

## **Sawbones 122: Zika Virus**

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### **Intro (Clint McElroy):**

Sawbones is a show about medical history, and nothing the hosts say should be taken as medical advice or opinion. It's for fun. Can't you just have fun for an hour and not try to diagnose your mystery boil? We think you've earned it. Just sit back, relax, and enjoy a moment of distraction from that weird growth. You're worth it.

[theme music plays]

### **Justin:**

Hello everybody and welcome to Sawbones, a marital tour of misguided medicine. I'm your co-host, Justin McElroy.

### **Sydnee:**

And I'm Sydnee McElroy.

### **Justin:**

Welcome to the show, Sydnee.

### **Sydnee:**

[laughs] Thank you, Justin. Welcome, to you too. Welcome to you, at home.

### **Justin:**

Welcome to all of you. This is weird.

### **Sydnee:**

This is a very special, uh...

### **Justin:**

It's a very special because—

### **Sydnee:**

...episode of Sawbones.

**Justin:**

Because we have a new set-up for our microphones.

**Sydnee:**

[laughs]

**Justin:**

And we're looking at each other. And that's new. Usually we kind of like giving each other the side-eye.

**Sydnee:**

The— This might be the first time Justin's ever looked at me.

**Justin:**

[laughs] And, you know what? You're as beautiful as I imagined.

**Sydnee:**

[laughs]

**Justin:**

If not, more so.

**Sydnee:**

We are, we usually face the world, like, same direction, facing— You know?

**Justin:**

That's the only way to see all the threats.

**Sydnee:**

Not just [laughs] staring at each other.

**Justin:**

No way, yeah.

**Sydnee:**

Like, lost in love and romance.

**Justin:**

Um, so it's kind of, like, a different Sawbones this week, Syd.

**Sydnee:**

It is! It is a, uh, for our new mic set-up, [laughing] we decided to try something a little— It's not really different. We've done shows, sort of, that are a little more, um, I don't want to say serious? Uh, although it is serious.

Uh, this show, in particular, doesn't delve quite as much into, like, ancient history and, uh, the stupid stuff we did in the medieval times and that kind of stuff. Like a traditional Sawbones episode does. Because, a lot of people have asked us to talk about Zika virus.

**Justin:**

Right. And, usually, we um, these are not the first ones we've jumped onto, for a variety of reasons. For one, uh, there's not usually a lot of, like, prior knowledge. We like the ones where it's all fixed, because that makes us look smart.

**Sydnee:**

Exactly. We— Like, ones that there's a long history of people, like, I don't know what you have, but I should probably put a leech on you!

**Justin:**

Right.

**Sydnee:**

Or hey, I made this thing out of toxic substances and leaves! Why don't you paste your whole body in it and then run out naked in a full moon? Those are much more entertaining. and the thing about viruses, specifically like Zika, is that they were discovered a little more recently?

**Justin:**

Mm-hmm.

**Sydnee:**

And, uh, I mean not— Recently in the grand scheme of things, pretty recently. And, there's not a whole lot of crazy stuff we ever did in the past for us to laugh about.

**Justin:**

Yeah.

**Sydnee:**

So it's a little harder to make funny.

**Justin:**

But we are— So we're not gonna try to make Zika virus funny, because...

**Sydnee:**

We're not.

**Justin:**

That doesn't make any sense. We're just gonna try to...

**Sydnee:**

Tell you about it.

**Justin:**

Tell you about it! Do our best.

**Sydnee:**

Um, and I want to— Since Zika virus is a fairly narrow topic, we'll talk a little bit about mosquitoes first.

**Justin:**

Mm-hmm.

**Sydnee:**

Um, because...

**Justin:**

They're the pits. Right?

**Sydnee:**

Yeah, they are the pits.

**Justin:**

They're the worst!

**Sydnee:**

Um, I saw in one article as I was reading about this, them described as flying hypodermic needles?

**Justin:**

Sure.

**Sydnee:**

Which is pretty, pretty fair.

**Justin:**

Yeah.

**Sydnee:**

Uh, they're terrible, and I hate them. And so I thought we'd start by talking about mosquitoes, and maybe some related viruses. And then I'll give you the scoop, as far as I can tell, from this doctor's perspective, on Zika.

So thank you to everyone who recommended this topic, specifically Tamra, Shawn, Daniel, Marguerite, uh Persephone, Andrea, Carly and her high school students who are eager to learn about Zika, and Gloria. Thank you guys so much, and everybody else. I know a lot of other people tweeted and said hey, what's up with Zika?

**Justin:**

All right Sydnee, it would really "bug" me if we didn't talk about mosquitoes first, so let's do it.

**Sydnee:**

That was the one and only joke you will hear in this podcast. It's a pun!

**Justin:**

I— You— Well, it's—

**Sydnee:**

About insects.

**Justin:**

It is the only joke you'll hear. I plan on repeating it, multiple times.

**Sydnee:**

Oh, excel— Well, good. So, everybody at home, just turn it off, now.

[laughs]

So mosquitoes have been around for at least four million years, as far as we know. Um, and they've probably been causing disease for a good bit of that time. Although we didn't know it until much more recently.

Um, they've definitely been drinking blood for that long, so. They've had the potential to cause disease for that long. Uh, we really have, like, Justin, you're gonna get so excited. You know, we've really found mosquitoes in amber, like trapped in amber from the Jurassic period.

**Justin:**

It's...

**Sydnee:**

And, and like they've had blood meal still inside their little mosquito bodies. Like that's—

**Justin:**

So close!

**Sydnee:**

That's true, that we've found that

**Justin:**

Yet so far away...

**Sydnee:**

[laughs]

**Justin:**

It's torturous to know that there's dino DNA! Just like...

**Sydnee:**

[laughs]

**Justin:**

...lying around out there and we can't do a thing with it. Not that we should! Life finds a way!

**Sydnee:**

I don't know that— I mean maybe, that we can't do— That is not my area of expertise.

**Justin:**

You should be a little less concerned with whether or not you can, and be a little more concerned with whether or not you should.

**Sydnee:**

You know how excited I get when you quote Jeff Goldblum at me.

**Justin:**

Okay.

**Sydnee:**

That's just gonna be my whole night now.

**Justin:**

Wait 'til I get switched to Earth Girls Are Easy, I got a lot of those.

**Sydnee:**

Especially when you're looking me right in the eye.

**Justin:**

Yeah.

**Sydnee:**

Just don't start quoting The Fly or else I'm done for. [laughs]

**Justin:**

Yeah.

**Sydnee:**

Just make all those gooshy noises that he makes at the end.

**Justin:**

I haven't seen The Fly, I don't think.

**Sydnee:**

What?

**Justin:**

Now I know that he makes gooshy noises at the end, so spoiler alert.

**Sydnee:**

So it's ruined.

**Justin:**

Yeah. That really, you know what Syd?

