Sawbones 386: The Pill That Helps Prevent HIV

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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: Hello everybody, and welcome to *Sawbones*! A marital tour of mis— I started too loud.

Sydnee: Yes, you did.

Justin: And there was, like, nowhere to go... from there.

Sydnee: You wanna take it again?

Justin: Wel— welcome to *Sawbones*. It's a marital tour of misguided medicine. That sounded like I was hosting a show about woodworking.

"Hi. Welcome to *Sawbones*. Today in the workshop we're gonna be building this beautiful birch bookcase."

Sydnee: And I'm Sydnee McElroy. [laughs quietly]

Justin: Sorry. I don't know this wood stuff. I just kind of made up the first thing that came to mind.

Sydnee: I just didn't know where I get the "And I'm Sydnee McElroy." I didn't know—

Justin: "And I'm Sydnee McElroy."

Sydnee: I don't know where that would come in.

Justin: "I'm holding the glue... for him. In our woodworking shop."

Sydnee: I was shocked when you started doing woodworking and I learned how much stuff gets glued.

Justin: Yeah. It's surprising, right? A lot of people think it's nails. Nope! Mostly glue.

Sydnee: Yeah.

Justin: It's really strong glue. You know how strong wood glue is? Stronger than wood.

Sydnee: I hope it's really strong, 'cause you— you build—

Justin: It's stronger than wood, Syd.

Sydnee: —you build all these wood things and you put glue there to hold it together, and then you're like, "Hi, children. Climb on that."

Justin: Why are we wasting time with wood is the thing, right? [laughs] We should just be making it all out of glue.

Sydnee: [laughs] The glue is so much stronger than the wood.

Justin: [simultaneously] The glue is stronger than the wood.

Well, Sydnee, we've glued the introduction of this podcast to the body of it. Uh, by arriving here with that great segue. What is on the docket today for—

Sydnee: [laughs quietly] That was a very Perd— Perd—

Justin: [laughs] Well—[wheeze-laughs]

Sydnee: What's his name?

Justin: The introduction to this podcast was at the beginning. Now we're moving on to the rest. Perd Hapley?

Sydnee: Perd Hapley, thank you. Couldn't remember his last name. Uh, so Justin, I feel like a really important conversation that people are havening— happen— havening— havening? Havening.

Justin: Havening.

Sydnee: It's happening. People are having right now. It's been a long week.

Justin: Yeah.

Sydnee: Uh, is how to, um, take steps to prevent something bad from happening, like an illness, perhaps. A sickness, a virus, an infection.

Justin: Any virus that springs to mind.

Sydnee: Any virus that you can think of. Um, instead of— instead of waiting until it already happens and then trying to treat it. I think we've all realized— well, many of us. Not a— not a high enough percentage, perhaps, to achieve herd immunity have realized, but definitely some of us have realized how important that is.

Justin: I have a saying about this. Do you wanna hear it?

Sydnee: What?

Justin: An ounce of prevention is worth a pound of cure.

Sydnee: Yeah, that's— did you just come up with that?

Justin: Hmm! Just came up with that myself. Hmm.

Sydnee: So... I— I thought another— we've talked a lot about vaccines in that regard, and about COVID vaccine. But I thought another topic that is timely in a sense, um, in that it's something that people don't know enough about and it's not utilized enough, um, and is certainly important, I know, in our area, and maybe in yours too, depending on where you live. But that's—

Justin: I live with you, honey. We live in the same house.

Sydnee: Well, I meant to our listeners.

Justin: Ah, fair enough.

Sydnee: Our dear listeners. Uh, and that's HIV pre-exposure prophylaxis, or PrEP, a lot of people talk about HIV PrEP. Are you familiar, very familiar with this concept?

Justin: You know what's embarrassing? You were talking a lot about PrEP, um, when you started working with it, and I just— I didn't... it just didn't process 'cause I know of a thing that's like prep, or preparation.

Sydnee: Mm-hmm.

Justin: So I just thought you were talking about, like... pr— preparing for... people to have AIDS. I didn't actually know what you meant, and I am sorry about that.

Sydnee: That's okay. That's okay. That's— if you don't know what it stands for.

Justin: And I didn't. I've made that clear. I've already owned that.

Sydnee: Right. And if you see it written out, you'd know there was something up, 'cause there's, like, another— there's, like, an extra— there's some extra capitalizations in there and you'd be like, "Wait, why are there... more letters capitalized in that word?" And then you would know.

Justin: Yeah. Looking at it now, the text, I— can I say, though, to be fair, I don't feel like you were saying...

Sydnee: PrEP?

Justin: I feel like you weren't saying the lowercase "r" in PrEP. I feel like you weren't, like, de-accentuating it.

Sydnee: PrEP.

Justin: Pr-*EP*.

Sydnee: PrEP— well, it's as opposed to PEP, so in— in HIV—

Justin: Ohhh, okay.

