Latin American Security Challenges: From the Olympics to Zika

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I do infectious diseases. There is nothing better than infectious diseases. There is always something new.

Zika is both old and new. The Zika virus was first discovered in a monkey in the late 1940s in the Zika Forest outside of Entebbe, Uganda. The first human case was not recognized until 1952. At that point it appeared to be a mild self-limited viral infection that resolved without sequelae within a week. Most likely it would not be a topic of interest to the general public except for the recently described complications of infection.

Zika is spread by mosquitos. Primarily two species of mosquitos, Aedes aegypti which is the predominant vector and Aedes albopictus. Both are present in the United States although the latter has a more extensive range. Aedes albopictus can be found as far north as Maine. Parenthetically, one may contemplate the role of mosquitos in the environment. They provide food for bats and some birds. On the other hand, mosquitos are responsible for the most common lethal infectious disease in the world, malaria which is spread by the anopheles mosquito. Mosquitos are also the vectors of many other infectious diseases, Dengue, Chikungunya, Yellow fever, La Crosse Encephalitis, Eastern Equine Encephalitis, Japanese B encephalitis. The list goes on and on.

At first Zika appeared to be limited to East Africa, then it spread to West Africa, and then to Southeast Asia. There was a significant outbreak in Thailand after which it next appeared in Micronesia. And, at that point, it appeared to have mutated a bit, because there were some complications in Micronesia – Yap Island and other places – that had not been seen or recorded before, and that was primarily Guillain-Barré syndrome, which we will talk about in a few minutes. It then spread to the Americas, and there were more complications. It is not clear that there were any further mutations since its spread from Micronesia to the Americas, but that is not 100 percent clear at this point.

There are several problems associated with Zika besides the really awful complications that have been associated with Zika infections. First, it is actually a hard diagnosis to establish: fever, rash, arthralgia, conjunctivitis. It is almost indistinguishable from dengue, which is very common in the Caribbean and South America, and chikungunya which was a Southeast Asian virus which also spread to the same region, and by mosquitos. There is a more arthralgias and muscle aches in dengue and chikungunya, and a little bit more of a rash from Zika. The presence of conjunctivitis is more common with Zika infection. But, just looking at an individual patient, it may be hard to tell the difference between these conditions. And, as I will come to, there is really no good test, or at least no simple, good test to distinguish one from the other.

The diagnosis can actually be made by detecting the virus in the blood of an infected patient. This test, a polymerase chain reaction or PCR, is available at one commercial lab and will soon be available at others. The problem with this test is it will detect virus when it is the blood which is usually only during the first week or so of illness. In some cases it may detect the virus in blood up to two weeks after infection and even a bit longer in urine. But, once the virus is no longer present in body fluids, the test will not
reveal the diagnosis. Unfortunately, many people who have been to an endemic area and are worried once they return home, may not be tested in time to detect the presence of virus. Moreover, to further complicate the matter, 80 percent of the people that have been infected with Zika are asymptomatic. This means that a woman who was in an endemic area, never became ill, but discovers she is pregnant 3 weeks or so after returning home cannot be assured she was not infected with the currently commercially available test. Once a patient has passed the period in which the virus can be detected by PCR, it becomes necessary to do a different test. We can then test for antibody to the virus. Ordinarily, testing for antibody is rather simple. But, this is a little more complicated. Zika, like Dengue, and many other viruses, is a flavivirus, and the simple testing of antibody for Zika will be falsely positive if the patient had Dengue. So, a more sophisticated test needs to be done. This is a plaque reduction neutralization test. It is very labor intensive and no commercial laboratory is doing it at this point. In those cases where this test is warranted, a sample can be sent to the state laboratory and then it can either be done there or forwarded to the CDC where they will do the test. At this point, we don’t know if the risk of transmission of Zika to the fetus is greater, lesser or the same in asymptomatic pregnant women compared to women who have the acute illness.

