Sawbones Ep 406: Spring Medical Questions Are in the Air

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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*: [singing to the tune of the theme song] a marital tour of misguided medicine. This is our theme song. It's always been our theme song.

Sydnee: You forgot to say your name.

Justin: There was a ha— look. Look at the sheet music. I've— here. Look!

Sydnee: There is no sheet music, Justin.

Justin: Look at the sheet music I've printed up. There's a whole rest right here.

Sydnee: Justin, there is no sheet music.

Justin: [singing] And I'm Justin McElroy.

Sydnee: And I'm Sydnee McElroy.

Justin: Welcome to *Sawbones*, it's a marit… I guess, we pretty well covered that.

Sydnee: We already have a great song.

Justin: I know but I just wrote—

Sydnee: About medicines.

Justin: That's a— it's a leitmotif that I'm creating. A theme that I'll return to throughout the— the show to, kind of like, score it a little bit.

Sydnee: Oh.

Justin: We already have a intro, but we don't have, like, a leit— leitmotif.

Sydnee: I thought it was a theme within a theme.

Justin: Ah. Uh.

Sydnee: [singing] Like a dream—

Justin and Sydnee: [singing in unison] … within a dweam.

Justin: I'm— I don't—

Sydnee: That's from *The Princess Bride.*

Justin: I don't know much about music stuff. But you know what I *do* know about?

Sydnee: What?

Justin: Medicine.

Justin and Sydnee: [in unison] No.

Sydnee: You don't know that.

Justin: Not that either, but—

Sydnee: You actually, probably know a good bit more about music than you do about medicine.

Justin: That is the sweetest thing you've said to me all day.

Sydnee: [laughs] I also really appreciate you cleaning the kitchen.

Justin: Oh, well you're wel—

Sydnee: So I could finish researching.

Justin: You're welcome.

Sydnee: I'm very grateful.

Justin: Um, Happy Spring! Let's spring into spring.

Sydnee: That's right! It's *my* season. [laughs softly]

Justin: It's Syd— it's Syd season.

Sydnee: Not just— not spring. It's also Aries season. It's my season.

Justin: Oh, yeah.

Sydnee: My birthday's coming up.

Justin: I mean, yeah. March 27th.

Sydnee: It's a very exciting time of year for everyone, I know.

Justin: [chuckles] Um.

Sydnee: [laughs softly]

Justin: So, what we thought we'd celebrate by a fresh— a fresh step.

Sydnee: Mm-hmm.

Justin: With— um, with some of your questions. Clean out— a little spring cleaning of the old inbox. To answer your weird medical questions. I love

doing these episodes. Everyone loves listening to them. Uh, maybe not everyone, but I think pretty much everyone.

Sydnee: I think a lot— a lot of— so, I mentioned in our last questions episode that if you think of something randomly and you want to ask, don't— you don't have to wait until we put out a call for questions.

Justin: Yes.

Sydnee: Please feel free to send them. And—

Justin: And feel real free or something.

Sydnee: You all are straight-A students. Our listeners are gold star students all the way, 'cause, boy, have they done it. I have so many questions. This isn't even a fraction.

Do not be discouraged if your question is not answered. I have *so* many questions and there's *so* many great ones. We'll do many, many more episodes like this.

Justin: Yes.

Sydnee: Um, these are just *some* of the ones I could get [through laughter] through and answer.

Justin: Okay. Here's a question. Are you ready? Turn your brain on.

Sydnee: Yeah.

Justin: Get ready. Brain's on.

Sydnee: I cut this question in half 'cause the first— the first section of it was a little bit of personal details— some intimate details. I didn't know if the listener would want it included.

Justin: [holding back laughter] So, whatever— whatever the personal details were, that got this person thinking—

Sydnee: [laughing]

Justin: "How do— how do hickeys go away? Would detached flesh such as removed chest lumps heal a hickey that's already on them?"

Ew, gross. Why would your mind go there?

Sydnee: Well, no. If you read the first part of the—

Justin: Okay... "Or would the flesh have to be attached to a person with blood flow to make the marks go away? Thanks in advance, Kibbe."

Sydnee: Okay. So, first of all, I thought the idea— like, what hickeys are would be good to talk about first.

Justin: Yeah.

Sydnee: And then the second part of the question. Like, if you have a piece of skin that has a hickey and now it's been removed for reasons, like a surgery. This is— this is in regards to a surgery.

Justin: So, what a hickey? I'll start there.

Sydnee: Um, yeah. Do you know what a hickey is?

Justin: A hickey is a contusion that has been caused by the trauma of heavy suction on a part of your body.

Sydnee: That's very impressive, Justin.

Justin: Thank you.

Sydnee: You even used the word contusion. Yeah.

Justin: Oh, thank you. I guess I *do* know a little bit about medicine.

Sydnee: That is. That is exactly what it is. Also, sometimes biting can be involved. I always— I thought hickeys were purely the suction action. Like, it's the vacuum action that causes a hickey. But in a lot of the [through laughter] medical journal articles I read about hickeys—

Justin: Yeah.

