

COCA Conference Call – West Nile Update, 2007
Emily C. Zielinski-Gutierrez, DrPH and Carolyn Reimann, MD
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Coordinator: Welcome, and thank you for standing by. At this time, all participants are in a listen-only mode. During the Question and Answer Session please press star 1 on your touchtone phone. Today's conference is being recorded. If you have any objections, you may disconnect at this time. I would like to now turn the call over to Ms. Downs. You may go ahead.

Alycia Downs: Thank you very much. Good afternoon and thank you for joining us on today's COCA Conference Call on West Nile Virus. We are very pleased to have Dr. Emily Zielinski-Gutierrez and Dr. Carolyn Reimann present on this call.

Dr. Zielinski-Gutierrez is a Behavioral Scientist with the CDC Division of Vector-Borne Infectious Diseases located in Fort Collins, Colorado. She coordinates national education efforts for West Nile Virus and several other vector-borne diseases. She works with Dengue Fever in the Pacific and conducts research to improve disease prevention activity.

Dr. Reimann is currently in her second year of a preventive medicine residency, Master of Science in Public Health Program at the University of Colorado, Health Sciences Center in Denver.

She is presently working on her thesis in Arboviral Diseases Branch of the Division of Vector-Borne Infectious Diseases at the CDC office in Fort Collins.

The objective for today's call are for clinicians to review basic West Nile Viral history, transmission and disease manifestations, discuss temporal and geographic trends of West Nile Virus in the United States and to discuss West Nile Virus prevention measures. I will now turn the call over to our presenters.

Emily Zielinski-Gutierrez: Hi, everyone, good morning or good afternoon, depending on where you are. And thank you for having us with you today to discuss West Nile Virus. My name's Emily Zielinski-Gutierrez, and I'll start and then turn over to Carolyn, and then I'll finish up with some of the recent epidemiology of West Nile Virus in the US. So if you do have the slides in front of you, we'll start from those at this point.

And so West Nile virus is an arthropod-borne virus. It was first discovered in 1937 in the West Nile District of Uganda; hence the name. And until 1999, it had really only been seen in Asia, Southern Europe, Africa, as well as the Middle East where most of what we have in terms of the literature before it arrived in the United States, can be found.

West Nile is a flavivirus. It's in the JE, Japanese Encephalitis antigenic Complex. So same family as Yellow Fever virus, same as St. Louis Encephalitis virus, which some of you may be familiar with from earlier mosquito-borne outbreaks in the United States, such as the 1975 SLE outbreak.

And West Nile Virus is transmitted primarily by mosquitoes. On to the third slide, what the basic transmission cycle of West Nile Virus is really between birds and mosquitoes. There's a large number of mosquito species in the United States which are capable of becoming infected with the virus, a smaller

number that play an important role in transmission and that does differ regionally.

And then several hundred species of birds that have been reported as infected and found to be -- the virus has been fatal for those birds, though not all birds that get infected have fatalities. So the birds act as the amplifying host for the virus and then humans, horses, and other mammals, are, as we often say incidental or dead-end infections, dead end hosts, so unlikely to be amplifying hosts for the virus, although that's obviously where most of our public health concerns.

Next slide -- 4. In terms of transmission, the most common route of transmission is the bite of an infected mosquito, and that today remains the most important route of transmission. In 2002 when we saw the initial large outbreak of West Nile Virus in the US when it moved beyond the East Coast, we were able to find out that there were a number of other transmission modes that were to be important, as well.

And that includes through blood transfusions, organ transplantation, intra-uterine transmission and Carolyn's going to talk a good bit more about that shortly, percutaneous exposure and that was largely occupational exposure during necropsy of birds, given that some of the birds had high viremias, so people during all the public health response investigating and conducting necropsies, there were a couple of infections that happened through that route.

And then it's thought that there could be probable transmission through breast milk, and we'll talk a little bit more about that.

So after 2002, there was a very high prioritization given to finding a method that would be suitable for screening the blood supply in order to reduce the risk of transmission through blood transfusion.

So in what really is record time for government and regulatory agencies, after the 2002 discovery of this potential for transmission, by July 2003, all blood donated in the United States since that point, since July 2003, has been screened for West Nile Virus using the nucleic acid amplification test referred to as NAAT, and this NAAT platform is done under an investigational new drug protocol which enabled that to come online so quickly.

