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Modern Healthcare
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What Do Providers Need To Know

Douglas:

Good afternoon. Thank you for joining *Modern Healthcare's* Editorial Webinar. Today we'll listen to a roundtable discussion on the rapidly evolving situation that the Zika virus has caused globally. This webinar will address how the military, CDC and hospital providers are confronting the situation.

Before we begin, let's hear a word about the sponsor of today's webinar, Truven Health Analytics. Truven Health Analytics provides clients with answers to improve healthcare quality and access and reduce costs. Truven's unmatched data assets, technology and analytic expertise have served the healthcare industry for more than 40 years. Every day their insights and solutions give hospitals and clinicians, employers, and health plans the confidence they need to make the right decisions.

We now have a few housekeeping items to address before we start. Your phones will be in listen-only mode during the entire webinar; however, listeners can send questions throughout the event. Our moderator will ask as many as possible before the hour is up. You can find the questions window on the right-hand side of your screen connected to the webinar dashboard that appeared when you first joined the call. A recording of today's discussion will be available on our website, modernhealthcare.com/webinars. Within a few days, all

attendees will receive a followup e-mail including a link to that recording. Slides used during today's presentations will also be available online.

Now I'd like to turn the webinar over to Jaclyn Schiff, Editorial Programs Manager for *Modern Healthcare* and the moderator for today's webinar. She will introduce our panelists. Jaclyn?

Ms. Schiff:

Thank you so much, Douglas, and thank you for pulling together an excellent production for us here today.

So, before I introduce our fantastic panelists, I want to acknowledge all of you who have tuned in today. This has been one of *Modern Healthcare's* most popular webinars to date, and I know we are looking forward to the information our panelists have to share.

If Zika has you scratching your head -- how big of a concern is it, how best should we prepare -- you're in the right place. We are honored to have a diverse panel to tackle these questions, and more, from many different angles.

We will start today's presentation with Colonel Michael Rajnik. We'll then advance to Michael Bell of the CDC. And we'll conclude today with Dr. John Braden of Baptist Health South Florida. I will introduce each of the panelists before their presentation, and so, first, I'll go ahead and introduce Dr. Michael Rajnik, who is a Colonel in the United States Air Force Medical Corps. Given the military's unique role in fighting infectious diseases, we are delighted Dr. Rajnik is here to give us a peek behind the curtain. Dr. Rajnik received his medical degree from the University of Virginia, and he completed his pediatric training in the military at what was then the combined program between Wilford Hall Air Force Medical Center and Brooke Army Medical Center. Dr. Rajnik also finished specialized training in pediatric infectious diseases at the Uniformed Services University of the Health Sciences and Walter Reed Army Medical Center located in the nation's capital. He has been the program director of the military's only pediatric infectious diseases fellowship for the past 9 years in Bethesda, Maryland and serves as the consultant to the United States Air Force Surgeon General on issues related to infectious diseases.

Dr. Rajnik, I'll now turn things over to you.

Dr. Rajnik:

Hello. Good afternoon, everyone. I am going to be speaking and a little out of turn because Dr. Bell would have given you probably an introduction, but my role here is to show you maybe a little bit of perspective from the military standpoint of emerging infectious diseases and, particularly, the Zika virus infection, and maybe help correlate some of the things that you read, hear about going on in the news.

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So, the first thing you may ask is: Why is Zika a concern for the Department of Defense? Well, in addition to anything that destabilizes global issues, one of the things that we always look at is force health protection, and force health protection is anything that goes to promote, improve, conserve and restore the mental and physical well-being of personnel. So, you may think that that only applies necessarily to uniformed personnel, but it actually applies to not only uniformed personnel but civilian personnel that are worldwide, as well as the dependents, as keeping a strong active duty force requires us to provide healthcare not only to the active duty service members but also to their dependents. And we have one of the world's largest global health networks. We have health facilities throughout the world on nearly every continent and refer patients back to the United States from just about any military base we have.

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In particular, when you look at viruses, infectious diseases and arboviruses, the military plays a very prominent role historically, going back to the United States Army Yellow Fever Commission and the namesake for the hospital which I work, Walter Reed. Major Walter Reed was heavily involved in the study and determination that mosquitos were the vectors for transmission of yellow fever and, in fact, conducted one of the very simple, but eloquent, studies that required one of the first human subject volunteers to provide informed consent where they were able to determine that mosquitos were the vector of yellow fever, that vector control then would become very important in the eradication of yellow fever.

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To this day there is a research institute in Washington, DC, the Walter Reed Army Institute of Research, and they have a viral diseases branch, and one of the largest efforts in that viral diseases branch is to study arboviruses and, particularly, Dengue viral research and immunization development. They work not only here in Washington, DC but at AFRIMS, which is in Thailand, and have worked and studied Dengue for many, many years, and they have worked on immunization. That immunization, they have worked in conjunction with GlaxoSmithKline. And you'll actually note that it's an inactivated Dengue viral vaccine. That vaccine, interestingly enough or, I should say, that the military itself is not in the product development but actually will work with other institutions.

