

Sawbones 390: Melioidosis

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Clint: *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: [loudly] Hello everybody, and welcome to *Sawboones*!

Sydney: Whoa!

Justin: Yeah, I'm bringing my Michael Buffer/Oprah, Oprah Buffer energy to the show today. Well, it's a— it's a marital tour of misguided medicine, and I'm your cohost Justin McElroy.

Sydney: And I'm Sydney McElroy.

Justin: And what a delight it is to be back with you. I'm sorry we were absent last week.

Sydney: It was my fault.

Justin: Syd was at the hospital, and things there are not great at hospitals. I don't know if you've heard about this.

Sydney: It's rough.

Justin: It's rough out there, folks.

Sydney: It's rough, bud, yeah. The— we're busy. Uh, there aren't enough people to run hospitals... hmm. [laughs]

Justin: Yeah.

Sydney: We need more of them.

Justin: Yeah, so if you're—

Sydney: And at ours there's a strike, so.

Justin: Yeah.

Sydney: Just... lots going on.

Justin: Just— if you ever wanted to be a doctor, there's never been a better time to just start... doing that.

Sydnee: Come work with me, and help me. Help me. [laughs]

Justin: Yeah, get on this, entry level doctor.

Sydnee: No, I think a lot of places across the country are in the same position. Things are really busy.

Justin: Yeah.

Sydnee: There's a lot of people to take care of, and we're all doing our best.

Justin: That's not [crosstalk]—

Sydnee: So cut me some slack that I didn't get a podcast out last week, is what I'm trying to say!

Justin: [choked up] And I was— I had other stuff too. I was catching up on *Doom Patrol*, and we have both been struggling.

Sydnee: That is not— that's the same. It's all the same. It's fine. Justin, did you hear about a recent outbreak?

Justin: [wheezes loudly]

Sydnee: [laughs quietly]

Justin: Well, that— hey, partner. [through laughter] You're gonna have to be a bit more specific than that!

Sydnee: Not of COVID.

Justin: Oh, no.

Sydnee: Something other than COVID.

Justin: No. There's other stuff besides COVID.

Sydnee: COVID is very important to talk about, and we... do many episodes on that, but this is not about COVID this time. This is about a different illness, one that is a lot more rare, and we usually don't see cases of in the US pretty much at all, and certainly not outbreaks like this. And when we do see cases, it tends to be, like, tied to people who

traveled somewhere else and that's where they got it, so this is all kind of a weird, rare thing that unfortunately has happened.

Um, and that is that we have had an outbreak of cases of melioidosis. Melioidosis.

Justin: Melioidosis.

Sydnee: Melioidosis.

Justin: I gotta admit, that's not one that I'm familiar with.

Sydnee: Every time I saw that word, I always wanted it to be melody-something, and it's not that, and so it's hard, like, to look at it and make it go from my eyes to my brain to my mouth.

Justin: Hmm.

Sydnee: It's always an effort. Are there words like that for you?

Justin: Uh, mishfish— mischief—

Sydnee: Mischief—

Justin: Like, mi— I'm better at it now, but it used to be mishfish every time I would try to say it. Um, I also can't spell wesh... restaurant. [laughs quietly] But other than that—

Sydnee: I always get restaurant wrong. And I also, um— conscience and conscious.

Justin: And convenience. All those weird, like— what? You looked at me weird. Like, "Huh? Convenience? That's an easy one!"

Sydnee: Well, that— it does seem like an easy one.

Justin: It— no easier than conscience!

Sydnee: But conscious. Conscious, conscience.

Justin: Conscious, oh, okay.

Sydnee: Yeah, those two. Anyway.

Justin: [quietly] Doesn't matter.

Sydnee: Um, and then people are like "It's con-science," and I'm like, "But you don't say it that way."

It's—so... [laughs quietly] melioidosis is caused by a bacteria that is called *Burkholderia pseudomallei*. Is that easier to say? [laughs quietly]

Justin: Yeah.

Sydnee: It's usually seen in tropical or subtropical parts of the world, specifically places like Thailand or Northern Australia, and some other places too. But, like, that's where you see the brunt of these cases.

So it is strange to see it arising in the US. We don't typically see that here. How did that happen? Well, before I get into the whole history of it, the reason we're talking about it is that there were these aromatherapy sprays at Walmart.

Justin: Oh, no!

Sydnee: This is— this is how this happened. Specifically, there are these Better Homes and Gardens room sprays, which are, like, infused with essential oils, and I believe they say "and gemstones" on them. Which I think is weird, just because I don't know how— like, do you... grind 'em up?

Justin: Gemstones?

Sydnee: Yeah.

Justin: They advertise having gemstones in them?

Sydnee: Look at the bottles.

Justin: I mean—

Sydnee: Look up Better Homes and Gardens room spray. I mean, you're gonna get a bunch of stuff about melioidosis is what you're gonna get.

Justin: Alright. I'll look into this.

Sydnee: Anyway, so, these were sold at Walmart stores in the US from February to October of this year, specific Walmart stores, I guess, not all Walmart stores.