Sydnee: …um, when researching this—

Justin: Top minds. Top minds are on it.

Sydnee: … they all said, "the trauma from either suction or biting." And I thought, "Okay, y'all. Okay."

Justin: I think that's just— I think that's just a bite though.

Sydnee: Well.

Justin: I don't want to get into the specifics. Anyway—

Sydnee: So, that's what a hickey is. So—

Justin: Perfectly safe though. Not really a big deal.

Sydnee: So, what was interesting is, like— so it's basically like a bruise.

Justin: Mm-hmm. Yeah.

Sydnee: It's a— it's a type of bruise. And it will go away with time as your body resorbs the blood.

Justin: Okay.

Sydnee: Like, it's just blood under the skin and your body will resorb it. No big deal.

Justin: [quietly] No big deal.

Sydnee: Um, but it is an interesting question, like, post-mortem. Would— I mean, and I know in this case we're talking about surgically removed tissue. That's not the same as post-mortem. But that— this was— you can't google that. [laughs]

Justin: You can't google that unless you want to do some 'splaining to the authorities.

Sydnee: You— you can look up post-mortem bruising, though, and there are lots of forensic articles that dis— that detail, like, bruises *do* change somewhat post-mortem. They do evolve to an extent. And also, bruises can just spontaneously occur post-mortem.

Justin: Okay.

Sydnee: Which can be really difficult to distinguish from, like, if you're trying to figure out, like a CSI case, cause of death.

Justin: Uh-huh.

Sydnee: Um, but all that being said, a bruise isn't going to go away. So, a hickey on a piece of skin that been detached from a human would be there.

Justin: I—

Sydnee: It might change, but it's not going to go away. I did find—

Justin: I cannot fathom what the first half of that question was. I— I will wonder forever, for the rest of my days.

Sydnee: Do you want me to tell you?

Justin: No.

Sydnee: Okay. I didn't— I mean, it was all in the email, so I assumed it was all for public consumption. But I don't know. It just felt, like, personal. Personal bedroom stuff that I didn't know if Kibe wanted to share with the world.

Justin: It wasn't— I— I know the password. I can get in there and look at the emails. There's no— there's no HIPPA keeping me out.

Sydnee: I don't want to freak you out, but there have been three reported cases of strokes caused by hickeys, and one of them was fatal.

Justin: Okay! So that's a thing you can just, sort of, think about.

Sydnee: It's highly, highly, highly unlikely. It would be a very—

Justin: But not so unlikely Sydnee didn't mention it.

Sydnee: No. Well, I mean, as I was looking this up, I found these case reports, and I, like, cross-referenced double-checked. They appear to be legit cases of hickeys causing, like, blood—

Justin: [snorting laugh]

Sydnee: Like, breaking blood vessels, and then you get clotting in that area. And then you get a clot that goes somewhere it shouldn't go. Namely, your brain. Anyway, it was— it's very rare and it would be very difficult for it to happen. Please do not feel like this is a reason—

Justin: Hickey away.

Sydnee: Yeah. Well… yes.

Justin: Run the numbers.

Sydnee: If that is something you enjoy.

Justin: Yeah. I mean, implied. But, sure.

Sydnee: And you're consenting adults.

Justin: Yes, of course.

Sydnee: Okay.

Justin: So, there's your answer to that question. Here's another one, "Can drinking alcohol prevent/reduce food poisoning? If I were to *accidentally* eat a piece of undercooked/contaminated food, uh, could I do a few shots of whiskey and kill off the microbes that could make me sick? I think I would need to be, uh, liquor since beer or wine are likely not a high enough alcohol level. And I get that it cannot be *so* much that I get sick/dead from the alcohol."

Uh, that's from Matthew. So, uh, okay. So, beer we're talking five percent to—

Sydnee: Maybe *your* beer.

Justin: Nine. Okay, nine percent for Syd's beers.

Sydnee: No, I just I— that sounded worse than it was. I just, like, craft beers, and they tend to be a higher gravity with, like IPA's and stuff.

Justin: Yeah. IPA's and triples, you— you love those.

Sydnee: Yeah.

Justin: Uh, and then, uh, I mean, like wine your— is, I think, like 14% typically, so—

Sydnee: And whiskey.

Justin: The whiskey's 40%?

Sydnee: Something like that.

Justin: Around that, I believe.

Sydnee: Um, okay. So, no. You can't— you can't prevent or treat, or whatever, food poisoning with alcohol.

Justin: Mm-hmm.

Sydnee: In fact, I would guess, if you've— if you now have been poisoned by your food and are going to be sick soon, drinking alcohol on top of it is not—

Justin: That's the last thing you would want. What about Everclear? Something like that.

Sydnee: No, because what you're talking about is, like, the alcohol— first of all, the alcohol is going to be absorbed. The food, and the bacteria, or whatever, the toxin, whatever's in there is also going to be absorbed. It's not—

Justin: You're not a Bicentennial Man with, like, a plastic esophagus that could be sanitized.