On January 27 of this year, the DOD actually was enlisted to work with Health and Human Services not only on Zika virus research but also in Zika virus prevention, and the agencies that were cited in this announcement by the Assistant Secretary of Defense for Health Affairs were the Defense Threat Reduction Agency because, obviously, things that destabilize the world are a threat to our security, as well as a more famous institute, the United States Army Medical Research Institute of Infectious Disease, USAMRIID, which has been kind of glorified in the popular press with outbreaks such as the recent Ebola outbreak. They have kind of the ability and the network to help fast-track certain things to enable the quick and efficient testing of vaccines, potential therapeutics and the like.

There is also another institute, the Infectious Disease Clinical Research Program, that has a large prospective travel medicine history study that's ongoing that will be looking at the role of the Zika virus and the emergence the Zika virus has on people, global travelers.

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One of the biggest issues that has come up with the Department of Defense though is how to handle their personnel that are overseas, and we're going to spend the next few slides looking at different options that exist for pregnant women that are outside of the United States in areas affected by Zika virus. And the first thing that I need to point out is that the Assistant Secretary of Health Affairs has allowed the option of decisions to be made regarding this to the local

commanders or combatant commanders. Now, there's a map there that shows what a combatant command does not necessarily mean we have to be in a conflict with someone. The one you've heard about most recently is normally CENTCOM, which is in the area of operations in the Middle East, but the one that would be affected most commonly by the Zika virus would actually be USSOUTHCOM, and that would be the SOUTHCOM commanders who would make determinations on people that are in those affected areas.

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So, if we look at pregnant, uniformed, service members, there are a few options that have been laid out there in order to try to protect and prevent women and their unborn children, and that first effort is what's called temporary duty, what we call TDY and the navy sometimes calls TAD. In this particular case, the service member who would be pregnant could be relocated to an area where there's no active transmission ongoing for the duration of the pregnancy and delivery and transition of the newborn, and this could happen, certainly, in areas where medical care may be less than US standards and happens at other times, but in the Zika virus case, if there would be someone stationed in a Zika transmission area, they could easily bring them back TDY for a particular period of time.

The other one is what they call an early change in station, or the nomenclature is a PCS, and if you were in a Zika transmission zone and maybe you were up to move in the summer or something like that, they could easily send you back and transition you earlier, give you orders back. Only issue there is that this type of issue could lead to a gap in personnel. If somebody comes back a year early, there may not be anyone to take somebody's position, so understand that that loss of productivity could be a result of the transmission ongoing.

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Now, often times service members will travel overseas with a dependent, so if a dependent, pregnant dependent, would actually be present in the Zika-affected area, there are three different ways they could actually get back to the United States. If someone does get ill for any reason, not just Zika virus, in an overseas status, they can come back to what we call CONUS, or Continental United States, and that is paid medical care travel. Now, essentially, normally when the

medical care is finished, those people would be brought back to their normal duty station overseas. The other option would be an early return of dependents where the DOD would actually pay for them to come back and they would come back to the United States, and if it was going to be a short time period until the service member may be coming back, they may choose to do this, but they would not be able to return to their normal duty station or back to the active duty service member if this option was chosen. And the last one is they could travel at their own personal expense and then also return at their own personal expense.

Any of these things could actually degrade the member's benefits from the standpoint of if you're stationed somewhere with dependents versus without dependents, you may get different housing allowances and the like, so that needs to be brought into perspective as well.

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There are options for DOD civilians, so people don't think about that, but at most bases worldwide there are civilians that are employed by the Department of Defense and they can be brought back on temporary duty, orders that would get them back, and that would be, obviously, at the government expense, and their dependents could also travel for an early return of dependents like we talked about previously. They could come back on medical care travel. Now, if they were back on temporary duty and then they were getting ready or in that predelivery area, they could use 6 weeks of medical care travel before and 6 weeks after up to 180 days total for a transition. And then there's also Release From Transportation Agreement where in some cases if they were in a highly affected area, there are clauses and civilian contracts that allow them to be brought back to the United States. If they are brought back, it's thought that one of the things they could do would be able to maximize their ability to work via tele-work. And there's also a DOD civilian program called the Priority Placement Program where they would actually try to reassign them back to the United States into another DOD civilian job that would hopefully allow them to be productive members of the DOD civilian workforce.

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Pregnant dependents of DOD civilians could also go back from medical travel and they would be similar to the active duty dependents. There's also the early return of dependents similar to active duty dependents where they would then not rejoin their family, or they could travel back at their own personal expense and then could rejoin with the child at their own personal expense as well. All of these options are available for pregnant women in order to get them out of the Zika endemic area.