Justin: Yeah, I guess you're gonna have to chase 'em down on eBay now if you want—[wheezes]

Sydnee: There, uh— there are different... flavors, specifically. Like, they linked it to this lavender and chamomile one, but there were five different scents that this was linked to. Um, and you can actually, if you are

concerned, if you go to the [CDC.gov/melioidosis/outbreak](https://www.cdc.gov/melioidosis/outbreak), they have, like, the 2021 multi state outbreak of melioidosis and, like, where the cases are, and they have a list of all the Walmart stores that sold it, and what flavors, and all that. So you can, for the safety reason, please look at that. If you are concerned at all, if you have any of these aromatherapy sprays in your home, please check this. [laughs quietly]

Justin: Yes.

Sydnee: Uh, but anyway. So, they were selling these sprays and they found that specifically in Georgia, Kansas, Minnesota, and Texas, they found cases that were linked to these aromatherapy sprays. Which is just— I mean, add it to the list of reasons why I personally am against aromatherapy. [laughs quietly]

Justin: They have sort of, like... gemstones at the bottom, if you can imagine. Like, it looks like an aquar— like, aquarium.

Sydnee: Are they, like, floating in the bottom of it?

Justin: Like— well, they've s— yeah. It's sort of like— imagine, like, aquarium rocks.

Sydnee: Oh, I see 'em.

Justin: And you can get kind of the idea.

Sydnee: What do you get? Like, the power of the gemstones when you spray it?

Justin: They— well, it's— it's also less, uh—[laughs] it's less aromatherapy juice they have to put in.

Sydnee: This is—[sighs]

Justin: Rocks must be cheaper than the oil. [laughs quietly]

Sydnee: This is exactly— I wanna— I— this is not just all about aromatherapy, obviously. We've done episodes on that before. Um, for the most part, unless you're talking about, like, relaxation, it doesn't work. It usually is touted as something that doesn't do harm. Like, what's the harm in a nice smell? Even if it's not really helping with anything, what's the harm in a nice smell?

Well, other than things we've pointed out before, like asthma or allergies, or for me, I'm allergic to all smells. And so, like, when you smell it in a room, you've made that room inhospitable to me, Sydnee. [laughs quietly]

Justin: Which is the greatest crime, I think we can all agree.

Sydnee: But, uh— but also, I guess, occasionally... this is a pretty random, rare thing. But this kind of thing happens.

Justin: Still not great, though!

Sydnee: No. So, what—

Justin: I mean, it's like— yeah.

Sydnee: And I'll get more into it, but let's go back to the history of this.

Justin: Okay, yeah.

Sydnee: What is this? What is this weird bacteria? Why did this happen? How did this happen?

Um, first of all we need to talk about Dr. Alfred Whitmore.

Justin: Okay.

Sydnee: So, he trained at Cambridge and in London.

Justin: Oooh!

Sydnee: And— ooh, very fancy. And he joined the Indian Medical Service and was sent to work in Rangoon, at a lab at Rangoon General Hospital.

Justin: Okay.

Sydnee: That is where his part in this narrative starts, okay? So it's 1911 and he's working in this lab, and a lot of what he does, along with his assistant, C.S. Krishnaswami, the two of them mainly do autopsies.

Justin: Oh.

Sydnee: So— and try to figure out, like, what happened, and—

Justin: Okay.

Sydnee: Yeah, and describe different disease processes and stuff like that. So, they are called to do an autopsy on a patient who had died recently for unknown reasons.

Justin: Hm.

Sydnee: Which, you know, you have to imagine, in 1911 wasn't that uncommon.

Justin: Yeah.

Sydnee: Like, we didn't know very much yet.

Justin: Didn't know anything.

Sydnee: [laughs] Well, we knew some things.

Justin: Yeah, okay, fair.

Sydnee: But not a lot of things. So, uh, it was a 40-year-old man who had come to the hospital. He had had fevers for, like, seven days prior to coming in, which is— he got sicker and sicker, finally came in. Um, he was only in the hospital for about three days before he succumbed to the mystery illness. Uh, he also was noted to have some abscesses on his arms. When I say abscess, do you know what I'm talking about? What I'm referencing?

Justin: You know, you always say it, but it's hard to picture.

Sydnee: The— a lot of people—

Justin: It's like a sore, right? Like an open sore?

Sydnee: Well, not necessarily open. So, a lot of people use the colloquial term "a boil" when they mean an abscess. Um, it's— I mean, they could be open, but oftentimes it's, like, the swollen... you know, hot, tender, red pocket of infection that is the abscess. Now, once you open it and drain it you have an open wound there.

Um, but abscesses are commonly formed by things like staph bacteria usually, um, and until you what we call I&D, incise and drain, incision and drainage procedure— until you actually, like, cut them open and drain them, they can be very hard to treat. Even now, with antibiotics, very treatable, but you do need to open 'em and drain 'em, whereas back then we didn't have antibiotics, either.

But this patient in particular had a lot of abscesses that they attributed to the fact that he was using injection morphine. So, he was addicted to— what it was— in the all the papers they call morphia, but morphine use. So modern day, what we would call heroin, basically. Just the precursor drugs.

So, he came to the hospital, he got sicker and sicker and nobody knew what to do, and he succumbed to this, so they did this autopsy to try to figure out what happened, what was the cause of death. And they found that there was an infection in his lungs, and they were described as having a cheesy appearance.

Justin: Ugh, God!