Sydnee: When we're talking about, uh, trying to prevent the transmission of HIV, you can do pre-exposure prophylaxis, so you give somebody a pill to try to decrease their risk of contracting HIV ahead of time; or there's post-exposure prophylaxis, PEP, which is when someone has potentially been exposed to HIV, and you can give them medications to decrease the risk of actually, you know, having HIV.

Justin: Contracting, okay.

Sydnee: Yes.

Justin: Got it.

Sydnee: Um, even though they've already been exposed. So, these are two separate sort of issues; PrEP and PEP for short. Now, I'm— this is not an episode all about HIV. HIV is such a— I think such a big topic because of all the— the cultural significance of it, especially in this country, um, the denial of its existence and impact for so long.

And there are many, many stories about that that are very well told that you can, you know, watch and learn. Not just, you know, what is this virus, what are the treatments for it, but all of the issues, the social issues, cultural issues that surround that. Um, and I think that there's a lot of different episodes we could do around that topic, but it would take us days, right? That's why there's whole movies about this.

Justin: I feel like it doesn't get the play it used to, HIV and AIDS. I feel like there's much less of a conversation about those at this point. Maybe that's— obviously, as a layman I may be just encountering it less, but it— that is— that is my— my sense.

Sydnee: I think that you're right. I think in the recent going on two years now, it's COVID. That's what everyone's talking about.

Justin: Well, certainly, yeah.

Sydnee: Um, and it's hard for me personally, because where we live, we have these sort of... twin epidemics that are happening, both obviously COVID, 'cause that's everywhere, but also in our part of the world cases of HIV are being spread pretty rapidly, especially considering that we live in a smaller— I mean, we're technically a city, but just barely.

And in areas where you've seen a lot more people using injection drugs, you can eventually see these sort of HIV outbreaks, and that is exactly what we're seeing here. And you are— you are absolutely right that because COVID is getting so much attention—which I'm not saying it shouldn't—

Justin: No, I think we have been pretty clear about that.

Sydnee: —but because of that, other things, like in this instance HIV, I think are definitely getting neglected.

Justin: Yeah.

Sydnee: Um, and I think there is this sort of— this understanding that we have such effective treatments for HIV that it is not as pressing of an issue in a lot of people's minds, which is true to an extent, right? We have incredibly effective treatments for HIV. Um, but getting them to everyone who has HIV is— that's still a barrier.

Diagnosing everyone who is carrying the virus and doesn't know, and then giving people access to things to prevent contracting HIV. All of those are still giant hurdles that we haven't— you know, some people have crossed, but many, many still haven't, and there's a lot of work to be done, and PrEP is part of that.

So, the idea of taking something every day to try to prevent something is not a new idea, right? Like, ideally we'd have a vaccine. That would be perfect, right? If we just had an HIV vaccine.

Justin: An HIV vaccine. Wasn't there some work on that that was, like, getting...

Sydnee: It's been in the works. So...

Justin: So... we'll get there.

Sydnee: Hopefully. Hopefully. I mean, that would be amazing.

Justin: Imagine: a vaccine, and then everybody— everybody'll just... take it? And, uhh... I mean, why wouldn't they? [laughs quietly]

Sydnee: That's— that's what happens, right? When there's a—

Justin: That's what happens with vaccines!

Sydnee: —life-threatening virus, and then science creates an amazing vaccine that is incredibly effective at preventing serious illness and death. Everyone just takes it.

This is not a new idea, by the way. I think a great corollary for this conversation is malaria. So, malaria, which we also are working, right, on a vaccine for—

Justin: Yes.

Sydnee: —but we do not have one that we can widely give yet—they're testing them, but we just don't— you know, we're not quite there. Um, malaria, the idea of taking a pill each day to prevent that, that dates back to at least the 1700's, maybe earlier.

Um, because— and we've done a whole episode about this, about malaria and the history, but we know that the bark of the cinchona tree contains quinine, and that that was discovered and used very early by people sort of like as, um, in— you know, indigenous people and folk medicine, using this as a way to treat fevers, which were not known yet to be malaria but were almost certainly malaria. Um, and then eventually, within the next 100 years, you see people taking this bark daily if they're in areas where you might get malaria.

Justin: Hm!

Sydnee: So the idea of using something every day to try to prevent you from catching something... well-established.

Justin: Yeah, it's very logical.

Sydnee: Right, and we do that to this day for malaria. I have traveled abroad several different times, and had to take a pill every day to prevent getting malaria while I was in that area of the world where malaria is more common.

Justin: It's the only safe thing to do. Like, if I know that I'm going to be riding the Big Dipper at Camden Park, I take a tetanus prophylaxis, you know?

Sydnee: [laughs]

Justin: It's the same— the same idea. You— you just can't take too many precautions.

Sydnee: It is— I will say that the reason you don't talk about taking a pill every day to prevent something as much, um, to prevent contracting an illness, is because of vaccines, right? Because we figured out a way to inject you with something that would give you that much longer-lasting immunity as opposed to having to take something every day.