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The other gray area is, if you are actually supposed to be going to a Zika-affected area and you then found out you were pregnant or that your dependent was pregnant, there are two possibilities that could happen there. The PCS could be cancelled. In other words, your move could be cancelled; you could get a new assignment. Sometimes the best career move for somebody is to go overseas, and so they may choose, instead of doing that, delaying their travel, which would be having a reporting later after the delivery of the child maybe with or without the service member, realizing that a delay in travel for the service member could once again lead to a gap that would have to be covered by those that are at the permanent duty station.

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If you are in a Zika endemic area, the way the military looks at things in terms of trying to prevent a Zika infection is no different than anyone else, and it's what we call Comprehensive Force Health Protection, and that would be every effort to reduce the mosquito population on bases or areas of work, avoiding mosquito bites and prevention of infection. And there's active mosquito surveillance and control that goes on in these areas because, as I'm sure will be pointed out at some point in time, Zika is not the only infection that we worry about from mosquitos in these areas. It could be malaria. It could be Dengue. It could be Chikungunya or other arboviral illnesses. The proper wear of uniforms and clothing, that's long sleeve, long pants, making sure that little skin is uncovered as possible, use of insect repellants and treatment of uniforms, permethrin and DEET, use of bed nets and then screening off of living quarters, trying to just decrease the overall burden of potential for mosquito bites. It should be noted

that both DEET and the permethrin-treated clothing are safe in pregnancy, and so those are recommended for service members regardless of (inaudible 16:51)

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So, in an effort to give you an idea of what we're actually doing in one of our hospitals, I'll tell you the experience we are having at the Walter Reed National Military Medical Center in Bethesda. So, what we are is we're a large referral center in the national capital region, but we also get overseas transfers in the United States. We get them from, sometimes, South America, Latin America and Europe, and we have an active infectious disease service for both adult and pediatric, plus robust perinatology support. And the DOD has similar facilities in other states such as Hawaii, Texas, Virginia, Washington, California, and all of these have similar programs that have been put into play.

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In general, when we have patients with exposure to a Zika endemic area and clinical symptoms or pregnancy, they get referred to our system, and then there's an evaluation that's done. The evaluation only includes history, with travel history being the most important, immunization history -- we'll talk about that a little bit -- and then looking at their symptoms and a clinical assessment of the patients. At that point in time, if the person is found to be in one of these Zika endemic areas, we would do sampling, not only just for Zika but also for Dengue or Chikungunya, other diseases that are manifesting in the same regions of the world. And while some people may think that the Department of Defense is going to have a very robust, clinical testing scenario here, in reality we're using the same system that most other people are. We are referring first to our state labs and then on to the CDC for the PCR testing. PCR testing, serologic testing and plaque neutralization reduction testing that is being done. It's slowly working its way down to our clinical labs, and we will probably be regional clinical lab capable soon. We're also working on and running in parallel tests that the Navy Infectious Disease Diagnostic Lab, which is here in Bethesda, and trying to validate our own tests in this manner, but we still rely on the definitive testing done at the State Health Department and CDC level depending on where they are coming from.

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So, so far we've screened 27 high-risk patients here. We've look at exposure, symptoms, whether they're pregnant or not. Pregnant women have been referred to obstetrics per the CDC guidelines. We've had one positive Zika patient, one Dengue infection and no evidence of any congenital infections that have occurred here. Interestingly, almost all of our patients -- not almost all -- about 20% of our patients have had immunizations such as yellow fever or Japanese encephalitis, which also may show a cross-reaction, and many of our service members have been deployed not only to this region of the world but also to Southeast Asia where Dengue is circulating, and other parts of the world where we have found that cross-reaction in our population is a very real problem. And the testing, which we rely on the serologic testing, really does need to be confirmed with by plaque reduction neutralization test.

I believe that's the last slide.

Ms. Schiff: Thank you so much.

Dr. Rajnik: Yes, that was the last slide.

Ms. Schiff: Yes, thank you so much, Dr. Rajnik. That was interesting.

In the interest of time, I'm going to introduce the next speaker, because I want to allow maximum opportunity for the audience to submit questions at the end. So, with that said, I'm going to go ahead and introduce Michael Bell, who is the Deputy Director of CDC's Division of Healthcare Quality Promotion. The Division promotes the protection of patients and healthcare personnel and improvements in safety and quality of healthcare. Some of the things they do include producing guidelines for prevention of healthcare-associated infections and the creation of programs for prevention of antimicrobial resistance and basic safe medical practices such as injections.

Prior to his current position, Dr. Bell was the Chief of the Epidemiology Unit at the Viral Special Pathogens Branch addressing infection control for high-risk pathogens such as Ebola virus. His first position at CDC was in the Hospital Infections Program, investigating outbreaks of healthcare-associated illness and

writing National Infection Control Guidelines. He received his medical degree from the University of Washington and trained in internal medicine at the University of Colorado and in infectious diseases at the University of California-San Francisco.