Sydnee: Sorry. Sorry.

Justin: Ugh!

Sydnee: Sorry about that.

Justin: Where was the warning?

Sydnee: Caseating? Is that better?

Justin: No! Well... yeah?

Sydnee: Okay. [laughs quietly] Anyway.

Justin: Except I don't know what it means.

Sydnee: Cheesy.

Justin: [sighs heavily]

Sydnee: They didn't recognize the pattern as anything that they had seen before, right? Like, it wasn't something— they had seen tuberculosis. They knew what that did to the lungs. They had seen a lot of other pneumonias and things and, like, it just didn't fit. It didn't look like cancer. They didn't know exactly what it was.

They did— this was at the point where we knew how to, like, do certain staining techniques, like Gram stains, to take bacteria, put 'em on a slide, look at 'em under a microscope, try to figure out, what is this? You know, we knew enough at that point to look for that, and they found something that looked like *Bacillus mallei*, which was a known bacteria. That was a germ we already were aware of, um, because it was responsible, and is responsible still, for something called glanders.

Justin: Glanders?

Sydnee: Glanders. Glanders you may not have heard of, unless you... are, like, a large animal vet?

Justin: I'm not.

Sydnee: Or you, like, have—

Justin: Not anymore. I had too many heartbreaks.

Sydnee: [laughs quietly]

Justin: Lost too many polar bears. Dang it, these guys are big!

Sydnee: Uh, or if you have large animals. I don't mean, like, "We had a really big cat." I mean, like, horses.

Justin: So— I mean, that's the dream, but... not there yet.

Sydnee: Glanders is a disease of horses primarily. Um, it has been found in humans, but it was a big problem for livestock. And so, you know, glanders is very well known outside of, I don't know, this room. [laughs] But anyone who takes care of or owns large animals.

Um, but typically you would only see it in a human being if they had had close contact with animals. So it was weird, because this guy was not— I mean, he was living in a city. He was not necessarily out where he would have a lot of contact with horses or something, um, and most recently he had been, you know, unfortunately living outside and using injection drugs, and so it just didn't fit. Like, none of it— it didn't really make sense, but that was the bac— that's what the bacteria looked like.

So— and on top of that, this guy had also been in jail until very recently, so how would you get a horse infection in jail?

Justin: Hmm... well—

Sydnee: Are you gonna try to answer this? [laughs quietly]

Justin: Take Your Horse to Jail Day, I— I know used to be very common in this time period.

Sydnee: Mm-hmm. Mm-hmm.

Justin: To— they let the prisoners ride around on a horse or take pictures with a horse.

Sydnee: I'm pretty sure that wasn't... ever... a thing.

Justin: Hmm. [clicks tongue]

Sydnee: Uh—

Justin: You should listen to *Ear Hustle* more. They talk about Bring Your Horse to Jail Day a lot.

Sydnee: I don't think that happens. So anyway, they— they weren't really sure, but they had this bacteria, and they, you know, already sort of guessed, like, maybe whatever we're looking at caused the sickness.

So they proceeded with Koch's Postulates, meaning, like, we have an organism. We think it caused this person to die. So let's take it, grow it, stick it in something else, see if it gets sick, do an autopsy on it, and see if it looks the same.

Justin: Mm-hmm.

Sydnee: This is a classic scientific approach to figuring out if this organism is the cause of a disease. So that's what they did. They took some lung material, they put it on petri dishes. They had, like, luxurious growth, they said. They had lots of growth of—

Justin: Luxurious.

Sydnee: [laughs] Luxurious growth. Uh, and they—

Justin: That reminds me of exquisite pain. Luxurious growth.

Sydnee: Exquisite pain and luxurious growth. They took some of that, they injected it into a guinea pig. I'm sorry. I'm sorry to all guinea pigs, I'm sorry to this guinea pig, I'm sorry to all those who love—

Justin: Sorry to Raleigh.

Sydnee: Sorry to Raleigh, and your guinea pig. Uh, and then they, um... [laughs quietly] in the original paper— 'cause you can read, by the way, if you're interested, the entire paper is available online. It's 30-some pages.

Justin: Whoa!

Sydnee: Yeah, of his— of Whitmore's account—

Justin: Whoa, Franklin, clear my schedule!

Sydnee: I found it a very enjoyable read myself, but that's just...

Justin: You're saying I'm gonna want to read it twice. Franklin! Clear tomorrow's schedule, too! I'm reading a boring thing twice!

Sydnee: [laughs] In the ori—[laughs] who's Franklin?

Justin: My assistant. You don't know Franklin?

Sydnee: You don't have an assistant.

Justin: He's the guy at the tiny desk outside the studio!

Sydnee: You don't have—

Justin: You didn't [unintelligible] wonder what he did?

Sydnee: [laughs]

Justin: He m— he monitors my schedule!

Sydnee: There's nobody there!

Justin: That's so messed up right now—

Sydnee: [laughs]

Justin: —that you don't— it's so messed up that you don't even see him as a person... who sits outside my office and— haven't you ever wondered when you come to talk to me why he's sitting out there, and you always say "Justin, are you wearing a pretend mustache and pretending to be your own assistant?"

And I— and Franklin always says—

Sydnee: Ohhh.

