Tuesday, July 23, 2024 / Dengue’s biggest year ever

[HALF SECOND OF SILENCE]

[BILLBOARD]

SCORING <Mosquito Muzak>

DR. GABRIELA PAZ-BAILEY (Chief of Dengue Branch, CDC): Dengue is known as break-bone fever because people who have dengue can feel intense pain like if their bones are breaking.

SCORING BUMP

DR. PAZ-BAILEY: But people also feel nausea and vomiting, rash, aches and pains and the symptoms typically last 2 to 7 days. Most people will recover after about one week. And there are some signs and symptoms that suggest that a person may be developing severe disease.

SCORING BUMP

DR. PAZ-BAILEY: They are severe abdominal pain, repeated vomiting, bleeding from the nose or the gums, vomiting blood or blood in the stool and feeling irritable. Dengue can be severe and can be fatal if it’s not treated appropriately.

SEAN: Dengue’s having its biggest year in history and we’re gonna find out what we can do about it on *Today, Explained*.

[THEME]

SEAN: *Today, Explained*. Sean Rameswaram Here with Dr. Gabriela Paz-Bailey. Chief of the Dengue Branch at the Division of Vector Borne Diseases at Centers for Disease Control and Prevention.

PAZ-BAILEY: Yeah. We're very lucky to be based in San Juan, Puerto Rico.

SEAN: Cool. Why lucky? Because it's, like, tropical and fun?

PAZ-BAILEY: Yes. And we have the Caribbean ocean 15 minutes away.

SEAN: <laughs> But you're not just based there by choice. It's for professional reasons. Is that what you're saying?

PAZ-BAILEY: Yes. I mean, dengue is common in Puerto Rico. So, we're based here. We work very closely with the local health department and with the mosquito vector control unit. So we can conduct research and surveillance here, but also support the global dengue work.

SEAN: Tell me what kind of year dengue is having.

PAZ-BAILEY: Yes, this, this has been a very big year for dengue.

SCORING <Inspiration Whispers (d)>

PAZ-BAILEY: 2023 was the record year in the Americas.

*<CLIP> DEMOCRACY NOW: Rates of infection have gone up eightfold since the year 2000. Climate change is to blame… <fade down>*

PAZ-BAILEY: 4.5 million cases were reported. But in the six months of 2024, already more than 10 million cases have been reported in the Americas.

SEAN: Double!

PAZ-BAILEY: Double in the six months of what was reported for the entire year in 2023.

*<CLIP> FRANCE24: Just days ahead of Carnivale, with millions of tourists expected, Brazil is on high alert amid a surge in cases of dengue fever…*

PAZ-BAILEY: Brazil is responsible for most of the cases in the Americas. Eight of the 10 million have been reported from Brazil…

*<CLIP> FRANCE24, REPORTER: With Brazilian health services already under strain, field hospitals have sprung up in the capital and in other cities across the country //   
PATIENT: <translation> I have been feeling this pain for four days // I can’t even raise my head because I feel like I’m going to faint…*

PAZ-BAILEY: There have been outbreaks reported in many, many other countries.

*<CLIP> DEMOCRACY NOW: Bangladesh is well used to dengue fever – but this year is something else.*

*<CLIP> AL JAZEERA: This year’s rainy season has seen a record number of cases here in Nepal…*

PAZ-BAILEY: The same is happening in parts of Africa where outbreaks are being reported. There were 23 countries with outbreaks last year and 13 countries have reported transmission this year, and also in Asia and in other parts of the world. The interesting thing is that it's also occurring in areas where we didn't see dengue before. Like, for example, France has reported locally-acquired cases, Italy and parts of Spain.

SCORING OUT

SEAN: France!

PAZ-BAILEY: Mhmm. That’s right.

SEAN: They're about to have the Olympics.

PAZ-BAILEY: <laughs> Yes.

*<CLIP> OLYMPICS THEME, RECORD SCRATCH*

SEAN: <laughs> Sorry. Okay. So dengue is the worst it's ever been in recorded history. That's what you're telling us.