And now I will turn things over to you, Dr. Bell. Oh, it looks like, Dr. Bell, you might be on mute, if you could please unmute your phone.

Dr. Bell: Can you hear me now?

Ms. Schiff: Yes.

Dr. Bell: Excellent.

Ms. Schiff: Sounds great.

Dr. Bell: Well, thank you very much for that kind introduction. And hello, everybody, I appreciate your joining us today. I'm going to give a very brief review of Zika virus, including some clinical elements and recommendations related to testing.

Next slide, please. Go to the next one. There we go.

So, as you've probably gathered already, Zika is a virus transmitted by mosquitoes. The genus *Aedes*, shown to the right there, are implicated, and the most common one is *aegypti*, even though the more frequently found mosquito might be *albopictus* below. *Aegypti* is more important because it has a greater tendency to bite human beings. The key to these vectors is, as you heard just a moment ago, not only do they transmit other infections like Dengue virus and Chikungunya, but they live indoors as well as out and can be very effective at daytime biting in addition to evening and dusk. This makes it a much more difficult pathogen, or vector rather, to control.

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The distribution of Zika virus in the United States currently is a reflection of travel-related importation. You can see that Central and South America, parts of the Caribbean, are significantly affected. So far we have not had any native

autogenous* 23:59 transmission of Zika virus in this country, but we have had several hundred importations, both into territories and into the Continental United States. This is something that is likely to continue and, in part, because the mosquitoes that transmit this virus are found fairly widely across the Southern United States and about halfway up the continent. That means that many municipalities, including states like Florida and Texas, are working very hard to focus on vector mitigation and testing.

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In addition to mosquito-borne transmission, we know that there is clearly intrauterine vertical transmission from mother to infant and, in addition, we're seeing clear cases of sexual transmission from male partners who have active infection with Zika virus. This is behind some of the recommendations that you've seen recently with regard to abstaining from sexual contact if there is a possibility of carrying Zika virus. In addition to that, I think you heard just now about issues related to blood transfusion, and parallel to that is both organ and tissue transplantation. Blood transfusion is something that we are looking at as an opportunity for very beneficial impact. I'll say more about that at the end of the talk.

Next slide, please.

I think the most important thing to realize about Zika virus disease is that about 80% of it is completely asymptomatic. Most people who have had it never know that they did, and this poses a big challenge in terms of screening and identifying individuals at risk for secondary complications related to pregnancy. When people do have disease, often it's very mild and nonspecific with the symptoms that you see listed here, nothing that would stand out as unique for one particular disease. The symptoms can last for a few days to as long as a week and tend to be self-limited.

A few people have had severe disease and fatality, but that is exceedingly rare. There have also been a small number of cases of Guillain-Barré syndrome wherein people have loss of their nerve coating that leads to motor paralysis going from their toes upward. This, too, is a generally self-limited problem as long as the patient can be maintained during that paralytic period. Specifically, if

the paralysis rises high enough and affects the diaphragm, the ability to breathe, then the individual needs to be maintained on a ventilator, and making sure the person remains safe and healthy during that time is key. If they can remain healthy, then the nerves will regenerate their coating, and people tend to go on to be quite normal.

The assessment of how Zika virus affects pregnancy is something that we've seen a lot about. The details are still being investigated. It is looking as though, in addition to microcephaly which was identified earlier, there's probably a much broader spectrum of impact on the fetus, and this is something that we're clarifying in close partnership with our Brazilian colleagues.

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There is no specific antiviral treatment for Zika virus. Supportive care, as you see listed here, is routine. There are a couple of things to add to the to-do list, however. One is to test for other things like Dengue or Chikungunya virus that could be transmitted in the same way in the same location, so rather than just assuming that you're dealing with Zika virus, it's important to test for additional causes that might be present. In particular, Dengue, if it's a repeat infection, can result in a hemorrhagic fever. For this reason we don't recommend using aspirin or ibuprofen or other nonsteroidals until Dengue has been ruled out since those medications can make hemorrhage worse. In addition, children, as with any viral infection, should not be given aspirin during a Zika virus infection if it's suspected. That's because of the connection between aspirin, viral infection in children and Reye syndrome.

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Zika in the United States is reportable. If it is diagnosed, then the state, local or territorial health department does need to be notified. Health departments are then able to report cases with laboratory positive tests to CDC. The reporting is useful in that it allows us to target interventions. I mentioned earlier mosquito mitigation in certain parts of the southern United States, southern continental United States. That kind of activity can be made more efficient by having up-to-date information on where cases are being seen.