Justin: Like, "No—"

Sydnee: I didn't know you named yourself Franklin then.

Justin: No, that's my assistant. You're very confused.

Sydnee: When are you Carl Stinkums?

Justin: Carl Stinkums [holding back laughter] is—

Sydnee: [laughs]

Justin: [sighs] Okay. The person who puts together scavenger hunts for the girls in the style of *Where in the World is Carmen Sandiego*—

Sydnee: Pandypants.

Justin: That's Phillip Pandypants.

Sydnee: Uh-huh.

Justin: Okay? They came up with that name. Phillip Pandypants is the boss of the secret agents that go on the scavenger hunts.

Sydnee: Right.

Justin: The villain that is always trying to thwart them on the scavenger hunts is Carl Stinkums.

Sydnee: They hate Carl Stinkums.

Justin: Boy, they hate Carl Stinkums. He actually got edited out of our most recent scavenger hunt.

Sydnee: 'Cause they upset— they got so upset over him.

Justin: They got— they hate Carl Stinkums. He's not even that threatening. He usually turns out to be a good guy in the end. Almost always.

Sydnee: Uh—

Justin: It's really weird. They just don't like the... the drama, you know?

Sydnee: No.

Justin: So, it's just Phillip Pandypants.

Sydnee: They don't like all that conflict. So—

Justin: Sometimes they don't even like Phillip Pandypants, honestly! Despite his cool hat.

Sydnee: [holding back laughter] Do they just not like you?

Justin: Maybe they just don't like me. I don't know.

Sydnee: [laughs] Uh, they like you. They like you. They just like me better. But they like you. So they— okay.

Justin: Do your podcast.

Sydnee: They— in the original paper published in 1913 Whitmore writes— this is after they have given this guinea pig some of this bac— luxurious growth of bacteria. Um, the—[laughs quietly] the guinea pig got sick and died, and then they did an autopsy to try to figure out if it was the same thing. So— and he writes:

"To our disappointment, the guinea pig died within 36 hours without any obvious inflammation of the testicles."

Justin: That's rough.

Sydnee: I think taken as just a standalone sentence is... it makes him look like a weird guy.

Justin: Yeah, fair, yeah.

Sydnee: Uh, why was he disappointed, you may wonder? Why was he so disappointed that this guinea pig's testicles were not inflamed?

Justin: [laughs]

Sydnee: Well, apparently when you did this with glanders...

Justin: Mm-hmm.

Sydnee: Uh, testicular inflammation of the guinea pig was sort of a hallmark response.

Justin: Ah, okay. It wasn't just his weird kink.

Sydnee: No—[laughs] so if he had done that he would've said "Yeah, this probably— even though the bacteria didn't look exactly like glanders, it looks similar enough, and this disease process looked like glanders, so then we... gotcha."

Um, but they didn't— this didn't confirm the diagnosis, so they felt like they were dealing with something new.

Um, so they proceeded to— like, what else can you do? You got one case that looks this way. You gotta find more.

Justin: Gotta.

Sydnee: And this was the— this was the quest they set out on, and I'm gonna tell you all about what they found, and what we know now. But first... let's go to the billing department.

Justin: Let's go!

[ad break]

Justin: So, Sydnee, what did they find?

Sydnee: So, they did a lot more autopsies. First of all, they found out that whatever this is, it's bad.

Justin: [snorts]

Sydnee: Because—

Justin: Unlike all those good diseases that kill you.

Sydnee: Well, because they weren't— they weren't really getting to interview a lot of, like, living humans and ask them about it or, like, recovered patients and find out what happened. They were just doing autopsies. So, like, that's one clue. This is bad, because everybody who has it... is dead. So that's a bad thing.

So they, uh— they started gathering more postmortem cases. And, like, word got around the hospital. Like, "Hey, if you have any of these sorts of cases, like, let— let these—[laughs quietly] let the weird guys know."
[laughs quietly]

Justin: Let the weird guy that feels guinea pig balls— you know. You know?

Sydnee: You know that guy.

Justin: You know that guy.

Sydnee: Basically, they did a lot of autopsies, and they figured out that they could find the bacteria in lots of different places. Um, definitely the lungs, as they had initially noted on the first autopsy, um, but also in the kidneys, the urine, in the skin, in the spleen, uh, anywhere inside a guinea pig abdomen, 'cause they continued to do these— I mean, it was— it's a very rigorous scientific method.

You do the autopsy, you localize the bacteria, you give the bacteria— you grow it, you give it to something else, and see what happens. I know it's mean. I know. I know a lot of people are like, "Why are you keep doing—" I know it's mean. It was how they figured things out.

Justin: Yeah.

Sydnee: I'm sorry. I'm sorry about that. And in many ways, it did still seem somewhat similar to glanders, 'cause glanders can have kind of a diverse clinical presentation. It doesn't always look the same, right? I think we've learned that in the last year and a half with COVID that COVID can look different in different people.

Justin: Absolutely.

Sydnee: We're used to the idea that, like, "Well, that virus causes these symptoms. That bacteria causes these sym—" well, not always. Some of them can look different in different people, and glanders was sort of like that, and this bacteria seemed sort of like that.