And today the use of the NAAT testing continues to be refined in order to find the algorithms that make the most sense in terms of testing only single donors at a time and pools for multiple donors at one time to determine really what the blood agency is trying to find, the best balance between risk and cost benefit ratio.

So at this point, we can say confidently that the transfusion associated risk of West Nile virus in the US is very, very low. In 2006, there were 361 total presumptively viremic donors, that is people who [were] identified when they gave blood, the blood was tested and they were identified as presumptively viremic donors.

They are informed of their status by the blood collection agency and follow up is done to see if they do at any point develop symptoms. People are initially of course, deferred from donation if they have symptoms that could be related to West Nile Virus illness on the day that they come to donate, and currently we're now on Slide 6, so in 2006, those 361 cases were spread pretty well throughout the United States and certainly can be useful surveillance.

Sometimes we see the PVD cases before other human cases occur, so it is a useful surveillance tool, as well. And on Slide 7, you have the presumptively viremic donor reported for 2007, note that's as of August 14, when we sent the slides ahead, a few more cases reported last week.

So as of August 21, this past Tuesday, we have a total of 68 presumptively viremic donors reported so far in the United States for 2007.

So I'm going to turn it over to Dr. Reimann at this point.

Carolyn Reimann: Okay, thank you Emily. I'm Carolyn Reimann and I'm going to talk a little bit about West Nile Virus in pregnancy and also some of the clinical manifestations of the West Nile Virus.

So one of the other modes of transmission of the West Nile Virus, besides a mosquito bite, is intrauterine infection. So after identification of a trans-placentally transmitted West Nile Virus infection in 2002, a study was done in 2003 and 2004 enrolling pregnant women with West Nile Virus who were reported to the CDC by the state health departments.

Seventy-two infants were evaluated at delivery and through 12 months of age. Cord blood was tested in 55 of these infants. One infant had IGM in the cord blood; however, the infant did not have IGM in the serum at one month or eight months of age and the infant did not show any evidence of West Nile infection. So the IGM in his cord blood was felt to be of maternal origin. Three infants whose cord blood was negative for IGM did develop West Nile Virus infection shortly after birth. In these three neo-natal cases, infection by mosquito bite cannot be ruled out and in two of these cases, the infants were breast fed, which also cannot be ruled out as a mode of transmission.

Based on the lack of correlation between lab results and clinical manifestations in the study, testing for anti-West Nile Virus IGM in cord blood may not be the most sensitive or specific method of diagnosing congenital West Nile Virus infection.

On to the next slide-- in this same study, seven major birth defects were detected among 66 infants who had physical exam data available. This is higher than the rate of major birth defects in the general population which is 5.5%; however, due to a small sample size, this difference is not statistically significant.

The defects detected were the coarctation of the aorta, cleft palate, Down's Syndrome, lissencephaly, polydactyly, two with microcephaly. Four of these infant's mothers were affected after the sensitive developmental period for the specific malformation. None of the infants had any laboratory evidence of West Nile Virus infection.

And a current study is enrolling women both with and without West Nile Virus infection for further evaluation for congenital West Nile Virus infection, and the Web site is listed on the slide if you would like more information.

So some about the clinical manifestations of West Nile Virus infection. Based on sero-prevalence studies, about 80% of humans who are infected with West Nile Virus remain asymptomatic. About 20% develop West Nile fever, but not neuroinvasive disease. Less than 1% of those infected with West Nile Virus develop neuroinvasive disease, which includes meningitis, encephalitis and acute flaccid paralysis.

And roughly 10% of those with neuroinvasive disease die, leading to an overall fatality rate of less than 0.1% of all West Nile Virus infection.

West Nile Fever is the most common clinical manifestation. The incubation period is anywhere from three to 14 days. Fever and headache are classic symptoms. Patients will likely have one or more other symptoms including fatigue, nausea, vomiting and rash. Most patients with West Nile Fever will have fatigue or headache persisting for weeks or even months.

On to the next slide, West Nile Virus Meningitis. There was a study in 2003 that looked at 228 patients hospitalized with West Nile Virus infection in a four-county region in Colorado. Their goal was to describe the signs and symptoms present in meningitis and encephalitis, as well as to determine risk factors for complications of West Nile disease. They found that patients with meningitis were more likely than those with encephalitis to have myalgias, arthralgias, nausea, vomiting, rash and back pain.