**Sydnee:**

[laughing]

**Justin:**

That really "bugs" me, that you ruined that movie for me. The Fly. Really—

**Sydnee:**

Number two. Number two, for those—[laughing] For the drinking game that goes along with this episode, there's number two.

**Justin:**



Yeah.

**Sydnee:**

Uh, throughout human history, you may know this. Justin, I don't know if you would, I don't know if you would...

**Justin:**

Cool.

**Sydnee:**

...know this.

**Justin:**

It's a nice sentiment, thank you.

**Sydnee:**

Well, I mean, you know.

**Justin:**

[laughs]

**Sydnee:**

This is one of those fun facts that, like, I guess that I would, like, bring out at a party? And then everybody else at the party would look at me, like, is that your idea of a conversation starter? Um, more people have died from mosquito-borne illnesses than any other single cause, in the history of humanity.

**Justin:**

That does not surprise me, they do a lot of really wack crap.

**Sydnee:**

That's true, that's true. But I think, I mean more than like, war or famine, or...

**Justin:**

It's wild.

**Sydnee:**

More than any other single disease.

**Justin:**

It is wild, yeah.

**Sydnee:**

Yeah. Uh, they still cause about a million deaths a year, around half of those are still from malaria, although they— The stats get better and better every year from that. Which is very promising. It's funny because, as you're looking for those kinds of numbers, it's really important that you see, you know, for a lot of things. Like if it's 2013 or 2014 or 2015, the numbers aren't that different?

**Justin:**

Mm-hmm.

**Sydnee:**

For diseases. But, it's, it's nice to see something— And we've done a whole show on malaria, so I'm not going to talk about it again. But, like, it's nice to see the numbers from malaria drop each year.

**Justin:**

Mm-hmm.

**Sydnee:**

That the deaths from malaria. So, like, we're doing better. We are fighting back. Um, there are about 3,000 species of mosquitoes. Not all carry disease, of course. Um, most uh, and this is important for a lot of the disease processes and why certain diseases exist in some places in the world, and not in others. Uh, the way that mosquitoes lay their eggs, for the most part. Not all, but most. They lay them in rafts. Did you know that? Like on water?

**Justin:**

No!

**Sydnee:**

They have like a raft of eggs.

**Justin:**

Oh, cool.

**Sydnee:**

Like—

**Justin:**

That's what the movie Without A Paddle was about, right? It was about Dax Shepard and, his cats—

**Sydnee:**

[laughing]

**Justin:**

Just like cruising down a lake on a mosquito egg raft?

**Sydnee:**

On a mosquito— Yes, I think!

**Justin:**

Without A Paddle?

**Sydnee:**

Until— And there's a time limit, cause you know, at some point they're gonna hatch.

**Justin:**

Mm-hmm.

**Sydnee:**

And then you're just in the water.

**Justin:**

And they were shrunk down, I think, by Wayne Szalinski's ray from Honey, I Shrunk the Kids? That's another part in the movie, in Without A Paddle 2: My Sequel to Without A Paddle.

**Sydnee:**

[laughs] And then it's also like the movie Speed, where, like, you have to go— You have to keep it a certain coolness. Once it's warmer, the eggs will hatch?

**Justin:**

Mm-hmm— Maybe? I don't know.

**Sydnee:**

This is a great movie we've created.

**Justin:**

I don't know how mosquito eggs work, but I'm into it.

**Sydnee:**

Nah, I don't think they work that way. But it would be cool if they did! Uh, so, they're about 1 to 400 eggs in these rafts, and it has to be on, like, still water.

**Justin:**

Right.

**Sydnee:**

So it actually wouldn't work on, like, a river. You need more like a pond or a lake or like a bucket of water. The traditional is, like, what we think of, places where there are like, pools of standing water. You know?

**Justin:**

If I see one of these, should I just ruin it? I should like ruin it, right?

**Sydnee:**

Hey, you know? I'm not gonna say no. [laughs]

**Justin:**

Yeah. I mean, they seem like...

**Sydnee:**

There's lots of mosquitoes! I don't think you're gonna endanger them.

**Justin:**

That's true, they're running around.

**Sydnee:**

Um, in— That way, it would gross me out, so I personally wouldn't. Uh, in the same place where the eggs are, the raft of eggs, they will hatch into larvae and then pupa stages, and then eventually the adults will pop out. And they'll kind of hang out on the water? Um, until they're strong enough to take off and start annoying all of us. Right?

**Justin:**

Mm-hmm.

**Sydnee:**

Um, here's just one interesting mosquito fact for you that I stumbled across, that is horrifying. Do you know that they used to execute people by mosquito in Alaska?

**Justin:**

What?

**Sydnee:**

So, in places where there's cold weather— Uh, mosquitoes like warmer weather.

**Justin:**

Sure.

**Sydnee:**

So in places where there's colder weather, they have— They've adapted their life cycles to be very uh, short, during the warmest, you know, period, in that climate. And—

**Justin:**

Really carpe-ing the diem.

**Sydnee:**

Exactly! So, they're very short. The life cycle of the mosquito in uh in Alaska and a lot of colder places is very short, but it's extremely intense. So in that tiny period of time where there are lots of mosquitoes, there's lots of mosquitoes. And so, one way that they would, that I read, that they could execute people, is to put them in a canoe naked, and then just send them down the Yukon.

**Justin:**

Ugh.

**Sydnee:**

And, you would die of one of two ways: uh, you would either, obviously, get bitten by so many mosquitoes that you bleed to death, you exsanguinate essentially, you're just- you know, anemic and then you die. Or, you would suffocate on mosquitoes!

**Justin:**

Wow.

**Sydnee:**

Cause they're so thick in the air!

**Justin:**

That's a rough run.

**Sydnee:**

That's awful!

**Justin:**

That's really bad.

**Sydnee:**

That's a lot of mosquitoes!

**Justin:**

That's so laborious, too. Like, what— They—

**Sydnee:**

Ugh.

**Justin:**

Ugh.

**Sydnee:**

So don't do something bad in Alaska!

**Justin:**

But like, can you— But, like, flip side: if this is a podcast hosted by mosquitoes, they would be telling a story where, like, I never believed it would happen to me.

**Sydnee:**

[laughs]

**Justin:**

They put a human being in a raft, and just floated him, and he's just there for everybody to enjoy! It was the best day of our life, and I was so glad I took my— You know, I almost stayed home that day. I did! I almost stayed home. I was like, I'm just gonna watch Doctor Phil and chill out here, and I would've missed it. And that— Still, I get shudders to this day thinking about that. I could have missed it!

**Sydnee:**

And that was the first mosquito Thanksgiving.

**Justin:**

[laughing]

**Sydnee:**

[laughs] It really puts it in perspective now, doesn't it?

**Justin:**

Really, really puts it in perspective.

**Sydnee:**

Doesn't it? All you turkey eaters. Uh, we are too, I'm not judging anybody.

**Justin:**

Really into turkey.

**Sydnee:**

Sorry.

**Justin:**

Anyway.