Um, but this bacteria was motile— motile, like it could move, and that was different. Um, and the course just generally didn't fit. It just wasn't— yeah, there were parts of it that are similar to glanders, but it's definitely something new. Um, the only time— they did get the opportunity to sort of look at a living case. Like, the disease progression in a living human before they died of the disease, but it was retrospective.

There was another doctor named Captain Knapp who was taking care of a guy, and he wrote— he took pretty meticulous records as he tried to, like, you know, take care of the guy, um, and he did not get better. Um, and then after he died, he reached out to Whitmore and was like, "Hey, uh, I did an autopsy on this guy and the things I found seem really similar to the things that you are finding, and also I have all these meticulous case notes from his whole disease course. Would you be interested?"

Justin: "And also, my name is Captain Knapp."

Sydnee: [laughs quietly]

Justin: "Which I know sounds like a preschool book character, but I assure you, I'm a real adult that should be taken seriously."

Sydnee: It's not N-A-P.

Justin: What?

Sydnee: It's not N-A-P.

Justin: Well, honey, it's an audio medium! If a character's not named Captain Nap—

Sydnee: [laughs]

Justin: —you have to— you have to, uh, clarify!

Sydnee: Captain K-napp.

Justin: Well, no, certainly that's not right either.

Sydnee: Well, it's probably pronounced "Nap."

Justin: Just crank out a quick spellarooskie.

Sydnee: K-N-A-P-P, K-napp. Knapp.

Justin: Knapp.

Sydnee: Knapp, K-napp.

Justin: It's not that either.

Sydnee: [laughs]

Justin: His name is Captain Knapp!

Sydnee: Captain K-napp is pretty catchy, though.

Justin: And what makes him soar is knowing the boys and girls are going to bed on time!

Sydnee: [laughs quietly]

Justin: He's named Captain Nap! That's where he gets his superpowers! From the fact that he gets eight hours of sleep every night!

Sydnee: These notes, these meticulous notes really helped because he had a picture of what it looks like before a person dies of it, and so he could talk about, like, the progression from initially the fevers, you get some, like, stomach symptoms, like maybe diarrhea, some general flu-like symptoms— you know, aches, pains, that kind of thing, chills.

Um, and then progression to the pulmonary infection, and the skin lesions, which they had initially assumed were just because all of these patients they were seeing were also using injection morphine, and so they thought that the skin lesions were not part of it, but it seemed like there was a component that was that.

Um, as far as how they got it, even as they figured out, like, "We got a new bacteria, it causes this disease that we can see present these different ways," um, as far as how they got it, he still wasn't sure.

Justin: And then he found someone in the office had a whole crate of Better Home and Gardens...

Sydnee: [laughs]

Justin: ... aromatherapy.

Sydnee: In 1911.

Justin: Scented like sarsaparilla. It's sarsaparilla-scented.

Sydnee: He thought at first—

Justin: And Victrola. It's the scent of Victrolas and sarsaparilla. [sniffs]

Sydnee: And, I mean, back then probably, like, misogyny, and racism, and...

Justin: [sarcastically] Yeah, I'm so glad we got those stamped out.

Sydnee: Oh... that was a bummer.

Justin: Yeah, I'm sorry. Go ahead.

Sydnee: Uh, it seemed to affect those who were addicted to morphine more, and there was an initial, like, is this because it's, you know, communicable through a needle? Is that why? Like, it's a needle stick thing. Um, or is it something to do with the fact that a lot of these patients also were unsheltered, were malnourished, you know, were generally more vulnerable to infection?

Um, was it an immunity issue? Is it a— was it a jail issue? A lot of them had been in jail. But, you know, it's sort of like confounders, right? Correlation does not equal causation?

Justin: Right.

Sydnee: A lot of these things unfortunately, then and now, tend to run together. Um, and also, the guinea pigs seemed to be able to get it from eating and drinking?

Justin: Hmm.

Sydnee: Like, it was communicable through the oral route, so is that something? Obviously, there was a lot of— there were still a lot of questions. Now, this didn't stop him from naming it. So, he got a new bacteria. It's not *Bacillus mallei* like we initially thought. So instead we're gonna call it *Bacillus pseudomallei*.

Justin: Ohhh.

Sydnee: You get— you get it? You get it? Um, later it was just, you know, as— and this is true, I think, in all, like, taxonomy— as you learn more about different organisms, you restructure sort of which groups they belong in. So, it started as a *Bacillus*, but it would later have its name changed to *Burkholderia*, 'cause it was more closely related to other types of bacteria. Does that make sense?

Justin: Yeah.

Sydnee: Um, and that— because we understood where it fit. Burkholderia, if you're curious, is named for a plant pathologist, Walter Burkholder, who found that genus of bacteria.

Justin: Hm!

Sydnee: So, Burkholderia for him, and then pseudomallei, because it's sort of like glanders mallei, but it's not that.

Um, even with that, though, it was also often called Whitmore's disease. Or Bacille de Whitmore.

Justin: [quietly] Bacille de Whitmore.

Sydnee: Yeah.

Justin: [quietly] That's a much more dramatic name, I feel.

Sydnee: It's interesting that he didn't name it for himself. A lot of people did, back then.

Justin: I always wondered how you would you would feel about that, right? Like... for your name to become synonymous with... a disease. I'm not sure I'd love that legacy, although I get why people would like it. Just, like, I'm not sure I'd be into it.