Meningitis patients are more likely than encephalitis patients to improve eventually, but many have persistent symptoms including fatigue, weakness and memory and concentration problems. In the same study, patients with encephalitis were found to be more likely than meningitis patients to have memory problems, dysarthria, dysphagia and focal motor abnormalities.

These distinguishing characteristics are important in predicting complications, such as respiratory failure. Next slide – acute flaccid paralysis or AFP has become more frequently recognized in the past few years. West Nile Paralysis occurs as a result of viral involvement of the anterior horn cells of the spinal cord. West Nile Paralysis probably accounts for at least 10% of patients with neuroinvasive disease; however, this is difficult to determine because paralysis may not be recognizable in comatose patients.

Respiratory failure is not uncommon secondary to diaphragm and respiratory muscle failure. Respiratory involvement is associated with fatality rate of more than 50%.

Among those infected with West Nile Virus, advanced age and hypertension have been shown to be risk factors for developing encephalitis. After adjusting for age, several factors have been identified that increase the risk of death. These are black race, chronic renal disease, Hepatitis C and immunosuppression.

Also it's been found that organ donor recipients are likely at a much higher risk of developing neuroinvasive disease as compared with the general population. There was a study in Toronto where 816 asymptomatic patients who were part of an organ transplant program were tested to determine seroprevalence. Two tested positive for West Nile Virus specific IGM.

Based on these sero-prevalence results and hospital-based surveillance identifying four transplant patients with neuroinvasive disease, this population was found to have approximately a 40% chance of developing meningoencephalitis when infected with West Nile Virus compared to about 1% in the general population.

Next slide is a graph showing West Nile Virus incidence by age groups in 2006, and you can see that West Nile Fever incidence is highest among more middle-aged adults and neuroinvasive disease incidence is highest among the elderly.

And the next graph shows neuroinvasive cases by age groups and gender for 1999 through 2006. The higher incidence in males is thought to be due to

males being more likely to be outside exposed to mosquitoes and possibly less likely to use preventive measures, as well.

Next slide -- the diagnosis of West Nile Virus infection should be suspected in all patients with meningitis, encephalitis or flaccid paralysis during the months that are endemic for mosquito-borne diseases. Other arboviral diseases should also be considered such as St. Louis Encephalitis or LaCrosse encephalitis and Eastern Equine Encephalitis.

So other enzootic activity in the area should raise suspicion for arboviral infection. Age and travel history should be taken into account and testing can be done at state labs or many commercial labs, as well.

There is no specific treatment currently available for West Nile Virus disease. It is mainly supportive treatment. There are two ongoing IRB approved double-blinded placebo-controlled clinical trials testing safety and efficacy of two different medications. One is alpha interferon. The other one is not clear actually about the exact type of drug that they're studying, but more information is available on the Web site.

Outcomes for West Nile Virus. In all cases, younger age is more predictive of full recovery than is initial illness severity. Also encephalitis patients are much more likely than meningitis patients to develop respiratory failure and in meningitis, mortality is almost none, while encephalitis mortality ranges between 15 and 25%.

In West Nile Virus flaccid paralysis, some people recover completely and others have persistent weakness, and in this case, those with less severe initial weakness tend to have better outcomes.

Emily Zielinski-Gutierrez: And now I will take us back to talking a little bit more about reporting and some of the more recent surveillance statistics. As I think was clear, there are many West Nile Fever cases that happen that are likely not to be reported.

So one of the important statistics to take into account when you are looking at West Nile virus surveillance numbers, is the fact that we do consider that the reporting of neuroinvasive disease is probably very good, that we capture almost all of West Nile neuroinvasive disease cases that happen due to the fact that these are typically hospitalized.

But we are very well aware that West Nile fever reporting that is greatly under-reported and looking at the statistics and thinking back to that pyramid that Carolyn talked about, if we, based on serosurvey data, assume that there are approximately 140-150 infections that occur in the population for every case of neuroinvasive disease and using the calculation that about 20% of those persons who become infected develop West Nile fever, we can estimate that roughly overall since '99 probably about 4% of West Nile fever cases are reported total. So that does give you a sense of what's happening out there in terms of people who don't necessarily feel ill enough to come in or the other barriers to reporting that may occur.

But both West Nile fever and West Nile neuroinvasive illness are considered reportable by CSTE and on the CDC West Nile Web site, there is a pretty easy-to-find link to look at the specific case definitions. But since 2004, both fever and neuroinvasive disease have been considered reportable. The reporting procedures vary by state, as far as how clinicians would report those up to the county and/or state health department.