**Sydnee:**

Anyway! So how did we figure out that these little flying hypodermic needles cause disease? Uh, if you needed another reason to dislike them. So, the first thing that we, that we kind of figured out and then everything followed from there, was malaria.

Uh, the reason being, and again, we've done a whole episode on malaria, so I'm not gonna talk about it a lot. But, it was the biggest problem. So a lot of people were trying to figure out, you know, where does malaria come from? How do people get it? You know, malaria they used to think was from bad air, mal-air-ia.

**Justin:**

Right.

**Sydnee:**

Get it?

**Justin:**

Yeah, I'm with you.

**Sydnee:**



Anyway, in the 1890's a British scientist named Ronald Ross was able to prove his theory that mosquitoes carried malaria, uh, by finding the malaria parasite inside of a mosquito. Um, they'd already seen some parasites in ticks, so that's where they got this idea, like, well, if ticks can carry things, maybe other blood-sucking creatures can.

And, uh, and then that's when— Once they figured out, oh hey, mosquitoes can carry malaria. Then they started trying to investigate everything else. Like, well what about all these other weird diseases that we don't know where people get them? And so.

**Justin:**

It was probably mosquitoes.

**Sydnee:**

There we go. Yep.

**Justin:**

Spoiler alert, history.

**Sydnee:**

So, I want to talk about— Before I talk about Zika, I want to talk about one— Uh, there are a lot of different viruses in this certain, uh, family, that are similar to Zika. Um, Dengue is one of them. Uh, there's yellow fever, which I think we've talked about some before.

**Justin:**

Mm-hmm. Yeah, I think we did yellow fever, I don't—

**Sydnee:**

I think we did a whole yellow fever episode on Walter Reed?

**Justin:**

Right! Okay, yes.

**Sydnee:**

So we've talked about yellow fever before. Um, this is part of the Flavivirus genus. The family Flaviviridae. Uh, so they're all related. Do you need to make a Flava Flav joke here?

**Justin:**

No, sweetheart. Um...

**Sydnee:**

I saw you get excited.

**Justin:**

I— What I did— What I almost said was, insert your own Flava Flav joke here, but that's something people say, uh, as Jesse Thorn, our network boss, would point out. That's something people say when they can't come up with a joke. So I'm not going to say that because I couldn't come up with it, I'm not gonna fake like I could. All right?

**Sydnee:**

Okay. Well here's the good news. Zika is also in the Flava- Flaviviridae family. So you've got some time, if you, you know. If you want to come up with a joke like that. We have a whole other virus to talk about.

**Justin:**

Well, no. It is— I'll be honest though, it's really "bugging" me that I can't come up with one.

**Sydnee:**

There you go, there's number three. These are slow drinkers tonight, so you're gonna have to speed it up.

So, Dengue, which is part of this family, uh, is an important virus to talk about, because about 390 million people each year get Dengue fever. Um, which is actually one of four different viruses that can cause the same kind of syndrome, they're related. Uh, so we're gonna talk about the syndrome, as opposed to each specific virus.

**Justin:**

Okay.

**Sydnee:**

Um, and Dengue has also, in more recent years, we've seen some cases in the US.

**Justin:**

I feel like I remember this, yeah.

**Sydnee:**

Yeah.

**Justin:**

It seems like every— I'm not lumping Zika in with this because I think it's probably different and also I don't know enough about it to come to these conclusions.

**Sydnee:**

Not yet.

**Justin:**

Not yet! But hopefully by the end. Um, it seems like uh, it seems like every year, there's, like, something pops up in the US that's like, all of a sudden, it's popping off here, and, like, we should be— Specifically, like, mosquito related, like West Nile.

**Sydnee:**

Yes.

**Justin:**

For example. Like, something pops up and it's, like, hey, everybody freak out. Mosquitoes suck again. Mosquitoes suck, literally.

**Sydnee:**

Well, yeah. And that's— And we'll talk about— At the end, I want to talk a little bit more about mosquitoes in general. But um, that is one of the problems with mosquito-borne illnesses. And there are lots of reasons we're

seeing them more in the US, and I know right now there are people yelling, like climate change, climate change! And that is part of why.

You know, as it gets warmer, it's more amenable to mosquitoes, mosquitoes are traveling further north. And so we're seeing mosquito-borne illnesses. Um, but there are also, as we travel more. Uh, it's really easy to, you know— I mean, how does a mosquito-borne illness work? Think about it. I can't pass it to you. You know, I don't get Dengue and give Justin Dengue. I get Dengue, and then a mosquito would have to bite me, and then bite Justin and pass Dengue along to him.

**Justin:**

Mm-hmm.

**Sydnee:**

So, it's not easy to do if you've just got, like, one person with it.

**Justin:**

Right.

**Sydnee:**

But as you have more and more people traveling all over the world and getting exposed to this stuff, you're exposing mosquitoes to it, too. So you're carrying it home, as long as there is the right type of mosquito.

**Justin:**

But if—

**Sydnee:**

If you carry that home and then those mosquitoes bite you.

**Justin:**

It seems, like, for it— Tell me if I'm wrong. For a disease vector, mosquitoes don't seem, like, particularly effective when compared with things like airborne, or— Is that not true? Is that not—

**Sydnee:**

Well, I mean, yeah. If you're comparing it to airborne and for the potential to just, like, you know, hit a whole population at once, very quickly. But it's a very effective vector, because mosquitoes multiply quickly, and there are tons of them, and you can't go out and... As we have seen in history, we're not very good at eradicating them. Although I'll talk about that too, we might be getting better at it.

**Justin:**

Nice.

**Sydnee:**

Um—

**Justin:**

Watch your back!

**Sydnee:**

And I think if, for no other reason, I think the, uh, the prevalence and the difficulty we've had getting malaria under control would speak to just how effective mosquitoes can be.

**Justin:**

Mm-hmm.

**Sydnee:**

Um... but you're right. We are seeing more and more of these kinds of things and, you mentioned West Nile. That's in this same family, actually.

**Justin:**

Okay.

**Sydnee:**

Uh, some of the other— Encephalitides, Encephalitis-causing viruses, Japanese Encephalitis. Uh, there's a whole family that are very similar. Um, Dengue is one we like to talk about, uh, some of the names people find very, like, kind of mysterious and spooky. Like, we call it Breakbone Fever.

**Justin:**

That's a bad one.

**Sydnee:**

Yeah? Yeah, that scares people. Uh, it was actually, you know, even called for a while, Dandy Fever?

**Justin:**

That's much better!

**Sydnee:**

Yeah!

**Justin:**

That one sounds okay!

**Sydnee:**

I'd like to have a dandy fever.

**Justin:**

I could do with a little dandy fever.

**Sydnee:**

Um, and it has probably been more clinically significant, uh throughout human history than Zika has, until very recently. You know, um, about half of patients who get Dengue are actually asymptomatic, meaning they don't know they got it. Um, some get, like, a mild febrile illness, meaning like they just kind of get a fever and they feel kind of yucky and then they're fine?