Sydnee: Yes. Exactly, yes. The— I mean, there's lots of gushy stuff in there. Everything is being absorbed. Stuff isn't, like, just laying on the surface of your stomach waiting to be destroyed by alcohol.

Justin: Uh-huh.

Sydnee: It's, like, moving around in there. I understand the thought process. I think it's an interesting question, but it would not work. Um, and it would probably end up making you sick. But, like, you don't know. I mean, you don't know that you've been food poisoned in the moment you're being food poisoned. You don't know until later.

So, use good food preparation methods. This is why I don't eat raw meat. I mean, not just raw meat. I mean, rare meat. That's what I meant. Nobody eats raw meat. Well, ju—

Justin: Some people eat raw meat.

Sydnee: Some people do. I would not eat rare meat. I don't. I just won't.

Justin: Uh-uh.

Sydnee: Not my thing.

Justin: Syd gets her hamburgers well done too. Got to do it.

Sydnee: Yeah. I'd— if I'm going to eat meat I— I like it cooked.

Justin: "Why can't eggs be saved by freezing a whole ovary when it's removed? Why do you have to go through the whole hormone process to collect them instead?"

Now, I think, I'm a little bit ignorant of the premise of this. Can you walk us into that?

Sydnee: Eggs, as in, like, that make humans.

Justin: I understand that. I don't know the other stuff.

Sydnee: Not, like, that you'd eat.

Justin: The— the hormone process to collect them.

Sydnee: Okay. So, in order to… okay. So, you may want to, uh, become pregnant.

Justin: Mm-hmm.

Sydnee: Or be part of becoming pregnant. You know, whether it's you becoming pregnant or a surrogacy situation. You might want to have a child made with your DNA.

Justin: Okay.

Sydnee: Sometime down the road, but not now. And one thing you could consider doing is having your eggs harvested and frozen. And then you just save them for down the road.

Justin: Okay.

Sydnee: When you want to, like, combine them with some sperm and put them back in you or someone. Whatever, right? Okay. The reason that you have to take hormones before that is that you don't wanna— I mean, usually you're just producing one egg at a time.

Justin: Uh-huh.

Sydnee: That would be— it would be a lot of, um, procedures, over and over again every month. And, so instead, you're on hormones. A specific combination that will make you produce a *lot* of eggs all at the same time.

Justin: Okay.

Sydnee: So, that they can harvest, like, 14… and freeze those.

Justin: Gotcha.

Sydnee: Because there is a procedure involved. I mean, it is an invasive procedure. To go in and, like, stick a needle in through the wall of the vagina, get up to the ovary and, suction out, like, vacuum out the eggs.

Justin: Okay.

Sydnee: Okay?

Justin: Gotcha.

Sydnee: Um, there's also hormones involved in maturing the eggs to a certain extent. Like, they form these big fluid-filled cysts around them and they're mature enough to, like, suck out of there.

Justin: Oh, okay.

Sydnee: So, all of that has to happen to get the eggs. So, the question is, like, "Why not just take the whole ovary and freeze it? Then you got 'em. Wouldn't that be easier?" So, this is an interesting question and I looked into it. 'Cause, I was, like, you know, that's a good point.

I can think of some different reasons but has anybody tried this? Um, they *do* this actually. Now, this is newer. We've frozen eggs for a while. You know, we can collect sperm and freeze that. Like, those things we have frozen for a long time. But it is newer technology, the idea of, like, freezing the whole egg. Um, and one easy reason is right now your odds of, like, creating a child from that are not as good yet. Like—

Justin: Okay.

Sydnee: It can work. There are some studies that have shown, like, you can take the egg, you can reimplant the egg. Or not the egg. You can take the ovary; you can reimplant the ovary—

Justin: Okay.

Sydnee: … and it will work. And you can have a baby.

Justin: Wow.

Sydnee: Yes. This has mainly been tried in, like, younger patients who have to undergo chemo.

Justin: Oh, okay. Yeah.

Sydnee: That might harm future fertility and so they have their whole ovary removed in hopes of preserving future fertility if that's what they want. So again, the subset of patients that this has been tried in are younger. Um, they won't necessarily have that ovary reimplanted. Like, it could just be just a couple years down the road. Do you know what I mean?

Justin: Right.

Sydnee: So, like, we don't necessarily know that the— these aren't the same patient populations. Usually, what you're talking about when freezing eggs, you're talking about people who are making the conscious decision. Like, "I don't want to have kids yet, because of whatever various factors in

my life. And so, I'm going to freeze these eggs for further down the road when I might want to have kids."

These are young people who might still be *young* people, you know? We're talking about totally different patient populations. That's one big difference. The other thing is that, um, it requires a whole surgery to take an ovary out.

Justin: Oh. It's a little greater time.

Sydnee: There's higher risk. It's more invasive. There's healing time. It's more dangerous. Um, and, uh, you know, the eggs also need to mature— nobody is— nobody could— all that we're talking about is, like, taking out an ovary and putting the ovary back. Nobody is taking out an ovary and trying to then, like, create the hormonal milieu to mature the egg and take the egg and combine it in a petri dish with the sp— you know what I mean?

Justin: Yeah, okay.