PAZ-BAILEY: Yes. This year – 2024 – has surpassed all previous records in terms of numbers of cases.

SEAN: And we're seeing it in places we've never seen it before.

PAZ-BAILEY: Yes.

SEAN: How is this happening? Why is this happening?

PAZ-BAILEY: <laughs> That is a very good question, Sean, and there are several reasons for this.

SCORING <Medical Technology>

PAZ-BAILEY: One of them is the changes in climate. Dengue is a mosquito-borne virus. So it has been a warm and wet year. So there are a lot of mosquitoes around. And mosquitoes are also thriving in more places thanks to climate change. The increases in temperature and in rainfall create ideal conditions for mosquitoes.

SMALL SCORING BUMP

PAZ-BAILEY: The second reason is that dengue dengue is cyclical. There are large dengue outbreaks every couple of years, and part of the reason for this is that dengue is caused by any of the four different – but closely related – dengue viruses: dengue one, dengue two, dengue three, and dengue four. And people who get one type of dengue are protected for a couple of years. But they are susceptible to getting another type.

SCORING BUMP

PAZ-BAILEY: The third reason is travel. People are traveling more. During the time of the Covid pandemic, there was less travel and mobility of people, and that limited the movement of the virus as well. But humans help the virus move around.

SCORING BUMP

PAZ-BAILEY: And finally, mosquitoes are incredibly persistent and will lay their eggs in any place where there is standing water. So this could be in the vent pipes of septic tanks, in water meters, in old tires, in broken flower pots… basically anywhere where water collects.

SCORING OUT

SEAN: So how much of a problem has this been in a country like Brazil, let's say, where, where they've had the most cases of dengue this year, in this record-breaking year? Is it disrupting daily life?

PAZ-BAILEY: They have had a record outbreak with more than 8 million cases reported. Brazil is very good at clinical management. They do regular trainings for clinicians, and clinicians are very familiar with treating the disease. So they have been very successful at keeping fatal cases very low.

*<CLIP> FRANCE 24: <translation> Our goal is to greatly reduce the number of hospitalized patients and have zero deaths from dengue fever.*

PAZ-BAILEY: And they are also using different strategies. They have implemented vaccination with the recently recommended Takeda vaccine from W.H.O. And they're also using novel strategies to control the mosquito.

*<CLIP> DW: Early morning is the best time to release mosquitos. The ones in these cylinders have been bred in the laboratory and infected with a certain kind of bacteria, Wolbachia, that makes them incapable of transmitting diseases like dengue fever… <fade>*

PAZ-BAILEY: So they're really hitting the mosquito with, with everything they can.

SEAN: You mentioned vaccines, sorry – is there a dengue vaccine or are they using other vaccines to treat dengue?

PAZ-BAILEY: There are dengue vaccines that have been approved in the United States. There is only one dengue vaccine approved is called Dengvaxia….

SEAN: Envaxia, like N, like, like, like Nile?

PAZ-BAILEY: Dengvaxia, like dengue.

SEAN: Oh, that makes sense, like…. <laughs>

PAZ-BAILEY: Yes. <laughs> So, so, Sean, the Dengvaxia vaccine is recommended for children ages 9 to 16 who have had dengue before. So that vaccine is only recommended for people who live in areas where dengue is common. So it's being used now in Puerto Rico. There is another dengue vaccine developed by Takeda. Its name is Qdenga and that is the vaccine that is currently being used in Brazil and in other countries like Argentina and Indonesia.

SEAN: Hm. It sounds like people in Brazil might be used to dengue by now, but what about all these places that dengue is traveling to? You mentioned Western Europe. I mean, has it landed in the United States yet?

PAZ-BAILEY: Yes. There have been dengue cases in the continental United States.

SCORING <Skeeters>

PAZ-BAILEY: They have been reported from Texas...