**Justin:**

Mm-hmm.

**Sydnee:**

And they probably never knew they had Dengue, because then they got better, and they didn't go to the doctor. Others actually get true Dengue fever, or Dengue hemorrhagic fever, and this is when, like, the Breakbone fever comes into play. Where— And the reason it's called that is cause you feel like your bones are breaking.

Uh, that was one of the ways, um, the first time I went to Honduras, they told me that I might see some cases of Dengue. I actually only saw one the whole time I was there. But they said, you know, it's important to know the difference between malaria and Dengue, and one of the things that they can point out is that people with malaria clearly don't feel good, and you can tell. Like, they look like they don't feel well.

People with Dengue are in pain. And, and I saw that, in the one patient I saw Dengue, is that they definitely have that severe pain. Um, and then Dengue hemorrhagic fever moves onto, like, bleeding and rashes, and your liver can get enlarged. And you can get really sick, you can die from Dengue hemorrhagic fever, it's a big deal.

**Justin:**

Mm-hmm.

**Sydnee:**

Um, it was— It probably is a lot older, in the grand scheme of things. We see descriptions of what was probably Dengue in, like, an ancient Chinese medical encyclopedia that dates back to, like, the Jin Dynasty, it's in, like, 992 or something. Where they speak of, what they call a water poison, that is transmitted by flying insects.

**Justin:**

Okay? Yeah! Sounds about right.

**Sydnee:**

And they describe that kind of pain, that we think they're probably talking about Dengue. So Dengue has been around and recognized, and even maybe associated with mosquitoes, for a really long time.

**Justin:**

It's pretty smart! Like, I'm pretty impressed.

**Sydnee:**

Yes.

**Justin:**

It's a pretty good job, Chinese medicine guys.

**Sydnee:**

Yeah! And there— You'd find instances like this, right? Like, we talk about this a lot on the show, where it seems like somebody in ancient times figured something out that was super important? And then we collectively forgot it, for...

**Justin:**

Thanks, the dark ages!

**Sydnee:**

You know, hundreds of years?

**Justin:**

You done did it again!

**Sydnee:**

And then, we've figured it out again, like, in the last century or whatever? You know, the last two centuries?

**Justin:**

If I'm ever transported back to the dark ages, I'm just gonna walk around shoving people into wells. Look at those people— Uh, bring me your medicine men! I'm gonna shove them in a— Your wizards, probably, though. It's probably what you call them.

**Sydnee:**

What about the butterfly effect?

**Justin:**

The butterfly— What if— "My name is Ignacious McElronius!"

**Sydnee:**

Oh no!

**Justin:**



"Oh no, you're my great great great great great great great great grandfather, oh no, I'm disappearing! Ah, why'd I do this!"

**Sydnee:**

And all I know in, I'm sitting there and I'm holding a picture, a Polaroid probably, of you.

**Justin:**

Of me, yeah?

**Sydnee:**

And you're slowly disappearing from it.

**Justin:**

But, if I kill him, how could I have gone back and killed him, in the first place? Uh oh, paradox! World splits open. Sorry— I guess we finally solved the mosquito problem, cause time stopped.

**Sydnee:**

Okay, but much scarier than all that, did you just ruin Back To the Future for me? [laughs]

**Justin:**

No, sweetheart. It's a— No. But you ruined The Fly, for me. So I think it's only fair.

**Sydnee:**

[laughs] So, the word Dengue, um. It's interesting where it comes from. It may come from a Swahili phrase that translates to 'cramp-like seizure caused by an evil spirit?'

**Justin:**

They have a phrase for that, do they?

**Sydnee:**

[laughs] Yes, they do.

**Justin:**

My, what a robust language!

**Sydnee:**

[laughing] Or it might— Which it seems...

**Justin:**

This is— This is the—

**Sydnee:**

...likely to me, cause that seems like a pretty good description of Dengue!

**Justin:**

My favorite word is the Swahili phrase that means, 'that feeling when you feel like you might have left your checkbook at home, but you're not sure, but you don't really have time to drive back and get it, so you just got to go ahead and go to the store anyway.'

**Sydnee:**

[laughs]

**Justin:**

That Swahili, that classic Swahili word.

**Sydnee:**

Are you still using a checkbook often?

**Justin:**

No, sweetheart, it's just the first thing that came to my mind, okay?

**Sydnee:**

Okay.

**Justin:**

Sheesh!

**Sydnee:**

Uh, it may also come from the Spanish word dengue, which means careful? Like, or fastidious? Which it would be a reference to, when people have Dengue, they like, the walk very delicately, because they hurt so much. Um, that's actually where the term Dandy Fever also comes from. Because they said that people who, uh it used to be said that people who had Dengue would walk like a dandy?

**Justin:**

Hmm.

**Sydnee:**

Like very delicately?

**Justin:**

Yeah.

**Sydnee:**

So like a very— And I think by that, they meant like at the time period, like, a very finely dressed gentleman would walk very properly and delicately, uh, so as not to disturb anything that he was wearing, or any of your bones that were, like, hurting really badly.

**Justin:**

Right. Okay.

**Sydnee:**

Um, it didn't spread all over until the 1700s. Um, and that's when we see, like, all of these instances of descriptions of Dengue, and people trying to figure out, like, where did this come from? And why did it spread all over? 'Cause we did!

**Justin:**

Oh! Yeah. Sorry!

**Sydnee:**

Yeah. We built big giant boats and we took people all over the world in them. And what did we take with us?

**Justin:**

People.

**Sydnee:**

Mosquitoes.

**Justin:**

Ah, yes.

**Sydnee:**

Yes. [laughs]

**Justin:**

That too.

**Sydnee:**

So we took mosquitoes all over the world, and people carrying diseases, that then infected mosquitoes, and mosquitoes infected people, and on and on and on. Um, and that's when Benjamin Rush actually dubbed it Breakbone Fever.

**Justin:**

Okay.

**Sydnee:**

So, um, some interesting old cures for Dengue, there weren't a lot. People really didn't know what to do, they just hoped you got better.

**Justin:**

Mm-hmm?

**Sydnee:**

Um, which there— Really, supportive management is all we do now. In 1771, uh Doctor Saboteur in Puerto Rico was the first one to advise any kind of cure. And it was rum.

**Justin:**

Go for it.

**Sydnee:**

Which is as good as any, I guess. Uh, Benjamin Rush, who we've talked about before, who loved bloodletting, for— I mean, he was one of the signers of the Declaration of Independence, and one of our founding fathers, and also father of psychiatry.

He loved bloodletting for, like, everything, except for Dengue, which was a good idea, since a lot of people did get hemorrhaging with Dengue. Instead, he proposed like laxatives, anemetics, meaning things that make you puke. Rest, a liquid diet, and also something called tartar? Tartar emetic?

**Justin:**

Hmm.