Justin: I just realized that I probably did a fair bit of narrow casting there a few seconds ago. Folks, if you didn't know about West Virginia's one and only, uh, theme park, Camden Park, Huntington West Virginia's, uh, own... you turn in where you see the happy clown and you're just going to be treated to a day of, uh... thrilling adventure. Um—

Sydnee: Near death experiences.

Justin: Yeah, a haunted house is there.

Sydnee: There's a wall that's covered in ABC gum.

Justin: There's a wall covered in ABC gum. This place has everything. Go get on YouTube and search for [holding back laughter] the Big Dipper, uh, at Camden Park. It is a— it is a wild— it is a wild ride.

Sydnee: It's a big wooden roller coaster and it's—

Justin: [through laughter] It's the most thrilling roller coaster.

Sydnee: So shaky!

Justin: Ooh boy!

Sydnee: Sooo shaky.

Justin: Oh, it's a shaky one, folks. It looks like one of those, uh— it feels like you're on one of those, like— in the 1800's. You ever see the ones that are basically just, like, people in a cart used to carry grains around on a big chute? [laughs] You know what I mean? Like— yeah.

Sydnee: Like a mine cart from Donkey Kong or something.

Justin: Yeah, exactly. That's what it feels like. It's great. Camden Park is the best.

Sydnee: So, we don't think about it as much I think because of vaccines, but there are other conditions we use prophylaxis for, just to sort of set the stage for this. Like, there are antibiotics that we can use, uh, as prophylaxis for different illnesses.

Um, like when I was younger, I was on antibiotics for a long time to try to prevent me from getting UTIs, urinary tract infections. We don't really do that anymore but, like, we thought we could for a while. There are people who have to take them.

Um, people with— people living with HIV sometimes have to take certain medications to try to prevent different opportunistic infections or infections that you can get when you are immunosuppressed. Um, people with ascites, a condition where you have fluid in the stomach, might have to take an antibiotic every day to prevent an infection. So, there's lots of reasons we might do this, and the concept of doing this for HIV is a newer one.

We have— that— you know, I mean, really, we're just talking about since the 2000's, you know? About 2004-ish is when we started thinking about and trialing this sort of idea. Um, in the earliest days of the AIDS pandemic, we didn't know what to do about it, right? There wasn't enough attention being paid. Nobody knew how to prevent it, how to treat it—

Justin: Yeah, what caused it.

Sydnee: Anything.

Justin: Yeah.

Sydnee: So scared people refused to, you know, shake hands with someone with HIV, or share any sort of spaces, like public restrooms, you know. That was a big— that was a big problem. And you've seen— and I've seen it circulating more recently— pictures from, like, the silent— or *The Minority Report*, the silent majority report or whatever. The— it's the conservative Christian magazine that was circulating.

Justin: Hon, I will say it's not *The Minority Report*. I don't think it's from the hit—

Sydnee: No, it's not that. It's— they would cu— I don't remember what it was called. But it's pictures of a conservative family wearing masks to try to protect themselves from contracting HIV.

Justin: One of the last times a conservative family wore masks.

Sydnee: Yes. I think this is why this—

Justin: Ahh, fun.

Sydnee: —image is circulating, 'cause it's—

Justin: Gotcha, gotcha.

Sydnee: Yeah, exactly. Um, and of course none of that is how you prevent contracting HIV. Masks are not part of it. You can shake hands, you can share restrooms, all those things are fine. Um, we eventually learned that, like, condoms are an effective means in reducing the transmission of HIV, um, in the case of sexual contact.

We also learned that people who use injection drugs could decrease their risk of contracting HIV by using a new needle every time. You know, not sharing needles or reusing, or, you know, that kind of thing. Or all new equipment. And that's where needle exchanges came from, which we've done a whole episode on.

But by the 2000's we had a lot of drugs as well to treat HIV. So we started learning how it was transmitted, learning ways to prevent it, and then eventually we began to develop medications that could actually effectively treat the virus, and by the 2000's we had lots of those. Um, from 2004 on we have these medications from Gilead, which are gonna— that's a pharmaceutical company— which are gonna become the focus, really of this episode.

Um, and our understanding of the virus had greatly increased, right? We knew how these medications worked to stop the virus, in a variety of ways. There's a lot of different ways that HIV medications can stop you from, uh— can stop the virus and, you know, prevent you from progressing from HIV to acquired immunodeficiency syndrome, AIDS. Right?

Justin: Mm-hmm.

Sydnee: Um—

Justin: Boy, I'll be honest, folks. It is really hard to not stop you to, uh, sing lines from *RENT* every 15 seconds, and I know that that's neither here nor there, and probably I would imagine people who are living with AIDS are tired of hearing about *RENT*, because for a generation of people...

Sydnee: That is your reference point.

Justin: That is the reference point. As Tim Robbins once told me, uh, *RENT* taught my generation something really important: tolerance. [laughs quietly] So I— I officially—

Sydnee: Tim Robbins did tell us that.

Justin: —had Tim Robbins tell us that.

Sydnee: It was so Tim Robbins. It was perfect.

Justin: It was the most Tim Robbins thing that could possibly happen.