*<CLIP> KETK: It’s that time of year: mosquitos are swarming East Texas!*

PAZ-BAILEY: Florida has locally acquired cases every year, Hawaii has had dengue outbreaks

*<CLIP> KHON2: The dengue fever outbreak on the Big Island started back in September, and it isn’t over yet. Six more cases since yesterday…*

PAZ-BAILEY: And more recently, new states like Arizona. In 2022, they had two locally acquired cases. And California in 2023 also reported two locally acquired cases. And the issue is that, with the increases in travel over the summer, there will be more people that acquired dengue when traveling to areas where there are dengue outbreaks occurring. And then when they come back to their homes, they can be bitten by a local mosquito that will acquire the disease, and that can start small chains of transmission…

SEAN: Hm!

PAZ-BAILEY: …in the places in the US where the tiger mosquitoes are common.

SCORING BUMP

PAZ-BAILEY: Already in the first six months of 2024, we have seen double the number of travel-associated cases that we saw for the same period last year. In the case of Puerto Rico, a public health emergency has been declared because of the dengue outbreak. Usually the first part of the year is low season, but we have been seeing an increase in the number of cases that continues to increase. So I cannot tell you how large the outbreak is going to be, but we do expect for the cases to continue increasing over the summer.

SCORING OUT

SEAN: So how worried should we be in places where dengue isn't, you know, the norm?

PAZ-BAILEY: Yeah, I think it's important for people to know that dengue is becoming more common for all of us to talk more about dengue and for clinicians to think about dengue when they have a patient with fever who has traveled to an area where dengue is common, and to test for dengue with the appropriate tests, and then for people to take steps to protect themselves against the virus when they're traveling. And what they can do is to wear insect repellents, to wear long sleeves and long pants, and, if possible, to stay in areas with air conditioning and with screens.

SEAN: Okay. I hear you on the protection, but you're also saying wear long sleeves and long pants in hot places that also might not even have air conditioning.

PAZ-BAILEY: <laughs> Yes. I think that ideally we will have a vaccine that is available for more age groups than the one that we currently have. But in the meantime, we need to use the methods that we have available to protect ourselves that include using long sleeves and pants even if the weather is hot, and wearing repellent if you can.

SEAN: Okay, I'm going to leave it there, but it's so hot in DC I cannot imagine wearing pants right now.

PAZ-BAILEY: <laughs> So you're wearing shorts.

SEAN: I am wearing shorts. You can't see them, but I’m wearing shorts. They're very short. <laughs> <laughs some more>

SCORING <Shtomper>

SEAN: That was Dr. Gabriela Paz-Bailey in Puerto Rico, where she works for the CDC. That thing she said about France had us wondering if dengue could be an issue at the Olympics. Turns out we’re not the only ones wondering. We’re off to Paris when we’re back on *Today, Explained*.

**[BREAK]**

**[BUMPER]**

SEAN: Some people are really into mosquito-borne diseases.

MARIANNE COMPARET (ISNTD Director): Brilliant, it's my favorite topic, so I'm happy.

SEAN: Like this person:

MARIANNE: My name is Marianne Comperet and I'm the Director at the International Society for Neglected Tropical Diseases based in the UK.

SEAN: Neglected tropical diseases. It sounds so sad and yet important.

MARIANNE: Absolutely. So There's about 20-plus diseases on this list. And you might actually be surprised to know that despite being neglected, they actually affect over 1.6 billion people worldwide. So I just always like to start by saying that neglected does not mean rare. And these are actually extremely prevalent diseases that affect a lot of people in already quite challenging contexts.

SEAN: And why are there some diseases that don't get as much love than others?

MARIANNE: You might just say that it comes down to market forces.   
  
SEAN: Mmmmm.  
  
MARIANNE: I think the populations that are at risk don't necessarily represent a viable commercial base. Also, there are often communities with very little political voice.

SEAN: Sad. So basically brown people. :(

MARIANNE: A kind of spectrum, in our very globalized world, these issues really know no borders and we're really kind of starting to see that.

SEAN: Okay, so economic factors, market factors affect which diseases are neglected and which ones get lots of attention. But one thing that gets lots of attention, Marianne, is the Olympics.   
  
MARIANNE: <chortles>   
  
SEAN: And I've heard a nasty rumor that there could be dengue at these Paris games. Is it true?