**Sydnee:**

Which I only mention because this has been used a lot throughout, like, bad medicine history. [laughs] Um, tartar emetic is a really powerful puking substance. It's called antimony potassium tartrate, is actually what it's made of, it's a chemical substance. Um, it used to also be used for parasite infections, until we found better stuff for that. And you could make it— This is what's cool, you could get cups made of antimony. That compound, antimony.

**Justin:**

Mm-hmm?

**Sydnee:**

And then you could pour wine into it and leave it for 24 hours. And it would create this substance.

**Justin:**

Weird!

**Sydnee:**

And so then you could sit there and sip the wine out of your antimony cup, and when it was effective, you'd know because you'd start hurling. And then it was working.

**Justin:**

And then your Dengue got better.

**Sydnee:**

Yes. No, but anyway.

**Justin:**

Uh, Syd? Uh, this is all very interesting, but uh, I'm trying to freak out about Zika over here, so if you could hook me up with some of that information, I would greatly appreciate it.

**Sydnee:**

Well that is exactly what I'm going to tell you about next. But first, why don't we head to the billing department?

**Justin:**

Let's go!

[theme song plays]

[ad break]

**Sydnee:**

Hi, I'm Sydnee McElroy.

**Raleigh:**

And I'm Raleigh Smirl. And we co-host a podcast called Still Buffering: a sister's guide to teens through the ages.

**Sydnee:**

On our show, we tackle all of the hot teen topics that kids have on their minds today.

**Raleigh:**

Hot teen topics?

**Sydnee:**

Well, you know, they're the questions that are plaguing teenagers through their tumultuous growing years. Questions like, how do I party? Or, what do I do with all this hair everywhere?

**Raleigh:**

The same questions that people like Sydnee had during their years as teenagers. Many, many, many...

**Sydnee:**

Okay, not that many!

**Raleigh:**

So, so long ago!

**Sydnee:**

Yeah, okay, I think they get the idea. So search for Still Buffering on iTunes or MaximumFun.org for new episodes every Tuesday. Still Buffering!

**Raleigh:**

I am a teenager.

**Sydnee:**

And I was, too.

[ad break ends]

**Justin:**

Okay, Syd! I'm ready, I've waited long enough. Tell me about the Zika virus.

**Sydnee:**

All right, so, Zika virus. In 1947, not that long ago, really. Uh, some researchers in Uganda took a rhesus monkey, and put it in a cage, and set it in a tree top in the Zika forest, on the Western edge of Lake Victoria.

Now, why would they do this strange thing? They were working for the Rockefeller Institute, and they were studying yellow fever. And the goal was to, unfortunately, get this monkey infected with yellow fever. Um, they knew that, you know, mosquitoes carried that. And so, they were— Basically, it was mosquito bait.

**Justin:**

And they knew monkeys hated it.

**Sydnee:**

Yes. Uh, [laughs] and they didn't—

**Justin:**

They just hate having yellow fever. Ugh, it's the pits.

**Sydnee:**

I think everybody does. Uh, the—

**Justin:**

Especially monkeys.

**Sydnee:**

[laughs] The monkey did get sick. So, they succeeded. Except it didn't get sick with yellow fever. Uh, so they examined the monkey and figured out they isolated a brand new virus, um, as far as humans were concerned, probably not a brand new virus in terms of, like, evolutionary history. But as far as we knew about. Uh, and it was dubbed Zika, after the Zika forest, where it was found, which is actually the word for overgrown.

**Justin:**

Hmm.

**Sydnee:**

Because it's a big, overgrown forest. Uh, they figured out that it was, uh that they started looking, like, well, this is probably also a mosquito-borne illness because at this point, we were pretty familiar that this was a thing that happened. Uh, and they found it in a, uh, Aedes mosquito, which is a common, uh...



**Justin:**

He didn't have, like, the, it was like listening to the uh, to a bunch of, like, Billy Idol, and uh, The Bangles and...

**Sydnee:**

That's exactly right.

**Justin:**

Going to the mall.

**Sydnee:**

Yeah. Have really big hair.

**Justin:**

Deep into Tiffany.

**Sydnee:**

[laughs] That's, uh, that was good. I liked that.

**Justin:**

Thank you.

**Sydnee:**

Yes. So no, uh, it was A-E-D-E-S, it's a certain...

**Justin:**

Oh.

**Sydnee:**

Yeah, genus of mosquito.

**Justin:**

That's too bad.

**Sydnee:**

Which is, uh, commonly carries different viruses. And, uh, they found the Zika virus inside the mosquitoes as well.

**Justin:**

Mm-hmm.

**Sydnee:**

So, now we know this mosquito carries it, these monkeys can get it. Here we go, this is where it comes from. And, really, up until 2007, we didn't really care much about Zika virus. We found it sometimes in people. We would find evidence like that they would have antibodies against it?

You know, we would do studies and see, like, oh, this person has had Zika virus at some point in their life. But the person would have no recollection of any particular terrible illness. Um, and then sometimes we would see cases, but they were usually sporadic and, honestly, people didn't get that sick.

**Justin:**

Mm-hmm.

**Sydnee:**

So we didn't worry about it. And it was in that same, like, kind of band around the center of the earth where these types of mosquitoes mainly live, is where we would see it. However, in 2007, we start to see some more cases that, um, that were a little bit, like, larger outbreaks and a little bit more significant. Uh, when people did get sick, most of them, they just got, like, a mild fever and, like, some achy joints, and some rashes. Conjunctivitis, meaning your eyes get red, is a big—

**Justin:**

Mm-hmm.

**Sydnee:**

That's one hallmark, kind of, of the disease that a lot of people get. Uh, but most people still were getting— But everybody was still getting better. Well, and not just most people. Everybody was getting better.

**Justin:**

Yeah.

**Sydnee:**

Like, they would get sick, but they got better. So, in 2007 there was this outbreak on the island of Yap in the south Pacific. There were about a hundred cases...

**Justin:**

Sounds like a Doctor Seuss locale.

**Sydnee:**

It does.

**Justin:**

The island of Yap.

**Sydnee:**

I thought that, 'cause "Yop" is what all the whos yell.

**Justin:**

Yeah, I think it's what I was thinking of.

**Sydnee:**

But it's not, it's a real place.

**Justin:**

I believe you.

**Sydnee:**

[laughs] They got Zika about—

**Justin:**

I didn't think you'd, uh, brought in a Doctor Seuss location and try to trip me up!

**Sydnee:**

[laughing] You win! You found it! The fake location I made up to trick Justin.

**Justin:**

They, uh, they had traveled to the jungle of Yool to...

**Sydnee:**

[laughing]

**Justin:**

[laughs]

**Sydnee:**

So, there were about a hundred cases reported. They actually checked people out later and found that most of the people on the island were probably exposed to it, but only a hundred people got sick. Um, and then they saw slightly bigger outbreaks in 2013. French Polynesia saw a huge outbreak, like, 28,000 people got sick.