Sydnee: Don't you love when you meet someone and you have all this sort of—

Justin: [simultaneously] And they're exactly on brand.

Sydnee: —preconceived notion, and then they just fit, and you're just like, "I knew exactly—"

Justin: It was so radical. We were talking about how my— how Sydnee's sister Rileigh, her generation had grown up on *Hamilton*, and—

Sydnee: That was their *RENT*.

Justin: That was their *RENT*, and I said, "But it's cool for them, 'cause they're gonna get a fundamental understanding of the American Revolution." And Tim Robbins said, "You know Justin, your generation learned something just as important from *RENT*: tolerance."

And I was like, "This is grea— oh my God, Tim Robbins!"

Sydnee: So true, Tim Robbins.

Justin: It's the best.

Sydnee: So true. I wanna get into— so we established this concept. We have lots of, um... preexisting ideas about, like, what— what do you mean by prophylaxis, and ways that that works, and different, um, illnesses that can work for. So we have HIV— we need to learn a little bit about HIV for me to get into how these medicines work and why I'm talking about them and what the controversy is around them today. Um, but before I do that, we gotta—

Justin: No.

Sydnee: —yeah, we gotta head to the billing department.

Justin: I was just getting ramped up! Let's go.

[ad break]

Justin: You know, this is classic broadcasting blunders, because I should've teased my great Tim Robinson story to keep people hooked through the—

Sydnee: Did you say Tim Robinson?

Justin: Tim Robbins.

Sydnee: Oh, okay.

Justin: Story. Uh, I should've teased that I had that coming up after the break. You know what I mean?

Sydnee: But I'm about to tell you how... the HIV virus works, so.

Justin: Just as good! Just as interesting, for sure.

Sydnee: I said "HIV virus," which is— anyway. [laughs]

Justin: Listen, we're all— it's a late-night recording for— for Justin and the Sydster.

Sydnee: It's— I have had a long week of inpatient hospital service. I'm just gonna say.

Justin: Sydnee's been treating a lot of folks at the hospital [holding back laughter] who've made some choices.

Sydnee: A lot of very sick people. It's been a long week. Um... okay, HIV is an RNA virus.

Justin: Yes. Yes.

Sydnee: Right? We've got DNA. Some viruses have DNA. Not HIV.

Justin: Yeah, you and me, we got DNA.

Sydnee: Not HIV. It's got RNA. Uh, but it also has an enzyme called reverse transcriptase, which basically helps it make DNA. It uses its RNA to make DNA.

Justin: Mm-hmm.

Sydnee: And then it takes that DNA and it puts it into our cells, and it makes more HIV.

Justin: Okay.

Sydnee: That's a— that's kind of— I mean, that's a simplified version of it, right? Um, the medications that help us— that if someone has HIV that you treat the HIV with, work in a variety of different ways, okay? 'Cause there's lots of different ones.

Um, there are some that can stop the virus from entering our cells. Those are called fusion inhibitors. And then there are medications that can stop the virus from replicating once it’s in there. So— and those are called nucleoside reverse transcriptase inhibitors and nonnucleoside reverse transcriptase inhibitors, and those are the things—

Justin: [holding back laughter] Wait! Can I ask a question? Was cyberverse in there? Because that sounds awesome.

Sydnee: [laughs] No. That would be cool, though.

Justin: It'd be cool if you guys snuck cool words into the fancy-sounding things. So like, "You know, and then in the negatron energy waves... " [laughs quietly]

Sydnee: I think nucleoside reverse transcriptase inhibitors is pretty cool-sounding.

Justin: And you didn't say cyberverse?

Sydnee: I didn't.

Justin: Okay. Huh.

Sydnee: There's an— uh, there's an integrase inhibitor that can stop the viral DNA from getting into our cells. There are protease inhibitors that can stop us from putting HIV particles together. There are others, too. The medications that we're focusing on are two that are those nucleoside reverse transcriptase inhibitors. They prevent the HIV from replicating, basically. That's the thing that you need to know about them.

Um, there are two medications that are Em... tricitabene. Emtricitabine.

Justin: Mm-hmm.

Sydnee: And Tenofovir. Um, you may have heard them—

Justin: And you promise this is important for the podcast, right?

Sydnee: Yeah.

Justin: You're not just trotting out— okay.

Sydnee: You may have heard them called Truvada or Descovy. Those are the— those two combined make those two medicines that are slightly— slightly different, but basically the same.

Justin: Mmkay.

Sydnee: Okay. These are the medications that you can use for pre-exposure prophylaxis against HIV.

Justin: Okay.

Sydnee: Okay? It's a pill a day.

Justin: Pill a day keeps the...

Sydnee: HIV away.

Justin: One would hope.

Sydnee: Yes, that is the goal. That— well, I mean, they can greatly reduce your risk.

Justin: Okay.

Sydnee: Okay. Um—

Justin: What is the efficacy? Do you know? Like, ballpark?