MARIANNE: I'm afraid that yes, it's probably on balance going to be true. Unfortunately the Olympics being really a huge event bringing over 15 million people in one place could certainly represent a hot spot for dengue.

*SFX: OLYMPICS THEME + MOSQUITO, INTO…*

SCORING <Mosquito Boogie>

MARIANNE: So particularly with regards to the Olympics in Paris and in France: France has been keeping a very close eye on dengue.

*<CLIP> EUROPE 1: première à Paris une opération de demoustication…*

*TEX PRODUCER VICTORIA CHAMBERLIN VO: For the first time in Paris, a mosquito control operation…*

MARIANNE: At the end of 2023, for example, there was a case of dengue reported in someone who had never traveled abroad…

*<CLIP> EUROPE 1: un insecticide pulvérisé sur tous les espaces verts tout autour d'un immeuble là où réside un malade de la dengue …*

*TEX PRODUCER HADY MAWAJDEH VO: An insecticide, sprayed on all the green spaces, all around a building where a dengue patient lives….*

MARIANNE: …and against the backdrop of increasing presence the right kind of mosquito increasing numbers of cases across the whole French territory.

*<CLIP> RTL: Diagnostiquer la dengue…*

*<CLIP> POLYNÉSIE LA 1ÈRE: l'importation de la dengue…*

*<CLIP>TELE MATIN:* *L’épidémie de dengue…*

MARIANNE: Of course, this has, combined with the Olympics, put this very high up on the radar of the organizing authorities.

*<CLIP> CLIP FRANCE 24: The viral infection doesn't spread from human to human but through tiger mosquitoes capable of carrying the virus*

*FRENCH PERSON: If I get bitten and then my neighbors get bitten they'll get infected*

*FRENCH PERSON: Then there's a risk of transmission and an epidemic…*

SEAN: And in the 11th hour, I have to ask here, I say dengue, you say dengue. Is it like tomato, tomato?

Marianne: Yeah.

SEAN: Beautiful.

SCORING OUT

SEAN: Do we know how dengue got to Paris in the first place?

MARIANNE: So it's probably been following a trend that's sort of resonating around the world. With a changing climate and increases in average temperatures worldwide, these mosquitoes have found very comfortable homes in new areas. It's not just France that has the Aedes mosquito, which is the one that can spread dengue. It's also a lot of neighboring countries, whether that be Spain and Belgium, even Switzerland. Um, so really, this isn't specifically a French problem. It is an international problem.

*<CLIP> NEWSREEL: The tropical species also taking hold in 13 other European countries. As the climate warms, scientists say that many places are becoming more hospitable to mosquitoes.*

SFX: *BZZ* \*STEREO PAN\* // *SWAT*

SEAN: There's gonna be a huge influx of people in Paris. Does that mean that there's any greater risk of this disease spreading?

MARIANNE: That's an excellent question. And in a way, you kind of have to imagine it as a scale. So, on one side, there are the factors that are making this worse. And on the other side, there are the factors that are mitigating the risk.

SCORING <Skeeters>

MARIANNE: So let's say on the hazards, yes, there are upwards of 15 million people expected. So: people coming from all around the world now simultaneously. Dengue fever in the rest of the world has just taken on a completely disproportionate level this year.

SCORING BUMP

MARIANNE: On the plus side, however, as we were discussing, the French authorities have been really keeping an eye on this. They have been monitoring the mosquito. They have been trying to get rid of all the breeding grounds. They're really monitoring that very closely.

*<CLIP> FRANCE24: It’s a vacuum for insects. When a mosquito lands on me or on the vegetation, we try to catch it. We can then identify the species*

MARIANNE: They also have a very impressive system put in place over the last 2 years really to make sure that any public health risk is contained and mitigated.

*<CLIP> INSTITUT PASTEUR: Qui est plus important c'est essayer d'éliminer les lieux de vie des moustiques c'est-à-dire en fait des bacs des seaux des gouttières bouché ou encore des vases à fleurs*

*TEX ENGINEER ANDREA KRISTINSDOTTIR: What is most important is trying to eliminate the living places of mosquitoes, that is to say bins, buckets, clogged gutters or even flower vases*

SCORING OUT

MARIANNE: Whether or not that means that a dengue outbreak will happen, won't happen – only time will tell. I think we can only find out as and when the Olympics unravel, but certainly everything is in place to make sure that should it happen, the response is already there. You know, down to little things like Olympics taking place in July and August which are traditionally months when a lot of French people might take their summer holidays for extended periods.