Sydnee: Like, so far where we are is, "Here's the ovary. Put it back in a human body and then go for it."

Justin: I gotcha.

Sydnee: Not, "Here's the ovary. Get some eggs out of it." So, I think in order for the whole process to make sense, you'd have to get to that point. So, for now, the eggs are just more reliable.

Justin: Okay. That's good enough for me, Syd. I will abandon my efforts.

Sydnee: It's very interesting. It's a new area of medicine. I mean, newer. I mean within the last couple decades but—

Justin: Right.

Sydnee: You know, it takes a long time for us to know—

Justin: In the grand scope of our show that is new.

Sydnee: Yeah.

Justin: Sure. "There is a small ultrasonic cleaner at work that has a timed cycle, but sometimes the item is clean before the cycle is over. Is it safe to just stick my hand in there to grab the clean thing so I can leave the cleaner on for the other items it's cleaning? It tingles in a [chuckles] mildly unpleasant way but I didn't think much of it until I stuck a finger in with a papercut in it. That hurt like the dickens. [through laughter] Is it actually vibrating my skin off or something? Thanks, Jennifer."

Now, I don't know what Sydnee is going to say, but I would say that, um, tingling with mild unpleasantness is nature's way of saying—

Sydnee: [laughs softly]

Justin: [bursts out laughing] "Don't! Don't do this thing."

Sydnee: Do you know how an ultrasonic cleaner works?

Justin: Um… I mean, broad— broad strokes. Probably emits ultrasonic—

Sydnee: Waves.

Justin: … waves and that—

Sydnee: That energy is converted into sound waves within the water— within the fluid, water, and sometimes a cleaning solvent.

Justin: Right.

Sydnee: And it's usually used in, like, medical or dental offices.

Justin: Oh, sure.

Sydnee: You may have seen the little trays with the fluid in them. And they put, like, equipment in them or—

Justin: Is that, like, an autoclave? Is it different?

Sydnee: This is different.

Justin: Okay.

Sydnee: Because an autoclave uses pressure and heat.

Justin: Mm-hmm.

Sydnee: This is using soundwaves. So, this is better for removing dirt and debris. You would— I think in most cases you'd be using this in combination with an autoclave.

Justin: Okay.

Sydnee: Like, you remove all the— because otherwise if you stick stuff that has, like, actual debris stuck to it in an autoclave, you run the risk of bacteria, like, hiding deep underneath stuff. And it's still on there.

Justin: Mm-hmm.

Sydnee: Like, an autoclave is not going to clean that dirt off of it.

Justin: I gotcha.

Sydnee: So, this cleans all the particles off, and then you can disinfect it. Um, so it's part of the process. Anyway, jewelers use it, watchmakers, people who use little tools. Um, so energy is generated. It's converted into soundwaves. That generates millions and millions of little bubbles. Okay?

Justin: Okay.

Sydnee: Now, these little bubbles have a vacuum inside, so they collapse on themselves. Okay?

Justin: Okay. I'm getting excited.

Sydnee: And as they do it, they, like, collapse on themselves and smash into the thing you're cleaning.

Justin: Okay.

Sydnee: And that knocks the crap off of it.

Justin: That's wild.

Sydnee: It's wild to think about.

Justin: It's wild.

Sydnee: Yeah. That's how they remove it. This process is called cavitation.

Justin: Okay. Um—

Sydnee: Yeah. So—

Justin: So, imagine that on you. [laughs lightly]

Sydnee: And the frequency determines the cleaning process. So, a higher frequency produces smaller, gentler bubbles for, like, fine detail around instruments. If you have, like, larger things, like less detailed instruments, you might need a lower frequency to clean that.

Um, now some of this energy is also converted into heat. This is why you don't want to stick your hand in one, because there are moments where those bubbles are extremely, extremely hot.

Now the whole over— like the fluid overall might not feel that hot to the touch, but there are going to be moments of extreme heat generated throughout the al— the tub. So, you can get burnt from sticking your hand in one of those.

Justin: Mm-hmm.

Sydnee: It wouldn't happen every time, but you could get burnt. Um, and then also, you could, like— from agitating forces, you could get an abrasion or something. But the burn is the reason that they tell you not to.

Justin: Okay. That's fair. I won't stick my hand in it.

Sydnee: Yeah.

Justin: I'll add it to the list you've prepared for me.

Sydnee: [laughs]

Justin: That you post on *many* different walls of the house of things I'm not supposed to put my hand inside.

Sydnee: I've never read about how these work, and I was *so* excited to read this.

Justin: I've got a weird medical, or perhaps nutritional question: "So, yesterday, after an exam, one of my coursemates mentioned he was on a Carnivore Diet, and I implored for more info. He told me he tried it because, apparently, it could fix [hesitantly] eczema?

Then he talked about how carbohydrates and the fiber they contain block the absorption of vitamin C since they are processed by the same part in the intestine. That sounded like a lot, uh— like pseudo course dookie to me.