Sydnee: Uh, yeah. They can— so, if used perfectly, um... hold on, I have my stat. I wrote it down on here. They are upwards of— they are in the 90's, 90% effective.

Justin: Wow, dang.

Sydnee: Like, even when used imperfectly, they greatly reduce your risk. But, like... it's in some studies up to 99%, but definitely in the 90's. All the studies said that if you use them— yeah, 90— up to 90%, and then in some other studies even higher if you use them the way you're supposed to.

Justin: Okay.

Sydnee: So, incredibly effective medications.

Justin: Okay.

Sydnee: Um, they tried this first— so, starting in the early 2000's is when we really see this research take off. So, you have all these drugs, and like I said, these that I just mention have been approved for the treatment of HIV since about 2004, Truvada has. It's been around for a long time. Um, so they started with animal models. There is something called a simian immunodeficiency virus, SIV.

Justin: Mm-hmm.

Sydnee: Same thing we get, but in simians. So they tried it in animals first, both oral meds, pills, and they started creating, like, a vaginal gel. That was one concept of it, was if we could, like, insert this vaginal gel prior to receptive vaginal intercourse, then maybe we could prevent it that way. So they tried it in these animal models. This seemed to work.

Um, so they started to investigate this possibility in humans. Uh, their first— like, the first thing they really tried was this gel, and it was a little cumbersome to use. That was one of the big, um, problems with it, is that you had to, like, in— kind of insert a certain amount of this gel prior to sex. You had to do it again after sex. You could only do it twice in 24 hours. It was a— it's a lot.

Justin: It's a lot. It's a production.

Sydnee: And you had to do it perfectly.

Justin: Yeah.

Sydnee: Um, now, it did work. If you use it right, it did reduce your risk of contracting HIV, so it was effective, but it was just hard to do right. Um, and obviously it's only a solution for someone with a vagina.

Justin: Right.

Sydnee: So, it's limited in how many people it can help. So then studies more focusing on the oral medications began. Um, and it took a little longer, but by 2010, we have a study published in the New England Journal of Medicine, um, at the University of California in San Francisco, that showed that when taken daily, Truvada could reduce the risk of getting HIV up to 90% in men who have sex with men and transgender women who have sex with men.

Um, and this led to the approval of it for this use, pre-exposure prophylaxis, in 2012. Okay?

Justin: Okay.

Sydnee: Um, and then they did subsequent— subsequent studies to, like, expand on their knowledge. So they have this certain patient group that they know that it works in, so they started, um, trialing it more in people who have vaginas, and trialing it in people whose main risk of getting HIV is actually injection drug use, 'cause that was the next question. Well, it works when your risk is sexual contact, does it still work if your risk is injection drug use?

Justin: Hmm.

Sydnee: So I— which it seems like it should be the same, but we actually have different exposure sort of, like, time frames. Like, how often are people being exposed to the virus, and will that change if it's effective, and— you know? 'Cause if someone is using, um— is sharing needles multiple times throughout the day, and being exposed possibly to HIV multiple times throughout the day, as opposed to sexual contact, which may only be once every few days, or whatever. You know, different risk profiles. Anyway, they found it effective in all of these patient groups.

Justin: Hmm.

Sydnee: Very, very effective. And of course, the more regularly you take it, the more effective it is.

Justin: Right.

Sydnee: So, you know, if you do have a patient population that has a lot of trouble accessing the medication, taking the medication daily, getting refills, seeing a healthcare professional, of course it's not going to be as effective. But if you can get people to take it, it works. Um, and that led to the approval of both Truvada for these groups and then eventually, very recently another medication, Descovy, which is almost exactly Truvada, it has, like, a slight difference in one of the two drugs in it—

Justin: Little bit of an orange flavor?

Sydnee: Yeah, yeah. One's orange, one's grape.

Justin: That's perfect. That's so nice that they do that.

Sydnee: [laughs] That's not true.

Justin: Now Syd, was there— you were telling me before we were starting to chat about this that there was some hesitation from people, like, leading up to this that maybe it would— I mean, it's the same argument that you hear about, um, prophylaxis, like, uh, for pregnancy,

right? Like, if you have this, then people are just going to— the teens will just go have all [through laughter] premarital sex they can— they can stomach.

Sydnee: This was exactly the initial fear. Once Truvada was approved, there were a lot of people who were against this concept. Um, based on the idea that if you could take a pill every day to prevent, you know, contracting HIV, or spreading HIV if you already— well, no. You wouldn't take this if you had HIV, ever. You would hopefully be on treatment.

But to, you know, reduce your risk of contracting HIV, that you would engage in riskier sexual behaviors, or injection drug-using behaviors than you would have otherwise. And so the— but what they really focused on is "People won't use condoms."

Justin: Hmm.

Sydnee: I mean, that's what— that was the— that was how this was voiced.

Justin: "I don't need a condom. I'm on the— the prophylaxis."

Sydnee: Yes. "I don't need a condom, I—" and, I mean, a lot of this was also based in a lot of, um, sort of prejudiced view of the groups of people who are at risk. So, like, specifically a lot of this was focused on gay men. "Gay men are going to use this as an excuse not to have to wear condoms."