All state health departments participate in CDC's Arbo-Net Surveillance Program which has enabled close to real-time reporting. States have 24-hour access to being able to upload cases and it is also the only surveillance system within CDC that accepts not just reports of human illness, but we also, the system integrates reports of mosquito surveillance, of dead bird surveillance, other mammals and sentinel chickens in the few states where they're used.

So with the goal being to provide as much of a holistic picture of where West Nile infections are happening and use that to make public health control decisions. So, but the take-home for everyone to remember is that really if you want to look at rates of disease and to compare disease over time, or over geographic areas, it's most important to look at the neuroinvasive disease numbers for comparison.

That way, you're eliminating some of the differences that happen in terms of the fact that some states do report a higher percentage of their West Nile fever cases than others do. But overall, that [fever reporting] is quite low.

So moving on to Slide 22 with all the multi-colored incidence map, this shows the incidence of neuroinvasive disease by county of residence of the cases reported for 2006. And clearly, by looking at this, you can see that the Boise corner of Idaho had a very active season last year. As did, interestingly, the Dakotas, basically the entire tier of the Great Plains states from north to south.

And some of the reasons for this are probably the ecology in the area, the *Culex tarsalis* [mosquito], the primary vector in this region, which is a very competent vector and also well adapted to the flood irrigation land use throughout these regions.

And also given the fact that many people in these rural agricultural states are engaged in agricultural work and are outdoors for many hours between dusk and dawn when they're - when they could be at risk in order to conduct their livelihood activities that may also contribute to the rate of infection that we see.

So, but as we have seen in the past couple of years certainly there are infections that take place in the Eastern half of the country, but it has not been as intense in terms of activity, incidence as the Midwest and Western states in the recent years. Now whether or not that's a pattern that will continue in the years to come is really one of the great, sort of, interesting scientific and ecological questions about West Nile virus.

Moving on to the next slide, I can make sure I hit the button on the computer not on the phone. So this just shows you the incidence rates for the county level incidence per million for 2007 and this is last week's data when we sent the slides in.

There's an updated - you can always find the updated incidence map as well as case data. We update at this point every, it's either Tuesday evening or Wednesday morning and that is the short cut, to get there is, www.cdc.gov/westnile. So we have lots of data and we like to put it up and make it available.

But here you see again, for 2007 that the highest incidence so far has been in those counties in North and South Dakota, currently California has the highest total number of cases, but given the larger population the incidence is not as high in those areas.

But in the - the green shading indicates any county from which any West Nile virus activity has been reported. So you see again, preponderance of that in Midwest and Western states, but certainly some in the East as well. And there's also some activity in Puerto Rico as you can see.

This is just - next Slide 24, just giving you a different view, this is total number of cases rather than just neuroinvasive and you can see that for 2006 Idaho topped out at almost 1000 cases, they had the highest numbers for 2006. The absolute total for 2006 - excuse me - was 4,269 human cases, it was the second highest year to date. The highest tally of cases so far was in 2003 and that was with 9,862 cases.

So, interestingly, even though a lot of people have felt that in some ways West Nile was becoming less of a problem since the large outbreak in 2003, people are pretty surprised to realize in fact 2006 is the second highest total so far.

So, one more slide ahead to 2007. The orange and grey interestingly colored slides; this matches the one on our Web-site.

Currently these show the numbers current of as August 14th and we just posted yesterday the updated numbers on our Web-site. But so as of this -- make sure I get the right thing in front of me -- as of this Tuesday we're reporting 576 total human cases have - at this point have been reported to CDC. One hundred and seventy-nine of those were either meningitis or encephalitis and 19 fatalities at this point.

The highest number of cases, as I mentioned, is in California followed by South Dakota, North Dakota, Colorado and - but really spread throughout the Western U.S.

So really from this week forward we start seeing a large number of cases coming in and wouldn't be surprised if the numbers pretty much doubled by next week, having spoken with the surveillance coordinator and she mentioned that many cases were coming in Monday and Tuesday of this week.

So and we really do see the large number of cases reported with onset in July, August and into the first weeks of September before frost hits in many of the areas. So this is prime West Nile virus season right now.

And to the next slide number 26 - so West Nile virus prevention is, you can really divide that up into three areas. Personal prevention, what individuals can do to keep themselves from receiving a mosquito bite, helpful prevention actions that people can take in order to reduce the likelihood of coming into contact with mosquitoes.