Sydnee: Really?

Justin: It's got, like, a negative connotation, right?

Sydnee: I don't know.

Justin: There's not a lot of diseases that make— make— give you a eight foot vertical leap, you know what I mean? There's not a lot of diseases that, like... give— give you two and a half times the strength of a— of a normal human. Most diseases—

Sydnee: [simultaneously] Well, I guess so.

Justin: —are pretty bad.

Sydnee: Yeah, I mean, typically a disease is a bad thing to get. But, like—

Justin: Why aren't there good diseases? I think about this a lot.

Sydnee: [laughs quietly] That's pro— that could probably be a whole other episode. I could maybe make a case for things. But anyway, um, [laughs] the— I don't know. 'Cause you get it named after you because, like, you discovered it, or you were the first one to isolate it, or you were the first one to describe what it did, or...

Justin: I get it, logically. I get it, logically, but that also—

Sydnee: ... or treat it.

Justin: —that also requires, like, a deep dive into history, right? To, like, figure that out. By and large it's just gonna be, like...

Sydnee: Well, not really, 'cause you don't assume that it's named for, like, the person who invented it. Like...

Justin: [laughs loudly]

Sydnee: "I invented this bacteria. I made it. Ha ha."

Justin: Yeah, but you're also—

Sydnee: It's not— it's— we wouldn't name it for an evil genius.

Justin: Yeah, but also, like, any time anybody talks about your thing, it's gonna be in the context of, like, "Hey, I'm beating this. I beat McElroy's. I'm fighting McElroy's really hard. I lost my mom to McElroy's."

Like, none of it's good. It's all bad.

Sydnee: All of that sounded bad.

Justin: "I have to stay home, I have really bad McElroy's right now."

Sydnee: I— I'll be honest—

Justin: "[through laughter] I've been on the toilet all day with these McElroy's."

Sydnee: If one of us was gonna be able to explain the compulsion to name something after themselves, I would think, like, the white guy in the room would be able to explain that to me, because that's what it all is. It's usually, like, a white guy who's like, "I— I know— I know 30 other people have already found this, but I'm gonna publish it and call it me."

Justin: Well...

Sydnee: [laughs quietly]

Justin: I guess you really put me in my place.

Sydnee: [laughs]

Justin: I— I hope you get a case of Mc—

Sydnee: I'm joking. I don't know.

Justin: Now I hope *you* get a case of McElroy's.

Sydnee: I don't know why Whitmore didn't want to name it after himself, or why other people do. I mean, obviously Burkholderia, Walter Burkholder, the plant pathologist...

Justin: Yeah.

Sydnee: ... was all about it, so. I don't know anything about Walter Burkholder [laughs] other than this, so he— I don't know what his proclivities were.

Um, eventually, uh, Stanton and Fletcher published some papers about the disease to help— you know, 'cause that's— it's usually, like, a building— it's, like, a building block thing, right? Over time we learn more about it, and they were the ones who first coined the term melioidosis, which was in reference to the Greek for "a condition similar to a distemper of asses."

Justin: Mm-hmm. [snorts]

Sydnee: [laughs] An— again—

Justin: Sorry— sorry, say again?

Sydnee: Calling back to glanders. A condition similar to a distemper of asses.

Justin: [snorts]

Sydnee: As in, like, donkeys.

Justin: [weakly] I gotcha.

Sydnee: You know. You get it.

Justin: I get it, 'cause you said the word, and you wouldn't say that normally, so.

Sydnee: I like how— I just love— I love the scientific system of naming everything about, like, "Well, it's sort of like this." It's an entire naming system that, like, there's a seed somewhere where, like, there was the first thing that we named something, and then everything else is just named...

Justin: Spun o— it's like a spin off.

Sydnee: It's like a— yes, it's how much it's like or not like that original thing that we named that one time.

Justin: Yeah.

Sydnee: That's probably Greek, as far as I can tell. Uh, the presentation, as we would eventually come to understand it, like I said, it can vary. You can have skin presentations of the disease. There are different, um— and this is true now. There are different, like, ways you can get it. You can get, like, a skin thing where it's an abscess with swelling, and pain, and fever. You can get a blood infection. That's obviously worse, where you get fever, joint pain, respiratory problems, abdominal pain. You can get a lung infection, like we talked about. You can get a— like, a CNS, central nervous system, like the brain or meninges kind of thing.

So there are lots of different ways, depending on exactly how you're exposed to it and how much of it gets into your body and where it goes. Um, that it would present.

The, uh— any kind of underlying disease does put you at risk, so it is, in a sense, like what we would think of as, like, an opportunistic kind of pathogen, meaning if it gets an opportunity.

Justin: Hmm!

Sydnee: Have you heard that term?

Justin: Mm-hmm.

Sydnee: So if there's something that, you know, can suppress your immune system or makes you more likely to get a disease. Its onset is usually two to four weeks from contact. Um, most commonly it's inhaled. Um, like, you come into contact with contaminated soil or water droplets and can inhale little bits of it.

Uh, it generally is not passed from person to person. There was one rare case where somebody got it from, like, a tropical freshwater fish.

Justin: How on earth did they prove that?