Um, and there was a lot of fear around this, even though in the studies when they were getting Truvada approved, and then, you know, trying it out in different patient groups and all this, um, they actually looked at that. One way that's really easy to look at that is, um, check the risk of other sexually-transmitted infections.

Justin: Hmm.

Sydnee: Because if you— if you're testing this out, and you have, like, a group that's getting Truvada, that's getting the medication, um, if they're really using condoms that much less, they're probably gonna be at higher risk for other sexually transmitted infections that aren't prevented, right?

Justin: Right, right, right.

Sydnee: They weren't. They weren't getting them. Because... they were still using condoms. Or if they weren't using condoms, they still weren't. But either way, the point is—[laughs]

Justin: Yeah. [laughs] It's unchanged.

Sydnee: It didn't really change their behavior. Um, there was actually some, uh, predisposition for people who are on prep to use condoms a little more, uh, in some of the studies. But either way, the point is, being on PrEP did not make someone more like to engage in a high-risk sexual behavior otherwise, right?

Justin: Okay. Right.

Sydnee: So even though that data was there, and the evidence showed that, um, this myth of what— is this a— is this a bad word? Can I say this word on our show?

Justin: Don't ask me! I'm the literal worst person you could ask!

Sydnee: I don't know if I can say this word. Um... the— there was a— there was a— a phrase that was coined, a term.

Justin: Ohh, I see what you're saying.

Sydnee: For people who would start taking Truvada and use it as an excuse to—

Justin: I think this is okay.

Sydnee: Okay. To—

Justin: For *Sawbones*, I think this is alright. Folks, if you're worried about sort of... I don't know. How do you—[through laughter] how do you— how do you trailer for—

Sydnee: I would not use this word in may day-to-day life.

Justin: But it is a techni— it's the term.

Sydnee: It— the— well, there was an article that was published—

Justin: It's a term of art.

Sydnee: Like, a Popular Science article who said, like, that these people— they called them Truvada whores, was the— the term that started being used.

Justin: You said that in a very clinical fashion that I don't think anybody could be, uh, upset about.

Sydnee: Well, it's a— it's obviously an incredibly offensive term.

Justin: Obviously!

Sydnee: Um, because it assumes— well, it assumes a couple things, right? That, like, if people are taking Truvada, they will engage in high-risk sexual behaviors, maybe be thoughtless about their behaviors, um, be more likely to have more partners, not use condoms or other forms of protection, and it also assumes that having multiple sexual partners is bad inherently, right? So, like, it's a double— it's a double bad.

Justin: Right.

Sydnee: It's all bad.

Justin: Double plus bad.

Sydnee: [laughs] It's double plus bad. Um, but because of that, this myth that started to be perpetuated, it made it really difficult for people to access care, because, uh, one, if that was what the narrative around this drug is, people are gonna be less likely to ask for it.

And two, if you have healthcare providers who aren't well-educated on this topic, they're gonna be nervous about prescribing it, 'cause they're not gonna know. They're not gonna have don't all the reading. And if a patient does ask for it, they're gonna say, "I think that makes my patient more likely to engage in high-risk sexual behavior. Oh, I shouldn't— I shouldn't let them have it."

Um, and the truth is, like, in this case, the doctor, the healthcare professional who's probably going to be asked about it is gonna be, like, your primary care doctor.

Justin: Mm-hmm.

Sydnee: So you're not necessarily talking about— and I say this as a primary care doctor. We are not necessarily always the best educated on things like this. Like, I was not taught about PrEP. I taught myself. So, you know, you may have somebody who's hesitant to ask, who even when they muster the courage to ask their doctor about it, gets refused.

Justin: Hmm.

Sydnee: So, there were a lot of people arguing that, like, if we normalize it we're gonna do more harm than good. Um, and, uh, this really limited, you know, its uptake. Like, even from the beginning, uh, even though we've had this drug around since 2012, and then a new drug since 2019, like, there just aren't that many people on pre-exposure prophylaxis. Even though, again, they're incredibly effective.

To add to all of this, there is a legal controversy around these medications. So, both drugs are made by Gilead. It's, like, a really— isn't that... it's, like, a really unfortunate name for a drug company to have right now, right?

Justin: Yeah.

Sydnee: Isn't that from *The Handmaid's Tale*?

Justin: [laughs quietly] I don't know! Could just be an old person's name.

Sydnee: I couldn't watch that show because it just was too—

Justin: Too real.

Sydnee: —it was too real. Um, it is important to know that when we talk about, like, the early studies of HIV pre-exposure prophylaxis, um, and— and we're looking specifically at Truvada, and that study that I mentioned from the University of California, a lot of government money was used to fund that study.

Justin: Mmm. So the government thought they should control it?

Sydnee: Well, also, the money that wasn't from the government was, like, donated by the Bill and Melinda Gates foundation.

Justin: Mmm.