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Diagnostic testing is available in two phases. There's the test to detect acute illness, in other words, symptoms that are present for less than a week, and that is a PCR test looking for RNA pieces from the virus in the serum, or if it's obtained, the cerebral spinal fluid. This test is only able to detect the infection while the virus is still circulating, so once the body has cleared the virus, this test will then become negative. If it's been four or more days and you're getting a negative test with PCR, then we recommend doing an IgM test looking for antibodies, IgM antibodies that arise early in the course of infection. There is now an FDA-issued Emergency Use Authorization for the CDC Zika IgM antibody test. This is distributed through the Federal Laboratory Response Network to all of the participating state health department laboratories. And if you want to find out more about availability or gaining access to those tests, there's a link on this slide that you can look at that will guide you to more information.

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In terms of who should be tested, pregnant women who have a history of travel to an area where transmission of Zika virus is recognized and two or more of the symptoms listed here that happen during travel or within two weeks of coming home should be tested. In addition, if you have a person who had a history of travel to an endemic area and they have a pregnancy that appears to be complicated by either microcephaly or intracranial **complication* 31:01** of the fetus, those individuals should also be tested.

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In terms of managing the pregnancy once Zika virus is identified, during the pregnancy, one thing that can be considered is periodic ultrasounds every 3 to 4 weeks to follow the progress of the infant and to better understand the extent to which the fetus has been affected. It's recommended that a maternal-fetal medicine specialist is consulted given the complexity of questions that are likely to arise. Once the infant is delivered, additional tests can be done to confirm Zika virus, and you can see the various specimens here. The most straightforward one is most likely testing of cord serum for Zika virus, Dengue virus, IgM antibody.

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The issue of whether special precautions are needed for delivery of a mother who is suspected to have an infant affected by Zika virus has been raised. There is no evidence of any risk other than we would expect from contact with blood or body fluids. In other words, Zika virus is in the same category as HIV or hepatitis C virus, wherein you can't be sure that the individual that you're working with does or doesn't have it, so you always take precautions to make sure that we don't have unprotected contact with blood or body fluids. This includes making sure that if you think you might be splashed, you protect your eyes and your other mucous membranes on your face. Similarly, if it's likely to be a messy procedure, wearing appropriate gowns and other protective equipment is appropriate. But there is nothing special that needs to be done in terms of air handling, and we don't recommend routine testing of individuals without exposure risk or other evidence that they might be carrying Zika virus.

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So, additional issues to think about, there is information now on CDC's website under the Zika label related to planning for travel and the possibility of becoming pregnant either during or after travel. It's worth thinking through what the possibility of exposure to Zika virus might be if you are planning a trip to an area that is affected by Zika virus. The actions can range from being meticulous about preventing mosquito exposure, using insecticides, mosquito repellants specifically, as well as wearing long-sleeve, long-legged garments and avoiding exposure to mosquito-ridden areas whenever possible.

The second issue, I wanted to come back to, is blood transfusion. There is concern, certainly, about the blood supply being affected by viruses like Zika virus. Currently, we're working in Puerto Rico with the local authorities and several facilities to look at a pathogen reduction approach for red blood cells. There is a pathogen reduction technology that is shown to be very effective and safe with platelets and plasma. The evidence for that has not been gathered for red blood cells to date, and so we're doing an expedited process to look at red blood cell pathogen inactivation to make sure that it works well on red blood cells and monitoring for any unexpected impact on patients who receive the

transfusions after pathogen reduction. That is a technology that I think can be exported back to the Continental United States, not only for Zika virus but for other infectious diseases that we know are likely to circulate in the blood supply for which we don't want to have to do routine and pervasive testing.

Lastly, I think that for many health systems and healthcare providers, there is going to be a need for making sure that counseling and support services are available for individuals who are, or could, be affected. This is something that can require a great deal of care and management, and so, many of the health systems that we're talking about are putting into place plans for the counseling and support of individuals who are being assessed for Zika virus infection.

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I'll leave you with this list of initial resources. These are web links just to make it easier to get so some of the information that we have. This includes up-to-date maps of where the affected countries are at present, travel notices and so on. There are detailed recommendations for travelers in the updated Yellow Book in the Zika section. The clinician information section will take you back to both a link for testing as well as indications for testing, and then broad information at the main link.

So, let me conclude there and hand it back to our moderator. Thank you.

Ms. Schiff:

Thank you so much, Dr. Bell. That was a very informative presentation.

I'm going to go ahead and just ask a question that occurred to me. I was taking a look at the Zika virus page which you had listed on your slides and was struck that on one of the pages there was some information about what we do know, and you highlighted some of that in your presentation, but there was a lengthy list of what we don't know, stuff that has yet to emerge from research. But I wonder if, based on what we understand about Zika, if there is a comparison you would make of how it can be treated in the sense of how providers, healthcare providers, should be thinking about Zika, which other infectious disease that US healthcare providers are familiar with might you compare it to in terms of its severity and how to deal with it.