I didn't want to argue since we don't know each other that well, but tell me, is there *any* truth to these claims? When googling, I only find testimonies all claiming it does, but testimonies mean, well, nothing. Kind regards, Eleanor Shoberg."

Sydnee: Okay. So, I looked up this Carnivore Diet. First of all, as you have already stated so eloquently, [laughs softly] there is no evidence for this. There's just testimonials which don't— don't mean anything. Um, the Carnivore Diet is exactly what it sounds like. You eat meat, eggs, dairy, and fish, like seafood. And that's it.

Justin: Meat.

Sydnee: That's it. That's all you get.

Justin: You eat meat.

Sydnee: Um, supposedly it— they do— skin problems are one of the big things that they claim it cures. Like, other than all of the usual wellness claims. Like, acne, psoriasis, eczema; those are all main among the things that they claim it will fix.

They say that it does this in two main ways. There's— I mean, there's a whole book about it but, like, generally it reduces insulin.

Justin: Mm-hmm.

Sydnee: Which is similar to, like, the Keto kind of mindset. Right?

Justin: Okay. Right.

Sydnee: Um, like, a low carb kind of thing. I mean, there's no carbs here.

Justin: No carbs here, friends.

Sydnee: [laughs softly] And— and, uh, it reduces inflammation, which is wild since there are so many people who will tell you that dairy causes inflammation. This is a proponent saying that dairy absolutely reduces inflammation.

Justin: Hmm.

Sydnee: Um, the insulin argument, like I said, it's similar to Keto. The inflammation part is based on the idea that plants contain anti-nutrients.

Justin: Ah! This sounds good.

Sydnee: And these anti-nutrients can block the absorption of nutrients.

Justin: Huh.

Sydnee: So, you need to not eat plants because of their dangerous anti-nutrients. And, I mean, I didn't see specifically vitamin C mentioned but I think that falls into the line of thinking.

Justin: Yeah.

Sydnee: And it might be in the book. I did not read the whole book. There's a book by a guy, Paul Saladino, who allegedly is an MD.

Justin: [snorting laugh]

Sydnee: Who, um—[chuckles] I mean, I'm not saying he is not. It's after his name. Sometimes I get frustrated. They d— I tell ya, they'll just give these MDs out to anybody. Um, but he is the author of *The Carnivore Code*. Uh, it looked like he wrote a Keto book and now he's writing about this. And he claims that it fixed all his skin stuff.

Justin: [through laughter] His top image is him chatting with Joe Rogan. The top image on his website.

Sydnee: Mm-hmm. That sounds about right. And— uh, and you can buy his book. And there's probably other stuff he'll sell you, I'm sure. And he has some very bad takes on COVID, by the way. I was looking through his Facebook page—

Justin: [sarcastically] Oh! Surprising.

Sydnee: … to learn about this and there's some really, like, bad Covid misinformation about— I mean, sort of leaning to that: masks don't work, we should go for herd immunity, don't push vaccines on people 'cause they don't really work anyway. I mean, like, really, really—

Justin: Great.

Sydnee: And he's an MD and so it's so frustrating because people will see that and think, like, "Well an MD says…" And it's, I mean, really bad COVID

misinformation among his Carnivore Diet. So, I guess the Carnivore Diet is maybe, the less harmful thing that he's put out there.

Justin: [sighs]

Sydnee: But I know of no evidence that says you should just eat meat and— and dairy and eggs all the time to fix your skin problems. I'm sure you'll find some people who would say that. And you'll find people— by the way, I know people, personally, who said that giving up dairy fixed their skin problems. So, I think that the human body is way more complex than, "Just put meat in it. You'll be fine."

Justin: [laughs]

Sydnee: And there's a lot of data that plant-based diets are associated with longevity, um, over meat diets. So, I do not think that, um, *The Carnivore Code* has it figured out.

Justin: Imagine my surprise, Syd. Honestly, I…

Sydnee: Justin. I want to tell you—

Justin: It seemed so promising.

Sydnee: I want to tell you the question my mom asked me.

Justin: [holding back laughter] Okay.

Sydnee: But first we got to go to the billing department. [chuckles]

Justin: [through laughter) Let's go.

[ad break]

Justin: Welcome to the show, Mary Smirl, I guess, virtually speaking. What— what did your mom want to know?

Sydnee: Well, my mom asked, "Should I get a fourth COVID vaccine?" And I thought it was a good question to address generally. 'Cause—

Justin: I mean, I've gotten five, so—

Sydnee: Well, yes. [chuckles] We were in a study, so we've gotten a lot. Um, but there is recent— there have been news reports I've seen. I saw, like, a *New York Times* article mention it. I mean, there have been some big articles mentioning that a fourth vaccine is, probably, going to be needed.

Justin: Yes.

Sydnee: Um, certainly Moderna and Pfizer both feel that there is. Because they have—

Justin: Not that they would.

Sydnee: [laughs softly] No, don't start that. They have submitted data to—

Justin: When do we get to turn back on Big Pharma, Sydnee?

Sydnee: [pause] Ah, it's, you know…

Justin: [laughs]

Sydnee: [sighs] The problem is complexity is the enemy with good public health communication. And these are very complex, nuanced topics. Um, but right now we just need people to do the best, safest thing to save lives, so it's hard to get into it, right?