Sydnee: So you have this drug that was developed, um— or, well, it was already developed. It was approved for this new use, uh, using money that taxpayers put in and that was donated by charitable organizations. Um, and then of course Truvada— and then of course once Gilead, you know, releases it for this new indication is making a lot of money off of it.

Justin: Um, it is, by the way, named after the, uh— the Balm of Gilead.

Sydnee: Yeah.

Justin: A rare perfume used medicinally.

Sydnee: Ohh, okay.

Justin: Mentioned in the bible.

Sydnee: Right.

Justin: So there you go.

Sydnee: I knew it was something biblical.

Justin: Yeah.

Sydnee: Anyway, so the point is... we funded it.

Justin: Right.

Sydnee: Right? Taxpayers—

Justin: We, the— we, the people.

Sydnee: —and Bill Gates. [laughs quietly]

Justin: Just like the Panama Canal. The Hoover Dam.

Sydnee: Funded it. Um, and so the government actually applied for patents on it.

Justin: The— that they should be in control of it.

Sydnee: Right.

Justin: Right.

Sydnee: 'Cause they funded it.

Justin: Right.

Sydnee: But they weren't approved until after Gilead had already patented it and released it and started making money off of it.

Justin: Ahh, classic! Classic.

Sydnee: Right?

Justin: Yeah, that's good stuff!

Sydnee: So now we have a conflict, because who should be making money off of this?

Justin: Maybe nobody.

Sydnee: [laughs quietly]

Justin: Whoa!

Sydnee: Um, because the thing is, like, it be— it started to become apparent that a lot of people weren't being able to access this, and the government's going, "I mean, we helped make this thing."

Justin: Yeah, why did we let them do this?

Sydnee: "Why are we letting them do that?" Um, so in 2019, Gilead asked the patent office to deny the government patents on the basis that— basically what they were saying is like, "Yeah, sure, sure, sure, the government helped out or whatever, but, like, it wasn't their idea, either. A lot of people had these ideas. These were all just free ideas that were out there, and—"

Justin: "We just happened to be the first in line that morning."

Sydnee: "We just jumped on it first," yeah. "And, like, we're making this drug, and it's life-saving, and *also* we're gonna strike this deal where, tell you what. We'll donate a certain number of, like— so many thousand pills, you know, to people who need it. And, like, we're really gonna— we're good guys. Look at us, donating all these meds. We really wanna help out." Right?

Justin: Yeah.

Sydnee: So they do this PR thing. It— yes, they donated free meds. In the big picture it was a drop in the bucket. But, like, they did— they did this thing to look good and charitable. Um, and at first— and this is all, like, happening under the Trump administration. And at first, like, the Trump administration and Gilead are just, like, best buds. Right?

Justin: Sure.

Sydnee: "This is great. Look, they're helping us! We're going to—"

Justin: [quietly] Shocking.

Sydnee: "—we're going to end HIV... by 2030."

Justin: Yeah, right.

Sydnee: Was their big announcement. They're gonna do this. Okay?

Justin: Big news.

Sydnee: Except then later, the government changed course and said, "Never mind, we're gonna sue you for infringing on our patents."

Justin: [laughs loudly]

Sydnee: And the—[laughs] and the [laughs] Department of Health and Human Services sued Gilead. Um, and so now they're locked in this legal battle that is still ongoing.

Justin: And still helpful to the everyday American. That's the important thing.

Sydnee: Because the government is saying, "We wanna get this pre-exposure prophylaxis out to everybody... as quickly as possible and as cheaply as possible."

And Gilead's like, "Y— mmm, no. But—" [laughs] Gilead's going, "Money, please!"

Justin: "[nasal voice] Money, please!" Are there any, um... are there any, like, side effects? Of this, that you know of?

Sydnee: Yeah, I mean, there definitely are. So, most people tolerate it—

Justin: Like, is this the sort of thing that everybody should be on?

Sydnee: No. The— it is indicated for people who are at high risk of contracting HIV. Um, and there are specific, like, risk categories. If you think that you are in one, you should talk to your primary care physician. They should be able to, you know, to— they should know about it, or be able to look into it. Um, but there are specific risk categories. What I am most involved in is the prescribing of pre-exposure prophylaxis for people who use injection drugs, and that is their risk factor. Especially in our area, where the rate of HIV transmission is higher than, you know, average.

Um, and it could be— it's an excellent tool, right? It's one more tool we have in fighting another virus that, like you said, has been neglected while we all spend so much time talking about COVID, and that is HIV, which is still a problem, which people are still getting and people are still having trouble accessing care. Um, only about 270,000 Americans, a little bit more than that now probably, are on pre-exposure prophylaxis.

Justin: I'm assuming many more should be.

Sydnee: Yes! Yes. Um, the big limitations are cost. There is still a cost. You've gotta have insurance. They're not— they are still patented, you know? We are— these are brand name medications you have to be prescribed, and if you don't have insurance they're gonna be way too expensive. Um, there are programs that can help pay for these things. Still not enough. Um, knowledge of them at all. A lot of people don't know they're out there.

