

Health Concerns in the Amazon Region

[Announcer] This podcast is presented by the Centers for Disease Control and Prevention. CDC – safer, healthier people.

[Ted Pistorius] Hello. I'm Ted Pistorius, and I'm speaking by phone today with João Bosco Siqueira Jr., an adjunct professor at the Federal University of Goiás, Brazil, and Advisor to the Health Surveillance Secretariat at the Brazilian Ministry of Health. Today, we're talking about a commentary paper in the April 2009 issue of CDC's journal, *Emerging Infectious Diseases*. The April issue has a special focus on health issues in the Amazon region of South America and the article we're discussing today provides a glimpse into some of the infectious diseases that threaten the health of residents of the Amazon region.

So, Dr. Siqueira thanks for taking the time to talk with us.

[Dr. Siqueira] Hello, Ted; it's a pleasure to be here.

[Ted Pistorius] Let's start by having you describe some of the physical characteristics of the Amazon Basin region and how they play into public health issues.

[Joao Siqueira] Well, Ted, the South American rainforest of the Amazon is the largest in the world. It covers more than 8.2 million square kilometers and it's a dense tropical forest. This basin is basically located in Brazil, around 54 percent of it, but it also stretches into Peru and several other countries. And it's like a mosaic of biomes, highly diverse ecosystems including over 180 districts of land systems. Over 30 million people live in the Amazon region, but the population density is really low – lower than five inhabitants per square kilometer and, in the Brazilian Amazon alone, over 6 million people live in traditional, mostly rural, societies and in an area as large as this, access to healthcare systems and services and to trained medical professionals is really hard. Vector-borne and mycobacterial diseases still constitute a public health problem in the area.

[Ted Pistorius] That's an impressive region to cover. What are some of the conditions that contribute to the burden of disease in the Amazon region?

[Joao Siqueira] Well there are actually several factors that affect the population's health in this area. We have, for instance, this whole geographic area, very large, access to health services – it's not easy for some of the populations in the area. We also have a very common problem that's related to natural resources extraction. For several times we have seen gold mining activities in areas that belong to the Amazon Indian population and basically this population is very susceptible to infectious diseases. So it also poses a high risk for these populations.

[Ted Pistorius] What are some examples of diseases that pose these specific problems and, more specifically, what's being done to address them?

[Joao Siqueira] We can see that malaria is a very big problem in this area but we also have yellow fever, dengue fever in the urban areas of the region, leptospirosis, typhoid fever, and viral

hepatitis is also a big problem for this area. In the case of yellow fever, the whole Amazon region has a high coverage for yellow fever vaccine, which is pretty good, but for other diseases like malaria a huge effort has been done through time to decrease the transmission. But it's a huge effort, especially nowadays when the population is moving to the cities and the outskirts of the cities in this area, in the Amazon region, sometimes it's right in the border with the forest. So it poses a lot of new challenges to disease control and prevention.

[Ted Pistorius] It sounds like it would. Are you taking specific actions at this point in time to combat some of those challenges?

[Joao Siqueira] Well, several international initiatives to prevent transmission of these endemic diseases have been taking place. For Chagas disease, for instance, we have an international institute for Chagas disease surveillance and prevention in the Amazon region. It was officially launched by PAHO (editor's note: The Pan American Health Organization) and WHO (editor's note: the World Health Organization) in 2004 and included the ministries of health from several countries and it's basically focusing training malaria control personnel to also work with Chagas disease control so we can use an already ongoing surveillance system to improve actions for other diseases instead of creating new systems.

[Ted Pistorius] That sounds very logical. Are there other strategies that may work besides coordinating surveillance systems?

[Joao Siqueira] Yeah. Basically it's very, very important to understand and have a clear diagnosis of what's happening in each of these areas. In such a large area, it's very common to find different scenarios and different challenges. Malaria prevention has improved a lot by doing this. They are mainly focusing on small areas to identify the challenges and the risks for the population and then addressing them accordingly. We have been monitoring resistance to drugs in the area, especially for malaria and this has been showing great results for us, especially for Brazil. In the past couple of years, malaria transmission has reduced impressively.

[Ted Pistorius] That's wonderful news.

[Joao Siqueira] Yeah. Another very important problem for this area are arboviruses. It's very common to see cases of dengue fever, especially in the urban areas of the Amazon region. It poses a huge challenge for us, too; especially in Brazil. Throughout the country right now, we are observing a shift in disease severity towards children, but it has started earlier in the Amazon region, as a sign for the whole country of what could come next. Other arboviruses are common in the region and sometimes they are very tricky to do a correct diagnosis because the clinical outcome is very similar to other viruses. So we have Oropouche, Mayaro, and they look, the clinical outcomes look a lot like dengue fever which is more common in the region.

[Ted Pistorius] Dr. Siqueira, you've mentioned malaria as being a very significant issue within the region. Do you have specific strategies and activities oriented towards preventing malarial infection?

[Joao Siqueira] This is a great question, Ted. To prevent malaria transmission in an area as large as this, we need to understand what's going on in different regions. We need actions that are focused toward specific populations and this is what's been going on in the Amazon region right now. We're trying to have a clearer picture of malaria transmission in the outskirts of the largest cities where the border with the forest is not that clear. And we also have a network for monitoring the resistance to malaria treatment drugs and it's an initiative by the Pan American Health Organization and it's supported with resources from the United States Agency for International Development and also with the support from the ministry of health from several countries in the area.

[Ted Pistorius] That sounds very, very complex and sounds like you have your work cut out for you. I'd like to thank you for taking so much time to discuss these issues with us, Dr. Siqueira.

[Joao Siqueira] My pleasure.

[Ted Pistorius] We've been talking today by telephone about health concerns in the Amazon region and a paper that appears in the April 2009 issue of CDC's journal, Emerging Infectious Diseases. You can see the whole article online at www.cdc.gov/eid. If you'd like to comment on our podcast, please send us an email to eideditor@cdc.gov. That's eideditor – all one word - at cdc.gov. For Emerging Infectious Diseases, I'm Ted Pistorius. Thanks for listening and have a healthy day.

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