Zika for most people is a minor illness. Even for those who are symptomatic. You get sick with a flu-like syndrome for a few days and you get better and that’s the end of it. There is almost nothing to worry about in that case. Almost, but we can talk about that later. But, clearly, it can be a devastating illness for those who get one of the complications associated with this illness. Obviously, microcephaly is a tragic complication. Children born with microcephaly have considerable brain damage and will never gain full function. However, what about children who are infected in utero, but do not have microcephaly, or infected in utero late in the third trimester. Do they have more subtle neurologic damage? Is there a loss of cognitive capacity? This may not be known for several years. It may require sophisticated testing comparing siblings who are born before and after Zika. Another complication is Guillain-Barré (GBS) syndrome. This usually manifests itself as an ascending paralysis. Sensation is intact, but the paralysis begins in the lower extremities and moves up the body. If it gets high enough, it can impact the diaphragmatic muscles so that the patient needs to be put on a respirator. Rarely, the cranial nerves are involved and there is a rare form in which the paralysis descends. Most people with GBS recover, although it may take weeks to months; and there may be some residual symptoms. There are treatment options for GBS. Plasmapheresis is a procedure in which we filter the blood for the purpose of removing the offending agent— in this case antibody – and people get better faster. An alternative approach which is probably not quite as effective is to administer immunoglobulin intravenously.

Right now there is no treatment for the Zika virus infection, and it is not clear that treatment would alter the subsequent outcome. People get better, but at what point in the course of the illness does the virus cross the placenta? And at what point in the course of the illness do the antibodies develop such that a patient is at risk for Guillain-Barré syndrome? These are unknowns.

The antibody issue is a critical question. In the case of microcephaly the pathogenesis appears to be associated with direct invasion of the central nervous system by the virus. The virus has been demonstrated in the fetal brain after miscarriage or
therapeutic abortion. Guillain-Barré is different. Guillain-Barré is caused by an antibody that binds to peripheral nerves and through one of several potential mechanisms damages the nerve such that an ascending paralysis develops. Most likely it is binding to a Schwann cell. These are cells that are on the surface of the actual nerve or axon and promote transmission of nerve impulses. The purpose of plasmapheresis is to remove these antibodies from the circulation and thus allow the Schwann cell to slowly repair itself. It is generally believed that this antibody is a “cross-reacting antibody.” That means that the antibody which the body makes in response to a Zika infection is in response to a certain structure on or in the Zika virus. This structure is termed an antigen. The concept of a cross-reacting antibody is that the anti-Zika antibody detects a structure on the Schann cell (or the neuron for that matter) that looks similar to the Zika antigen and thus may bind to the Schwann cell. This can then lead to cellular damage by several different mechanisms.

Why is this a critical issue? We are trying to develop a vaccine that will prevent Zika infection. But, what if the vaccine produces an antibody that is identical to the antibody that binds to the peripheral nerve, then it is possible that GBS could occur. This will require careful testing before a vaccine can be released for general use.

Is there a precedent for this? Yes. About 50 years ago, when Gerald Ford was president, there was an outbreak of swine flu at Fort Dix in New Jersey. Swine flu is the specific strain of influenza that led to the great outbreak in 1918 when 50 million people died worldwide. Obviously, the outbreak at Fort Dix was a big issue. A vaccine was developed for that particular strain of influenza virus which, like other influenza vaccines, was given to millions of individuals across the country. That year there was a statistically significantly increased incidence of GBS syndrome associated with that particular vaccine. Ironically, the swine outbreak never got out of Fort Dix. But, because of that outbreak many people still do not take the influenza vaccine. Since that outbreak there has never been an increase in GBS associated with influenza vaccine administration. Nevertheless, there is still many who fear the influenza vaccine. And, by the way, you cannot get the flu from the influenza vaccine because there is no whole virus in the injectable vaccine.

Obviously, this raises some concern about a vaccine for Zika and the potential for an adverse effect associated with that vaccine because of a vaccine induced antibody-mediated reaction.