Justin: Well, that's fixed. I mean, at least that—

Sydnee: [laughs]

Justin: —now that we've recorded a podcast about it, is corrected, and so that one you can actually scratch off your notes.

Sydnee: And we need a— and the education of, um, in the medical end, has to improve too, because a lot of prescribers are not familiar with it, and so they have some discomfort. Even if it's not something that they have some sort of weird moral opposition to, it's just they don't know it, and so they don't know how to do it. It's really— you asked about side effects. Most people tolerate them extremely well.

You just have to make sure, one, that the patient doesn't already have HIV, because you do not want to— this would not be, alone, a treatment, and that you'd be treating them inappropriately, right? So you gotta make— you have to test for that first. Um, you do have to check their kidney function, because for people with reduced kidney function it could be dangerous. And then, other than that, there's not a lot of monitoring, other than checking periodic HIV tests to make sure that the person hasn't contracted HIV. And, um, some people have some GI symptoms at first, a little bit of nausea. Um... in my experience, most people tolerate it well. That's what the data says.

Um, it's— like I said, it's a pretty low risk intervention. It does need to be monitored. You do need to have somebody who can check you periodically for HIV, and you do need to have somebody who can, if you have, you know, any kidney problems, you need to be watched.

Um, but other than that, the main thing is just you gotta take it every day, so you have to have access to it, and you have to be able to afford it. I don't know where the, um, the lawsuits will land, or what good that will do, um, how long that'll be tied up. I would like to mention, a lot of why these lawsuits are happening and why there is a push to get PrEP out to people, once again, this is true over and over again in the story of HIV and AIDS activism, it was an activist group called PrEP For All.

Justin: Hey.

Sydnee: That did a lot of that heavy lifting. Um, one excitable— or one exciting—[laughs quietly] one excitable... one exciting injectable, is what I was gonna say.

Justin: And excitable injectable.

Sydnee: Excitable injectable, um, that could be approved by the FDA in January, is a long-acting injectable form of pre-exposure prophylaxis. It's one shot every eight weeks.

Justin: Nice.

Sydnee: That could reduce your risk of contracting HIV.

Justin: It seems like it would help to get to that standard of, like, how effectively it's being used, right? It lowers the... margin of error, there, considerably.

Sydnee: Right, 'cause you don't have to take a pill every day, so that could be a really exciting evolution in this field. Again, we have to be able to afford it. People have to know it exists so that they can ask for it, or doctors have to know that it's out there so they can recommend it and feel comfortable prescribing it and monitoring it.

Um, but this is a really underutilized tool that we have, and if you are someone who is in— you know, if you do meet the criteria for high risk for contracting HIV, um, somebody who's a partner of someone who's living with HIV, that is somebody who would be a candidate for this. Again, people who use injection drugs. Um, typically men who have sex with men or transgender women who have sex with men, but talk to your healthcare provider.

If you think you might be in a group, talk to them, because these medications are out there, and you may be a candidate for them. Um, and they can— you know, they can prevent the spread of HIV, so they're great tools that we have.

Justin: Excellent.

Sydnee: Not enough people know about that.

Justin: Well, now at least six or seven more do. Thank you so much for listening to our podcast. We hope you've enjoyed yourself. Uh, next week's exciting! It's the Max Fun block party. We're going to be kicking off a week of fun and frivolity. Uh, we're gonna be pointing you towards some new favorite shows, uh, to check out. We're going to be— everybody's gonna have really accessible episodes for— for newcomers. Uh, it's gonna be a lot of fun, and we're gonna be hanging out. I think Syd and I are gonna do a livestream of the hit film *Fast 9* on, uh—

Sydnee: [sarcastically] So looking forward to that.

Justin: Yeah, I know you are. I think—

Sydnee: I bet it's about family.

Justin: It probably— this one is probably gonna be about family. I think that'll be Saturday at 9 PM, at least is the plan that we have talked about, so that's exciting. Um, and, uh, a lot more great stuff. So, that'll be on our YouTube channel probably, the McElroy Family YouTube family, if you wanna check that out. But...

Sydnee: Please— uh, can I say something?

Justin: Yeah!

Sydnee: Please, uh, if you haven't been vaccinated against COVID-19, please get vaccinated.

Justin: Yeah.

Sydnee: Uh, if you know someone who hasn't been vaccinated and is hesitant, please keep having those conversations. Please. Uh, this has been the hardest week of inpatient hospital service I've ever had in my life, and I did a residency! [laughs]

Justin: Yeah.

Sydnee: I did a medical residency for three years that, um, was grueling. No one week was comparable to this past week. Um... so please, please get vaccinated. Get your flu shot while you're out there. Those are out there and available. Get your flu shots, get your COVID shots. Um, please. There— there's a lot of suffering that could be prevented right now, and it's just a little jab.

Justin: Uh, thanks to The Taxpayers for the use of their song, "Medicines," as the intro and outro of our program, and thanks to you for listening. We sure appreciate you. That's gonna do it for us. Uh, 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!

[theme music plays]

[chord]