**Justin:**

Mm-hmm.

**Sydnee:**

Most of them, again, with a pretty mild illness. But, this is when we start to see some— A little scarier stuff. Some, uh, neurological consequences happen in a small percentage of people who got it, and about— It's, like, 70 or so people, uh, had some neurological problems, and then some even developed Guillain-Barré.

It's kind of, like, temporary paralysis that can happen after certain illnesses. Uh, so some people got pretty sick. It was a little scarier, but most people who got it, again, got better on their own, pretty quickly. Weren't that sick to begin with.

**Justin:**

Mm-hmm.

**Sydnee:**

And then, again, they found that a lot of people were exposed and never showed symptoms or anything. So this brings us up to 2015, uh, last year. And this is when things start to get kind of scary. So we start to see an

outbreak in Brazil in April, which was a new place for Zika, by the way. We had never seen, uh, Zika virus in Brazil until this past year. Now, how did it get there, by the way? Probably sports?

**Justin:**

Thanks, sports.

**Sydnee:**

Probably the World Cup? That's our theory, we don't know. That's just one theory, is it, uh, you know, there was a reason for a lot of people to be traveling from different places—

**Justin:**

Uh, Sydnee. If there's a theory that can assign large amounts of blame for a serious issue to sports, uh, the kids' are gonna hate that one, okay?

**Sydnee:**

[laughing]

**Justin:**

Yeah, that's the one, thank you very much.

**Sydnee:**

There are a lot of football fans all over the world right now who are very mad at you. I mean, like football. Like actual football. Footie.

**Justin:**

Not, uh, futbol de Norte Americano?

**Sydnee:**

Exactly. [laughs] Um, so— So they see outbreaks of it again in about April in Brazil. Um, same kind of thing where most people are getting, like, a self-limited illness, mild symptoms, and getting better. So, uh, people aren't very excited about it, at that point.

The reason why we're talking about it now is because of what we started seeing in this past October, so really recently. Doctors started noticing a

drastic increase in cases of something called microcephaly. What microcephaly is, is actually a congenital problem. So babies are born with this condition. And it is when the— Microcephaly refers to the fact that the head appears smaller and it's associated with brain underdevelopment. Um, so. These children are going to have some, some degree of delay, um.

And, up until then, in Brazil. Up until this past year— You see this anyway. You see this occasionally. You know, this is something that isn't only caused by a virus. Uh, but there were about 147, I think, in the year prior, cases of microcephaly. Last year, there were over 4,000. That's a really significant jump. And so, obviously, doctors in Brazil started looking into what could have caused this. Something has happened.

**Justin:**

Right.

**Sydnee:**

Um, and that's when they start being able to isolate the Zika virus from amniotic fluid in some of these mothers. Now, this link is not 100% for sure known. We suspect it—

**Justin:**

Even to this moment?

**Sydnee:**

Yes, even to this moment.

**Justin:**

Okay.

**Sydnee:**

We highly suspect it. We think that this is definitely, um, a possible cause. Uh, but we're still studying the pregnancies in the children that were born with this everywhere that we're seeing this, to try and 100% prove that this is, in fact, the cause.

Um, but it's a high suspicion at this point, so it is something we want to take seriously. Uh, we've started to see cases in other countries now. Venezuela, Colombia, Mexico. The US has had a few cases you've probably heard about.

**Justin:**

Mm-hmm.

**Sydnee:**

They weren't actually— And this is important to know, this distinction. People aren't getting it in the US. They're bringing it back to the US, from places where it is already endemic.

**Justin:**

Right.

**Sydnee:**

Okay? So that's a big distinction, as far as how concerned should you be about it being passed around your community.

**Justin:**

Right now?

**Sydnee:**

Right. Um, there was a baby born in Hawaii with microcephaly, which has caused a lot of panic there. Um, and I think a lot of island areas would be worried.

**Justin:**

Yeah. Uh, but microcephaly is not only caused by this, right?

**Sydnee:**

No, it's not. It's not. So that's why we're still trying to investigate if all these cases are linked to Zika or not.

**Justin:**

Right.

**Sydnee:**

Um, so now, in reaction to this, the CDC has issued travel warnings to basically, uh, all of us. And then specifically pregnant women, that's who we're really targeting with this. Uh, about any kind of effected areas. So, travel warnings to, uh, there are a lot of different countries. Um, Brazil, of course, and Colombia, and El Salvador, and, uh, there's a whole list. You can look it all up on the CDC— If you're thinking of traveling, I would do that.

**Justin:**

Mm-hmm. Yep.

**Sydnee:**

Uh, go to the CDC website, and there's tons of information—

**Justin:**

Good thing to always do, actually, before you travel.

**Sydnee:**

Actually, yeah, anytime you're gonna travel, go to the CDC and go see your doctor.

**Justin:**

Internationally, not, like, you're going to Ohio.

**Sydnee:**

Yeah, no. [laughs] Go see your doctor, um, for a travel health visit. Um, and then there are also countries that are also, um, issuing these travel warnings. And then there are some countries that are urging women to delay pregnancy as a result of this. El Salvador, Jamaica, Colombia, Brazil, they're all, uh, basically saying hey, try not to get pregnant for a while until we kind of figure this thing out. Um, the thing is, the virus is gonna go where the mosquitoes are.

**Justin:**

Right.

**Sydnee:**

We have these mosquitoes here.



**Justin:**

Right?

**Sydnee:**

The only places that, uh, that conceivably we probably won't see the virus in North and South America would be Canada and Chile.

**Justin:**

Why not Chile?

**Sydnee:**

Everywhere else is at risk. They just don't— Because of the climate.

**Justin:**

Okay.

**Sydnee:**

Um. There's— [audio skips] ...illnesses.

**Justin:**

Mm-hmm.

**Sydnee:**

Um. There was just— I just saw this actually, like, two days ago. There was a, uh, suspected case before, and now we have a confirmed case that it actually can be passed from person to person. But that's not quite as scary as if, the mosquitoes flying around us are carrying it.

**Justin:**

But again— [audio skips] ...if we're not pregnant, right?

**Sydnee:**

For most people, no.

**Justin:**

[sneezes]

**Sydnee:**

...Zika virus, but yes. The, the majority of people—

**Justin:**

Yes, agreed!

**Sydnee:**

Who get it are gonna get sick and get better and be fine. Be aware of these travel warnings. Be aware of this, you know, go to the CDC if you're thinking of doing any travel anywhere— [audio skips] 'Cause that's our best bet at this point, right? Um, do you know why mosquitoes bite humans— Aspects of our scent.

**Justin:**

Mm-hmm?

**Sydnee:**

Uh, there are actually 400 compounds that make up human scent, and so those actually make us less likely to be bitten by mosquitoes.

**Justin:**

Mm-hmm.

**Sydnee:**

But there are about 10% of people who— [audio skips] ...to overcome that.

**Justin:**

Cool.

