulted in a stronger focus on health equity today by global leaders, governments, and ministries of health, as well as local organizations.

Global trends and transitions are changing disease and demographic patterns as we explored in detail in module one. The world is also facing serious oral health workforce shortages, which reduces the ability of health systems to respond to growing oral health challenges and leaves large population groups without access to essential oral health care services.

Traditionally, the ratio of patients to providers has been used to measure the workforce's ability to respond to patient needs. However, as we're learning, global trends indicate that today, compared to the past, there are more people in the world, they are living longer, and they're requiring more complex dental care and more of it. Thus if

patient's needs are higher and more complex today than previously, the patient to provide a ratio may have limitations in its ability to truly gauge how many providers are needed to meet today's challenges.

A new metric for quantifying this challenge was published by the FDI in the Oral Health Atlas in 2015. This metric analyzes the mismatch between the burden of oral disease and persisting shortages of oral health workforce. And this is called the burden to provider ratio. So instead of patient to provider, it's the disease burden. How much disease is a provider actually responsible for?

The highest values of this ratio, meaning the greatest burden of disease each provider is responsible for treating, are heavily skewed toward poorer countries, which are characterized by a combination of high disease burden and low provider availability. Interestingly, the United States exhibits the lowest ratio of 0.49 and Ethiopia the highest ratio of 1,419.

It should be noted that even when the lowest ratio-- it should be noted that even with the lowest ratio, the United States has severe challenges in oral health workforce distribution, highlighting the fact that oral health and workforce disparities exist not only between countries, so when we compare Ethiopia to the US, but within them.

So here's the key message. In today's evolving world, global trends are illuminating the fact that there are not enough dentists to treat the needs of all patients who need care in the world. And that's likely to worsen as global trends continue. We need innovative solutions to meet the challenges posed by the global disease burden.

So take a look at this graphic. So what do you see? So this is showing you that the burden to provider calculations for each nation were plotted against the nation's gross domestic product. So as the GDP of countries increases, so as we see countries that are wealthier, the ratio decreases. So this is useful-- this is useful to know because it emphasizes the multiple ways that oral diseases can be addressed in the primary care setting.

So ideally, we want to see a low ratio. Remember, the US has a very low ratio compared to Ethiopia with a very high ratio. So we want to look at efforts how can we reduce that ratio. So we can do that through prevention and reducing disease incidence, increasing available workforce to treat disease, or through expanding the knowledge base of the existing workforce if there aren't oral health providers, such as training nurses or other medical providers to provide oral care and prevention.

So in summary, the mismatch between the high disease burden and low provider availability worsens for the lowest income nations who are least equipped to manage it. OK. So let's take a moment and look at this graph. So what is it showing?

So similar to the previous one, this linear relationship between country income and oral health related burden

provider ratios shows the extent of the double challenge that low income countries in particular are facing, which is characterized by high disease burden and low health provider numbers compounded by weak protective legislation or absence of health promoting environments.

So the themes of the Declaration of Alma Ata are underscored through these findings. In order to effectively reduce the burden of oral diseases and reduce oral health inequities, both between and within countries, interdisciplinary efforts must focus on prevention, addressing determinants of oral diseases, and the relationship between oral health and overall health. In other words, the integration of primary care and oral health is needed.

So before we move on, I have a question for you. Why are there such disparities in the burden to provider ratio values? So what factors are actually playing a role in these disparities? Think about this question a bit and keep it in mind, because we're going to begin to answer it in module four, social determinants and risks.

So as you see in this illustration, there's a natural overlap between key concepts of primary care and dental care, or, more appropriately, oral health care, which includes more than just the teeth. This overlap consists largely of primary and secondary prevention. So take a look at this visual overlap, and the colors, and the oral health services represented in each color.

Currently, the dental profession is trained to deliver services most heavily emphasized in the blue bubble, which is strongly focused on curative care. Now take a look at the services in the green and peach bubbles. Where could these oral health services be delivered other than the dental chair? How would they be delivered and by whom? And how will they be paid? We won't fully answer these questions, but I want you to continue to think about them.

I'm also going to tell you a quick story about when I recently took my daughter to the pediatrician. So my daughter recently turned five. And for those of you who may not have children or may not know, it's recommended that we go in at least once a year for a checkup just to make sure our kids are growing and are healthy. So I took her in for her five year checkup to her pediatrician.

And they did the typical things you might expect. They looked at her height and her weight, and made sure she's growing, and that she's growing consistently compared to her previous checkups. They checked her vision. They asked her questions like do you wear a helmet when you ride your bike? Great things.

And then I was pleasantly surprised. They gave her a fluoride varnish treatment in the pediatrician's office. I was just delighted. So I think this is a great example of an answer to some of those questions.

So where can these services be delivered? Well, a pediatrician office. And how are they delivered and by whom? And how are they paid? Well, it turns out in Massachusetts where I live, my daughter's medical insurance reimburses her pediatrician for providing fluoride varnish. So this is an exciting example that I just happened to

experience myself.

So the key message is challenges to the status quo, so the status quo meaning oral health services are delivered in a dental chair, so challenges to this status quo by considering new and alternative workforce, finance, and payment schemes are underway.