Dr. Bell: So, there's good news and bad news here. I don't have an easy comparison for you. The main issue with Zika virus, and one of the reasons that it really wasn't something that gained much attention in Brazil until the link was made to microcephaly, is that the negative outcome, the bad impact, is really on the development of an unborn child, and that puts it in a category similar to diseases like measles, mumps and rubella, diseases for which the good news is we have vaccines, so we don't tend to see the birth defects associated with those infections. Countries like Japan, for example, where they don't have a policy of using vaccine to prevent those infections in adults are actually seeing birth defects related to this, and it's very much a tragic situation, especially since in those cases it's actually preventable. Until we have a vaccine for Zika, it's going to be a little bit different for us in the United States where, again, we would want to prevent the infection rather than have to deal with the consequences. So, we're in a bit of a special case right now.

Ms. Schiff: Thank you. We're going to move on to the next presentation, but please, as questions come up, submit them through the chat box. A couple have come in, and we will hold them and ask them at the end.

So, now that we've got an overview of Zika from CDC and the military's vantage point, it's time to get a sense of how hospitals in the US are actually preparing. Florida's tropical climate means it is likely to be fertile ground for the Zika virus, as our next speaker, Dr. John Braden, is undoubtedly aware. Dr. Braden is the Medical Director for the Emergency Preparedness and Security Department at Baptist Health South Florida, a 7-hospital health system with more than 15,000 employees and 2,200 physicians. Dr. Braden is a full-time emergency room physician at South Miami Hospital and has been in practice for more than 20 years.

So, with that, I'll turn things over to you, Dr. Braden.

Dr. Braden: All right. Thank you, Miss Schiff. Can you hear me?

Ms. Schiff: Yes, sounding good.

Dr. Braden: Okay, very good. Yes, we're based in Miami, Florida, and a little background on our system, we have 7 hospitals and more than 50 outpatient centers and

medical plazas and other facilities, and we span a total area of 4 counties in the Southern Florida area and have just under 350,000 emergency visits to our facilities every year. And being in a very kind of open location where we have several major ports in the Miami-Fort Lauderdale area and close to several international airports, we're very aware that we're kind of one of the front lines of where a lot of these folks from South America come into our facilities with illnesses and try to stay on top of the latest information regarding these infectious diseases and want to be as prepared as possible.

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The patient base, as you see, is kind of right in the center of a lot of these infectious diseases, the Dengue, Chikungunya and Zika, and we have had several cases that have come through our portals that we've attended to and been preparing to deal with. Our department was developed about 11 years ago and came out of the kind of danger of where we are.

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Because of our location, every summer our hospitals and outpatient centers gear up for disasters, hurricanes being one of the biggest ones that impact our area, so we, naturally, need to be prepared for kind of an all-hazards approach to maintaining our facilities in a state of readiness and prepare for either physical emergencies or biologic emergencies that occur, because with physical emergencies there's always concern about the breakdown of infrastructure or disease that can start running rampant after an area is impacted by something like this. And so, back in 2005, our hospital system developed an Emergency Preparedness Department.

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And we tried to really make it very comprehensive to include all of the segments of our healthcare organization from the hospitals to the outpatient centers to involve the administration, the medical staff and the boards that oversee all of this, and we tried to make it a very transparent process, and we find that that works best to involve all parties and to keep all parties informed. And during these times of stress and emergencies, we find that dissemination of information

is key, because whenever there is a situation people are very hungry for information. And we also realize that to keep the employees informed as much as possible mitigates the risk of people being concerned and not showing up for work, which is always a worry for hospitals that if they were to get an incident, that people would just say, "I'm not going to go in today." And, therefore, if we keep them informed and trained and prepared, their anxiety levels will be much less with this sort of thing.

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And so, we've been following several of these communicable diseases of urgent public health concern, and when our department first began operation in 2005, avian flu was one of the big concerns that we started preparing for, training for, getting equipment and backup supplies established for, and it's been pretty much an ongoing process, and so to look at how we responded to Zika basically looks at how our department has evolved over the past several years. And so, Ebola was our most recent kind of level of activation where there was a great deal of concern among the hospital staff, the medical staff, and we had several near misses of people that came from the affected areas, had illnesses, and that's where our partnerships with the local health department came into play because we would get these patients that were of concern and we would run their cases by the health department to see if testing was indeed appropriate and warranted in those cases.

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Our department has continued to have ongoing training classes for **PPD* 46:02**, Hazmat, infectious disease control, and the one other arm that we developed was what was an emergency response team. We found that there was concern that if a single hospital was overwhelmed with either a physical site problem or they were overrun with patients, that they may not have enough staff to deal with the emergency with their present staff, and so what we did was went around to each hospital and asked for volunteers to get additional training to become emergency response teams so they could go to other hospitals that were overwhelmed to add support to their emergency room or their surgical sites to help with either patient surge issues or surge issues with Hazmat,

decontamination issues, so as that local personnel would not be overstressed or stretched out to the point where they wouldn't be able to function properly.