Justin: Yeah.

Sydnee: Like, it's hard to get into the weeds with all the complex, nuanced topics.

Justin: Yeah. All right.

Sydnee: Um—

Justin: We'll let it slide.

Sydnee: So, they both submitted, uh, data to the FDA to request an emergency youth— use authorization for a fourth dose of their vaccines. Pfizer is specifically aiming at the 65-plus population. Moderna's would be for all adults.

Justin: Okay.

Sydnee: Um, they are saying that there is a time period, I think, like six months-ish or immunity wanes and we need another booster. So, if— they just submitted last week, if this is approved, Pfizer would say, if you're 65 and older, or have certain— I'm sure— I didn't see that in the article I was reading but they may have some other caveats that you need a fourth booster or a fourth shot. And Moderna would say adults need a fourth shot.

So, not *yet* do you need a fourth vaccine. Now, this is different, by the way, from some people were put, like, with immunocompromised conditions were put on a four-dose regimen already. They got three main primary doses and then a booster later. This is a whole other thing.

Justin: Would this be a booster— this would be another booster?

Sydnee: This would be another booster.

Justin: At some point won't we get into, like, a rhythm with this? Like—

Sydnee: Mm-hmm.

Justin: Where we won't just have to keep doing emergency youth— emergency *use* authorizations?

Sydnee: This isn't strange. There are many things that we get multiple vaccines for.

Justin: Yeah.

Sydnee: Like, if you think about the childhood series of vaccinations, you're getting multiple shots for the same disease— to prevent the same diseases over and over again throughout your childhood. So, this isn't, like, weird or rare.

Justin: This is building to us having it annually?

Sydnee: We're just— well, I think that we're figuring that out. I think that we are perfecting the technology. I think that as we— as we produce new vaccines, hopefully, we will see things that— we will find vaccines that can, um, cover more than one strain. More than one variant, I should say, in one. You know what I mean?

So that we know, "Oh, this will be good against all the next variants that are likely to come out this season." Much like we do with the flu vaccine. I would think eventually we'll be in a situation where you would get a yearly COVID— maybe even a combo COVID/flu shot. Wouldn't that be nice?

Justin: Yeah, for sure.

Sydnee: Just get it all at once. Um, but I do think that vaccines are— but I mean, if it's a vaccine that you get, I don't care how many times a year, if it saves my life…

Justin: Yeah.

Sydnee: You know?

Justin: Yeah.

Sydnee: But anyway, you don't need a fourth vaccine right this minute. But heck, by the time this airs, they may have put out the EUAs. So, I would pay attention. Keep up to date on this. The CDC will announce it and the FDA will announce it. I'm sure there will be big news stories.

Justin: Sure.

Sydnee: I'm sure all your local health departments and public health departments and public health agencies will be talking about it, but just be aware that there may be recommendations for a next— for another booster coming soon.

Justin: Syd, "Why do older people need more fiber? What's up with older people and BM regularity?

Sydnee: [bursts out laughing]

Justin: [through laughter] "At what age do these problems usually start? What's your take on supplements versus eating more fibery foods? Is your diet, well, not perfect but healthier than average? And good luck in your race, hopefully soon to be Set— State Delegate Sydney." That's from Kirsten.

Sydnee: So, there are actually reasons, not just because, like—

Justin: Old.

Sydnee: No. [laugh] What? I mean—

Justin: So, once you pass 40 or so, your body starts trying to sweep you away to make room for the next generation. This is just another facet of that.

Sydnee: But so—

Justin: You're at war.

Sydnee: It's actually— this actually— most of these things don't happen 'til your 60's or 70's but I guess there's more…

Justin: I'm not saying that system specifically. I'm just saying, like—

Sydnee: Hmm.

Justin: The systems start shutting down and try and get you out of the planet. Go on, make room. [laughs]

Sydnee: So, some things do happen that are age-related. Like, so to move stuff along in your intestines it's like a series of waves, peristalsis. That, sort of like, squishes the stuff on its way down. Um, that does slow down as we get older. We know that there is some— and not for— and it's not the same rate for everybody, the same pace, some people might never have a problem but, generally speaking, it does tend to slow down a little bit, which can lead to some problems with constipation.

Um, different medications can cause constipation and as we get older, we're more likely to be taking meds. Um, some people are younger, but as we get older most of us will end up needing something. Um, lack of activity. So, if you're also dealing with things that limit your mobility like arthritis or something, movement— getting around is one of the things that stimulates your bowels to move. So, less activity, less bowel movements.

Changes in diet, you know? As we get— our diet tends to decrease, like— our appetite, sorry, tends to decrease a little bit as we get older. So, just eating less or eating different foods. Um, decrease fluids. We also tend to— our thirst goes down a little bit. So, those are all reasons why it is an issue.