**Sydnee:**

Although, you will read about, like, eat a bunch of garlic, or avoid salt, or don't eat any— [audio skips] ...uh, you know. And this isn't, like, an ancient problem. In Egypt, they would put castor oil in lamps. In ancient Rome, they would put vinegar all over their bodies. Um. All throughout history, we've tried burning different things to scare away mosquitoes. Fish, snake skin, feathers. Burn a coconut. Uh, to try to ward off mosquitoes.

Um, but what I would say, is that, uh, you know. If you really want to avoid mosquitoes... and this is not a popular position. Use Deet. Um, if you go to the CDC, uh, that's what they're gonna tell you to do.

**Justin:**

Yeah.

**Sydnee:**

If you're going to an area, especially— And I've done it, um, in my travels when I've gone to, uh, malarious areas, areas where malaria's endemic. Um, I've used Deet. And I know that that is scary for a lot of people, but that is still the recommendation. There are other choices. Uh, picaridin. Uh, oil of lemon eucalyptus.

**Justin:**

Mm-hmm.

**Sydnee:**

Is effective. So if you don't want to use Deet, these are other options that repel mosquitoes. There's a compound called IR-3535, so write that down.

**Justin:**

Sounds a little bit creepier than Deet.

**Sydnee:**

These are all in over-the-counter, uh, mosquito repellents.

**Justin:**

Okay.

**Sydnee:**

So all— If any of these are in there, they're probably gonna work against mosquitoes. Um, cover yourself, wear light colored clothes. Long sleeve clothes, you know, long pants. Um, uh, be indoors, if possible.

**Justin:**

Sure!

**Sydnee:**

Air conditioning can help. Window and door screens are a huge thing. Just having window screens and door screens. Hugely, you know, in areas where there was malaria? Adding those greatly decreased deaths from malaria.

**Justin:**

Okay.

**Sydnee:**

Just window screens. Um, nets, of course, to sleep under. If you're gonna be somewhere. You know, uh, not in the US, but if you're going outside the US. Um. And then, uh, and things that attract mosquitoes are movement and heat and sweat. Especially old sweat. Cause then it has germs in it.

**Justin:**

Dirty.

**Sydnee:**

And mosquitoes like old sweat with bacteria in it.

**Justin:**

Grody.

**Sydnee:**

Now, I read an argument that we should kill off all the mosquitoes.

**Justin:**

Yeah, I wrote it. [snorts]

**Sydnee:**

Did you write it?

**Justin:**

Yeah, I wrote it.

**Sydnee:**

It was a really interesting argument that, um, people...

**Justin:**

Like an argument from a science person? Or an argument from just, like, a dude?

**Sydnee:**

From a dude.

**Justin:**

Okay, got it.

**Sydnee:**

From a dude. Who— But he— Now, to be fair, he interviewed a lot of scientists before he made his argument.

**Justin:**

Okay.

**Sydnee:**

And, um, what he was saying is... So, we've tried to kind of do this before with DDT. We tried to kill off a lot of mosquitoes. The fact is, mosquitoes were— Actually, whatever you want to say about DDT, whether it was— You know, cause there's a lot of contention about that, was it really that harmful or not. Um. One thing is that mosquitoes got resistant to it pretty quickly.

**Justin:**

Mm-hmm.

**Sydnee:**

So, whether or not it was the most effective way to kill mosquitoes would be a whole other question. Um, I think it would work for brief periods of time. But, we're finding better ways to kill mosquitoes with genetic engineering?

**Justin:**

[laughs] Oh, great. That's not creepy at all.

**Sydnee:**

No. I— It's pretty creepy. They found ways to introduce, like, um, genetically sterilized mosquitoes into populations to try and basically, like, end their line?

**Justin:**

Ugh. Okay.

**Sydnee:**

Which is scary. They've found ways to just create, like, um, male mosquito— Like to program all of the mosquitoes so that they can only give birth to males?

**Justin:**

That's cool.

**Sydnee:**

And then they'll end, mosquitoes.

**Justin:**

Not a fan.

**Sydnee:**

No, um...

**Justin:**

No, thank you.

**Sydnee:**

They tried x-raying them to sterilize them for a while, but mosquitoes are really fragile, and so they just died.

**Justin:**

Yeah.

**Sydnee:**

So that doesn't work. Um, but there's this whole conversation—

**Justin:**

I mean, it does work! I mean, it did work!

**Sydnee:**

But you can't x-ray them all.

**Justin:**

No, but, like, you would have to just sterilize them, Sydnee!

**Sydnee:**

They even tried— [laughs] They even tried—

**Justin:**

This way is crazy! You didn't think through this.

**Sydnee:**

They— [laughing] They even tried, um, this thing where they would, like, put genes in mosquitoes that would just make them really susceptible to something. And then, what you would do is you would engineer all of these mosquitoes and then, like, make them hardier than other mosquitoes and then introduce them into the population, so they would outlast and outlive all of the other mosquitoes? And then it could be that, like, this one pesticide kills them all. Or, they're all vulnerable to this temperature, so as soon as it hits—

**Justin:**

Or, you put a kill switch in there, and you flip the kill switch.

**Sydnee:**

[laughs]

**Justin:**

And their brain shuts down.

**Sydnee:**

Well, uh, as soon as it hits, like, 88 degrees fahrenheit, mosquitoes are all dead.

**Justin:**

Or 88 miles per hour. It goes back in time...

**Sydnee:**

Either way, either way.

**Justin:**

...kills all mosquitoes.

**Sydnee:**

[laughing] Back to Speed.

**Justin:**

That's what happens in Back To the Future.

**Sydnee:**

Um, I've seen it, I know. But should we kill all the mosquitoes?

**Justin:**

Yup! [laughs] Done.

**Sydnee:**

I don't know. Uh, it makes me—

**Justin:**

I know, that makes me concerned— That's also very easy for me to say, as someone who does not live in an area where, like, these things are so hugely prevalent and devastating.

**Sydnee:**

Exactly. And right now, we don't know that they hold, like, this really super important place in the, you know, in the web of life. Like, would all ecosystems collapse if mosquitoes disappeared? I don't know, but isn't that, like, enough reason not to do it? Because I don't know?

**Justin:**

I'd rather not, like, fiddle with it. Like, we're wiping out enough stuff just, like, accidentally.



**Sydnee:**

Yeah.

**Justin:**

I'd rather not— Hey, um, uh this has been super long, and I think it's been interesting. But, I want to like— Something that I feel like we didn't really, like, hit that I want to, like, kind of get your opinion on. And I know that a lot of this will be conjecture, so I want to say that first.

But like, you— When we did our episode about Ebola, it was very much about, like, here are the reasons why for a certain group of people, most of the people who would be listening to this show, probably not, like, a panic moment. Like, what should, like, our freak-out meter about Zika be? And what do we know that, like, what do we know or not know that would affect that sort of ruling?