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The other thing that we've integrated into our whole system is that the Joint Commission asked that the hospitals drill for emergencies, and so when we developed our department, we basically decided to take that mandate and expand on it and involve all of our hospitals and outpatient centers and really take the HICS command and training chain of command and implement that in a way that it's actually fully used during our drills, and that we set up an area of command that sort of oversees the whole system during our drills. And instant command is activated at each of the sites, and we use this to try to incorporate as real a scenario as possible and think of areas of our system that could be stressed that normally wouldn't be, such as the ICU or the surgical centers, and task those people in those areas and those leaders to be involved with our drills, because we found that most of these drills kind of end up in the emergency room and only test the emergency rooms' personnel, but, in reality, the whole hospital is going to be affected if we do activate a code D or do have an emergency surge of patients. And so, each year we come up with different scenarios and test and stress different parts of the hospital system and organization to keep people well trained and kind of on their toes.

We also have partner clinics in the surrounding area that we involve in our drills, and then we also have, through our social work services, family reunification centers that we found through our drills that people would want to know where their family members were if they were taken from a scene of an accident or a disaster, because our fire rescue command would designate ambulances and transports to go to whatever facility was not overwhelmed, and so tracking patients, we realized, would be a very important issue that would need to be addressed.

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The other thing that we've done with our drills, which is kind of the center point of that, is that we involve many of our community partners and developed a good relationship with them. We involve the fire rescue, the local health department.

We have also involved the local police departments along with the medical examiner and the emergency management agencies for the county. And we invite them to our drills and have gained some very interesting insights into how they operate during an emergency and have corrected some of our assumptions that were held either relying on or having information come to and from these agencies.

One example, I recall, was we had a scenario where we had a surge of patients from a catastrophic accident from one of the local raceways where a bomb went off, and we said that we anticipated there would be a lot of family and people coming from that, and we anticipated that the hospital may have to go into lockdown mode. And each hospital has its own security personnel, and we were concerned that if there were so many people that come, that we would need the local police force to help us out with that. And one of the local officers says, "Well, we could send a few people to you, but you have to keep in mind that if there was an instance where there was an explosion, we're going to be doing a lot of work on-site where the explosion was because that's going to be one gigantic crime scene, because we're going to be making sure that the site is safe, assessing material evidence that was found on the site to determine the mechanism of the explosive, etc., that sort of thing. We're also going to be involved with crowd control on the scene and traffic control, so we may not be able to drop everything and come to your hospital to help you with your crowd control." So, after we had that discussion, we relooked at how we were going to do lockdowns in the hospitals, crowd control, keep the patients and staff safe at each location.

And so, those contacts are ongoing, particularly with the health department, because we find that they're our go-to person to get the latest information because they're pretty much our contact directly to the CDC with either testing or the latest recommendations, how to handle each unique biologic threat that comes along.

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The other organization that we're involved with is the Miami-Dade Healthcare Preparedness Coalition, which is a coalition that's hosted by the health department, but we have quarterly meetings with pretty much every hospital in

the county and/or health facility to anticipate disasters, how we can help each other with these things such as crowd control, equipment, shortages, and that has been a very effective way to get information also disseminated, because that group also participates on the conference calls with the health department and the CDC when they do put out their bulletins. And so, that's how we've been pretty much approaching our preparedness for Zika, is just an ongoing emergency preparedness, and that department has been very effective to meet those goals.

So, I'm going to conclude with that and turn it back over to Miss Schiff.

Ms. Schiff: Thank you. Thanks so much, Dr. Braden.

So, there's a couple questions coming in, and I definitely want to try to get to as many of them as possible. Dr. Braden, a question that just came in for you: What are your communication strategies regarding Zika, Ebola or other diseases for non-English patients and caregivers you serve? A related question: Do you provide all clinical and care management staff with Spanish and French or Creole materials, translated or created with their cultural origin in mind? And also, are you gathering and disseminating best practices for Zika management in patient communications within your system? If you want to go ahead and respond to that.

Dr. Braden: Yes, we do, and that's kind of an ongoing thing. Those Creole and Spanish are two major language groups that are in our area, and pretty much all of our communications are put out in those languages, so pretty much anything we do is put out in three languages. And since we're pretty heavily computer-based, that's all built into our software that we use for discharge planning or information that goes out. And then we also have a great number of on-site interpreters because a lot of our staff comes from those two ethnic groups also, and so, we do provide that in abundance.

Ms. Schiff: Great. I'm going to direct the next question to Dr. Bell. This person asks: Is there any evidence on the effects of Zika on infants and small children who contract the virus directly?