The Olympics are coming to Rio de Janeiro. Mosquitos like temperatures above 80 degrees. The median-high temperature in Rio in August is 78 degrees. I am not sure how sensitive mosquitos are to the difference between 78 and 80. I am also not so sure that the median temperature is going to stay at that level. On the other hand, most of the time mosquitos will not be very active because the temperature will be below 80. Mosquitos are not as prevalent in Rio as they are in northeastern Brazil, which is equatorial. It is unlikely that any outbreak of Zika will be as bad in Rio as it has been in the more equatorial regions of Brazil. So whether Rio is going to be a problem or not depends on the temperature in Rio as well as a number of other factors. But, I do not think it is 100% safe and certainly not recommending anyone that is pregnant or thinking about getting pregnant or thinking about impregnating their wife should be going there. Zika is a legitimate concern and each athlete will have to make their own decision.
Earlier I stated that once you have Zika and you have recovered, and if you were not pregnant and did not get Guillain-Barré, there is almost nothing to worry about. Almost. It turns out the virus has been found in semen up to 6 months after infection. Right now, the CDC is recommending that men wait 6 months before having unprotected sex and women wait 8 weeks. Is that long enough? We don’t know.

What about DEET? We all know about DEET. Smear your body with DEET and the mosquitos stay away. Well one of my colleagues went down to Colombia – we are currently collaborating with the Colombians where there is a lot of Guillain-Barré – and she came back on a plane with two other people and she said she was covered with DEET. DEET is supposed to keep mosquitos off you. It is a spray or a liquid solution. You can get 25% DEET in sprays; she was using a 40% liquid. She was covered with DEET and the mosquitos were still biting her on the plane. And the person she came back with, one of her colleagues, tested positive for Zika. Whether he got it on the plane or while in Columbia is not known. But, the other message associated with this little story is that just as people fly from South America or the Caribbean, so do mosquitos.

One of the favorite approaches that our public health people like to do is model an infection to predict how serious it can be. How many people will get infected? How many will develop a complication, etc. Modeling is very difficult and frequently very inaccurate. When the CDC modeled Ebola in September of 2014, they said by January there could be as many as 1.4 million cases of Ebola virus. By the time the epidemic ended there were 28,000 cases, of which only 16,000 were proven Ebola.

Currently, there is an estimate that somewhere between 1 percent and 13 percent of women who are infected will transmit it to the fetus. It is likely that the level of complication depends on when an individual is infected; first trimester, second trimester, and so on. First trimester most likely carries the highest risk of microcephaly. One month ago, there were 117 births, from Zika-infected women in the United States, of which there was 6 cases of Zika malformations. As of the last week in July there were 1658 cases of Zika in the continental United States of which 15 were sexually transmitted. There have been 433 pregnant women with Zika who have been identified and there have been 13 deliveries in which there were congenital abnormalities and 6 additional cases of either stillborn or aborted fetuses with congenital abnormalities. Since not all of the pregnant women have delivered, it is difficult to estimate what percentage of these pregnancies will result in a congenital abnormality. Since this talk was given there have been ten cases of endemic transmission of Zika in Florida. It is likely that the virus may be found in donated blood and it will be necessary to test blood for Zika virus before transfusions in endemic regions.

We are dealing with small numbers without a clear picture of the numerator or denominator. We don’t know how many people, especially pregnant women, are infected. Remember that 80 percent of infections are asymptomatic. And we do not begin to know what the numerator really is. How many of the 433 women who are infected with the virus will have congenitally infected offspring? I have seen the number 29 percent if infection occurs in the first trimester. That seems rather high, but it’s hard to get good data at this point.
Clearly the complication of microcephaly is terrible, but even though we do not know what the extent of this outbreak will be or whether there will be significant endemic spread, we cannot simply shut our eyes and hope for the best. We have to be prepared for what could be a devastating outbreak.

The mosquitoes that transmit it in this hemisphere – it was the Aedes africanus in Africa – but in this hemisphere it is Aedes aegypti which is the primary vector. Aedes aegypti is not very prevalent in Washington, DC, but Aedes albopictus, which is a secondary vector can be found as far north as Maine. So yes, there is risk even here. So if you have a bird bath at home, empty it, because they like standing water.