And then more community or environmental management issues, so in terms of personal prevention the issue is really emphasizing that these are important at the times of higher mosquito activity and that is from dawn to dusk, from sundown to sunup are the prime mosquito biting times. And if people are going to be outside during those hours to emphasize using mosquito repellent and wearing long sleeves and long pants for some extra protection.

Certainly people can choose to stay indoors, but, with, you know, healthy lifestyles and getting exercise it's not a problem for people to be outdoors as long as they do implement use of mosquito repellent and I'll talk more about the options for that in a moment.

In terms of reducing human mosquito contact in the household, using - making sure there are screens that are installed to keep mosquitoes outdoors.

Air conditioning certainly plays a large role in reducing people's contact with mosquitoes.

And around the household people can empty standing water, depending on the species in an area, this can be particularly important to get rid of those that breed in stagnant swimming pools and water features and forgotten bird baths and buckets for example.

And then finally, especially early in the season mosquito management with larval sites can play an important role in reducing mosquito numbers. And in monitoring mosquito numbers and mosquito infection rates as the season goes on in order to decide when actions may need to be taken in terms of other mosquito management -- adulticiding in order to bring down the number of infected mosquitoes that are on the wing, and that's a decision that's really up to each community as far as how they want to best manage those options.

And Slide 27 - looking at repellent guidance. So as far as repellents that are made to be used on skin CDC has three different categories of active ingredient that we recommend. DEET of course is still very much considered the gold standard, because of the wide, the long history of its use in terms of efficacy and safety. And as well as the wide variety of products in large number of concentrations that are available.

Very low concentration products which are perfectly fine for an hour or two outdoors and then higher concentration products, based from 20 to 50% that provide the longest protection times. Especially if someone is going to be outdoors for multiple hours or you have patients that might be engaged in outdoor work.

And then a newer product that came - became available in the U.S. in 2005, Picaridin, it's roughly equivalent to DEET at the same concentration, but only relatively low concentration products are currently sold in the U.S., under 15% and are higher concentration products are available in Europe and Australia.

And then finally for patients that might be looking for a plant based product, those that contain oil of lemon eucalyptus. Now we're talking about repellants that contain oil of lemon eucalyptus not going out and getting the essential oil. But there are a number of products that are sold that contain oil of lemon eucalyptus as well as there's a synthetic equivalent para-menthane-diol [PMD].

And for the plant based product the - a 30% oil of lemon eucalyptus product. This similar in efficacy to a low concentration DEET product. What is important especially if they are any pediatricians in the audience, a lot of times people tend to think, "Oh plant based, that's safer, I'm going to use that on my kids." Well, in fact, it is not labeled for use on children under three years of age, which is an important thing to point out and it's contrary to what people may tend to assume.

And finally a very under used option, permethrin, which is available typically in like the hunting and outdoor sections of stores, is available. And that can be used to treat equipment as well as clothing. And it's effective through multiple washings, also very effective against other biting arthropods--ticks, fleas, for example.

And it can be a really useful way, especially for people who work outdoors or have, you know, a pair of pants that they use for gardening all the time to enhance protection through something they don't even have to - in action they

don't have to take every time, because it's usually good through five or more washings.

And finally Slide 28 we do have a number of Web-sites that are available, as I mentioned cdc.gov/westnile for updates and statistics and the rest of the links are available on here. And there is a specific information section for guidance and information for clinicians and a section with information on diagnosis and then many of the references that Carolyn addressed earlier can be found in the final slide, if you'd like to look those up.

So I think that's our last slide Alycia.

Alycia Downs: Well thank you so much; that was a very informative presentation. So now we can go ahead and open up the lines for the question and answer session.

Coordinator: Thank you, we will now begin the question and answer session. I'd like to - if you'd like to ask a question, press star one. Please unmute your phone and record your name clearly when prompted.

Your name is required to introduce to your question, to withdraw a question press star two. One moment for the first question.

Question: Yes there's - as you probably know a new 30 minute test for IgM antibodies to West Nile. I was wondering what your thoughts were or I haven't seen any peer review publications concerning the test.

Emily Zielinski-Gutierrez: I think actually that is a very timely question, because we were just discussing, we just had a number of emails back and forth about that last week. And we don't at this point have enough evidence to make a recommendation one way or the other.