Dr. Bell: So, the short answer is no. The issue, again, gets to the fact that the vast majority of individuals are asymptomatic, have no symptoms at all. It's difficult to get a sense of what proportion of nonspecific fever, rash, crankiness in a small child might be something other than the usual suspects. I'm not aware that the assessment has been done, so far, to look at that. There is currently, however, no indication that there is a different or significant effect of Zika virus infection on children and young infants.

Ms. Schiff: Thank you. Also, someone asked about male-to-male sexual transmission. Do we know about that?

Dr. Bell: I do not. I have not seen anything related to that, and going back to sort of the bottom line that I expressed earlier, since we're mostly concerned about this disease because of the possibility of a pregnancy being affected by an infection, there the conversation will become somewhat complex in terms of how a male-to-male exposure could then lead back to a female. We see similar complexity with other sexually transmitted infections, so I think it's a valid question, but I don't have any information on that right now.

Ms. Schiff: Okay. The next question, I guess, is directed at Dr. Braden, or I guess, Dr. Bell, I think you could weigh in on this as well. Besides developmental screening, what sort of health and development followup is warranted for in utero Zika-exposed infants? Dr. Bell, do you want to actually tackle that one?

Dr. Bell: If you could restate that once more, please?

Ms. Schiff: Yes. What sort of health and development followup is warranted for in utero Zika-exposed infants besides developmental screening? Are there any other recommendations?

Dr. Bell: Nothing active at the moment, but as we learn more, the interim recommendations will be updated. Right now it's still very early. And, as I said, as we work with our Brazilian colleagues, we're learning more and more about the range of findings that they're seeing in their population and, as you know, they have had many, many infants affected. So, that is where we're looking to get a better understanding of what could potentially be the effects beyond microcephaly for a child affected in utero.

Ms. Schiff: Sure. Dr. Rajnik, I'm going to address this question to you. I know this isn't specifically the kind of thing you deal with every day, but we did get a few questions about this. This person asks about school-sponsored field trips. Should they be cancelled to areas where Zika virus is prevalent, or if there are no pregnant individuals going and the proper precautions are taken, do you think it's fine for school trips to go to areas like that? How would you evaluate that question?

Dr. Rajnik: We would generally do the same thing we do with our active duty people who would be going to an area like that. We'd recommend a pre travel visit to either your primary care physician or travel medicine physician so they can discuss the risks. If there's a nonpregnant person, the risk of getting Zika virus disease, as has been described by Dr. Bell, is fairly innocuous and similar to getting influenza or any other viral illness, but I believe that good counseling for groups such as that about the avoidance, or how to avoid mosquito bites, proper wear of permethrin-treated clothing, proper wear of DEET, all of these things can help decrease the likelihood of transmission for not only Zika virus but all of the arboviruses that people may encounter in these regions of the world.

Ms. Schiff: Thank you. So, we're just a little over our allotted time, but there are a couple more questions. I'll ask one final one, and then if the panelists agree, maybe there can be... I know, Dr. Bell, you provided us with a lot of followup resources, but any followup ways that people can address questions either to you or resources you might have, we can distribute that to people on this webinar.

So, for a final question, this is directed to Dr. Bell. What do you envision will be the mode of communication pre travel, you know, digital social media campaigns in key travelers communities, how is that best handled?

Dr. Bell: I think that there are many different solutions to this. Travelers are extremely varied. I think that there are things ranging from student travelers in schools for whom their programs need to be thinking about this, and I'm sure they are, just like they think about malaria exposure and whatnot. Leisure travelers should certainly be thinking about what they have in store for them in certain parts of the world, whether it's malaria or anything else, and, in this case, Zika virus is added to that. And there are considerations that we've made available on the website

for people who either have to or want to travel despite the current transmission of the virus. I think the occupational issues, including what you heard from our Department of Defense colleague, are really very practical things about, do you decide not to be in a certain area, do you take additional precautions to avoid mosquito exposure, and lastly, are there things you want to do in terms of planning for pregnancies?

So, all of these things, I think, will be different based on who's traveling. I think the existing resources are all pretty good, and the awareness, I think, has been helped a great deal by extensive media coverage. I think that, ultimately, we are going to end up in a position where we have a vaccine that will be just like with yellow fever vaccine, something that travelers to endemic areas will have available to take the issue of having a pregnancy affected off the table.

Ms. Schiff: Thank you. Well, I want to thank all three of our panelists for their very informative presentations today, and I will hand things over to Douglas to close out, and thank you to all of you for tuning in to the webinar today.

Douglas: This concludes today's discussion on the Zika virus epidemic. For those who want to view this webinar again, all attendees will receive a followup e-mail with a link to the recording of the webinar available at modernhealthcare.com/webinars. All slides presented are also available at that address. Thank you.

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