One last political comment: the CDC initially stated that they would only test symptomatic women. Since 80 percent of infections are asymptomatic, it did not seem reasonable to restrict this test to only those pregnant woman who were in the endemic region, but were asymptomatic. Less than 48 hours later they announced that they would test asymptomatic women as well. I like to think that the call I placed to my congressman had an impact on that.
I am a blood doctor (hematologist, transfusion medicine specialist) and whenever we experience a new epidemic, as you just heard from Dr. Gary Simon, one of the first questions people ask is, “What do I do if I need a blood transfusion?” And, as Dr. Simon asked me, “Is Zika an infection that is transmitted from an infected person to a transfusion recipient?” The answer to that is clearly “Yes.” Transmission is estimated to be at least 40 to 50 percent efficient, but since we do not have a reliable laboratory test and there is very little information, that estimate is not very strong. Zika is clearly an infection that is transmitted by blood and there are cases already.

So the questions that come up with regard to security and the safety of a blood transfusion at the Summer Olympics in Rio are: one, will Brazilian authorities take the initiative of testing their local supply of blood for the Zika virus using an investigational-level test? As you just heard, there is no reliable test kit commercially available that would be easy to implement. The issue of blood transfusion is that blood does not treat any disease; it supports the treatment. So, when we ask, “Should the blood supply be tested?” – let us say for Zika – we are looking at a small segment within the broader issue of dengue, chikungunya, yellow fever, HIV, all of the potential infections that could be there. We have the big question – the whole healthcare issue. How do we prioritize for blood transfusion in that context?

The second question is, “Is it feasible to consider applying the CDC and FDA recommendation that have been issued for the United States?” For the United States, the CDC recommendation is as follows: in an area where there is active mosquito-borne transmission of Zika virus – and we do not have that yet in the United States but it is coming – when that happens, the plan will be to import blood from regions of the United States that do not have active mosquito-borne transmission. Is it in any way feasible to consider applying the CDC recommendation for the United States and bring it to Brazil and say, “Well, there is active mosquito-borne infection in Rio let’s ship a supply of blood from Maine or Minnesota – somewhere where there is no Zika – to Rio”? I was contemplating that option two days ago when my hospital and every hospital in the United States received a letter from the senior vice president of the American Red Cross Biomedical Services. What that letter says is that blood supplies across the United States, including the American Red Cross, are already in June, experiencing significant blood shortages and the shortage is expected to pervade throughout the entire summer.

I am medical director for the transfusion service at MedStar Georgetown University Hospital, I can tell you we were counting the units of blood in the refrigerator last night because we were experiencing a very low inventory. No one on the other end of the telephone said, “I can ship you a replacement supply.” So we are already at borderline levels of blood for transfusion in the nation’s capital. There is no way that you could take a significant amount of blood for transfusion out of the United States today and send it to Rio. If requested to do so, I would respond, “You better keep the blood people in this community are giving to help our sick people here, because our supply is borderline and we can’t put our own patients at risk.
In short, the issue of transfusion safety in Rio is a small factor in of the much larger issue of how Brazil manages its healthcare system. I have no evidence that Brazilian blood banks are planning to import an investigational test and test all of the blood that might be needed for a blood transfusion. Count the number of people expected to attend the Summer Olympics in Rio and multiply that number by the incidence of transfusions that are given to a population of that size and you’ll arrive a larger number of units of blood than can be supplied from outside Rio in August 2016. There is no way to have a sufficient supply of pre-tested blood of all ABO/Rh types in Rio in the event of unexpected – but what we are here to consider – terrorist activities with mass casualties.

We cannot bring the American standard to Rio. That is the heart of the issue. I recall the “ugly American” who went into a hotel in Rome and observed that everything was different from the United States said “Gee, we do it differently in the States and that is what I want.” If you want to go to Rio, go to Rio for Rio. Rio is going to remain Rio as far as blood and healthcare are concerned. I cannot predict that blood transfusion and healthcare, in general, in Rio will meet the standard of the United States in August 2016. Rio’s healthcare system is going to stay where it is and if you want to go to Rio, go to Rio for the experience of Rio. Unless something that is beyond my vision is going to happen, I think we can expect the status quo as it exists in Rio’s local healthcare system. With specific reference to transfusion safety, it will remain for transients as it is for locals.
Dr. Asha M. George  
Co-Director of the Blue Ribbon Study Panel on Biodefense

I am Asha George, the co-director of the Blue Ribbon Study Panel for Biodefense. I want to tell you just a little bit about the Study Panel because I think it is worthwhile understanding it in a non-academic context. We pulled together the Blue Ribbon Study Panel on Biodefense because we felt that it had been a while since a commission of any sort had really evaluated the state of biodefense in the United States of America. We do not have a congressional mandate. We did not get congressional funding or governmental funding otherwise. A bunch of former Capitol Hill and White House staff came together and said, “This is something we think we need to do.” We are all biodefense experts, and we decided we wanted to do this, and we did.