So I would probably in the next couple of weeks look for some more information about this on the CDC Web-site. We of course never mention, we never go to the point of recommending specific brands of tests, but it is exciting that there's a rapid test available, because that certainly might increase the diagnostic options. But unfortunately we don't have enough information, as you mentioned there's not much in the peer review to give any helpful recommendations at this point.

Question cont'd: Is this going create any problem with reporting a rapid test like that and then sending it to a state lab or a city health lab where they would do a more sophisticated test. And if there were differences in those two answers, is that going to create any kind of practical problem?

Emily Zielinski-Gutierrez: That means certainly if there are great concerns the sensitivity and specificity of the rapid, it would create a complication, it would be up to each state to determine exactly how they want to handle that and if they're going to require a confirmatory test - if the rapid is used as a basis for diagnosis.

So just given that it's so new online we don't have all the issues sorted out yet. At this point the state health departments are going to have the say on anything that would be turned in with that - with the rapid uses, the basis for diagnosis currently.

But I'm glad you asked that, because we were just having a discussion and this gives me a good basis to take it back to some of our folks and say that we really need to make a decision.

Coordinator: Next call, go ahead.

Question: Good morning. A couple of questions, of course as you know (Con) county is leading the state in terms of number of cases. Two questions, number one, are there any studies that show what motivates people to be able to use any product whatsoever in terms of protection? We think that we're getting a great amount of concern from the public to actually use protectants, mosquito repellants.

Number two, the question is, what - is anybody else using aerial spraying to kill mosquitoes and what's the results from this particular season with the affect of aerial spraying for mosquitoes?

Emily Zielinski-Gutierrez: I can address - this is Emily, I can address your first question, because that's my particular area, so I'm glad you asked it. Though we don't have any formulaic responses, but.

So a few of the factors that - and I can work through Alycia to send you a couple of recent papers that might be at least useful to simulate some thought.

A lot of this really comes to -- well first of all we have had a couple of surveys where we've asked people from their specific regions for non-use of repellent and they break pretty nicely into two categories. One of those is risk perception with people's responses of, "Well I didn't think I was outdoors long enough to have to worry about it, you know, I was just going from my house to the car and I stopped for a few minutes and so of course I didn't put repellent on."

Or, I forgot to use it, wasn't convenient when I needed it - repellent. And the last category for that was, "Just wasn't worried about getting bites." Then the second sort of broad category was more specific complaints people had about repellent products. People saying they dislike the smell or feel of them.

A few complaints about cost, but relatively low, less than 7% of our respondents said that cost was a problem. And that was typically among the lowest, not surprisingly the very lowest income category, which of course could include some of the older, you know, senior adults on fixed income who are of a particular concern.

And the other issue that people brought up, product related, a little bit of confusion about which product to use, but very little.

So, the product related concerns one of the things that can be done is just make sure that people are aware of some of the newer products that are out there. Some of them have less smell and feel problems with them. They really don't have much odor to them, especially even the low concentration DEET products that people are mostly thinking of the, you know, 50 plus percent products, those are a bit unpleasant.

But then, I think more of it really falls into that risk perception category and some of the issues that come into play are whether or not people have... in a study in Fairfax County, Virginia, people who knew of human cases in the area near them and knew of dead birds, which are not necessarily as reported today as they were a couple years ago when we did the study, were more likely to report repellent use because they perceive the proximity of the disease as nearer to them, which completely makes sense. So some of this gets into creative epidemiology; how can you help people understand that there are cases not [just] happening somewhere else in town, not happening to other people, but happening in an area very much like theirs.

And, then also, one of the things that we've been focusing on is helping people find ways of having repellent in convenient locations near to them. The

new public service announcements that CDC did last year focused on keeping it in your gardening bag... keeping it in your, you know, golf bag, so that you don't have, people are not going to stop what they're doing to go in and get repellent. If it's handy, the likelihood of putting it on is higher.

So, if you send Alycia an e-mail she can get that to me and I can forward you PDFs of at least two papers that might be a little bit useful from this past year.

Question cont'd: Well, there's going to be apparently several hundred thousand doses that's going to be made available from pharmaceuticals free of charge to California.

Emily Zielinski-Gutierrez: Oh of the, the DEET products?

Question cont'd: I'm not sure exactly which one it is, but it will, I think it's White's whatever.