Sydnee: And like I said, the one thing that Whitmore even knew, back when they first figured all this out, is that it seemed pretty bad, since all of the patients that he knew had it... he met on autopsy. Um, and he also, like I said, theorized this relationship to injecting morphia, morphine, but again this is probably more related to underlying disease, opportunistic infections, unclean food or water sources, that kind of thing.

Um, and that is true to this day that, like, when we see cases of melioidosis now, underlying disease, it is more of an opportunistic thing, which is part of why it's more rare. Why you don't just see outbreaks affecting everybody all at once, right? Because while yes, you could get it if you're healthy, it's more likely that if you have some other health condition—

Justin: Got it. Yeah, that makes sense.

Sydnee: —that you would— you know?

Justin: Yeah.

Sydnee: Um, now, instead of what he witnessed, now we see things like diabetes can put you at higher risk for contracting melioidosis; liver or kidney or lung disease; um, any kind of other immunosuppression; in addition to, like, malnutrition and stuff like that.

Uh, we didn't, of course, have great meds for this when we first figured it all out. We didn't have antibiotics yet, right? Like, this was 1911 up to, like, 1913, as we were defining all this stuff, so we didn't have any antibiotics to treat it. It must've been a very frustrating time, by the way, to write, like, these 30-page papers defining a disease process and then at the end go, "[sighs] So, good luck with that one."

Justin: [laughs] Yeah.

Sydnee: "I got—I don't know what to tell you to do, but... good luck with it."

Justin: Yeah.

Sydnee: "That's what it looks like." Um—

Justin: "Sydnee, you're reading this in—in 100 years. You've spent all day reading this 30-page paper. I hope you can figure it out."

Sydnee: [laughs] "I hope somebody else figured it out."

Justin: "Thanks for reading. I hope you appreciate all the great information in here, Syd."

Sydnee: Anyway.

Justin: "Thanks for reading my boring work."

Sydnee: Prior to 1989... which I was gonna say, that's not that long ago. I don't know, is it? It feels...

Justin: I've lost all... perspective.

Sydnee: Uh, the standard treatment was a three-drug combination of, um, chloramphenicol... chloramphenicol, co-trimoxazole, and doxycycline. Um, *but* even with that regimen— this is prior to 1989, this is what we would use, so, like, in the modern era— it was associated with a mortality rate of 80%.

Justin: Oh my God.

Sydnee: Yes.

Justin: Geez.

Sydnee: Now, at that time is when we get ceftazidime introduced, which is a different antibiotic which worked a lot better.

Justin: Okay.

Sydnee: So now we have better medications to treat this, and the mortality rate is 40% in resource-limited settings and, like, 10% in resource-rich settings, which mainly has to do with, like, the degree of not just access to the right drugs, but, like, what sort of supportive care you can provide the patient while they're recovering from the disease, um, and how much more difficult that is in certain parts of the world than others.

So, uh, it's still a big, bad deal. I mean, those numbers are still incredibly high, but we do have things that can treat it now, thank goodness, much more effectively than we did prior to 1989. It has been investigated as a bioterrorism weapon in the past.

Justin: Gross.

Sydnee: Yeah. Uh, glanders apparently was used by the Germans in World War I.

Justin: [quietly] Ze Germans.

Sydnee: Ze Germans, in World War I [laughs quietly] on Allied cows.

Justin: Um...

Sydnee: I don't know that the cows knew that they were part of the Allied forces.

Justin: Yeah, you could tell. They had that air about them.

Sydnee: [laughs] But they became part of the Allied forces, and then they were infected with glanders.

Justin: Maybe they're not Allied cows. Maybe they're cows that are allied with each other. Maybe they're just, like, "No, no, no. We just look out for one another as cows. We're not participating in your geopolitical scrabbles."

Sydnee: Listen, I don't think there are any animals that are. You can fool yourself but, like, they're over us. Our species, the human race, phew. They're done with us. [laughs quietly] We're just messing everything up. The cows are not your allies. They're each others' allies. They're planet Earth's allies, and we need to get on board.

Justin: [laughs]

Sydnee: [laughs] Or the trees are gonna wipe us out. Have you seen that movie?

Justin: [incredulously] *The Happening*?

Sydnee: *The Happening*? The trees are gonna wipe us out if you're not careful. [sighs] There was also an outbreak li— outbreak linked to a panda in the Paris Zoo in the 70's that was highly publicized. And this is usually how you kind of see this. Like, these sort of, like, sporadic outbreaks. Um, there are, like I said, specific parts of the world where it is still endemic, but it's not all over the world.

We've had four cases in the US linked to these sprays.

Justin: Mm-hmm.

Sydnee: Hopefully we won't have any more now that obviously—

Justin: In the grand scheme, that's still very limited. Like, in terms of the spread of— you know.

Sydnee: Oh yeah, no, I'm not—

Justin: When you think about how many of these— these are out there.

Sydnee: This is one of those things where, um, it is really a neglected— it's not on the list of neglected tropical diseases, I do not believe. Like, I was looking to see, 'cause it— as I was reading more about it, it's not something that I have studied a lot, 'cause I've certainly never, you know, treated anyone for it.