After we made that decision, we went and got co-chairs – Senator Lieberman and former Secretary of Homeland Security, Governor Tom Ridge. We have former Secretary of Health and Human Services Donna Shalala, former Senate Majority Leader Tom Daschle, former Homeland Security advisor Ken Wainstein, and former Representative Jim Greenwood who are all members of the panel. We also have some ex-officios, including Dr. Alexander, and institutional sponsorship or support from Hudson Institute, Potomac Institute, and the Inter-University Center for Terrorism Studies.

Now I am bringing this up not because it is so vastly exciting to hear about how we brought it together administratively, so much as to encourage people who are here and in other arenas that they think are important, to get a group of people together and figure out whether you can attract enough luminaries to address an issue the way we did. It was possible for us and I think it is possible for you as well. So that is my little “ra-ra” pitch about that.

Now the Study Panel examined biodefense in the United States of America looking across a broad set of activities. We went all the way from prevention (including intelligence activities and diplomatic activities) all the way over to response and recovery, mitigation, law enforcement, and attribution. So as you can imagine, it is just this huge group of activities, all kinds of things to look at. We released a report in October of 2015 which has 33 recommendations and about 50 very specific action items.

Now we have academics here, UPMC is here, the military is represented, and we have a lot of activity going on in the academic and non-governmental realms. Why do we need a commission to assess the situation? What I want to say is, with us, we very much, given our own backgrounds in Congress and in the White House and in the Executive Branch otherwise, we really wanted to focus on how does government facilitate actually defending the United States against something, and in this case it is against the biological threat. How well are we doing that?

So our recommendations are different than what you usually find in the academic arena. And as a result they were, as we would have expected, of great interest to Congress and to the White House and to the Executive Branch because the way we wrote these, it was very easy for them to take a recommendation and say, “Oh, now I know how to write about this in legislation.” I think it is really important because in this arena, there is so much in it and there is so much in the way of blind spots people may want to address, and they do not know how to address it. It gets exhausting and then
they give up and they say, “okay, we are going to focus over here because nuclear is a big deal and we all understand it.” It is a challenge, and in order to get people to do something about it what we have found you have to get really specific and say, “This is exactly what we recommend that you do about it,” and have a conversation at that level.

I just want to bring up a few points for you all to consider. This issue of blind spots that the Ambassador brought up - I would tell you the whole realm of biodefense seems to be blind spots. But it is really fascinating when you start looking at it from an academic perspective how different things overlap and how rapidly something like biodefense becomes very complicated. We have all kinds of activity going on in this one arena that we do not understand. We do not understand the nature of the diseases necessarily that we are dealing with, we do not know where all the biological agents are that were produced by former biological warfare programs elsewhere in the world. We are watching things like antibiotic resistance occur. We know in the scientific community we are already ourselves modifying organisms. There is so much of that going on.

But in addition, we also have other things happening. Here is just one small example with counterfeit pharmaceuticals. In many countries counterfeiting is not an issue for them. It is not illegal for them. They encourage it. They think it is the way to go. Why? Because they are trying to—they do not want to counterfeit and kill people, that is not their issue—they are trying to get ahead in terms of the science. They are taking something that already exists and saying, “Okay, go copy it, go do this.” Now, you can tell from a health perspective this is not something we want to see happen. But when you have countries that have those kinds of vastly different perspectives on something like counterfeiting, how do you even have a conversation about that? It is an enormous challenge and that is just one thing that has something to do with biodefense.