Emily Zielinski-Gutierrez: Oh good, yea sure. Yea, as we had talked with some of the repellent folks and one of, I think one of the useful things to do with, when you do manage to get product donations is to, you know, look at segmenting the audience and, you know, targeting some of those to the Senior Citizens, people who might not be especially aware that this more kind of new convenient packaging is available and giving them away at like outdoor events, where you're not just putting the product in people's hands but you're modeling that when and where the appropriate times to use it. So, it's not just, it's using that as a way of social marketing. And of modeling and kind of reinforcing the behaviors that you're trying to get people to engage in.

Question cont'd: Last comment is that we've noticed that from the actually number of cases in particular, age categories that over 50%, by the time you get to 49 years of age, over 50% of the cases are already in the zero to 49 age group. Most we're hearing people respond. I don't think that it's, it's generally my great-

grandmother or my, you know, my great-grandson that has the risk factors, but I don't think people really realize that the 30 to 40, 40 to 50, and 50 to 60 is the largest bulk of the people who actually are getting infected.

Emily Zielinski-Gutierrez: And are those with fever or fever and neuroinvasive cases that you're seeing those?

Question cont'd: Both.

Emily Zielinski-Gutierrez: Okay.

No that's, I think we certainly heard things here during our big outbreak in Colorado a few years ago of, you know, 30-year-olds saying, "oh I'm going to get infected now so I don't have to worry about it when I'm older". And, you know, people are I think often looking for any out that means that they don't need to worry about it right now. And so, the age targeting is especially useful just in making sure that you do outreach to particular populations, but not always making that a huge part of your message for general audiences, and because when you reiterate that the risk is, and as you mentioned a lot of people think that children are at particular risk, and in fact, children are probably at the lowest risk age group, even though their infection rates, based on serosurveys, seem to be pretty high. They actually don't, they don't develop disease as frequently. They can, but it's not as much as older age groups.

So, those are all really good points. And as far as the aerial spraying, we, neither of us here on the phone have, are entomologists, and I know our entomologists are aware of where aerial spraying's been done, but in your same e-mail I can, we can have one of the entomologists follow-up if you have some specific questions.

Question cont'd: Thanks so much.

Coordinator: Go ahead.

Question: Hi, thank you for your presentation. We have a tough question here. We were wondering why West Nile virus has not been able to establish itself, or set hold itself in the Pacific Northwest. We know we have the mosquito species such as, *Culex tarsalis* and *Culex pipiens*, we do have the temperatures here to allow the amplification and, and more full generations of mosquito species here and we also have, where we're positioned, the bird migration from California up into the Pacific Northwest. Do you know why we're seeing so few cases of West Nile and even in the environment?

: We thought it was the big fence you put up.

Question cont'd: That's right, we've got a big zapping fence.

Emily Zielinski-Gutierrez: No, it's an excellent question and, and one of the, I mean one of the reasons that West Nile has been so fascinating not just because of its public health impact but from, you know, more the act of omissions looking at it in terms of disease ecology is because there are these ecosystems where things aren't behaving the way they should, sort of according to the models that have been drawn up so far. As you mentioned, *tarsalis*, *tarsalis* country is usually where you see lots of West Nile activity.

So, I don't have a good answer for you at all and certainly, I mean, the, all the components should be there, so it's, you know that would be a wonderful thing to be able to get, you know, the university partners to look at with us a bit more intently. And I know that there is a lot of curiosity about that having

worked with some of the state health department folks. Every year they gear up and I know they were really, you know, I've visited both the folks in Washington and Oregon for several of the last years getting ready for the season that then just sort of doesn't materialize. So, no good answer I'm afraid.

Question cont'd: Okay, thank you. We're still patiently waiting.

Emily Zielinski-Gutierrez: Well we hope you will be a shining example of lack of West Nile.

Question cont'd: Yea, what is has done is given us time to prepare. Thank you.

Coordinator: You may go ahead.

Question: Hi, I just had a question. We've been having some difficulty finding expirations and shelf life for some of these DEET products. I have contacted some manufacturers and they're willing to give me expiration dates per a specific item. Do you have any input on that?

Emily Zielinski-Gutierrez: I wasn't aware actually, that that had been a problem. We had discussed that with them a while ago because we bought a big chunk of repellent for a project and, and had to make sure that they were on there. We work pretty closely with the DEET Education Program, which is a consortium of all the DEET groups. So I can pass that concern on that the, that the expiration dates have not been printed clearly and ask them to follow up on that, because it's usually several years, so that may be the reason that they're not emphasizing it, because it doesn't go out of date real quickly, but it would be helpful for consumers, I'm sure.