Um, but as I was reading more about it, I do not believe it is actually listed as one of those, but it should be, because it is a disease that impacts parts of the world that often do not get enough attention as to what their specific healthcare problems are, right? Like, they need— it deserves more time and money and research efforts and all those things, but when you have these certain sorts of bugs that don't affect the US or, you know, Europe, and these places, like, you don't get as much time and attention and money, you know, turned towards them.

Um, and so it is rare that we would see it in the US. I don't think this is something you should be afraid of. I think that if you have these sprays, you should... get rid of them. [laughs] But, um, but this is not, like, an alarmist sort of thing. It's more just, what was this thing read about in the news?

Um, the, uh— like I said, the places where they actually had the cases were in Georgia, Texas, Kansas, Minnesota. Two of those people unfortunately died of the condition.

Justin: Oh. [sighs]

Sydnee: Um, and like I said, we do have treatments now. It's still very tough to treat. You need two weeks of IV antibiotics, up to eight in some cases, depending on where the infection is, and then three to six months follow up of oral antibiotics after that.

So, like... and that's sort of similar to— you could liken it to tuberculosis, is something that we can treat but it's hard and it takes multiple drugs for an extended period of time to treat it. Melioidosis is similar in that sense. Um, but again, there has been that recall, so I would check, if you do have the [laughs quietly] Better Homes and Gardens, uh... essential oil infused aromatherapy room spray with gemstones...

Justin: Or you have a— let's say an aunt who you think definitely has that somewhere in her bathroom. Just go ahead and give her a quick buzz. Everybody's got that aunt, right?

Sydnee: And it did— I guess I didn't answer that question. How did it get in the room spray?

Justin: How?

Sydnee: Well, it is often found in contaminated, like— it can just be in dirt and water.

Justin: It's on the rocks. On the rocks!

Sydnee: So, these were made— these sprays were made in parts of the world— the ingredients— I don't know where they were all put together. Everything's a— I don't know how all that works. I'm not in that line. But the parts of it, at least, came from parts of the world where it can just live naturally in the soil or water, so something, whether it was the rocks in the bottom or something in the, um, the lavender, or chamomile, or one of the other essential oils, whatever it was synthesized from, somewhere in there it was contaminated with the bacteria.

Justin: This is why I keep saying you can't trust this natural stuff, Sydnee. Rocks, oils, all this stuff from nature? No, thank you! Gimme chemicals... made in a factory.

Sydnee: [laughs quietly]

Justin: You know? Pound it. Oh, thank you!

Sydnee: Well, I don't—

Justin: Thank you for pounding it.

Sydnee: I don't know— I didn't pound it. Um, no, but it does— it does— I mean, we talk about this a lot on the show. The idea that something that is quote, unquote, "natural" is perceived as safe.

Justin: Yeah.

Sydnee: And that is not to say that we should all be afraid of room sprays, 'cause this is a very rare, random occurrence that happened.

Justin: But if you want Sydnee to be able to relax in your room, maybe you should be afraid of room sprays.

Sydnee: They just— every single— any kind of scent, though. Perfume, cologne, candles, all of 'em.

Justin: It's very sad.

Sydnee: Air fresheners. I can't do any of it.

Justin: We live in a scentless—[choked up] sometimes I'll have a small candle in my office for just a little bit of scent. [coughs]

Sydnee: Charlie asked me what my favorite scent was, and I said, "Clean." [laughs]

Justin: "Not." Not even clean! 'Cause, like, clean linens is, like, a scent. You just like anti-scent. Anyway, thank you, Sydnee, for that fascinating history, and thank you to you, for listening. We very much appreciate it. Uhh, you're the best. And... like, just thanks.

Um, if you wanna, we wrote a book. It's called *The Sawbones Book*. There's a paperback version with some new information about COVID. Just not, like, new information about Co— like, we haven't unearthed anything. [laughs quietly]

Sydnee: [laughs]

Justin: But it's got new chapters in this book. Um, so go check that out at anywhere fine books are sold.

Sydnee: Justin, I should note, if somebody does have this, I said "get rid of it." You actually shouldn't throw it away or dispose of it in the trash.

Justin: What should you do?

Sydnee: If you do have this product, obviously don't use it.

Justin: Yeah?

Sydnee: Don't open it.

Justin: Yeah?

Sydnee: Double bag it in Ziploc bags, and then put it in a cardboard box. This is really what they recommend. And then return it to a Walmart store.

Justin: Okay.

Sydnee: Um, and then wash all of your sheets or linens that may have been exposed to it. Clothes or anything like that. Wipe anything down that it may have gotten on with, like, disinfectant. And then obviously seek medical care if you're sick, but I should— I should make that note, that you shouldn't just throw it in the trash. There's a very specific way of return—[laughs quietly] return it to Walmart so they can... [sighs heavily] man.

Justin: And make sure you tell 'em, "This is the bad poison room spray! Make sure you don't open this, please!"

Sydnee: "Return it to Walmart so they can dispose of it properly" is not a sentence I ever thought I would say, but that is...

Justin: Right. [laughs] Return to the hazmat specialists at Walmart.

Sydnee: At your local Walmart store.

Justin: Thank you, again, for listeners. Um, thanks to The Taxpayers for the use of their song, "Medicines," as the intro and outro of our program, and thank you to you! We'll be back with you again next week. Until then, 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]

[chord]

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