Now, as far as where you should get your fiber, if you're eating plenty of fiber in your diet, there's no need to *also* take a supplement. But if you think you're eating plenty of fiber in your diet and you're still constipated, then I would take a supplement 'cause maybe you're not, you know? Maybe for you, it's so much fiber that you're just naturally not going to eat that much, and you should take a supplement.

Um, I would say one is not necessarily better than the other if we're talking fiber supplements. Now, if we're talking, like, laxatives, obviously if you can get those things moving without the use of a laxative that's better for your bowels. Um, but bowel regularity is really important.

Justin: "I'm a research assistant in a translational research lab while my roommate works for a holistic health doctor. We're on what feels like

opposite sides of medicine. She doesn't fully trust modern medicine and I think her boss is a quack."

Sydnee: I like this 'cause it sounded like a sitcom.

Justin: Yeah. "We fell in love." [laughs] No.

Sydnee: [laughs]

Justin: "Recently she told me that the holistic doctor diagnosed her with three different things based on her tongue alone. I thought this sounded like [softens voice] bullcrap, [normally] but I don't know enough about the diagnosis process to back it up. What does the diagnosis process actually look like? Can you properly diagnose someone just by looking at a tongue? Love the show so much, Julia."

Sydnee: Okay. So, there *is* a whole branch of traditional Chinese medicine that is tongue diagnostics. Like, that connects different— like, the tongue is sectioned out into different organ systems.

Justin: Like phrenology? Or reflexology?

Sydnee: Well, or reflexology, more accurately.

Justin: More accurately.

Sydnee: Like the idea that you can touch a part of your foot and it connects to some part of your body. Same idea for the tongue. And, uh, so that— I don't know if that's what this holistic doctor may be pulling from—

Justin: Maybe.

Sydnee: But— and you can look up, there are different diagrams for that where it's, like, different, um— they actually have the different aspects that they break it down into. It's the tongue: color, shape, coating, moisture, and spirit or vitality, which has to do with how much it, like, moves or something.

Justin: Mm-hmm.

Sydnee: Anyway, and where it is corresponds to problems in those parts of the body. That is not really something that I would have any familiarity with or be able to comment on ‘cause it’s not part of allopathic medicine. The tradition of medicine that I am fluent in. [chuckles]

Justin: Right. Okay.

Sydnee: Um, I would say that there is not a lot of evidence for that, so… [laughs lightly] If that is what the holistic doctor is practicing, I— I wouldn’t know of any evidence for that. Now, I will say there is, like, stuff we can tell from the tongue, you know?

Justin: Sure. If it’s green, the kid’s probably just had a Blow Pop.

Sydnee: [laughs softly]

Justin: For example.

Sydnee: Uh, yes. I mean, yeah, that, but also, like, um, a pale tongue, you know? And I think that’s actually one of them. They talk about, like, block— like, not enough blood flow or something like that. I think if you’re talking about, like, anemia. That’s not usually something we see but, I guess, like, if you looked inside the mouth and it was pale that could be a sign of anemia.

Yellow under the tongue could be the first sign of jaundice, like, liver disease. White patches could be yeast. Uh, a red tongue, looks a little swollen, could be a B12 deficiency. If we see ridges on the side of your tee— on the side of your tongue from your teeth, your tongue is enlarged. Normally we don’t see that.

Justin: Mm-hmm.

Sydnee: So, I mean, there are a number of things that we could look at a tongue and say, “Huh. That is a sign. It’s not a symptom ‘cause you didn’t tell me about it. It’s a sign ‘cause I noticed it and it is worth investigating.”

But I would never diagnose— I mean, unless I saw like, "My tongue hurts." And I looked at your tongue and I saw, like, an ulcer on your tongue. And I was, like, "Yes, you have an ulcer on your tongue. This is why your tongue hurts. There's the diagnosis."

Justin: Yeah.

Sydnee: Short of that, no. I would not diagnose a systemic illness of any kind by just simply looking at your tongue. It may be a sign that I would want to further investigate. But there's no evidence that you can just look at someone's tongue and tell them about other body systems based on that necessarily.

Justin: "Hi, Dr. McElroy and Justin. Is it true that if you put garlic on your feet, you can taste it in your mouth? I saw this on a game show, and it sounds ridiculous to me. Thanks, Andy."

Sydnee: No. [laughs]

Justin: [bursts out laughing loudly]

Sydnee: I know. It just reminded— we talked about reflexology and tongue diagnosis. It, sort of, reminded me of that. No, you can't. You can't taste it in your mouth. I mean, if there was a garlic— what I would wonder is, like, if you cut garlic or peel garlic fresh in the room, like, you can have all those volatile sort of compounds released into the air. And garlic is such that when you— it's— when you smell it strongly enough you are tasting it. You know what I mean?

Justin: Mm-hmm.

Sydnee: So, like, I could see how you could trick somebody into thinking that. Um, but no.

Justin: No. "Not really a weird question per se, but I often have the thought 'I'm going to show this episode to people in the case of being vaccine skeptics and deniers.' I've been listening to the episodes on measles, mumps, and rubella. And I was wondering if there was some

trusted go-to source that I can give to people that scream, 'Cite your information,' at me when I try to tell them that vaccines don't cause Autism and contain less mercury than fish.