**Sydnee:**

I think that, um, if you're listening to this show and you don't live in one of the countries where Zika's endemic right now, you shouldn't be freaking out about it. You really shouldn't. And— I mean, unless you just traveled there, or you're about to travel there, something that I would be— I would never advise freaking out. [laughs]

**Justin:**

That doesn't really do anything.

**Sydnee:**

But I would advise being cautious, if you're in those situations. Otherwise, I mean, like, for us living in West Virginia, there's no reason to be concerned about it. Um, if Zika— We'll probably see some Zika transmission in the US, eventually. If it follows the course of a lot of these other mosquito-borne illnesses, we may see that. Probably, uh, and I'm sorry southern states, uh, in the more southern states, it's more likely first.

But the fact is, if you're talking about, like, the scary scenario that people like to paint for you, that somebody has traveled to Brazil, and that they've come back to some area in the US, northern US, whatever. Somewhere

where they probably wouldn't have gotten it quickly anyway. And then they get bitten by a mosquito, and then that mosquito infects a person, and then they infect another mosquito. Like, that would be so hard to do, with just one person having Zika virus. I mean, it's pretty much impossible.

**Justin:**

Right.

**Sydnee:**

That kind of scenario just is— In that sense, you're right about mosquitoes. They're not a very efficient vector. Um, if you have, uh, a one person infected to try and infect an entire population of mosquitoes, that's crazy. That's not gonna happen. So even though we have the right mosquito and it's conceivable we could have the virus...

**Justin:**

It has to be uh, a— It will radiate. It will not, like...

**Sydnee:**

No.

**Justin:**

...insert itself. It would radiate from other areas.

**Sydnee:**

Exactly. You may see tiny little outbreaks here and there. But the other thing that's also very helpful in a lot of places in the US is sanitation.

**Justin:**

Mm-hmm. Sure.

**Sydnee:**

You don't have— I mean, that's been the biggest thing with malaria, is that mosquitoes like big pools of standing water to lay their egg rafts in. If you don't have— I mean, if you have pretty decent sanitation, you don't have a lot of big pools of standing water around your house. Or your yard, or your...

**Justin:**

And think about, like— Especially if you talk about what's happening in Brazil right now. There's construction everywhere, I'm certain.

**Sydnee:**

Exactly.

**Justin:**

That can lead to tons of, you know, standing water and, uh, consternation of human beings.

**Sydnee:**

Exactly.

**Justin:**

People working outdoors. Like, it's like a hot bed, it's perfect.

**Sydnee:**

And those are the kinds of situations that would be more concerning. Um, I would say certainly for the Olympics.

**Justin:**

Should we super cancel the Olympics?

**Sydnee:**

You know, I've thought— I've had that thought, like, what will be the plan about the Olympics? I mean...

**Justin:**

I mean, maybe they control it. Maybe we get our... ugh.

**Sydnee:**

And a lot of these people are going to be inside. And they're not gonna be wandering around outside.

**Justin:**

Then again, like you said though. If the concern is, let's like— Like if the concern is these people all spread out back to their home country and bring it home, it's not like that.

**Sydnee:**

That's very unlikely to happen. It's just not— It's not an efficient way to do it. You can't infect enough mosquitoes, who could then infect enough people, who could then infect enough mosquitoes, and so on and so forth...

**Justin:**

Yeah.

**Sydnee:**

...to do it that way. So— And also, we're working on a vaccine. Because that's the best way to control this, honestly. And, you know, we have made vaccines, I think a great corollary I read about this, against other viruses that probably aren't that big a deal. But because of the congenital effects of it, it's a big deal. Rubella is a great example. If you got Rubella, you'd probably be fine. If you get Rubella and you're pregnant, it's a huge deal.

**Justin:**

Mm-hmm.

**Sydnee:**

And so, I think Zika would fall under that same category, where a vaccine is gonna be, and we're gonna make one. 'Cause we're good at that, right? Sorry, we are. Humans are gonna make a vaccine. And then we'll be okay.

But until we make the vaccine, I would be cautious. I wouldn't freak out, though. And honestly, if you don't live somewhere where it's already being transmitted, you should really be spending your worry on other people, and hoping that they're okay. And not so worried about yourself right now. Cause you're fine!

**Justin:**

You're fine!

**Sydnee:**

There's the good news. I just said you're fine.

**Justin:**

You're fine. I want to give a big plug to Still Buffering. It's a new podcast from Sydnee and her sister Rileigh, where they talk about uh, teenage life. Comparing Sydnee's life as a teenager to Rileigh's current existence. Um, you are in for a treat with their second episode, which is all about technology and communication technology, specifically.

Uh, hearing Rileigh freak out about the idea of chat rooms is outstanding and I would recommend the entire episode. You can find that uh by searching uh, iTunes for Still Buffering. Or you can go to [teamgoogle.com](http://teamgoogle.com)!

**Sydnee:**

[laughs]

**Justin:**

To find all the Still Buffering...

**Sydnee:**

Thank you, Justin.

**Justin:**

...Still Buffering you need. Uh, there's a lot of other shows on the Maximum Fun network. Shmanners is another great one that my brother, Travis, just launched with his wife, Teresa, who's something of an etiquette expert? Sort of like a, uh...

**Sydnee:**

She's who I turn to.

**Justin:**

Yeah, she's— Yeah. She's the person we ask about this kind of stuff. And she's hosting a sort of etiquette in the modern era show called Shmanners. Like manners, shmanners? Get it? But that's on iTunes as well, and it's also on [MaximumFun.org](http://MaximumFun.org). There's a ton of other shows. Uh—

Oh! Also! If you're into the Bachelor. Check out Rose Buddies, it's on iTunes. Uh, and my brother, Griffin, hosts it with his wife, Rachel. It's really funny, even if you don't listen to the show. I really dig it. But, those are just a few

of the things that are happening right now. We got a lot more for you. Uh, if you go to [mcelroyshows.com](http://mcelroyshows.com), you can find pretty much all the stuff that we're doing right now, if you're curious about it. Uh, we're spinning up new things regularly for the people.

**Sydnee:**

[laughs]

**Justin:**

Uh, but uh, we—

**Sydnee:**

For you, our people! That we love.

**Justin:**

For you, our people. Hey, we don't ask this a lot, but if you found— Uh, Zika's kind of a hot topic right now. If you found this interesting or educational or reassuring or anything, um, please share it with a friend. Please send somebody a link and say, hey. Or put it on your Facebook or Twitter or whatever, it would really help us out a lot, especially if you point people towards our iTunes page so they can leave us a review or subscription, or—

**Sydnee:**

Yeah. And I hope it was reassuring.

**Justin:**

Yeah.

**Sydnee:**

I was trying to be— I'm reassuring you now, if I wasn't before.

**Justin:**

Uh— And uh, that's gonna do it for us, folks. Until next Wednesday, my name is Justin McElroy.

**Sydnee:**

I'm Sydnee McElroy.

**Justin:**

And as always, don't drill a hole in your head.

[theme music plays]

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