Question cont'd: Yea, and in addition to providing them as samples, which is one of the reasons that this was, this concern was, you know, was prompted by. We were wanting to just kind of let residents know if there was a concern about shelf life or maintaining a proper storage and temperature and things of that sort, but I've been having trouble finding some labeling on that, on the products.

Emily Zielinski-Gutierrez: I don't think expiration is a, I don't think expiration is a really big problem with it, because usually the ones that I've seen have at least a three-year time frame on them, but I will ask why they are not labeling those more clearly and if you send Alycia an e-mail we'll make sure I can get back to you and find out if we learn anything about that. [Note—we subsequently learned that the DEET products are expected to be stable for about 5 years. EZG]

Question cont'd: The one specifically that I am finding expiration dates are the ones, are the products that contain sunscreen SPF, those do come with a specific expiration date.

Emily Zielinski-Gutierrez: Sure, and the sunscreen products are a challenge because their, I know there's been some debate at EPA as to whether they will continue registering those and officially CDC doesn't recommend combined products only because the application, the instructions for application tend to differ in that you use sunscreen liberally and you use insect repellent sparingly. Plus the hours of application tends to differ in that, as the sun's going down, the mosquitoes are coming out. But it, you know, but certainly if they pass the registration with EPA, then they've had to provide reams of toxicity and effectiveness data. So, it's, it's a difficult point and it's certainly easier for consumers to have one product.

Question cont'd: Okay great, thank you.

Coordinator: Next call, go ahead.

Question: Hi, actually Dr. Brown had to step out for just a moment but we had one question regarding the, regarding testing. You had mentioned that testing for West Nile virus is also available for many commercial labs and we just wanted to know if you could comment on how, what CDC thinks about the reliability of some of the tests that are being done in outside private commercial labs.

Emily Zielinski-Gutierrez: I know a lot of the, and we were just looking actually to see if either of us knew any of the specific like brand tests or specific labs. I know a lot of the validation has been done here; we've done proficiency testing here at the CDC labs with several of those that are currently on the market, and are available commercially. So, and unfortunately neither of us are in a position to talk about which specific ones have the best profile.

So again, we can follow up with you and give some feedback. I know that there's been a lot of proficiency testing done, especially when those first came on line and when some of them were reformulated and so the, but still the, the decision about whether or not to accept the results from those is confirmatory. It does rest with each of the state health departments. But please send us a follow-up e-mail and we'll, and we'll get the details for you on that.

Question cont'd: Thank you very much.

Coordinator: Next question, go ahead.

Question: Yes, hello. I was curious in any of the serology studies that have been done, to what extent if any, do you think that herd immunity is playing a role in the human disease incidence?

Emily Zielinski-Gutierrez: Well, it's an interesting question and you can actually do the statistics at, you know, in a very rough way. Pretty easily on your own for say your specific county or your state and so, basically you take the number of neuroinvasive cases and multiply that by say 140, and that's going to give you the number of people who have long-lasting if not lifelong immunity. So, while it certainly is a many fold larger number than the number of cases that are reported, it still ends up being in most areas less than 5%, looking at, you know sub sequential seasons of the population. So, it's probably higher in some of those rural counties like when we looked at on the incidence map. I am curious about the role that herd immunity could start playing in like the Dakotas and Nebraska, but not having done the statistics.

But it still, so even if you've got 5% of the population that's immune, it leaves an awful lot of people at risk, so it's probably not explaining the lack of any, or the lack of activity in the east for example.

Question cont'd: Thank you.

Coordinator: I show no further questions in the Que.

Alycia Downs: Well I want to thank Dr. Zielinski-Gutierrez and Dr. Reimann again for providing our listeners with this information. And I also want to thank our listeners for joining us today. So in the case that you didn't get to ask a question or one comes to you later or for those of you who need follow-up, please send an e-mail to coca@cdc.gov that is c-o-c-a@cdc.gov and we will connect with Emily and Carolyn and try to work on getting you the information that you requested.

So the recording of this call and the transcript will be posted to the COCA Web site as they come to us, so please stay tuned for those, as well as our next COCA conference call which will September 5th on rabies.

So, thanks again to our presenters for a wonderful COCA conference call today. So thank you again, and goodbye.

Coordinator: Thank you, your call has concluded, you may disconnect.

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