"I know there are studies, medical journals, etc. but where can I find them? Also, I realize these people are probably not going to *read* my sources but I'd still be able to like to pull them out when necessary. Thanks, I love and learn so much from your show." That's Em, they/them.

Sydnee: So, this is a great question because I don't think it is feasible to tell most people, like, "I want you to go find the *New England Journal* article from this… you know? This year, this date, whatever—

Justin: Mm-hmm.

Sydnee: "… and read this journal article." I mean, it's just not— medical journal articles, as you may imagine, are incredibly dense. And even as somebody well versed in medicine, in the medical profession like, they can be overwhelming to read sometime and take a while to parse.

Justin: Mm-hmm.

Sydnee: Which is why we do whole journal clubs. Where we take articles and sit down and dissect them as a team and go through them so we learn the most we can from them. And see if we, like, notice flaws or questions we have or things we felt like weren't answered appropriately.

Justin: Mm-hmm.

Sydnee: So, I think what is, for me, a good go-to, especially to focus on vaccines 'cause that seems to be the main question, um, the CDC collects articles that specifically address these sorts of misinformation.

Justin: Mm-hmm.

Sydnee: So, like, if you go to the CDC, they have an entire section on Autism and vaccines.

Justin: Mm-hmm.

Sydnee: And not only do they obviously state firmly vaccines do not cause Autism, they have the links to all of the different studies that have been done through the years. Many, many, many, that say over and over again vaccines don't cause Autism. The ingredients in vaccines don't cause Autism.

And they have a list, like— if you want to read the actual articles, they have them all right there, clickable. You just follow the links, and you can find them all. And they have similar stuff for: fainting after vaccines, is it okay to get multiple vaccinations at once, um, the historical vaccine safety concerns is on there, thiomersal, vaccines and pregnancy.

So, all these different things that people might throw up as like, "Oh, I heard this. I heard that. I heard this." You— if you feel so inclined, you can go look at one of these topics and there will be a whole list of articles. So that— generally that is where I will first go to combat the misinformation, especially on this show when we're talking about these kinds of things.

Because then I can follow those links and read some of the articles. But for most people you don't really need that. You just need, you know, kind of, a place to go and say, "Look at all the studies." They're probably not going to read them, but you can say, "Look right here. Look at all the studies."

Justin: I have— I have a great resource that I'm surprised you didn't highlight. Because we've raised a lot of money for them over the years.

Sydnee: Well, this is a great… [starts laughing]

Justin: What?

Sydnee: Well, that's a good point, Justin. [chuckles]

Justin: [holding back laugh] Well, yes. There's also immunize.org, which is an organization that we've been, uh [laughs] raising money for— with our, uh, vaccines: t-shirts, bumper stickers, and pins, and you name it. Immunize.org, formally the Immunization Action Coalition. But if you go to immunize.org they have sections about anything you could want.

There's like— this is maybe better for, like, laymen like myself, but they have stuff for doctors too. There's, like, a "Talking about vaccines" area on the header where they have, like, every possible question. They have printable handouts. They have— it's all very well organized and this is all they do, so…

Sydnee: And they cover some stuff like religious concerns and things that aren't covered, um, in some of that CDC information that I saw. So, I guess that's a good point. I was thinking, "Where did I find the studies?" after I found the studies.

Justin: Seriously… Yeah.

Sydnee: But this is probably a better resource for somebody who's not necessarily a health care professional, who isn't going to want to read a study.

Justin: Yes. This is a great, like, tell them to go here and poke around and they'll find everything they could possibly want. And you can print out some stuff. [laughs lightly] Go slam it on their desks and say, "Here! I got this off the internet."

Sydnee: And they have sections for health professionals, for the public, for coalitions. So, there are different tabs you can click on to, like… you know? And they have— look at that! They've even got testimonials.

Justin: Yeah. The real stuff.

Sydnee: We're speaking their language.

Justin: Yeah, exactly.

Sydnee: No, I mean, they let— [laughs] People on the other side love testimonials. Look, we got evidence *and* testimonials.

Justin: We're in them.

Sydnee: We got them both.

Justin: Hey, thank you so much for your questions, and thanks for listening to our podcast. I love doing these. I feel like I learn a lot. They're a lot of fun. Um, thanks to The Taxpayers for the use of their song, "Medicines." It's the intro *and* outro. That's a little trivia for you. It's both, the intro and outro.

We wrote a book. It's called *The Sawbones Book*. Illustrations by Sydnee's sibling, Teylor. Um, there— it's a very good book. I think you can buy it wherever you get *books*. Um, if you go to mcelroymerch.com, you can find some *Sawbones* merchandise. As well as we're having a mystery pin sale this month, so you can get a— oh, that's actually sold out. I'm sorry, you got to act fast. This McElroy merchandise goes quick.

So, you can check that totally out and that is going to do it for us.

[outro music plays]

Justin: So, until next time, my name is Justin McElroy.

Sydnee: I'm Sydnee McElroy.

Justin: And as always, don't drill a hole in your head!