And these include alternative oral health focus, workforce models, and task shifting that may include preventive and clinical services delivered by dental therapists, dental nurses, community health workers, nurses, and physicians with improved communication between and among providers. Oral health care reimbursement may come through medical insurance payments, eliminating the separation between medical and dental insurance.

Workforce and health system finance will become more integrated to support oral health services with dentists providing specialized and curative care as part of the medical system. Oral health training will be provided to nondental professionals. And dentists will receive stronger training in medicine and overall health.

Improved integration of medical and dental care in health care settings is thus increasingly possible. And this aligns with the FDI vision 2020 where dentists are the leads over an interdisciplinary team based approach to whole patient care, oral health improvement, and oral disease reduction globally.

In the oral health atlas, the FDI has illustrated the oral health care continuum, which begins to dissolve the boundaries between oral health and overall health, removing the historical separation of medicine and dentistry. It illuminates an ideal system where efforts are cost effective, focus on where the greatest needs are for the most people, and reduce the amount of costly specialized care that is needed.

This continuum brings together oral health, primary care, and universal health coverage. It ensures a people centered approach based on need for care and benefits more of the population than restrictive, expensive, curative only approaches.

To further illustrate the concept of the oral health care continuum, I'm now going to show you a video we made during our work in Costa Rica. Costa Rica is known for its successful implementation of universal health coverage through a strong primary care system that includes oral health.

So after discussing the theoretical integration of oral health in primary care, I will now show this to you so you can see what it actually looks like in practice in a country that has implemented it within its national health care system.

Though most known for its incredible wildlife and biodiversity, Costa Enrique is also known for its successful health care system. In the mid 20th century, in response to a growing interest in the social well-being of its citizens, Costa Rica formed their social security system, CCSS, [SPEAKING SPANISH].

In the coming decades, CCSS brought a deepening commitment to universal health coverage for all citizens irrespective of their ability to contribute to the system. Over time, it became clear that without a strong rural and primary care system, universal coverage could not optimally function. Thus in the 1990s, Costa Rica underwent a major health care reform that included dramatic changes to introduce a strong primary health care system.

The reform had two overarching goals, to expand coverage to those not currently reached by the system, and to provide more comprehensive care, including preventive services. A major unique feature of the reform system included the addition of the EBAIS, the Spanish acronym for the integrated primary health care team.

The EBAIS teams are geographically distributed across the country according to population density among other factors, and are designed to provide interdisciplinary comprehensive, and preventive care to their assigned communities. They are the mandatory entry point into the health care system for all community members. As people's health needs become increasingly complex, the EBAIS serves as a point of referral into the secondary tier of care, the local hospitals.

Hi. So I'm here in Costa Rica. And we're going to use Costa Rica as a case example of a country who has implemented relatively successfully universal health coverage and a very strong primary health care system. And so behind me is a primary care center located here in a rural community. And here these centers are called EBAIS, an EBAIS.

You'll be hearing from Dr. Faerron. He is a physician. And he will be talking about the role in the community that the EBAIS plays and the referral systems in place that sends patients to local hospitals in the secondary tier, and then tertiary hospitals in the urban city centers.

But here, around a population of around 4,000 here. So there's actually EBAISes here. OK. In this infrastructure here there's two EBAISes. So there's two MDs, two nurses, two technical pharmaceutical technicians, two ATAPs. And they divide the EBAIS. Basically the infrastructure is divided into two. This side EBAIS one and this side EBAIS too.

OK. Around 70 children she's supposed to screen. So she screens for visual. She screens for blood pressure in older adolescents. She screens for a--

Height?

Yeah. Height, weight, oral. ENT, ears, nose, and throat, just basically a general checkup on these children to make sure that they're all right and that they all have a file, that they're all part of the system.

So here the primary health care clinic, other than providing the services that the general community needs, such as the prenatal control, nutritional services, morbidity services, we also provide here in the primary health care clinic the basic odontology or the dental oral health services. So this is the first point of contact for the community to get that preventative oral health services that they need.

So what we're seeing here is the dental equipment that the secondary level hospitals provide. So it provides a very specialized service here, everything from endodonty, and surgery, and other things that in the secondary you might need in the oral health services. It's a contrast to what is provided in the primary, which is much more preventive. Here it's much more curative. But as you can see, it's integrated in the overall health system.

Costa Rica's model has successfully created a tiered approach to health care delivery that begins in the communities, has decreased resource strains on local and regional hospitals, has increased access to comprehensive care and preventive services for the majority of its citizens, and, best of all, has led to improve health outcomes and the social well-being of the country.

To continue to think about all that we've discussed today, I encourage you to review the original Declaration of Alma Ata. On your own or with friends, write a new draft of the declaration, the primary care and oral health edition. Review the major components of the original declaration and edit them to have a direct oral health focus. And to extend this even further, you can begin to brainstorm on implementation strategies for your declaration. How can your vision become a reality?

Thank you so much for joining me today for module 3. I encourage you to continue learning with us and explore our remaining modules. I look forward to seeing you next time.