Now the other issue I want to bring up, just quickly, has to do with intelligence and the intelligence enterprise. We have the tendency to think that every threat to the United States is addressed as equally and as well as every other threat, and that is not the case, and not just for biological issues but for other stuff, especially when you do get very technical and the fields are moving fast, fast, fast, fast. I think, as a country and as a government, we recognize, of course, there are challenges, weaknesses, and gaps and all that, and we take steps to address those. For example, with the Western Hemisphere, the Intelligence Community said, “We are kind of weak on this. We hear from the State Department and the Defense Department that we need some emphasis here.” So they created something called the National Intelligence Manager for the Western Hemisphere, which is great and allowed for some additional focus. Now, I am sure the Ambassador would say it is not perfect, and it has not addressed every single problem. But at least we brought it up another level and someone in the Intelligence Community, namely the Director of National Intelligence, said, “Hey, we need some additional focus.” So we are advocating the same thing as far as the biological threat is concerned.

Now I think that we have to get to the point – and one of the things that the Study Panel argues is that we have to get to the point – where we develop processes and changes in our culture, both inside the government and outside the government, to deal with really messy, complicated, gap-filled challenges like addressing the biological threat and like others. We have to get to that point, otherwise we will just keep backing off and
focusing on something else until something comes up, like Zika or Ebola or whatever else. I do not think we can keep going down that path over and over and over again.

When we look at Zika, we just heard the history of Zika, we did not just discover it last week or last month, we have been tracking it for a while. We have known it, we have seen it, we have looked at it. We have identified some aspects of it, not every aspect, but some aspects of it. So we, the Study Panel, and you now sitting in the audience, we have to ask ourselves well why, if we were tracking it all this time, not since last week, not even since last year, but going back decades, why is it that last night Congress passed emergency supplemental funding to address Zika now that it is a big emergency? Why did it go that way, and why did it happen with Ebola before that? And why does it happen every year with pandemic influenza when it becomes a big issue that we are all concerned about? Why? Part of it is because I think we are just in the habit, as a government of doing that, and part of it is that the trade-offs are exhausting and important. We are not talking about, “Oh, you know, I do not know if we want to fund bubble gum research this year. I kind of want to so maybe we should,” it is not that. We are talking about big, huge things. Big important priorities that are countering each other and that people are invested in. But when it comes to something like biodefense, I think we have to do better, and the message of the Panel would be that we can do better.

I think the last point I will make before closing, and before my next colleague comes up, is just this: we are talking about Zika and we are talking about the Olympics today, but today we should also be asking, “What is the next thing coming down the pike?” Because obviously something else is coming down the pike. It is not “We are done after the Olympics and Zika.” Obviously we already know something is coming. Not what is it, but how do we address threats that are going to keep coming year after year, and perhaps more frequently? I think we have to look ahead, and we have to figure out how to take the information we actually already have and address it in advance, in a more efficient and effective way so that we can avoid being in this situation all the time.

One of the tragedies of this disease [Zika] is that it affects children so much. As a culture here in North America, and also in Central and South America, the value we place on children is enormous. That is not to say it is not like that everywhere in the world, but people have different perspectives elsewhere. Because we place so much value on that, because it breaks our hearts to see these pictures and to put ourselves in the position of those parents who are going to have to somehow raise these children and deal with their issues, this has become a very emotional issue for us. At the same time, now we have the Olympics, also a very emotional issue for most countries. It is a matter of patriotism and everything else. We are lucky – from the perspective of dealing with biological threats – we actually are lucky that we have two of these great big emotional issues coming together because it is forcing a conversation that does not ordinarily occur.

But we are already running out of time. That we are talking about it with the Olympics in less than two months, this is not the way we should be conducting ourselves as countries and as members of the global community. We can do better than this, and I think we have to not only connect with the future, but also connect to the past. You know, the United States has been all over Central and South America for many, many decades. Our Special Forces have been down south for many, many decades. We need
to pull all this experience and information and relationships we have developed and the science that we have together so that we can develop policy and execute it not just for us and the United States but for the entire hemisphere, if not for the whole rest of the world.
Dr. Tara Kirk Sell

Member of the USA national swim team for 8 years, served as captain for 6 national teams, and earned a silver medal at the 2004 Olympics in Athens. Currently, an associate at the Center for Health Security at the University of Pittsburgh Medical Center

I have a background in public health and as most of you know I was also an Olympic athlete; and actually, I have another perspective – until I had my baby less than three weeks ago, I was also a pregnant woman. So I had that perspective as well. I definitely think that there is a little bit of extra anxiety when thinking about Zika when you are pregnant.