*SFX: SEAGULLS, WAVES CRASHING*

*FRENCH MAN (TEX PRODUCER PETER BALONON-ROSEN): AHHH, la plage…*

MARIANNE: They've looked at reporting systems to make sure that 999 calls are kind of consolidated in one place.

*<CLIP> CHARLI XCX, “365”: 999 it’s a good time*

MARIANNE: I feel quite confident – actually, just recently I managed to get a few tickets for the Olympics so I can tell you firsthand –

SEAN: You're going!

MARIANNE: I'm going! I couldn't believe it.

SEAN: That's exciting. Which, which sporting event will you be attending?

MARIANNE: Um, athletics.

SEAN: Okay, is that indoors or outdoors?

MARIANNE: It's open air, yes. And we’ll be the really tiny dot right at the top, right on the last row, but we will be there.

SEAN: Are you taking precautions to make sure you don't get bit? Will you be on the prowl for mosquitoes?

MARIANNE: I will not be able to look at this event without my dengue lens on.

SEAN: Uh-huh.

MARIANNE: I would make sure I wear insect repellent, just in case, and just take normal precautions, which I think we all might do if we're in a big crowd anyway.

SEAN: Do you think dengue being on this global stage at the Olympics will do some good in terms of the thing we opened up talking about, this neglected designation that it has?

MARIANNE: So, I've been reflecting on that a lot and I have to say: when it comes to these diseases, every little bit helps. And it's certainly been very important to have something like dengue fever feature in headlines, whatever the route to get there. We have to remember that in 1970, dengue was in nine countries. And somehow over the next 50 years, it kind of surreptitiously has popped up in 120. And now it's a disease that has been escalated by W.H.O.’s emergency department, for example, to its highest risk level. Um, and yet, lots of people might still be surprised to hear that it exists, that it exists outside of tropical regions, and that it's actually the fastest-growing mosquito-borne disease in the world. And we don't know necessarily where it might go next. And therefore having it somewhere like the Olympics is – in terms of advocacy, certainly a positive thing – as long as the authorities, of course, have put everything they can in place to mitigate any risks, which I feel has been done.

SCORING <Gon(e)athan>

MARIANNE: Whilst it's really great that people are taking it seriously now, I think it's a shame that it took so long because outbreaks have occurred in places where they hadn't occurred previously and whilst the fatality rate is quite small compared to other diseases, that still means a lot of unnecessary deaths. Even without the fatalities, it causes quite a huge burden on families and people affected in terms of their productivity, their ability to earn. And the big lesson here is really that time wasted with diseases of epidemic or pandemic potential translates into a huge amount of avoidable suffering in communities. And so I think that's the slight regret that I have when it takes this long for a disease to come to the forefront. But hopefully we've learned to not do that anymore. The pandemic, the COVID-19 pandemic's really opened our global ears to all these issues. Uh, so I am hopeful for the future.

SCORING OUT

SEAN: Have a great time at the Olympics. Be safe.

Marianne: Yeah, I hope so. It'll be a once in a lifetime experience, as they say.

SCORING <OLYMPICS JAM>

*SFX: MOSQUITO BUZZ AND SLAP*

SEAN: Marianne Comparet is Director at the International Society for Neglected Tropical Diseases. But she’s trying to change the “neglected” part.   
  
So is Amanda Lewellyn. She produced the show today with help from Peter Balonon-Rosen.  
  
We were edited by Mosquito Matthew Collette, fact checked by Amina Al-Sadi and Laura Bullard, and mixed by Patrick Boyd and Andrea Kristinsdottir.  
  
On Friday we’re gonna talk about breaking’s Olympics debut on *Today, Explained*.

**[10 SECONDS OF SILENCE]**