I am also happy to go after Dr. George because I am with the UPMC Center for Health Security - we used to be the Center for Bio Security at UPMC. I am really glad that you emphasized the biodefense and biothreat aspect of this and how important it is to really think about these threats in a long term way so that we can think about how these infectious disease events are going to keep happening. We need to have a strategy to deal with them in the long run instead of saying at the last minute, “let us try to take care of this.” When you think about Zika, we should have been working on it months and months ago – and the CDC was, but we needed to have more resources. So we need to think about how we can do that.

But I am going to focus on the relationship that people are drawing between Zika and the Olympics. I think it is good for us to talk about that, but a lot of people are calling for the Olympics to be postponed or canceled or moved. I think that is a little silly, honestly.

I think there is sort of this mental disconnect going on, right? “The Olympics are so big, and they are such a big deal and so many people are going to come, this is going to spread Zika all around the world. But it is not so big that we cannot just cancel it or move it - it is huge but nimble at the same time.” I do not think that the Olympics are a big enough event to cause this global catastrophe of Zika that some people have been talking about. I read that the travel to the Olympics represents less than 1% of the travel to all Zika-affected countries.

I guess I have a different perspective because I was there and I know all the events that run up to it. The diving trial just finished, the swimming Olympic trails are starting on Sunday, there are a whole series of events the come together to make the Olympics happen. It is not just people having a competition at a venue and then that is it. There are all these other events that are happening locally around that event that are going on with the sponsors and other parties that are doing things together in that area.

The other thing that I wanted to touch on here is balancing risks. We do not really live in a risk-free world, although some of us like to think that we do. We accept some risks. We get in a car and we drive and we accept that there is a possibility of a car crash. But there are certain things that make people perceive some risks as more serious than others. This is risk perception theory. One of those things is threats to future generations. So that is one of the reasons why Zika really pushes people’s buttons, why people get really concerned about it, because it is a threat to unborn children.
I think that in public health there is a lot of push to go with an abundance of caution. That phrase, “out of an abundance of caution,” personally I feel like if you hear it, it is usually a cover for doing something dumb. It is like saying, “this action is not really warranted by science, but we are going to do it anyways, just because.” Do things that make sense. Do things that the science calls for and then stop there.

I talked a little bit about the anxiety that I had when I was pregnant. Even though the risk was tiny, I will say that I still was worried, I still had that elevation in risk perception. I was worried about the tiny, tiny, tiny chance that I might get bit by a mosquito that had a miniscule chance of having bitten someone else who had Zika. I was worried about it, so I can understand that concern.

And then there is also my perspective as an athlete. People would be worried about going to the Olympics and getting Zika. But as we heard from Professor Simon, as a disease, if you are not pregnant, there is not a ton of risk. And there are not going to be that many pregnant athletes, right? If you have trained all your life for an event, and you have lived your life in a way to target this one event, and you have made your life decisions based on this event, I do not really see the value of having someone else make a blanket public health decision that takes away your dream. Even if it is delayed, your training schedule it set up. If you lose your chance, you lose your chance pretty much for forever and there goes all of the last four years [of training].

To finish up I will say that none of this is meant to say that Zika is not a serious concern. It is something that the world needs to pay attention to and that the U.S. needs to have an appropriate response to; but I would say that the relationship between Zika and the Olympics and calls for it to be canceled or moved or delayed are a little bit overblown.
Academic Centers

Inter-University Center for Terrorism Studies (IUC TS)
Established in 1994, the activities of IUCTS are guided by an International Research Council that offers recommendations for study on different aspects of terrorism, both conventional and unconventional. IUCTS is cooperating academically with universities and think tanks in over 40 countries, as well as with governmental, intergovernmental, and nongovernmental bodies.

International Center for Terrorism Studies (ICTS)
Established in 1998 by the Potomac Institute for Policy Studies, in Arlington, VA, ICTS administers IUCTS activities and sponsors an internship program in terrorism studies.

Inter-University Center for Legal Studies (IUCLS)
Established in 1999 and located at the International Law Institute in Washington, D.C., IUCLS conducts seminars and research on legal aspects of terrorism and administers training for law students.

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